

## 1. GENERAL

This section relates to **Nuralite Waterproofing Limited** Nuraply TPO Roof and Deck Membrane installed as a single ply external waterproof covering with associated components & accessories.

It includes;

- Nuratherm, insulated roof system with Nuraply TPO Fleece-Back, mechanically fixed or fully adhered, over Nuratherm insulation installed over concrete, plywood, strandboard (for roofs only), cross laminated timber or metal tray deck substrates.
- Nuraply TPO Smooth or Fleece-Back, mechanically fixed or fully adhered installed directly over concrete, plywood, strandboard (for roofs only), or cross laminated timber substrates.

### 1.1 RELATED WORK

Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for pedestal support systems for floating timber and tile / stone paved decks

### 1.2 DOCUMENTS

[NZBC B2/AS1](#) Durability

[NZBC E2/AS1](#) External moisture

[AS 2122.1](#) Combustion characteristics of plastics - Determination of flame propagation Surface ignition of vertically orientated specimens of cellular plastics

[AS/NZS 2269.0](#) Plywood - Structural - Specifications

[NZS 3604](#) Timber-framed buildings

[ASTM D6878](#) Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:

Nuraply TPO Technical information, check sheets, and details: [Link](#)

CodeMark [CMNZ70166](#) – The Nuraply TPO Roofing Membrane for Roof and Decks

[BRANZ Appraisal 1177](#) (2021) - Nuraply TPO Waterproofing Membranes - Amendment 1

Manufacturer/supplier contact details

Company: **Nuralite Waterproofing Limited**

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### Warranties

#### 1.4 WARRANTY - SUPPLIER

Provide a material manufacturer/supplier warranty:

20 years For Nuraply TPO membrane

20 years For Nuraply TPO fleece backed membrane

- Provide this warranty on Nuralite Waterproofing Product Warranty standard form (to be supplied) Commence the warranty from the date of Practical Completion of the contract works.

#### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years For Nuraply TPO membrane when installed by Nuralite Waterproofing Limited approved applicator.

- Provide this warranty on the Nuraply TPO installer/applicator standard form.
- Commence the warranty from the date of installation.

## Requirements

- 1.6 NO SUBSTITUTIONS  
Substitutions are not permitted to any specified Nuraply system or associated products, components and accessories.
- 1.7 QUALIFICATIONS  
Roofing to be carried out by competent workers licensed by NURALITE Waterproofing Limited and experienced with NURAPLY TPO materials systems and specialist techniques. Provide on request evidence of experience prior to commencing work.

Contact Nuralite at [www.nuralite.co.nz/Applicator\\_List](http://www.nuralite.co.nz/Applicator_List) for a listing of approved applicators.

- 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE  
Provide the following compliance documentation: -
- Applicators' approval certificate from the distributor
  - Distributor warranty
  - Installers' / applicators' warranty
  - Producer Statement - Construction from the applicator / installer
  - Other information required by the BCA in the Building Consent Approval documents.

## Performance - general

- 1.9 FLOOD TESTING  
Where practical, flood test all gutters with a minimum 50mm depth of water for 24 hours. Make good any lack of water tightness when the surface is completely dry. Not all applications can be flood-test checked. All gutters should be checked.
- 1.10 PERFORMANCE  
Accept responsibility for the weather-tight performance of the completed NURAPLY TPO roofing system, including all penetrations through the roof and junctions with walls and parapets. In the event that there are issues relating to any aspect of this work, arrange for a meeting to resolve these issues. The following should attend:
- NURAPLY TPO roofing applicator
  - NURALITE Waterproofing Limited representative
  - Contractor
  - Principal
  - Principal's consultant(s)

- 1.11 AS APPROVED  
"As approved" means that the materials are compatible with NURAPLY TPO roofing and are part of the system required by the roofing supplier for each specific location.

## Performance - wind

- 1.12 WIND ZONE DESIGN PARAMETERS – LOW TO HIGH  
According to the wind zone parameters of [NZS 3604](#), table 5.4 this project is rated as high or lower. Ensure that the installation is adequate for this standard or greater.
- 1.13 WIND ZONE DESIGN PARAMETERS – VERY HIGH OR EXTRA HIGH  
According to the wind zone parameters of [NZS 3604](#), table 5.4 this project is rated as very high or extra high. Ensure that the installation is adequate for this standard or greater.

## Performance - Nuratherm Insulated roof system

- 1.14 DURABILITY  
Nuratherm insulated roof system complies with [NZBC B2/AS1](#) when maintained to Nuralite Waterproofing Limited requirements.
- 1.15 ENERGY EFFICIENCY

IKO Nuratherm ALU insulation board has an aged thermal resistance (R Value) of the following:

40mm	R1.80
50mm	R2.25
60mm	R2.70
70mm	R3.15
80mm	R3.60
100mm	R4.55

based on an aged thermal conductivity of 0.022 W/mK.

## 1.16 FIRE SAFETY

IKO Nuratherm PIR insulation board complies with the flame propagation criteria as specified in AS 2122.1.

## 2. PRODUCTS

### Materials - Nuraply TPO single layer system

#### 2.1 NURAPLY TPO SMOOTH BACK MEMBRANE

Nuraply TPO, a single ply, polyester fabric reinforced TPO fully bonded roofing and water proofing membrane, to ASTM D6878.

#### 2.2 NURAPLY TPO FLEECE-BACK MEMBRANE

Nuraply TPO Fleece-Back Membrane, a reinforced TPO roofing and waterproofing membrane, with factory applied polyester fleece backing, to ASTM D6878. Refer to SELECTIONS.

### Materials - Nuratherm insulated roof system with Nuraply TPO

#### 2.3 INSULATION BOARD

IKO Nuratherm ALU insulation board, comprised of a core of hard polyisocyanurate foam coated on both sides with tri-ply gas-tight aluminium.

#### 2.4 TAPERED INSULATION BOARDS

Nuralite Nuratherm tapered insulation materials available to provide a 1:60 slope.

#### 2.5 VAPOUR BARRIER

Nuraply ALU, 0.6mm thick self-adhesive modified bitumen sheet membrane with a top side of polyester reinforced aluminium foil. Used as a vapour barrier between the substrate and insulation board when required. Supplied in 1.08m wide x 25m long rolls.

#### 2.6 NURAPLY TPO FLEECE-BACK MEMBRANE

Nuraply TPO Fleece-Back Membrane, a reinforced TPO roofing and waterproofing membrane, with factory applied polyester fleece backing, to ASTM D6878. Refer to SELECTIONS.

### Components

#### 2.7 PRIMER - SOLVENT BASED

50/50 mixture of solvent and Nuraply TPO Bonding Adhesive, a solvent based rubberised contact adhesive to bond the membrane.

#### 2.8 NURAPLY TPO MEMBRANE BONDING ADHESIVE - SOLVENT BASED

Nuraply TPO Bonding Adhesive, a solvent based rubberised contact adhesive to bond the membrane.

#### 2.9 NURAPLY TPO SOLVENT

Nuraply TPO Solvent is used to cut back Nuraply TPO Adhesive for use as a primer and for cleaning of equipment

#### 2.10 MECHANICAL FIXING - FASTENERS AND PLATES

Nuraply TPO fasteners and metal plates for mechanically fastening membrane.

### Components - Nuratherm insulated roof system with Nuraply TPO

#### 2.11 METAL TRAY DECK

Nuralite NPM900 metal tray, as manufactured by Dimond Roofing, comprised of G550 aluminium-zinc AZ150 to AS 1397.

- 2.12      **MECHANICAL FIXING - FASTENERS AND PLATES FOR INSULATION PANELS**  
Nuratherm IKO Fix Screws and Flange system.  
Polypropylene telescopic sleeves for fixing insulation panels and TPO membrane. Screws supplied in lengths to suit both the substrate and installed insulation.
- 2.13      **PRIMER - FOR VAPOUR BARRIER**  
Nuraflux QD primer for substrate preparation prior to bonding Nuraply ALU vapour barrier to concrete, timber and metal deck substrates.
- 2.14      **NURATHERM ADHESIVE**  
Nurabond Hi Foaming & Low Foaming PU adhesive, a permanent elastic high-performance moisture-cured single part polyurethane adhesive with high foaming capacity for bonding Nuratherm insulation boards to vapour control layer and with low foaming capacity for bonding Nuratherm insulation boards to each other.
- 2.15      **EXPANDING FOAM**  
Soudal Gorilla Nailpower fire rated expanding foam for filling gaps in insulation layer.
- Accessories**
- 2.16      **NURAPLY TPO WALKPAD MEMBRANE**  
Nuraply TPO Walkpad Membrane provides a safe, stable and maintenance-free walkway for quick and easy access to rooftop equipment in high traffic areas.
- 2.17      **NURAPLY TPO DETAIL MEMBRANE**  
Nuraply TPO Detail Membrane easily forms flashings around corners and penetrations. Specifically designed for use in areas that cannot be properly detailed with TPO field membrane.
- 2.18      **NURAPLY TPO PRE-FORMED CORNERS**  
Nuraply TPO pre-formed non-reinforced internal and external corners and T joint patches, used for detailing internal/external and 3-way lap joints.
- 2.19      **NURAPLY TPO SEALANT**  
Nuraply TPO Sealant is an approved sealant compatible with Nuraply TPO and other accessories.
- 2.20      **NURAPLY TPO MEMBRANE CLEANER**  
Nuraply Membrane Cleaner is used for lap preparation and removing marks from the membrane surface.
- 2.21      **NURAPLY TPO PVC BOND BREAKER TAPE**  
Nuraply TPO PVC Bond Breaker Tape is a pressure sensitive, self-adhesive 36mm wide bond breaker tape used as venting grid tape
- 2.22      **NURAPLY TPO DRAIN**  
Nuraply TPO Drains are a selected range of clamp ring drains in varying size and configurations.
- 2.23      **NURAPLY TPO PRE-LINED SCUPPER**  
Nuraply TPO Pre-Lined Scupper is designed to be recessed into the substrate. 200mm high x 75mm high x 380mm long.
- 2.24      **NURAPLY TPO SCUPPER OVERFLOW**  
Nuraply Aluminium Scupper Overflow is designed to be recessed into the substrate. 200mm high x 75mm wide x 300mm long.
- 2.25      **NURAPLY TPO SUMP WITH OVERFLOW**  
Nuraply Aluminium Sump with Overflow is designed to be recessed into the substrate. 400mm long x 250mm wide x 200mm deep, with 100mm dia overflow.
- 2.26      **NURAPLY TPO PENETRATION POCKET**  
Nuraply TPO Penetration Pocket is a two-piece moulded TPO pocket with a rigid vertical wall and pre-formed flange, used to seal uneven penetrations. 190mm x 150mm oval.
- 2.27      **NURAPLY TPO POURABLE SEALER**  
Nuraply TPO Pourable Sealer is a two-part polyurethane sealant used as a penetration pocket filler. 4.26 litre kit.

- 2.28      **NURAPLY TPO PIPE BOOT**  
Nuraply TPO Pipe Boots are flexible, smooth, non-reinforced TPO cone-shaped boot with a pre-formed flange. 250mm to 152mm diameter
- 2.29      **NURAPLY TPO DRIP EDGE**  
Nuraply Aluminium Drip Edge used for the drip edge into external gutters. 50mm x 50mm x 2.5 metres long
- 2.30      **NURAPLY TERMINATION BARS**  
Nuraply Aluminium Termination Bars are used to terminate the TPO on vertical and horizontal services. Pre-drill holes at 200mm centres. Flat - 28mm wide x 3mm thick x 2.5 metres long. Folded - 45mm wide x 3mm thick x 2.4 metres long.
- 2.31      **NURAPLY DIVERTERS**  
Nuraply Aluminium Diverters used for diverting water into a gutter at roof/wall intersections. Left- and right-hand configurations.
- 2.32      **NURAPLY TPO NURATRIM**  
Nuraply Aluminium Nuratrim is an extruded profile to terminate the TPO on same plain parapets, and outer edges. Factory manufactured internal and external corners. Joining plates are used to assemble the lengths and corners together. The Nuratrim comes with pre-punched fixing holes. 100mm high x 78mm wide x 3metre long. Corners 300mm legs. Joining plate 90mm x 100mm.
- 2.33      **MOUNTING PLATE**  
Nuralite Fixing Plate provides a universal fixing offering two M10 x 20mm female threaded anchor points for securing most types of rails and bars.
- 2.34      **CABLE DUCT**  
Nuralite Goose Neck.
- 2.35      **NURAPLY TPO PEEL AND STICK REINFORCED PERIMETER STRIP**  
**Nuraply TPO Peel and Stick Reinforced Perimeter Strip** is a reinforced TPO membrane with a factory applied peel and stick adhesive tape on the outer face. 152mm wide x 30.48 metres long.
- 2.36      **NURAPLY TPO COVER TAPE**  
**Nuraply TPO Cover Tape** is a non-reinforced TPO detailing tape with a peel and stick adhesive backing. 152mm or 250mm wide x 30.48metres long.
- 2.37      **NURAPLY TPO BUTYL TAPE**  
**Nuraply Butyl Tape** is 1mm thick, single sided butyl tape with a polypropylene fleece face. Designed to bond permanently to most surfaces including TPO.
- 2.38      **ALUMINIUM TAPE**  
3M Aluminium tape in 150mm or 48mm widths.
- 2.39      **DECK SUPPORT SYSTEMS - NURAJACKS & NURAPADS**  
Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for specification.
3.            **EXECUTION**
- Conditions**
- 3.1         **DELIVERY, STORAGE & HANDLING OF PRODUCTS**  
Take delivery of Nuraply TPO membrane in undamaged rolls and include for site handling facilities where required. Store rolls horizontally only, and no higher than two layers, one on top of the other. Provide dry storage for all products. Stack off the ground on a level surface and with accessories.
- 3.2         **STORAGE**  
Take delivery of rolls undamaged and include for site handling facilities where required. Store rolls horizontally only, and no higher than two layers; one on top of the other. Provide dry storage for all products. Stack off the ground on a level surface and with accessories. Keep all adhesives and sealant warm, never allow them to freeze.

## 3.3 GENERALLY

Work and materials to Nuralite Waterproofing Limited installation instructions and [NZBC E2/AS1](#).

## 3.4 WEATHER

Lay NURAPLY TPO membrane in fair weather, with ambient air temperature no less than 5°C.

## 3.5 INSTALLATION SEQUENCE

Install Nuraply TPO membrane systems in sections to produce a weather tight at the end of each work period. Ensure that moisture absorbent substrates and insulation panels are covered with Nuraply TPO membrane on the same day they are laid or ensure that the base is kept covered and dry until Nuraply TPO membrane is laid. Seal exposed Nuraply TPO membrane edges at the end of each work period to ensure complete system remains dry.

### Installation - preparation

## 3.6 PRELIMINARY WORK

Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets and fixing of vents and outlets to levels, is complete and properly constructed to enable the system to work as intended. This work and the substrate to be smooth, clean, dry and stable.

## 3.7 ACCEPTANCE OF SUBSTRATE

Confirm that the substrate complies with the [NZBC E2/AS1](#) for the relevant substrates and Nuralite Waterproofing Limited documents, including sumps, outlets and projections, and ensure work is of the required standard.

Confirm the moisture content of substrates:

Concrete substrate: Relative humidity of 75% maximum

Plywood/ timber: Moisture Content of 20% maximum substrate:

Ensure the fall complies with CodeMark [CMNZ70166](#) – The Nuraply TPO Roofing Membrane for Roof and Decks

The roof or deck is pitched or nominally flat (1:80) and gutters have a minimum fall of 1:100

## 3.8 CONCRETE SUBSTRATE

Ensure concrete substrate has been allowed to cure for at least 28 days and has a moisture content of less than 75% RH before commencing application. Check if any curing compounds or sealers have been used. Ensure curing compounds and sealers are compatible with Nuraply TPO membrane components before installation and follow the manufacturer's instructions. Prepare the surface, including vacuum cleaning to leave smooth, free of sharp edges, clean, dry and free of debris.

## 3.9 PLYWOOD SUBSTRATE

Ensure plywood is:

- a minimum of 17mm thick and complying with [AS/NZS 2269.0](#) minimum
- CD structural grade with the sanded C side upwards
- hazard Class H3.2 with waterborne CCA or MCA treatment to AS/NZS 1604.1, and kiln dried after treatment
- laid with tight staggered joints (brick bond) with all edges of the sheets fully supported
- Chamfer all external edges with a minimum radius of 5mm fixed with 10-gauge stainless steel
- countersunk head screws fixed at 150mm centres on edges and 200mm in the body of the sheets.
- sheets supported at 600mm centre rafters and nogs for roofs unless detailed otherwise

Plywood and the timber substructure to have a maximum moisture content of 18% when the membrane is adhered. Consult with plywood manufacturer's correct testing technique.

## 3.10 STRANDBOARD SUBSTRATE

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. To be laid length ways across the line of supports below.

Strandboard sheets supported at 400mm centred rafters and nogs for roofs unless detailed otherwise. Minimum finished (constructed) falls to be 1:80 for roofs and 1:100 for gutters. **Strandboard is for use only on roof decks and gutters and not to be used on balcony decks.**

- 3.11 **CROSS-LAMINATED TIMBER (CLT)**  
Fixed as per the manufacturer's instructions. Laid to falls, rigid, with joints flush, edges arrised, no lumps or hollows, smooth, clean, dry and free of debris. Minimum finished (constructed) falls to be 1:80 for roofs, 1:80 for decks, and 1:100 for gutters.
- 3.12 **METAL TRAY DECK SUBSTRATE**  
Ensure that metal tray decking and supporting structure has been installed in accordance with Dimond Roofing requirements and specification. If using timber supports, ensure bitumen tape is installed between timber and metal tray.  
  
Constructed falls on roofs and decks to be 1 in 80 minimum and 1 in 100 for gutters.
- 3.13 **RIGID AIR BARRIER (RAB)**  
Fibre cement or Gypsum where they are placed behind cladding only.  
  
**Application - laying on plywood, cross laminated timber and strandboard**
- 3.14 **PLYWOOD, CROSS LAMINATED TIMBER AND STRANDBOARD SUBSTRATE PREPARATION**  
Substrate to be clean and dry before application of the Nuraply TPO waterproofing membrane.
- 3.15 **POSITION MEMBRANE**  
Position Nuraply TPO membrane over acceptable substrate and fold membrane back to expose half of the underside.
- 3.16 **APPLY ADHESIVE (ADHESIVE FIX)**  
Apply bonding adhesive to the exposed underside of the membrane and to the corresponding substrate. Apply using a plastic core, medium nap paint roller, at a coverage rate of 1.5m<sup>2</sup> per litre, per finished surface (includes coverage on both membrane and substrate).
- 3.17 **INSTALL MEMBRANE SHEETS (ADHESIVE FIX)**  
Allow bonding adhesive to dry tacky and roll the coated Nuraply TPO membrane onto the coated substrate. Brush down the bonded section of Nuraply TPO membrane immediately with a soft bristle broom. Fold back the unbonded half of the sheet and repeat procedure.
- 3.18 **MECHANICAL FIXINGS (MECHANICALLY FIX)**  
Mechanically fix lap joints of loose laid Nuraply TPO membrane with fasteners and plates to Nuraply TPO installation instructions. Contact Nuralite Waterproofing Limited for wind loading information.
- 3.19 **LAP JOINTS MECHANICAL FIX AND HOT-AIR WELD (MECHANICALLY FIX)**  
Allow for a minimum of 150mm lap when mechanically fixing loose laid Nuraply TPO membrane. Provide a minimum 40mm hot-air weld to outer edge.
- 3.20 **LAP JOINTS ADHERED MEMBRANE AND HOT-AIR WELD (ADHESIVE FIX)**  
Allow for overlapping membrane edges a minimum of 75mm to provide for a minimum 40mm hot-air weld.
- 3.21 **HOT-AIR WELD**  
Hot-air weld the adjoining **Nuraply TPO** membrane sheets with an automatic hot-air welding machine or using hand welding techniques.
- 3.22 **PENETRATIONS**  
Form and finish up-stands, down-turns, penetrations, sumps and vents to conform with Nuralite Waterproofing Limited required details.
- 3.23 **PENETRATIONS AND JUNCTIONS**  
Check that adjoining walls and parapets are prepared ready for the installation of the Nuraply TPO membrane. Note: Ensure that no penetrations will occur until after the Nuraply TPO membrane has been laid.

## **Application - laying on concrete**

- 3.24 **CONCRETE SUBSTRATE PREPARATION**  
Concrete to be clean and dry before application of the Nuraply TPO waterproofing membrane.
- 3.25 **POSITION MEMBRANE**  
Position Nuraply TPO membrane over acceptable substrate and fold membrane back to expose half of the underside.
- 3.26 **APPLY ADHESIVE (ADHESIVE FIX)**  
Apply bonding adhesive to the exposed underside of the membrane and to the corresponding substrate. Apply using a plastic core, medium nap paint roller, at a coverage rate of 1.5m<sup>2</sup> per litre per finished surface (includes coverage on both membrane and substrate).
- 3.27 **INSTALL MEMBRANE SHEETS (ADHESIVE FIX)**  
Allow bonding adhesive to dry tacky and roll the coated Nuraply TPO membrane onto the coated substrate. Brush down the bonded section of Nuraply TPO membrane immediately with a soft bristle broom. Fold back the unbonded half of the sheet and repeat procedure.
- 3.28 **MECHANICAL FIXINGS (MECHANICALLY FIX)**  
Mechanically fix lap joints of loose laid Nuraply TPO membrane with fasteners and plates to Nuraply TPO installation instructions. Contact Nuralite Waterproofing Limited for wind loading information.
- 3.29 **LAP JOINTS MECHANICAL FIX AND WELD (MECHANICALLY FIX)**  
Allow for a minimum of 150mm lap when mechanically fixing loose laid Nuraply TPO membrane. Provide a minimum 40mm hot-air weld to outer edge.
- 3.30 **LAP JOINTS ADHERED MEMBRANE AND HOT-AIR WELD (ADHESIVE FIX)**  
Allow for overlapping membrane edges a minimum of 75mm to provide for a minimum 40mm hot-air weld.
- 3.31 **HOT-AIR WELD**  
Hot-air weld the adjoining Nuraply TPO membrane sheets with an automatic hot-air welding machine or using hand welding techniques.
- 3.32 **PENETRATIONS**  
Form and finish up-stands, downturns, penetrations, sumps and vents to conform with Nuralite Waterproofing Limited required details.
- 3.33 **PENETRATIONS AND JUNCTIONS**  
Check that adjoining walls and parapets are prepared ready for the installation of the Nuraply TPO membrane. Note: Ensure that no penetrations will occur until after the Nuraply TPO membrane has been laid.

## **Application - Nuratherm insulated roof system with Nuraply TPO**

- 3.34 **LAY VAPOUR BARRIER**  
Lay Nuraply ALU self-adhesive vapour barrier into the Nuraflex QD primed substrate to Nuralite Waterproofing Limited requirements, with joints being rolled and well-sealed shut.
- 3.35 **LAY NURATHERM INSULATION**  
Ensure that sheets have been stretcher bond laid to falls, are rigid, with joints flush upstands filleted, no lumps or hollows, smooth, clean, dry and free of debris.

For double layered systems, use one fixing to hold the first layer of sheets and then fix down the second sheet using IKOfix thermal flanges at the prescribed amount. If fixing down with Nurabond Low Foaming PU adhesive between boards, consult Nuralite for guidance.

Seal any gaps in the insulation with expanding foam to produce a continuous insulation blanket with no gaps. Apply a layer of Aluminium Tape to any exposed ends of insulation sheets, fixings and sheet joints to provide a surface for the membrane to adhere to. On the lip of gutters, a Gutter Lip Trim may be installed if the insulation sheet edge requires additional protection from damage.



When using tapered boards to create the fall, layout needs to be carefully considered before commencing so that there is positive drainage to all outlets.

Secure the sheets to the substrate with Nuratherm fasteners at a rate based in the Installation checklist or consult with Nuralite representatives. On concrete Nurabond Hi-Foaming PU adhesive can be used as an alternative.

- 3.36 POSITION MEMBRANE  
Position Nuraply TPO membrane over acceptable substrate and fold membrane back to expose half of the underside.
- 3.37 APPLY ADHESIVE (ADHESIVE FIX)  
Apply bonding adhesive to the exposed underside of the membrane and to the corresponding substrate. Apply using a plastic core, medium nap paint roller, at a coverage rate of 1.5m<sup>2</sup> per litre per finished surface (includes coverage on both membrane and substrate).
- 3.38 INSTALL MEMBRANE SHEETS (ADHESIVE FIX)  
Allow bonding adhesive to dry tacky and roll the coated Nuraply TPO membrane onto the coated substrate. Brush down the bonded section of Nuraply TPO membrane immediately with a soft bristle broom. Fold back the unbonded half of the sheet and repeat procedure.
- 3.39 MECHANICAL FIXINGS (MECHANICALLY FIX)  
Mechanically fix lap joints of loose laid Nuraply TPO membrane with fasteners and plates to Nuraply TPO installation instructions. Contact Nuralite Waterproofing Limited for wind loading information.
- 3.40 LAP JOINTS MECHANICAL FIX AND HOT-AIR WELD (MECHANICALLY FIX)  
Allow for a minimum of 150mm lap when mechanically fixing loose laid Nuraply TPO membrane. Provide a minimum 40mm hot- air weld to outer edge.
- 3.41 LAP JOINTS ADHERED MEMBRANE AND HOT-AIR WELD (ADHESIVE FIX)  
Allow for overlapping membrane edges a minimum of 75mm to provide for a minimum 40mm hot-air weld.
- 3.42 HOT AIR WELD  
Hot-air weld the adjoining Nuraply TPO membrane sheets with an automatic hot-air welding machine or using hand welding techniques.
- 3.43 PENETRATIONS  
Form and finish upstands, downturns, penetrations, sumps and vents to conform with Nuralite Waterproofing Limited required details.
- 3.44 PENETRATIONS AND JUNCTIONS  
Check that adjoining walls and parapets are prepared ready for the installation of the Nuraply TPO membrane. Note: Ensure that no penetrations will occur until after the Nuraply TPO membrane has been laid.

## **Installation - Nurajack and Nurapad deck support system**

- 3.45 NURAJACK & NURAPAD INSTALLATION  
Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for details.

## **Finishing**

- 3.46 FOOT TRAFFIC  
Keep foot traffic to a minimum after laying the **Nuraply TPO** membrane. Lay protection at all traffic concentration points.
- 3.47 ACCESS BOARDS  
Provide access boards for later operations and remove when no longer needed.
- 3.48 ACCEPTANCE  
Arrange for an inspection of the completed work. Protect and maintain roofing until completion of the contract works.
- 3.49 SUBSEQUENT WORK

Make good any covering that has been cut or deformed by later work. Making good to take the form of inserting a new whole or part infill sheet to maintain the appearance of the covering as originally laid.

## 3.50 FLOOD TESTING

Where practical, flood test gutters and outlets with a maximum 50mm depth of water for 24 hours. Make good any lack of water tightness when the surface is completely dry. Ensure that an overflow is incorporated during the flood testing and that there are no load limitations that might prevent testing.

### **Completion**

## 3.51 COMPLETION MATTERS

Refer to completion requirement sheets and if required commissioning requirements.

## 4. SELECTIONS

For further details on selections go to [www.nuralite.co.nz](http://www.nuralite.co.nz).

Substitutions are not permitted to the following, unless stated otherwise.

### **Nuraply TPO Membrane**

#### 4.1 NURAPLY TPO MEMBRANE - FULL ADHESIVE FIX

Location: ~  
Substrate: ~  
Supplier: Nuralite Waterproofing Limited  
Membrane: Nuraply TPO  
Thickness: 1.5mm  
Colour: grey  
Finish: smooth  
Adhesive: Nuraply TPO Membrane Bonding Adhesive

#### 4.2 NURAPLY TPO MEMBRANE - MECHANICAL FIX

Location: ~  
Substrate: ~  
Supplier: Nuralite Waterproofing Limited  
Membrane: Nuraply TPO  
Thickness: 1.5mm  
Colour: grey  
Finish: smooth  
Fixing: Nuraply TPO fasteners and metal plates - fixing pattern to suit wind loading.

### **Nuraply TPO Fleece-back Membrane**

#### 4.3 NURAPLY TPO FLEECE-BACK MEMBRANE - FULL ADHESIVE FIX

Location: ~  
Substrate: ~  
Supplier: Nuralite Waterproofing Limited  
Membrane: Nuraply TPO Fleece-Back Membrane  
Thickness: 1.5mm  
Colour: grey  
Finish: smooth  
Adhesive: Nuraply TPO Membrane Bonding Adhesive

#### .4 NURAPLY TPO FLEECE-BACK MEMBRANE - MECHANICAL FIX

Location: ~

Substrate: ~  
Supplier: Nuralite Waterproofing Limited  
Membrane: Nuraply TPO Fleece-Back Membrane  
Thickness: 1.5mm  
Colour: grey  
Finish: smooth  
Fixing: Nuraply TPO fasteners and metal plates - fixing pattern to suit wind loading

## **Nuratherm insulated roof system with Nuraply TPO Fleece-back Membrane**

4.5

### NURATHERM INSULATED ROOF SYSTEM ON TIMBER SUBSTRATES WITH NURAPLY TPO FLEECE-BACK MEMBRANE - ADHESIVE FIX

Location: ~  
Supplier: Nuralite Waterproofing Limited  
Substrate: ~  
Substrate adhesion: Nuraflux QD  
Vapour barrier: Nuraply ALU  
Insulation layer: IKO Nuratherm ALU insulation board  
Thickness: ~mm  
R-value: ~  
Fixings: IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate)  
Membrane: Nuraply TPO Fleece-Back Membrane  
Thickness: 1.5mm  
Colour: Grey  
Finish: Smooth  
Adhesive: Nuraply TPO Membrane Bonding Adhesive

4.6

### NURATHERM INSULATED ROOF SYSTEM ON METAL TRAY DECK WITH NURAPLY TPO FLEECE-BACK MEMBRANE - ADHESIVE FIX

Location: ~  
Supplier: Nuralite Waterproofing Limited  
Substrate: Nuralite NPM900 metal tray deck  
Substrate adhesion: Nuraflux QD  
Vapour barrier: Nuraply ALU  
Insulation layer: IKO Nuratherm ALU insulation board  
Thickness: ~mm  
R-value: ~  
Fixings: IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate)  
Membrane: Nuraply TPO Fleece-Back Membrane  
Thickness: 1.5mm  
Colour: Grey  
Finish: Smooth  
Adhesive: Nuraply TPO Membrane Bonding Adhesive

4.7

### NURATHERM INSULATED ROOF SYSTEM ON CONCRETE WITH NURAPLY TPO FLEECE-BACK MEMBRANE ADHESIVE FIX

Location: ~  
Supplier: Nuralite Waterproofing Limited

Substrate:	Concrete
Substrate adhesion:	Nuraflux QD
Vapour barrier:	Nuraply ALU
Insulation layer:	IKO Nuratherm ALU insulation board
Thickness:	~mm
R-value:	~
Fixings:	IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate) or Nurabond Hi-Foaming PU adhesive
Membrane:	Nuraply TPO Fleece-Back Membrane
Thickness:	1.5mm
Colour:	Grey
Finish:	Smooth
Adhesive:	Nuraply TPO Membrane Bonding Adhesive

4.8

## NURATHERM INSULATED ROOF SYSTEM ON TIMBER SUBSTRATES WITH NURAPLY TPO FLEECE-BACK MEMBRANE - MECHANICAL FIX

Location:	~
Supplier:	Nuralite Waterproofing Limited
Substrate:	~
Substrate adhesion:	Nuraflux QD
Vapour barrier:	Nuraply ALU
Insulation layer:	IKO Nuratherm ALU insulation board
Thickness:	~mm
R-value:	~
Fixings:	IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate)
Membrane:	Nuraply TPO Fleece-Back Membrane
Thickness:	1.5mm
Colour:	Grey
Finish:	Smooth
Fixings:	IKO Fix fasteners - fixing pattern to suit wind loading (for fixing membrane to insulation board)

4.9

## NURATHERM INSULATED ROOF SYSTEM ON METAL TRAY DECK WITH NURAPLY TPO FLEECE-BACK MEMBRANE - MECHANICAL FIX

Location:	~
Supplier:	Nuralite Waterproofing Limited
Substrate:	Nuralite NPM900 metal tray deck
Substrate adhesion:	Nuralite NPM900 metal tray deck
Vapour barrier:	Nuraply ALU
Insulation layer:	IKO Nuratherm ALU insulation board
Thickness:	~mm
R-value:	~
Fixings:	IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate)
Membrane:	Nuraply TPO Fleece-Back Membrane
Thickness:	1.5mm
Colour:	Grey
Finish:	Smooth

Fixings: IKO Fix fasteners - fixing pattern to suit wind loading (for fixing membrane to insulation board)

4.10

## NURATHERM INSULATED ROOF SYSTEM ON CONCRETE WITH NURAPLY TPO FLEECE-BACK MEMBRANE MECHANICAL FIX

Location: ~  
Supplier: Nuralite Waterproofing Limited  
Substrate: Concrete  
Substrate adhesion: Nuraflux QD  
Vapour barrier: Nuraply ALU  
Insulation layer: IKO Nuratherm ALU insulation board  
Thickness: ~mm  
R-value: ~  
Fixings: IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate) or Nurabond Hi-Foaming PU adhesive  
Membrane: Nuraply TPO Fleece-Back Membrane  
Thickness: 1.5mm  
Colour: Grey  
Finish: Smooth  
Fixings: IKO Fix fasteners - fixing pattern to suit wind loading (for fixing membrane to insulation board)

### Materials - detail membrane

4.11 NURAPLY TPO WALKPAD MEMBRANE

Location: ~  
Supplier: Nuralite Waterproofing Limited  
Description: Nuraply TPO walkway membrane - extruded and embossed TPO  
Size: 3.81mm thick x 15m long x 766mm wide  
Colour: grey  
Pattern: Herringbone

4.12 NURAPLY TPO DETAIL MEMBRANE

Location: ~  
Supplier: Nuralite Waterproofing Limited  
Description: Nuraply TPO Detail membrane  
Size: 1.5mm thick x 1524m long x 610 mm wide  
Colour: Grey

### Accessories

4.13 NURAJACK & NURAPAD DECK SUPPORT SYSTEM

Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for details.

4.14 NURAPLY TPO MATERIAL ACCESSORIES

Location: ~  
Supplier: Nuralite Waterproofing Limited  
Type: ~

## Nuraply TPO Checklist for Project Signoff

Project Name: \_\_\_\_\_

Form Completed by: \_\_\_\_\_

Company: \_\_\_\_\_

Area: \_\_\_\_\_

Applicator: \_\_\_\_\_

Products Used: \_\_\_\_\_

Project Review	Comply Y/N/Na	Comments
Substrate readiness form completed		
Gutters correctly and neatly installed, particularly the internal corners		
Roof drains & overflows installed to specification and watertight		
Adhesive used in correct quantities. Membrane fully adhered to substrate with no evidence of bubbles or lifting.		
Correct quantity of fastenings used if Mechanically fastened.		
All laps fully welded and tidily appearance.		
Overall installation free of wrinkles, creases and splits		
All penetration details completed to specification including under/overflashing		
All non standard details installed as per pre-approved specifications (attach approved drawing)		
Any damage to membrane repaired to specification.		
Gutters correctly and neatly installed, particularly the internal corners		
Roof drains & overflows installed to specification and watertight		

**Remedial action required:**

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

## NURAPLY TPO MAINTENANCE PROGRAMME

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To get the longest life from a roof it must be regularly inspected & maintained.

When first installed there should be inspections each spring and autumn, to enable the effects of annual extremes of weather to be checked. Following that an annual program of roof inspection and cleaning should be established by the building owner as part of general building maintenance.

Roofs exposed to high levels of pollution or in close proximity to trees might require more frequent inspection.

Any inspection of a roof should include the interior of the building for signs of water penetration or condensation and for alterations, which may have affected the roof. Externally, abutting construction, which can affect the performance of the roof, should also be inspected.

### Annual Inspections & Cleaning

#### Inspections

The inspection should concentrate on “high risk” areas such as hatches, drains and around all roof top equipment, as well as a general inspection of the entire roof. Inspections should also include the examination of the roof deck if possible from the underside for evidence of leaks, deteriorated decking, structural cracks or movement and other deficiencies. Parapets and edging should also be examined for evidence of cracking, deterioration and moisture infiltration.

#### Damage

If damage is found on the roof surface it should be repaired immediately by an approved Nuralite Applicator. They will use NURAPLY TPO component products and special techniques to achieve neat, unobtrusive reinstatement of the NURAPLY TPO.

#### Cleaning

Location, traffic level, effective drainage, and service use will dictate cleaning requirements. Sweeping clean followed by hose and broom washing of the NURAPLY TPO roof is recommended, not water blasting. If mould does appear it should be removed with a long-term mould killer such as Nuracide.

You may do this yourself or talk to your applicator if you would like them to include you in an annual program of inspections & cleaning.

### Five Year Authorised Service Checks

To maintain your warranty, every five years you must have an Approved Applicator visit to inspect the roof and ensure it remains in good condition.

The Applicator will thoroughly check the roof for signs of damage, water ingress or potential problems.

	<b>Applicator</b>	<b>Date</b>	<b>Signed</b>
<b>Inspection 1</b>			
<b>Inspection 2</b>			
<b>Inspection 3</b>			
<b>Inspection 4</b>			

## INSPECTION CHECKLIST

### 1) Surface:

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- a) accumulation of silt or vegetation;
- b) areas of ponding.

### 2) Membrane:

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- a) blistering, ripples, rucking, detachment;
- b) cracks, splits, tears, punctures, indentations;
- c) pimpling, pitting, crocodiling;
- d) pulled, unbonded laps;
- e) softening of surface.

### 3) Substrate:

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- a) depressions in surface;
- b) lack of support/soft support to membrane.

### 4) Rainwater outlets:

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- a) blocked;
- b) not bonded to membrane (if bonded type);
- c) clamping ring loose (if clamped type).

### 5) Upstands:

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- a) damaged/detached flashings;
- b) sagging membrane;
- c) splits, cracks, tears;
- d) membrane unsupported at junction;
- e) unbonded laps;
- f) blistering.

### 6) Eaves/verge:

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- a) unbonded or peeling membrane;
- b) cracking/splitting or strain in membrane;
- c) displacement or signs of movement of edge trim.

### 7) Movement joints, upstand type:

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- a) unsealed capping joints;
- b) dislodged flashing/capping;

### 8) Abutting construction:

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- a) parapet copings cracked, loose, unsealed;
- b) damaged damp-proof course, lack of continuity in damp-proofing;
- c) open joints, cracking in construction;
- d) loose/missing pointing.

### 9) Roof fixtures and penetrations:

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- a) damaged/missing flashings;
- b) balustrade/vent pipe, loose or missing flashing or collar;
- c) plant plinth damaged/missing flashing;
- d) lightning conductor tape, fixing loose