NORTHLAND Timber Co. LIMITED

PROUDLY 100% NZ OWNED & OPERATED

Building Product Information Sheet (BPIR)

Product name	**Ecoply® DD17x2700x1200mm F8/F5 Untreated**
Product line	Ecoply® is part of the CHH Roofing Ply range
Product identifier	Ecoply® DD17x2700x1200mm F8/F5 Untreated
Product class	Class 1

Description

Ecoply® roofing plywood panels are manufactured from sustainably grown NZ plantation pine wood veneers. The veneers are placed at right angles to each other for maximum strength and stability then bonded together with resin to form a strong and permanent bond.

Ecoply® roofing plywood is structural-grade plywood used throughout the building industry, where structural characteristics are required to accommodate substrate material eg. shingles or tiles or where a smooth substrate is not required. Most fiberglass, asphalt or wooden shingle and tile systems will tolerate the DD grade surface characteristics. Ecoply® DD17x2700x1200mm F8/F5 Untreated is used as a substrate for coverings with the ability to span holes in the D face grade (up to 75mm in diameter) such as asphaltic roof tiles and torch welded polyester reinforce membranes.

Ecoply® DD17x2700x1200mm F8/F5 sheets are untreated. The F8/F5 is a code denoting the strength and stiffness properties of the plywood roofing product and shows that the stress grade in both directions, in this instance, the F8/F5 code means it is the strongest and most ideal for roofing products such as membranes and tiles. (See Table 1 ' Nominal Stiffness and Strength of Ecoply® Roofing Plywood range' ECOPLY® Roofing Product Range Change, Technical Note, August 2022)

The surface grade of the Ecoply® plywood, which in this case is DD - describes the front and back veneer appearance. In this case, DD means both sides of the ply are left unsanded to give extra strength and a safer grip when installing at a height, such as roofing installation. Ecoply Roofing features a tongue and groove profile on the long edge of the ply.

Relevant Building Code Clauses

- E2 External moisture — E2.3.1, E2.3.2, E2.3.5, E2.3.6, E2.3.7
- B2 Durability — B2.3.1 (a) B2.3.2 (a)
- F2 Hazardous building materials — F2.3.1

Contributions to Compliance

Clause E2: External Moisture: E2.3.1, E2.3.2, E2.3.5, E2.3.6, E2.3.7

Appropriate building detailing and ventilation which is recommended can reduce the need for treatment.
Roof Ventilation:

Good ventilation and the avoidance of moisture are important design considerations when using untreated Ecoply panels. Poorly ventilated spaces can develop very high temperature and moisture levels. The most likely source of moisture is the condensation of vapour from warm interior air on the underside of cold roofing.

Good ventilation can limit the build-up of excess moisture vapour in warmer climates.
Moisture induced decay is only one risk that needs to be managed. If incorrectly detailed, roof spaces can be very tight, and the dark colour of many roofing materials means that excessive heat can build up causing distortion in plywood or even framing members. Use the suggested details or alternatives to suit.

Designers must consider roofing type, seasonal conditions, wind effects and the intended use of the building. As a minimum, CHH Plywood recommends a vent area of 1/300th of the ceiling plan area (approx. 3350mm2 per square metre of ceiling) equally distributed at the eaves and ridge to allow free flow under the Ecoply, up the roof slope, and out.
Roofing material suppliers should detail vent systems suited to their specific membrane or tile roofing. Proprietary ridge capping profiles or vents are available from roofing suppliers. Detail gaps of 25mm in the plywood at ridges, and at walls where a roof slopes up to an upper storey. For flat roofs, natural ventilation flows may be impeded. Use proprietary roof vents. Consider forced ventilation as appropriate.
Occasional bubbling occurs when moisture trapped in knot holes in inner veneers expands as the temperature rises. This moisture will dissipate through the face veneer and will not affect the structural integrity of the plywood panel. As membrane coverings can prevent moisture dissipation.

Contributions to Compliance

Clause F2.3.1 (Hazardous building materials)

Ecoply® plywood is safe to use, especially when simple Health and Safety protocols are in place:

- Always wear safety glasses or non-fogging goggles when machining Ecoply® panels.
- If wood dust exposures are not controlled when machining (sawing, routing, planing, drilling etc.) a class P1 or P2 replaceable filter or disposable face piece respirator should be worn.
- Wear comfortable work gloves to avoid skin irritation and the risk of splinters. Wash hands with mild soap and water after handling panels

Contributions to Compliance

Clause B2.3.1(a) B2.3.2(a) (Durability)

Ecoply is manufactured under a third party-audited quality control programme and is certified by the Engineered Wood Products Association of Australasia (EWPAA) as compliant with AS/NZS 2269 Plywood Structural

Various roofing materials used over Ecoply®plywood have different durability expectations, normally more than the 15 years required by the NZBC Clause B2.

Durability of the roofing is subject to the specifications, installation, and maintenance requirements of the roofing manufacturer.

The durability of the Ecoply can only be assured if the overlying roofing and detailing excludes moisture. With good building practice and maintenance, roofing materials can be repaired or replaced at regular intervals to achieve life from the Ecoply in excess of the original roofing.

The durability of Ecoply structural plywood will continue to satisfy the relevant requirements of the NZBC for 50 years, if installed in accordance with the instructions and limitations within this guide and if the roof system is adequately maintained.

Scope of Use

Ecoply® DD17x2700x1200mm F8/F5 Untreated

Ecoply® DD17x2700x1200mm F8/F5 Untreated is designed to be used on roofs as a layer between the frame and the outer roof cladding. It is designed for roofing overlays that can cope with open imperfections in the substrate face.
Ecoply®plywood is used as a substrate for flexible membrane and tile systems in roofing.
Always refer to the roofing system supplier for installation, correct plywood selection and surface preparation requirements for specific roofing.

FLEXIBLE MEMBRANE SYSTEMS:

- Roofing membranes may comprise synthetic rubber sheeting glued to the Ecoply or torch welded bitumen membranes.
- Always ensure Ecoply is dry and free of imperfections such as surface dust and blemishes as membranes coatings will highlight any substrate imperfections.
- Use countersunk stainless-steel screws and adhesive on framing to avoid head popping. Apply adhesive between screw locations.
- Use kiln dried timber framing such as Laserframe® or appropriate LVL framing from the Futurebuild® range.
- Consult the membrane manufacturer regarding use of bond breaker tapes over joints to allow elongation with natural plywood movement.
- Where treatment is required use only H3.2 CCA treated Ecoply. DO NOT use H3.1 LOSP treated Ecoply (solvent based carrier). It is not compatible with most membrane systems.
- If there is evidence of treatment salt crystals on the Ecoply surface remove by scrubbing with a small amount of water and allow the surface to dry prior to laying the membrane system.
- Designers and membrane suppliers must carefully consider the suitability of plywood as a substrate for the membrane system in question if the potential of telegraphing of face checks onto the membrane surface is not acceptable.
- Membrane suppliers have held different views on the requirements for plywood substrates. The fixing instructions within this guide (Ecoply Specific Installation Guide, October 2022) are the starting point but designers must detail joints that allow for expansion in accordance with practices recommended by the chosen membrane supplier.
    - CHH Plywood' view, is that expansion and contraction at sheet edges should be allowed for by loosely butting tongue and grooved edges so that the tongues can absorb movement and providing a small gap (2 to 3mm) between square sawn edges. Use a bond breaking tape over these joints to spread elongation in the membrane over a longer distance than the narrow gap in the joint itself. This tape can double as a rain seal over the sheet edges during construction.
    - Other membrane suppliers believe that sheets should be tightly butted and glued and screwed hard up to each other. This practice constrains movement at the small joint between sheets, but over a wider area requires significant allowance for movement around the perimeter of a roof segment.
    - Junctions between the roof slopes and walls need careful detailing to allow for the potential movement. Movement control joints should be provided at regular intervals following the recommendation of the membrane manufacturer, especially if this method is adopted. Fastener Spacing for Wind Suction Wind pressure applies withdrawal loads to nails holding plywood to purlins and trusses. For the frame spacing in Table 15A designers may use the following guidelines for wind zones expressed in NZS 3604.
- Full penetration of fasteners into the supporting member is assumed.

Continued

Scope of Use (Continued)

Ecoply® DD17x2700x1200mm F8/F5 Untreated

The Main Body of the roof for wind zones up to and including high, use 60 x 2.8mm nails spaced at 150mm centres on all cross framing. For very high and extra high wind zones, use 75 x 3.15mm nails spaced at 150mm centres on all cross framing.

Sheet Layout

- Ensure Ecoply®sheets are dry before installation.
- Place face grain at right angles to supports.
- Sheets must be continuous over at least two spans (three framing members).
- Lay the sheets in a staggered pattern.
- Allow sufficient clearance inside confining structure such as concrete or brick walls adjacent to the roof. Use extra allowances with large areas.
- Allow clearance for ventilation as required.

Fixing of Sheets

Ecoply may be fixed to different types of framing with nails, screws or a combination of fasteners and construction adhesives. Fasteners should be corrosion resistant to a level appropriate to the end use life expectancy (15 or 50 years) and expected exposure to moisture.

In certain circumstances stainless steel fasteners may be required. Refer to section 4 of NZS 3604 for these circumstances.

Where stainless steel nails are required, annular grooved nails must be used. The integrity of a plywood-based roof system is directly related to how well the panels are fixed to the framing.

Ecoply must be fixed to resist wind suction loads, and to maintain surface qualities of the overlying roof covering.

- Always refer to the roofing system supplier for system requirements.
- For roofing, check the additional requirements according to wind exposure.
- For very exposed sites, cyclonic conditions or roofs above 10 metres in height, carry out specific structural design to the relevant standards.
- Screw fixing must be used for membrane roofing and is preferred for all systems because of increased holding power and avoidance of head popping.

Fixing to Timber Frames

- Ring shank nails or annular grooved nails or screws are recommended for additional holding power.
- Use flathead nails. Do not use jolt or bullet head nails.
- Stainless steel nails must be annular grooved.
- Ensure fastener is compatible with the roofing cover (consult roofing system supplier).
- Staples may be used provided that the withdrawal load is equivalent to the hand driven galvanised flathead nail. A suggested minimum is a 50mm long staple with 12mm crown and legs 1.8mm diameter. Space staples 20% closer than nails. Refer to the manufacturer's information for corrosion resistance and durability.

Conditions of Use

Ecoply® DD17x2700x1200mm F8/F5 Untreated

Ecoply® DD17x2700x1200mm F8/F5 Untreated must be installed in accordance with the Ecoply Specification and Installation Guide, October 2022 along with the Installation instructions of the roofing system supplier for correct plywood selection and surface preparation requirements for specific roofing.

For roofs uncovered for longer than three months during construction periods use H3 treated Ecoply to lower the risk of decay. Return Ecoply to below 18% moisture content before installing moisture sensitive materials, coverings, coatings, or adhesives. Where a high visual finish is desired (such as membrane roofing) protect Ecoply from exterior moisture during construction.

Good ventilation can limit the build-up of excess moisture vapour in warmer climates but in regions where winter nights are consistently colder, H3.2 CCA treated Ecoply should be used.

High Humidity, Condensation and Solar Driven Moisture Where the moisture content of wood may exceed 18% for prolonged periods, Ecoply must be H3.2 CCA treated, to resist decay hazard. This includes Ecoply used under roof coverings that may be subject to condensation, or where rain moisture soaked in the roof covering can be driven into the Ecoply by the sun.

Gutter Details:

- Where Ecoply structural plywood sub-sheathing supports roofing at gutters, a metal drip edge must be provided with appropriate gaps to shed water.
- Gutters should have a front edge overflow or ends lower than the back to shed water overflow away from framing and sub-sheathing Ecoply. NOTE: H3.2 CCA treatment is recommended for Ecoply sheets that protrude into gutters, with regular maintenance to avoid leaf mould (soil) development.

Fastener Spacing for Wind Suction:

- Wind pressure applies withdrawal loads to nails holding plywood to purlins and trusses. For the frame spacing in Table 15A designers may use the following guidelines for wind zones expressed in NZS 3604. Full penetration of fasteners into the supporting member is assumed.

The Main Body of the Roof:

- For wind zones up to and including high, use 60 x 2.8mm nails spaced at 150mm centres on all cross framing.
- For very high and extra high wind zones, use 75 x 3.15mm nails spaced at 150mm centres on all cross framing.

Roof Edges

- All Ecoply structural plywood used at local pressure suction zones at the roof edges, gutters, eaves, and gable ends must be supported on framing, and fixed at 75mm centres with minimum 60 x 2.8mm nails for regions up to and including high wind zones (use 75 x 3.15mm nails for very high and extra high wind zones).
- Local pressure zones are interpreted from AS/NZS 1170 as being within 20% of the building length, width or the average of the gutter and ridge height.

Designers and builders should review site conditions to ensure adequate fixing is applied. Buildings in exposed sites and lee zones should be specifically designed using the loading standard (AS/NZS 1170) and the timber structures standard NZS 3603. In some wind conditions, the tiles themselves may be sucked from the plywood. Use a consulting engineer to assess site conditions, calculate wind pressures for the specific site, and determine the fastening and span requirements, and to check that the truss system can resist the loads being applied through the plywood.

Documentation

- **Ecoply Installation and Specification Guide October 2022**

  https://chhply.co.nz/assets/Uploads/E...

  Design Installation Maintenance Test results Warranty

- **Ecoply Roofing 2022**

  https://chhply.co.nz/ranges/ecoply/ec...

  Design Installation

- **Ecoply Roofing Product Range Change Technical Note August 2022**

  https://chhply.co.nz/ranges/ECOPLY_Te...

  Design Installation Test results

- **Chemwatch CHH CCA Treated Pine Plywood Version No: 12.1.1.1**

  https://CHH_CCATreatedPinePlywoodSDS_...

  Certification Test results

- **Standards New Zealand 14/02/2011**

  https://www.standards.govt.nz/shop/nz...

  Certification Design Installation

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