



# Nuraply TPO Roofing Membrane Installation Manual

**Nuralite Waterproofing Limited**

[www.nuralite.co.nz](http://www.nuralite.co.nz)

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## ABOUT THIS MANUAL

This manual provides the technical information necessary to correctly specify the Nuraply TPO waterproofing membrane system. It has also been designed for use by Nuralite Waterproofing Ltd approved applicators, for training and quality management purposes.

This manual may also be used by main contractors and Building Consent Authorities (BCA's) for quality management and inspection purposes.

### NOTE TO APPLICATORS

As a Nuralite Waterproofing Ltd approved applicator you are required to comply fully with the contents of this manual. Where a specific situation arises on a particular project that makes it difficult for you to follow the published procedure or comply with a particular detail drawing, you are required to communicate this to Nuralite Waterproofing Ltd for an approved solution.

### FOR FURTHER INFORMATION, CONTACT:

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## USING THE ICONS

Four different visual icons have been created for this manual to draw the reader's attention to important pieces of information.



### 1. CRITICAL ICON

Vital information about the system and installation methodology. It is crucial that the specifier and/or applicator are aware of these facts.



### 2. QUALITY CONTROL ICON

Information about warranties, quality control checks and related information.



### 3. HEALTH & SAFETY ICON

Information about the importance of safety checks and ensuring that the work environment is always safe with potential hazards identified and minimised.



### 4. USEFUL TIPS ICON

Helpful advice to make the applicator's job easier and successful installation more likely.

## Document Control

|         |              |          |                   |
|---------|--------------|----------|-------------------|
| Issued  | John Simmons | Apr 2024 | 2024 Edition V1   |
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The only person authorised to change this installation manual is the Managing Director, John Simmons.

## INTRODUCTION

### PRODUCT DESCRIPTION

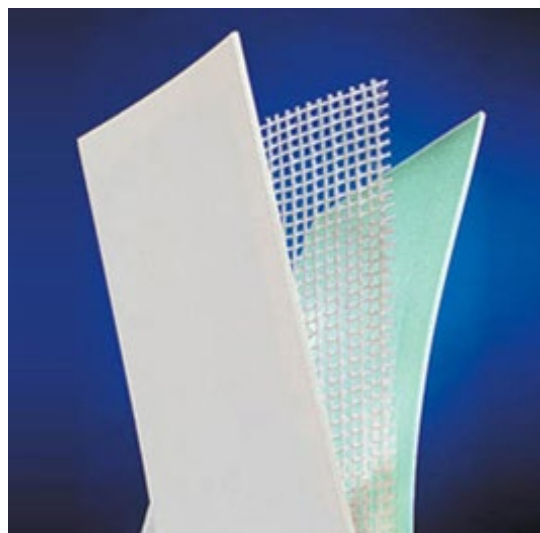
Nuraply TPO is a high quality TPO (Thermoplastic Polyolefin) membrane used to provide waterproofing protection for a variety of roofing and exterior deck applications.

The Nuraply TPO system includes the Nuraply TPO membrane and Nuraply TPO contact adhesive. Also included as part of the system is the unreinforced Nuraply TPO membrane, pre-made corners, pipe boots, cut edge sealant along with other Nuraply TPO accessories.

Nuraply TPO Fleece back membrane consists of a TPO sheet vulcanised to a non-woven polyester matting.

The Nuraply TPO system is suitable to be applied on a structure complying with the New Zealand Building Code, it may be installed directly onto the following substrates:

- H3.2 treated Timber\*, including plywood sheets and reconstituted wood panels (Strandboard), substrates complying to AS/NZ 2269 (2012) (directly or with Nuratherm PIR Boards between) with treated timber trim, battens and framing where timber is detailed and Nuralite product is directly applied or,
- Concrete substrates complying to NZS 3101 (2006) (directly or with Nuratherm PIR Boards between) or
- RAB boards such as fibre cement sheeting, plywood, gypsum boards when those are used as an upstand behind cladding.
- NPM 900 or approved metal tray decks with Nuratherm PIR boards between.



*Nuraply TPO is internally reinforced with a polyester mesh.*

## FEATURES OF NURAPLY TPO

### HISTORY OF USE

TPO membranes have been in use from the 1960's throughout the USA & They are regarded as one of the most durable membranes available. TPO has been used in New Zealand since 2004, for a wide variety of waterproofing applications.

### NURAPLY TPO AND RESISTANCE TO UV AND AGEING

BRANZ independent evaluation confirms Nuraply TPO is suitable for New Zealand climatic conditions, is resistant to New Zealand's high UV & ozone conditions and the extreme hot and cold weather extremes. This is particularly important when working on timber substrates, which are subject to movement.

### DECK MEMBRANE USE

Nuraply TPO is used as a roofing and exterior deck membrane. When used as a deck membrane we do not recommend it be tiled over directly but can be overlaid with timber or tile decking with Nurapads or Nurajacks supports.

### REMEDIAL ROOFING

Nuraply TPO Fleece-Backed membrane can be installed over existing membranes enabling the building owner to continue using the building while a new roof is being installed. In most cases, as the old, degraded membrane does not have to be removed, new Nuraply TPO Fleece-Back roofs will provide excellent bonding and watertightness with a 20-year material warranty.

### DURABILITY

When installed in accordance with Nuralite Waterproofing Ltd specifications, the Nuraply TPO system will meet the NZBC B2.3.1 (b) requirements of 15-year durability.

The durability opinion given by BRANZ states that when subjected to normal conditions of environment and use, Nuraply TPO is expected to have a service life of at least 15 years.

### WARRANTY

When laid by an approved applicator in accordance with Nuralite Waterproofing Ltd specifications and QC check sheets completed a 20-year material warranty is available on request.

## PRIMARY PRODUCTS

### NURAPLY TPO

- Thermoplastic Polyolefin membrane.
- Stock available in Dove Grey (White by indent only):

### SMOOTH BACK TPO MEMBRANE:

- 1.50mm thick x 3.05m wide x 30.48m long rolls
- 1.50mm thick x 3.65m wide x 30.48m long rolls
- 1.14mm thick x 3.05m wide x 30.48m long rolls (*only for areas requiring a more pliable membrane*)

### FLEECE BACK TPO MEMBRANE:

- 1.50mm thick x 3.0m wide x 30.48m long rolls

### NURAPLY TPO CONTACT ADHESIVE

A high strength solvent-based contact adhesive formulated to quickly bond Nuraply TPO roofing membranes to a range of substrates.



Nuraply TPO adhesive is a flammable dangerous good. It must be stored, transported, and used with care. Refer to Material Safety Data Sheets for further information.

### NURAPLY TPO SPRAYABLE BONDING ADHESIVE

Aerosol bonding adhesive that can be used for Nuraply TPO adhered roofing systems and wall flashings.

The bonding adhesive complies to Low VOC requirements and is a contact adhesive requiring two-sided application.



The shelf life of these products is affected by the storage temperature. To gain maximum shelf life, ensure products are stored in a COOL dry place. Do NOT leave out on roofs or other areas exposed to sunlight.

### NURAPLY TPO CUT BACK PRIMER

Nuraply TPO cut back primer is formulated using a 50/50 mix of TPO bonding adhesive and TPO solvent. The cut back primer is used in extreme wind zone locations, porous substrates, and for emergency weather protection in case of unexpected rain showers, where it prevents moisture ingress into the substrate.

### NURAPLY TPO DETAIL MEMBRANE

Weldable unreinforced TPO for corner, detail, and flashing areas.

### NURAPLY TPO SURFACE ACTIVATOR

Surface preparation, it is used to remove the Nuraply TPO roll debonding surface coating to clean and activate the surface for sealant application.

### NURAPLY TPO MEMBRANE CLEANER

One-part solvent, membrane cleaning agent. Used to remove dirt, asphalt, or other contaminants from Nuraply TPO membranes to ensure a good weld or bond.

### NURAPLY TPO SEALANT

Single pack high performance sealant UV resistant, waterproof with superior flexibility for terminations or other penetrations. Must not be applied to Nuraply TPO unless the Nuraply TPO Surface Activator has been applied.

## ACCESSORIES

### NURAPLY TPO PREFORMED CORNERS

Internal and external weldable preformed corners made from Nuraply TPO material, designed to make detailing both watertight and aesthetic.

### NURAPLY TPO ONE-WAY BREATHER VENTS

Nuraply TPO Vents are passive breather vents intended for venting a cavity or dissipating moisture vapour. They are available premade from TPO and can be installed in top of the system. One-way breather vents can be modified on-site to be two-way breather vents.

### NURAPLY TPO PIPE BOOT

Weldable pipe boot for pipe penetration flashing which is thermo-welded directly onto the Nuraply TPO membrane.

## NURAPLY TPO T-JOINT PATCH

A non-reinforced TPO disk to seal seam laps where perimeter and/or header sheets intersect (T-Joint).

## NURAPLY TPO BONDING TAPE

Double-sided polymer adhesive tape used to terminate Nuraply TPO onto metal flashings and under-flash Nuraply TPO beneath Synthetic rubber membranes in vertical applications.

## NURALITE FLEECE TAPE

Polymer adhesive tape with a fleece backer, used to terminate TPO onto walls where an overcoating or plaster/render is required.

## NURAPLY ALUMINIUM DIVERTERS

Nuraply aluminium preformed diverters, bespoke designed for diverting water at external gutter adjacent to wall or barge locations with left- and right-hand side options.

## NURALITE FIXING PLATE

A factory assembled, single piece fixing plate. Factory sealed with Nuraply 1.52mm TPO membrane. Complete with female threaded anchor point for supporting and securing most types of rails and structures supporting mechanical services above the Nuraply TPO membrane system.

## NURATHERM PIR INSULATION BOARD

Nuratherm is a 100 % CFC, HCFC and HFC-free insulation board with a core in hard polyisocyanurate foam, coated on both sides with a multi-layer gastight aluminium complex. (*Labelled: IKO Enertherm*)

The entire Warm Roof system of vapour control, insulation and membrane waterproofing is known as Nuratherm Warm Roof.

## NURAFLEX PRIMER

For substrate priming to prepare the surface and improve adhesion prior to Nuraply ALU Vapour Barrier application. (*Labelled: IKOPro QuickDry Primer, Nuraflux No10, IKOPro WB*)

## ROCKWOOL MINERAL WOOL INSULATION

Mineral Wool insulation formed primarily from basalt. Provides acoustic, insulation and fire-resistant properties. Comes in various densities and thicknesses.

## IKOFIX THERMAL BREAK FLANGES

Thermally broken fasteners designed for mechanically fixing Nuratherm PIR boards to timber, metal, and masonry substrates in a range of lengths.

## POURABLE POCKET

(Must be used with Pourable Pocket Sealer)

A two-piece TPO moulded bund, with a ridged vertical wall oblong in shape. Includes a 40mm wide flange for thermo-welding to the Nuraply TPO membrane.

## NURAPLY TPO ONE PART POURABLE SEALER

(Recommended to be used with Pourable Pocket)

A single part pourable pocket sealer which seals between the penetration and the TPO.

## NURATRIM

An aluminium perimeter barge flashing system sandwiched between Nuraply TPO membrane providing a watertight seamless finish to the roof membrane. Vertical extension option available. The Nuratrim flashing system comes with pre-formed internal and external corners.

Due to the design of Nuratrim, it should only be used on a level plane perimeter design.

## TERMINATION BAR

Aluminium termination bar with a kick out at the top intended to receive a backing rod and sealant.

## NURAPLY METAL DRIP EDGE

Angle flashing used to form a drip edge to discharge rainwater into an external gutter. Available in Aluminium, Stainless Steel, and TPO-coated aluminium.

## NURALITE OBLONG WASHERS

Galvanised oblong washers used for mechanically fixing Nuraply TPO in the underlap and through the sheet face when specified. Typically used in projects where the wind uplift is extreme.

## NURALITE ALUMINIUM TAPE

An aluminium self-adhesive tape. Used taping PIR board joins, thermal flange heads for aesthetic appearance improvement and closing off raw edges of the Nuratherm PIR.

## NURAPLY TPO SAFETY WALKWAY ROLLS

Long nonslip roll of weldable, textured TPO, used to provide safe walkways in areas of caution or hazard on the roof top.

## RING CLAMP OUTLETS

Ring clamp outlets and overflows available in a variety of sizes and materials. Must be recessed flush with the substrate surface.

## ALUMINIUM PRE-LINED NURAPLY TPO SCUPPERS

Nuraply proprietary scuppers pre-lined with Nuraply TPO.

Designed to provide a thermo-welded lap joint between the main sheet membrane and the scupper. The scupper design provides an aluminium backing behind the Nuraply TPO material to fix the scupper into place, while providing a weldable flap of Nuraply TPO.

## ALUMINIUM SCUPPER OUTLETS AND SCUPPER OVERFLOWS

Nuraply proprietary aluminium scuppers designed to be installed recessed flush into the substrate to provide rainwater flow and discharge into a rainwater head or spigot outlet systems.

The scupper once in position must have a downturn drip edge formed for the rainwater discharge.

## SUMPS

Sumps pre-formed in aluminium or stainless steel and are available in various sizes, customisable to meet project specifications.

## DENSDECK BOARD

Gypsum fibre board used as a substrate where specific substrate characteristics are desired.

## ACCESSORIES SUPPLIED BY OTHERS

### GORILLA FIRE RATED EXPANDING FOAM

A one-component, self-expanding, ready to use polyurethane foam.

## WEATHER

The Nuraply TPO system should be protected from wet conditions during installation. Note that a temperature of at least 9°C is required before laying the membrane.

The “tack off” time for Nuralite adhesives will be extended when installing in cooler conditions, or when the humidity is high.



If cold temperatures are expected, Nuralite recommend warming the adhesive containers in hot water to improve handling characteristics. The adhesive should not be boiled.

## HEALTH & SAFETY

The primers, adhesives and sealants used in the Nuraply TPO system are flammable goods. Contractors should be aware of the Health & Safety precautions identified in the Material Safety Data Sheets.

Ensure you display appropriate signage, as shown below. Keep well away from flame and heat sources and use only in ventilated areas with suitable safety equipment.

## WATER RUN-OFF

Water is not contaminated by Nuraply TPO membrane.

[See the test reports conducted for collecting water on Nuraply TPO membrane.](#)

The first 25mm of rainfall from the newly installed Nuraply TPO roof membrane must be discarded before any drinking water collection. This is to remove residues which may have developed during the manufacturing production of the Nuraply TPO membrane. The best quality drinking water is achieved by the three steps listed and are highly recommended:

- Ensure you have first flush diverters installed which are components tapped into your down pipes and discharge initial rain fall.
- Ensure you install a U.V. filter.
- Ensure you install a Charcoal filter.

## INSTALLATION

### QUALITY CONTROL AND INSPECTIONS

Quality control substrate readiness check sheets are downloadable from our website [here](#) or from [www.nuralite.co.nz](http://www.nuralite.co.nz)

These must be completed for each job and kept as a record of evidence to ensure the installation meets Nuralite Waterproofing Ltd specification and warranty replacements.

### TOOLS REQUIRED

Tools required include the following:

- Large stainless-steel scissors.
- Stanley knife.
- Hand stirrer.
- Vacuum cleaner or leaf blower.
- Chalk line.
- Measuring tape.
- Paint roller, tray and 4-inch brush.
- Nuraply TPO solvent for clean-up.
- Heavy roller.
- Broom.
- Hand rollers, including penny roller and 40mm pressure roller.
- Gloves, for protection from adhesives.
- Sealant gun.
- Substrate moisture meter.
- Fire extinguisher.
- First aid kit.
- Hot air welding gun

## SUBSTRATE PREPARATION

Fillets at internal corners are not to be used with TPO membranes, the use of these is discouraged.

Dust or other contaminants are not tolerated with Nuraply TPO, as it interferes with the adhesives ability to bond the TPO to the substrate.

Use a vacuum cleaner to remove all dirt/dust and surface contamination carefully and totally.

If you believe that there are dust particles remaining after cleaning, Nuralite recommend that concrete surfaces are primed with 50/50 Nuraply TPO adhesive cut back with solvent to saturate the dust and bind it to the substrate.



Nuraply TPO should not be dragged across any substrate on the exposed surface, risking scratches. Always have the underside facing the substrate.

## SUBSTRATE REQUIREMENTS

All substrates must have adequate falls to outlets:

- Minimum falls of 0.73° slope (1:80) for roofs and decks.
- Minimum falls of 0.6° slope (1:100) for gutters.

### CONCRETE AND SCREEDS

- Have maximum moisture content 75% RH (relative humidity) or 5% moisture.
- Ensure firm, smooth surface, all soft areas ground off.
- Any loose surface concrete or laitance removed.
- Have all cracks or imperfections fixed using Nurapatch mortar.
- No mortar cove is required at internal corners.
- Have all external edges chamfered to 5mm radius to remove sharp edges.



## PLYWOOD

- Be CD structural grade plywood with sanded face upwards, H3 CCA or MCA treated.
- Areas around fixings, sheet joins sanded smooth.
- Be a minimum of 17mm thick with 400 x 400 centres, or 21mm at 600mm x 600mm centres, and complying with AS/NZS2269 for roofs.
- Be laid in a staggered pattern (offset all plywood sheets) with all edges supported and tight butted.
- Plywood sheets laid at right angles to joists or rafters.
- Be supported at the appropriate centres for thickness of ply (unless specified otherwise) with additional timbers at sheet joints, if necessary.
- Be fixed at 150mm centres at sheet edges and 200mm through the girth.
- Be fixed with corrosion-resistant stainless steel countersunk screws (10 gauge).
- Be smooth, clean, and dry (**maximum moisture content of 20%**), and all edges sanded if necessary.
- No gaps between sheet joints, with 5mm gaps at abutments.



LOSP treated timber must not be used with Nuraply TPO under any circumstances. T&G plywood joints are not acceptable as replacement for square edged, fully supported plywood.

## STRANDBOARD

- Ensure that sheets have been stretcher bond laid to falls, are rigid, with joints flush, edges arised, no lumps or hollows, smooth, clean, dry, and free of debris.
- Sheets laid at right angles to joists. Strandboard sheets supported at 400mm centred rafters and nogs for roofs unless detailed otherwise.
- Can only be used on roofs and gutters and **must not be used on balcony decks**.

## CLT PANEL

- Follow manufacturer's instructions and site specifications.

## DENSDECK BOARDS

- Follow manufacturer's instructions and site specifications.

## ROCKWOOL

- Follow manufacturer's instructions and site specifications. Should be an appropriate density for accepting a membrane.

## NPM900 METAL TRAY OR APPROVED METAL PROFILE

- Supporting rafters spaced as per specification (varies depending on NPM900 gauge)

## INSTALLING THE NURATHERM SYSTEM

### INSTALLING THE VAPOUR BARRIER

- The amount of condensation depends on the temperature in-balance and the humidity of the internal air. Vapour barriers prevent moist air from reaching the dew point and so prevent condensation forming.
- Before laying the membrane, prime the substrate with Nuraflux QD primer.
- When installing the membrane, ensure the Nuraply ALU vapour barrier covers the entire area and wraps up the insulation side so there is no opportunity for vapour to enter the roof system from below.
- Seal all penetrations carefully and repair any damage to the membrane.
- Because no condensation will form within the ceiling cavity there is no need to vent the ceiling when installing a Nuratherm warm roof.

### NURATHERM BOARDS

Lay the sheets in a brick bond fashion to prevent movement. The sheets can be cut with a knife or saw.

It is vital that no thermal breaks exist in the system so fill any gaps with Gorilla Fire Rated Expanding Foam.

Ensure that sheets have been stretcher bond laid to falls.

Nuraply Pure Aluminium foil tape over all flanges, exposed PIR, sheet joins, and wall junctions. Edges of sheets must be supported by metal angle.



Keep the materials and system dry onsite. It is critical to ensure that the insulation and system build-up does not encounter water.

## USING MULTIPLE LAYERS OF NURATHERM PIR

Using more than one layer of Nuratherm PIR boards is acceptable and is often necessary if a high R value is desired, or if tapered PIR boards are used.

Additional PIR layers must be offset from the previous layers so that board joints alignment between layers is kept to a minimum. All PIR layers must be in a brick-bond pattern.

## FIXING NURATHERM PIR USING IKO FIX FASTENERS

### FIXING NURATHERM PIR ON TIMBER, CONCRETE, OR METAL TRAY DECK

IKOfix fasteners are designed to penetrate the insulation and has the following advantages:

- Reduces thermal bridging.
- Cost effective because shorter screws are required.
- No risk of the screw penetrating the membrane if someone stands on the fixing.

### FIXING FLAT NURATHERM PIR BOARDS

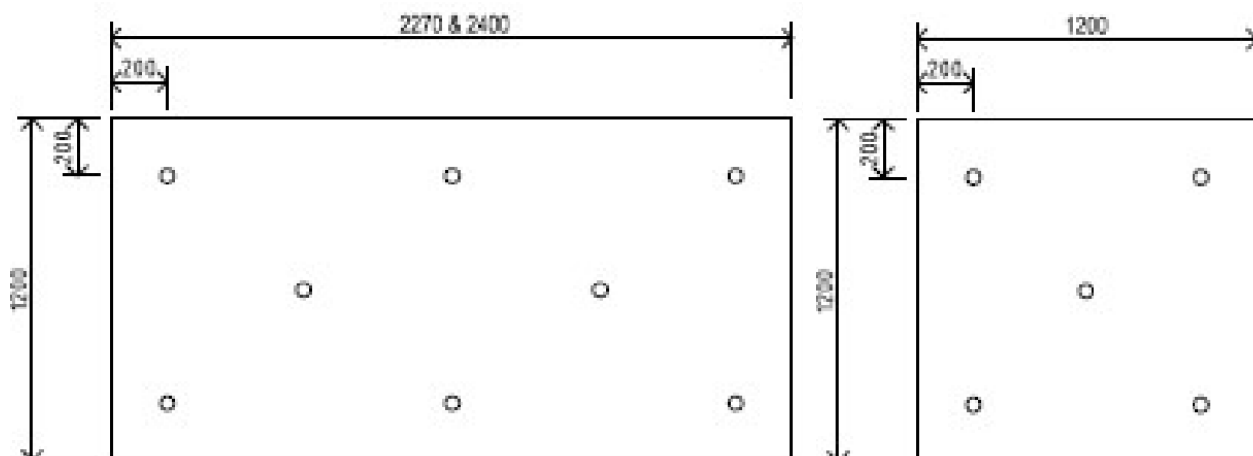
Flat Nuratherm PIR boards are 1.2m x 2.27m in width x length but can also be 1.2m x 2.4m

- Secure the sheets with 8 fixing per sheet for wind zones up to and including Extra High. The fixings should be inset by 200mm in each corner with at least two in the centre. For wind pressures above 3.33 kPa consult with Nuralite who can commission a site-specific fixing plan.

### FIXING TAPERED NURATHERM PIR BOARDS

Tapered Nuratherm PIR boards are 1.2m x 1.2m in width x length, they come with a 1° fall built in and come in various thicknesses starting with 40mm.

- Secure the sheets with 5 fixing per sheet for wind zones up to and including Extra High. The fixings should be inset by 200mm in each corner with at least one in the centre. For wind pressures above 3.33 kPa consult with Nuralite who can commission a site-specific fixing plan.
- If you notice the boards move when walking on them, use additional fixings to ensure the boards are stable and flat.



## ADHERING NURATHERM PIR WITH NURALITE APPROVED ADHESIVE

The curing time of the adhesive depends on the ambient temperature and humidity conditions. Refer to relevant Technical Data sheet and Nuralite Technical Departments for cure times.

To ensure a successful adhesive bond, it is important that the surfaces to receive the adhesive are stable and clean. Priming of the vapor barrier is not necessary.

To ensure a strong bond between the Nuratherm boards and the adhesive, it is advised to weigh down the boards once they are laid into the adhesive.



Nuralite recommend mechanically fixing Nuratherm warm roofs, as these are faster and easier to install than adhered Nuratherm warm roofs.

## APPLYING NURAPLY TPO ADHESIVE

As with any adhesive-based system, the application of the adhesive and subsequent application of the Nuraply TPO membrane are crucial to ensure a successful installation. There are several key factors that must be taken into consideration:



1. Thoroughly mix the Nuraply TPO adhesive with a hand stirrer to ensure it is fully mixed and has a consistent consistency.
2. Apply the adhesive at the correct rate.  
Failure to achieve the proper coverage rate will significantly reduce the bond strength of the membrane to the substrate.
3. Ensure a good, even coverage of the adhesive to achieve a consistent bond across the entire system. Irregular application may result in areas with weak bond strength, compromising the integrity of the installation.
4. Allow the adhesive to "tack-off" properly before closing the Nuraply TPO membrane. Insufficient drying time can lead to solvent entrapment, causing the membrane to bubble and lifting from the substrate. On the other hand, leaving the adhesive too long may result in poor bond strength.
5. Install the system under appropriate conditions. Moisture and extreme temperatures can significantly impact the performance of the adhesive and may lead to adhesive failure.
6. Ensure that the adhesive is used within its specified shelf life. Expired adhesive may not have the required adhesive properties necessary for a successful bonding of the membrane to the substrate.

Apply with a brush, roller, or spray.

Refer Technical Data Sheet for respective coverage rates.

Allow both surfaces to "tack-off" before installing Nuraply TPO membrane into place and bonding the substrate.

Ensure you wear appropriate safety equipment and have adequate ventilation.

## INSTALLING TPO SLIP JOINTS

When encountering a slip joint, which is a junction between two different substrates, it is necessary to create a slip joint using Nuralite TPO. Cut the TPO to the appropriate length and width. The slip joint should be centred on the junction, with equal lengths of TPO covering each substrate.

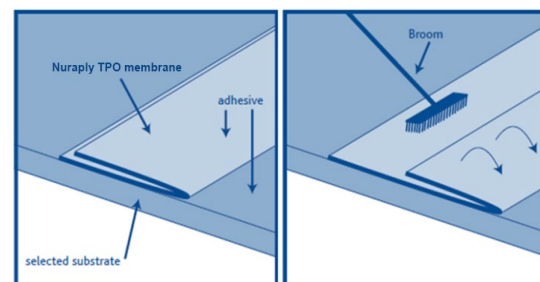
To hold the slip joint in place during the bonding of the primary membrane, apply blobs of Nuraply TPO bonding adhesive to the underside of one edge of the TPO at 400mm centres.

Firmly press and roll the TPO onto the substrate, and then quickly remove it. Allow the adhesive to tack off.

Once the adhesive has tacked off, carefully place the TPO slip sheet back into its permanent position. This will ensure a complete and permanent bond.

[Refer to the following details](#) for the appropriate strip lengths and for greater detail on installation:

- Uprand behind cladding (TPO-C.C1 & TPO-W.C1)
- Uprand into chase (TPO-C.C2 & TPO-W.C2)
- Termination using termination bar (TPO-C.C3 & TPO-C.C3)
- Apron upstand termination (TPO-C.C4 & TPO-W.C4)
- Plaster/render termination (TPO-C.C5 & TPO-W.C5)
- Parapet (TPO-C.H4 & TPO-W.H4)
- Tile roof on membrane (TPO-C.O1)
- Metal roof on membrane (TPO-C.O2)
- Membrane to pitched roofing shingles (TPO-C.O3)
- Substrate transition (TPO-C.O5)
- Warm Roof transition (TPO-W.O5)



*Apply Adhesive to both draw back the membrane and substrate and remove wrinkles.*

## COLD ROOF: CUT BACK PRIMER

To create cut back primer, mix TPO bonding adhesive and TPO solvent at a 1:1 ratio.

Once mixed thoroughly, apply the cut back primer to the substrate in a similar manner to TPO bonding adhesive. When the cut back primer is applied and has tacked off, install a temporary 40mm wide bond breaker tape centralised over every butt joint, along with internal and external junctions. The bond breaker tape prevents water ingress into the substrate joints.

## LAYING THE MEMBRANE

Ensure that the substrate is clean and free from any dust or debris. This will provide a clean surface for the membrane to adhere to.

Choose the appropriate membrane for the specific substrate. For concrete and for warm roofs, use a fleece-back membrane.

For timber, a smooth back membrane is recommended.

Once the TPO membrane material has relaxed, lay it out in the final position it will be installed. Take one side edge and fold back the membrane sheet to expose half of the underside.

Apply the Nuraply TPO adhesive to both the exposed underside of the membrane and the substrate. The adhesive should be tacky to touch but not adhere to your fingers, typically within 10-20 minutes depending on climate conditions.

Carefully draw back the membrane into its final permanent position, ensuring a smooth and wrinkle-free surface. Broom or roll with a water-filled roller to remove any air bubbles or wrinkles, taking care not to damage the membrane.

Repeat the adhesive application and installation process for the other half of the membrane to complete the installation of the sheet. Roll the surface of the membrane to achieve a full bond.

Throughout the installation process, be careful to avoid any damage to the membrane

## LAYING PATTERN

Mark out the 40mm (minimum) lap on the roll to be installed. Set out subsequent rolls to that mark and continue, ensuring all 40mm end laps are allowed for and maintained.

## NURAPLY TPO LAP EDGE SEAL

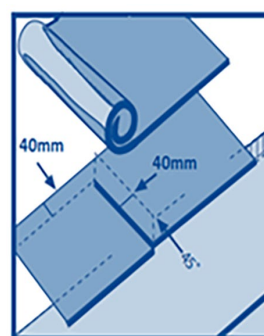
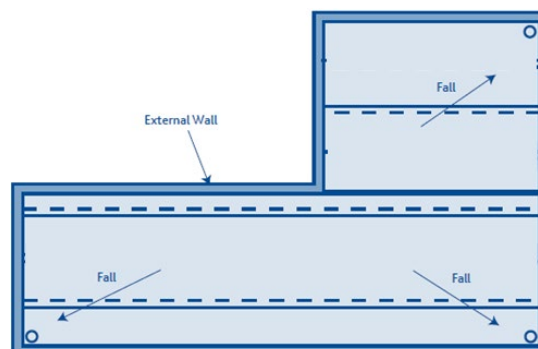
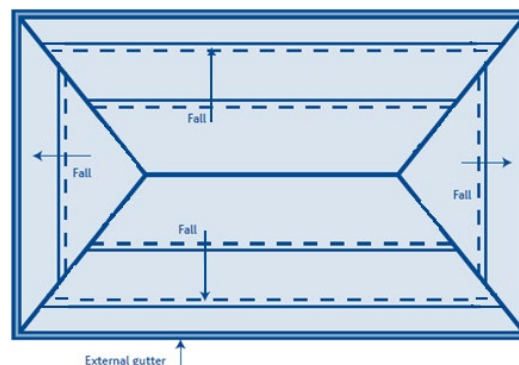
It is important to seal completed lap edges by heating and sealing off with a penny roller to prevent any water getting into the Nuraply TPO reinforcement textile.

## FORMING LAPS

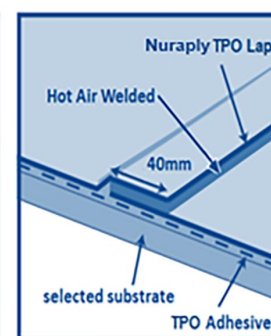
The waterproofing performance of the system is dependent on good lap integrity. Ensure all contaminants are removed from the lap area before proceeding. Use Nuraply TPO membrane cleaner prior to welding the laps.

Welded laps are overlapped with a minimum of 40mm cover.

When hand welding, using the TPO heat welder, heat the membranes within the lap whilst firmly rolling on top of the sheet with a hand roller.



Cut 3-Way laps at 45°.



All Side and End Laps to be 40mm.



Automatic and hand welder

## REINFORCEMENT CORNER DETAILING

Either fold back to create the “pig’s ear” to lay behind the main sheet or use a pre-moulded corner.

*Note: under-flashing tapes are not required in internal corners.*

On external corners do not cut the membrane to the very base of the junction, stop 3-4mm from the base. Install the Nurapply TPO pre-made corners or use unreinforced Nurapply TPO membrane to form a watertight external corner.

[Refer to the following details](#) for more information on how to detail corners:

- External corner (TPO-C.P1 & TPO-W.P1)
- Internal corner (TPO-C.P2 & TPO-W.P2)



### CHECK YOUR SPECIFICATION

Although under-flashing tapes are not required, some architects may specify them. The specification for the job takes precedence over all other general documentation.

## INSTALLING GUTTERS

Cut the Nurapply TPO membrane allowing enough width for the full internal girth of the gutter plus a 40mm allowance for the lap. Cut the length to suit, allowing for both end upstands and any laps.

Apply the Nurapply TPO adhesive at the specified rate to the gutter base and all side/end up stands.

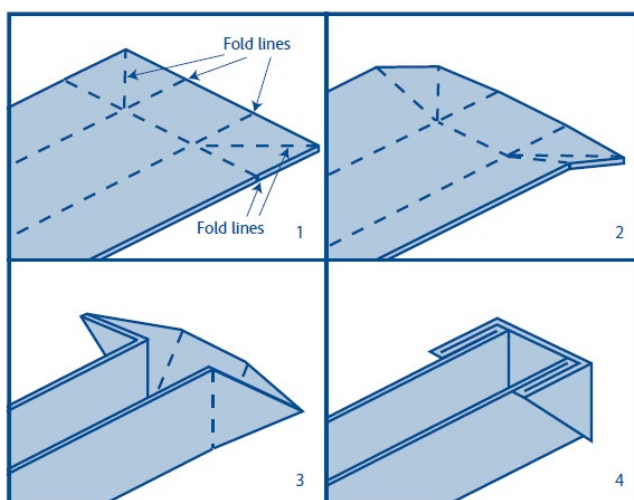
Allow to tack off.

Place the Nurapply TPO membrane into the gutter and position correctly.

Fold back the Nurapply TPO in manageable sections and apply the Nurapply TPO adhesive at the required rate to the membrane.

Allow to tack off and dress the membrane into place eliminating all creases and any air entrapment.

Proceed accordingly until the full gutter has been installed.



Installing Gutters



**DO NOT CUT THE MEMBRANE.** The end up stand is to be bonded in the normal way, but the additional material (pig’s ear) is to be folded behind the membrane.

## INSTALLING DIVERTERS

[Refer the following Nuralite details](#) on how to install Diverters:

- Drain Diverter installed onto Nurapply (TPO-C.A2 & TPO-W.A2)
- TPO Diverter for cladding (TPO-C.A3, TPO-C.A4 & TPO-W.A3, TPO-W.A4)

## PIPE PENETRATIONS

### NURAPLY TPO MOULDED PIPE BOOTS

Install a Nurapply TPO pipe boot around the penetration and hot air weld to the new Nurapply TPO membrane. Tighten the pipe boot onto the pipe penetration with Nurapply sealant and the sealable clip supplied.

Roll the base of the pipe boot to ensure all entrapped air and wrinkles are removed.

[Refer Nuralite Detail “Premolded Pipe boot” \(TPO-C.D2 & TPO-W.D2\)](#) for more information.

### MANUALLY INSTALLED DETAIL MEMBRANE ON A PENETRATION

[Refer Nuralite detail “Roof Penetration with integral flashing” \(TPO-C.D1 & TPO-W.D1\)](#) on how to detail a roof penetration using Nurapply TPO detail membrane.

## MOVEMENT/SEISMIC JOINTS

Purpose-made expansion joints and flashings should be installed to meet the specific stresses expected and be compatible with Nuraply TPO membranes. Refer Nuralite technical department for further information.



Nuralite recommend that all movement joint details and locations are approved by Nuralite and the architect/engineer.

## REVERSE LAPS

There are situations where reverse laps in TPO are unavoidable. These are generally acceptable if they are welded correctly (see FORMING LAPS on page 12), as Nuraply TPO has strong laps.

## NURAPLY TPO POURABLE POCKETS

### PRE-FORMED BUNDS

Where the size of the preformed bund suits the shape of the penetration (including a 50mm clearance between the penetration and the bund), use a preformed bund instead of a bespoke bund.

To install the bund,

- Mark out where the bund will be positioned and installed.
- Clean the surface of the primary membrane where the bund will be installed.
- Position the halves of the bund with a 40mm joint, and at each end of the bund create a small spot weld.
- Weld the two halves of the bund together vertically.
- Heat-weld the entire bund perimeter to the surface of the primary membrane.

### BESPOKE BUNDS

Where a pre-formed bund cannot be used, one can be made to suit the project with the following method:

- Mark out the size of the bund on the TPO.
- Using a 40mm x 40mm angle of metal (such as aluminium or Stainless steel) cut the length required, allowing for an overlap of 20mm to make the joint.
- Clean the Nuraply TPO with TPO solvent cleaner 40mm wide around the inside of the marked-up bund outer edge.
- Apply Nuraply TPO surface activator and Nuralite sealant and seat the metal angle on the sealant with a weight to hold it.
- Tool off any excess sealant from the outer edge of the angle.
- After 24 hours, cut a piece of Nuraply TPO allowing for:
  - 40mm perimeter weld to the TPO membrane.
  - Covering the upstand of the metal angle bund, and
  - Coming down the inside face of the metal angle 20mm.
- Once bonded to the bund and returned down the inside edge of the bund, create a 40mm weld of the piece of TPO to the primary membrane.

### POUR POCKET INSTALLATION

[Refer to Nuraply TPO One Part Pourable Sealer Technical Datasheet](#) for installation instructions, as well as [Nuralite Detail "Pourable Pocket and Sealant" \(TPO-C.D4 & TPO-W.D4\)](#).

## ROOF DRAINS & SCUPPERS

The substrate should always be recessed to accommodate the outlet.

Where the aluminium metal of a sump or scupper is going to contact the substrate, apply a separation to the surface of the metal that would otherwise contact the substrate. Use a tape or an underlaying strip of Nuraply TPO into the recess.

### PRE-FORMED RING-CLAMP OUTLETS

Ring Clamp outlets are (alongside drip edge to external spouting) Nuralites preferred method of draining water from a building. The ring-clamp forms a pressure seal on the TPO membrane, reducing the risk of moisture ingress at the outlet.

[Refer to Nuralite detail "Rain Outlet and Overflow" \(TPO-C.G1 & TPO-W.G1\)](#), for information on how to install the outlet.

## NURALITE TPO PRE-LINED SCUPPERS

Nuralite supply proprietary scuppers pre-lined with Nuraply TPO. These scuppers are designed to provide a thermo-welded lap joint between the main sheet membrane and the scupper. The scupper design provides an aluminium backing behind the Nuraply TPO material to fix the scupper into place.



Plastic sumps and scuppers must not be used with Nuraply TPO under any circumstances.

[Refer to the following details](#) on how to install Nuralite pre-lined scuppers and scupper overflows:

- Scupper (TPO-C.F1, TPO-W.F1 & TPO-C.F2, TPO-W.F2)
- Overflow Scupper (TPO-C.F3 & TPO-W.F3)

## NURALITE SCUPPERS (NOT LINED WITH TPO)

When pre-lined scuppers are not available or not desirable, the following method can be used to line an aluminium or stainless-steel scupper with TPO.

[Refer to Nuralite Method statement "Detailing Aluminium Accessories with Nuraply TPO"](#) on how to line scuppers with TPO.

Nuralite recommend lining the Scupper with Nuraply TPO before installation.

## SUMPS

Nuralite Sumps are pre-formed in aluminium or stainless steel and are available in various sizes, customisable to meet project specifications. They have built-in outlet and overflow features, but do not come lined with TPO.

Therefore, they need to be detailed like an un-lined scupper.

[Refer to Nuralite Method statement "Detailing Aluminium Accessories with Nuraply TPO"](#) on how to line sumps with TPO, as well as [Nuralite Detail "Sump" \(TPO-C.G2 & TPO-W.G2\)](#).

## NURATRIM INSTALLATION

Nuratrims are a proprietary decorative trim supplied by Nuralite that provides an alternative edge termination that can look more appealing than a parapet cap flashing or a membrane verge detail.

Often, Nuratrims will be supplied by the Nuralite approved applicator to the builder, who will install it prior to applicators final waterproofing. It is imperative that the applicator and builder have toolbox talks to make sure that all parties are aware of how Nuratrims should be installed, and the limitations of the product.

Nuralite have a separate method statement on how to install Nuratrims, as well as other important considerations, [available here](#) as well as from [www.nuralite.co.nz](http://www.nuralite.co.nz).

It is also worth referring to the below [Nuralite details for installation information](#).

- Nuratrims on edge (TPO-C.B2 & TPO-W.B2)
- Nuratrims on verge (TPO-C.B3 & TPO-W.B3)
- Nuratrims membrane Termination (TPO-C.B4 & TPO-W.B4)

## ROOF VENTS

### VENTING

Moisture venting helps remove any retained moisture in the substrate and substrate structure. Roof-space venting in confined skillion-type roofs creates air flow and equalises roof space pressure.

Venting minimises temperature variations across the roof and so reduces substrate movement due to thermal expansion and contraction.

### INSTALLING NURAPLY TPO VENTS

Mark out the locations of where the vents are to be installed, then drill a 30mm minimum hole at the centre, through the membrane and substrate into the roof cavity, so that the roof space can ventilate.

Install the roof vent over the marked out location, and carry out a 40mm thermal weld around the perimeter of the preformed TPO vent and then seam roll the edge of the weld with a penny roller.

[Refer to the detail "Nuralite Breather Vent" \(TPO-C.D6\)](#) for more information.



Vents are typically not required with a Nuratherm Warm Roof, but the designer may have specified them on the project for other specific reasons. Always check your specification!



Read the separate Nuralite Technical Note, "[Venting Skillion Roofs](#)" as this manual does not provide information on calculating the number of vents



If a H-Vac ventilation system is going to be installed by another contractor, check with ventilation engineer for advice.

## WALKWAY MEMBRANES

When installing a sacrificial walkway membrane, consider whether the additional layer is laid with the fall or against it. If laying against the fall, the membrane needs to be cut into squares that will be installed with gaps, so that water can flow around the walkway instead of being dammed behind it.

When laying the walkway membrane with the fall, the membrane can be continuous.

To install the walkway membrane, first mark out the area on the original TPO membrane that will be installed to. Clean the surface with TPO solvent cleaner.

Install the walkway membrane by welding the outer 40mm of the walkway roll and adhering the remaining inside area with Nurapply TPO Contact or Sprayable adhesive.

## MEMBRANE TERMINATION

### CHASE FLASHING TERMINATION

[Refer Nuralite Detail "Upstand into chase" \(TPO-C.C2 & TPO-W.C2\)](#) on how to detail a chase flashing with Nurapply TPO.

### TERMINATION ON UPSTANDS USING A TERMINATION BAR

- Strike a chalk line to mark the height of the upstand.
- Install the Nurapply TPO membrane up to this mark.
- Install the metal compression flashing with the top fold (6mm angle) lining up with the top edge of the Nurapply TPO membrane and mechanically fix into place.
- Insert a backer rod between the TPO and where the sealant will be applied.
- Using a sealant gun, apply Nurapply sealant into the 6mm cavity and tooled off at a 45° angle.

[Refer Nuralite detail "Termination using Termination bar" \(TPO-C.C3 & TPO-W.C3\)](#) for more information.

### TERMINATION WITH FLEECE TAPE AND RENDER SYSTEM

In situations where the cladding is a direct applied render system without a cavity, an overlap between the render system and Nurapply TPO is necessary.

- Apply Nuralite Fleece Tape over the top of the TPO and the upstand. The tape should cover the top 40mm of the TPO, and then 40mm of the upstand.
- Once the Nuralite Fleece Tape is applied, the plaster/render system can be installed over the fleece tape by others.

[Refer Nuralite detail "Plaster/render termination" \(TPO-C.C5 & TPO-W.C5\)](#) for more information on installation.

### INSTALLING TPO TO NURALITE METAL DRIP EDGES

Nuralite drip edges are supplied in uncoated aluminium, uncoated stainless steel, or TPO-coated aluminium.

The drip edge should be installed underneath the substrate, aligned with the front edge of the plywood or timber drip edge block.

[Refer to Nuralite Detail "Wrapped drip edge into gutter" \(TPO-C.A1 & TPO-W.A1\)](#) for information on how metal drip edges should be installed and detailed.

In areas with high or extreme wind conditions, it is recommended to install a 30mm wide compression bar mechanically fixed to the aluminium drip edge, starting from the bottom edge.

## COMPLETION, INSPECTION

Once the membrane is fully installed, remove all dust and debris, and sweep clean. Make good any imperfections, and check all laps are fully bonded and probe tested.

During installation, the Quality Control check sheet is to be used by the installer to ensure that the work complies with our specification. [Please see the end section of the manual for checklist download links.](#)

On completion, inspect all work for defects, making good as required. Pay particular attention to penetrations and other complex details and laps. Remove unused materials from site leaving the completed works clean and tidy for hand over.

Protection boards are to be used by any following trades.

Ensure that the Quality Control check sheets are completed and signed off, preferably with the main contractor.



## TECHNICAL DATASHEETS

The links below will take you to the relevant technical datasheets, which are also hosted on our website. Appropriate safety data sheets for each product are found on our website.

[Nurapply TPO Smooth Back Membrane](#)

[Nurapply TPO Fleece Back Membrane](#)

[Nurapply TPO Detail Membrane](#)

[Nurapply TPO Bonding adhesive](#)

[Nurapply TPO Sprayable bonding adhesive](#)

[Nuraflux No. 10 Primer](#)

[Nuraflux QD Primer](#)

[Nuraflux WB Primer](#)

[Nurapply ALU Vapour Barrier](#)

[Nuratherm PIR](#)

[Nuralite PIR Bonding Adhesive](#)

[Nuralite Fixing plate](#)

[Nurapply TPO Penetration Pocket](#)

[Nurapply TPO One Part Pourable Sealer](#)

[Nurapply TPO T-Joint Cover Patch](#)

[Nurapply TPO Membrane Cleaner](#)

[Nurapply TPO Pipe Boot](#)

[Nurapply TPO Walkpad](#)

## CHECK SHEETS

Nuralite maintain comprehensive check sheets for substrate readiness, project sign-off, and maintenance.

We have bundled these check sheets into a single, concise file, which can be obtained by [clicking here](#) or from [www.nuralite.co.nz](http://www.nuralite.co.nz)

## INSTALLATION DETAILS

The links below will take you to the relevant installation detail downloads hosted on our website.

[Nurapply TPO Warm Roof and Deck Details](#)

[Nurapply TPO Cold Roof and Deck Details](#)

All these details are available from [www.nuralite.co.nz/spec-flow](http://www.nuralite.co.nz/spec-flow)