# Onduline Technical Pack

## Contents

### General Introduction

### 1 Onduline Product Overview

**1.1 Description**:

Onduline is an extremely tough lightweight corrugated roofing and wall cladding material manufactured from organic fibres saturated with bitumen under intense pressure and heat. Onduline was first introduced in France in 1950 and has been subsequently manufactured and sold in over 120 countries, ranging in climate from the Arctic to the Tropics.

**1.2 Main Benefits**:

- Rust and corrosion free for long life in harsh environments (e.g. very severe marine).
- Safe and lightweight for easy handling (no sharp edges).
- Curves naturally, enabling innovative designs.
- Resists most chemicals.
- Cyclone rated to 192km/h.
- Easy to cut and form.
- Good thermal and acoustic properties.
- Contains no health risk.

**1.3 Applications**:

- Used extensively by monitoring agencies, including government and ecological engineering groups, for monitoring native skink populations and rodent impacts in study areas.
- Provides a low-cost cladding and fencing solution.
- Suitable for carports, huts, playhouses, sheds, and kennels.
- Ideal for agricultural use because it provides insulation with little or no condensation.
- Suitable for industrial use due to resistance to fumes and corrosion.
- Appropriate for fertiliser environments because it is corrosion free.

### 2 Response To Frequently Asked Questions

| | | |
|---|---|---|
| **Sheet size:** | 38mm profile: | 2.0m x 0.94m |
| **Fixing:** | Approx 20 screws per sheet. No pre-drilling is required as Onduline can be easily nailed or screwed straight through, even multiple thicknesses. EcoSheets recommends 65mm and 25mm black tex screws complete with rubber washers. Available from EcoSheets | |
| **Walking:** | When walking on Onduline follow framing as with similar roofing materials. | |

| | | |
|---|---|---|
| **Purlin spacing:** | Depends on pitch. | Below 10° - 300mm<br>Below 15° - 450mm<br>Above 15° - 600mm |
| **Minimum Pitch:** | 5° | |
| **Manufacture:** | Made from organic fibre (waste wood chip paper) saturated with bitumen. Natural pigment resins are blended with the base material to provide colour prior to final forming. | |
| **Colours:** | Black only- Red Green and Brown available in bulk orders of 420 sheets min. | |
| **Curved Structures:** | No need to pre-curve as curves may be nailed directly over a frame. | |
| **Warranty:** | There is a 15-year insurance-backed **manufacturers warranty** that the material will remain waterproof. This provides for the replacement cost of Onduline sheet material only. Does not cover damage due to incorrect installation procedures. | |
| **Colour Fastness:** | The weathering effects of New Zealand,s extremely strong UV will lead to colour fading in time. The colour may be enhanced by the application of an acrylic paint. This will substantially increase to performance of the product in the longer term. | |
| **Drinking Water:** | Tested and approved to World Health Organisation & EEC standards. We recommend that an appropriate water filter always be installed if water collection is required together with the application of a coat of acrylic paint. | |

# Technical Information & Installation Instructions

## 3 Product Information

### 3.1 Dimensions

Onduline is 3mm thick prefinished corrugated sheet roof and wall cladding and accessories manufactured from bitumen-impregnated cellulose fibre - supplied as follows:

| | |
|---|---|
| Length | 2000mm |
| Width | 940mm |
| Cover | 850mm |
| Corro depth | 37mm Corrugation pitch 94mm |
| | Sheets are supplied in : Black; |

### 3.2 Handling and Storage

For long-term storage, stack crated pallets singly stacked under cover in a cool place. For short-term storage on site, cover sheets and store flat on timber bearers.

Lift sheets clear to avoid surface damage. Do not drag sheets across one another

**3.3 Uses** The cladding and roofing is intended mainly for horticultural and agricultural purpose buildings, outbuildings, and ancillary structures, especially those with a range of external or internal corrosive environments (see under **Chemical and Solvent Resistance**). Onduline cladding can be used in such environments as severe marine exposures that corrode metal-based claddings.

Minimum roof pitch is 5°. (With rigid sarking or sheathing recommended for roofs under 10°) The minimum radius of curvature for curved roofs or walls is 5.0m.

### 3.4 Support Centres for Cladding

Cladding for walls and fencing is recommended to be **vertical** rather than horizontal.
Horizontal Onduline tends to sag and slump from long periods exposed to high UV sun situations

| | |
|---|---|
| Walls | 600mm |
| Roofs | 300mm (pitch - 5 to 10°)<br>450mm (pitch - 11 to 15°)<br>600mm (pitch > 15°) |
| Curved structures | As above - maximum 600mm. |

### 3.7.2 Chemical and Solvent Resistance

Onduline is resistant to atmospheric corrosive pollutants, such as wind-borne salt and acidic or alkaline industrial emissions (gaseous, liquid, or solid). The product is best suited for use in atmospheric classifications C2.3 Severe Industrial and C2.4 Very Severe of AS 2728, for agricultural and industrial buildings such as animal rearing and breeding sheds (pigs, chickens, cattle etc), or for industrial processes such as the manufacture of fertiliser or other acidic and alkaline materials.

Onduline will be affected by contact with petroleum-based solvents, oils, greases, and longterm exposure to solvent fumes from petroleum-based or dry-cleaning solvents etc.

### 3.7.3 Weathering

Deterioration (e.g., fading) and erosion of the pigmented coating will occur. The serviceable life of Onduline sheets will be usefully extended if painting is carried out.

### 3.7.4 Maintenance and Painting

Remove rubbish such as leaves.

Remove lichen or other organic growth with water-based chemical treatments. Consult suppliers of roof cleaning materials or services for suitable chemical treatments.

If painting is required to restore the appearance and extend the serviceability life, use a recommended bitumen-compatible water-based paint.

If replacing sheets, carefully remove screws at overlap between sound and damaged sheets.

### 3.7.6 Water Supplies

Onduline sheets can be used for the collection of potable water. Other components of the cladding system, such as flashings, must also be suitable for potable water collection, e.g., lead-edged or lead-based flashings must not be used.

Consult Local authorities for control of the collection of potable water from roofs.

Rainwater from all types of roofs may become discoloured or contaminated by lichen, moss, fertilisers, leaves, or wind-borne dust, agricultural chemicals and deposits of bird droppings. In these circumstances, the installation of a water purifier is recommended.

After installation, disconnect system from the storage tank until the roof is rain-washed several times. If roofing is painted, or cleaned with chemical treatments, disconnect again until the roof is adequately rain washed (three good rainfalls) or hosed down.

It is recommended best practice where water is to be taken off the roof that both the surface be painted and an appropriate filter installed.

## 4 Installation Information

### 4.1.0 Cutting Sheets

Sheets can be cut with a hand saw or mechanical saw. A reciprocating saw works well and regular spray with WD40 or similar stops the bitumen sticking to the blades

### 4.1.3 Fixing Sheets

Fix cladding across sheet to every support. Ensure head of screw is not driven in too far..

EcoSheets recommends 65mm and 25mm black tex screws complete with rubber washers. Available from EcoSheets

### 4.1.4 Fixing at Sheets Ends

On roofs, fix across the sheet to timber or steel supports at every crest.

On walls, fix ends across the sheet at the crest of the side lap, and then at every trough except those either side of the fixed crest.

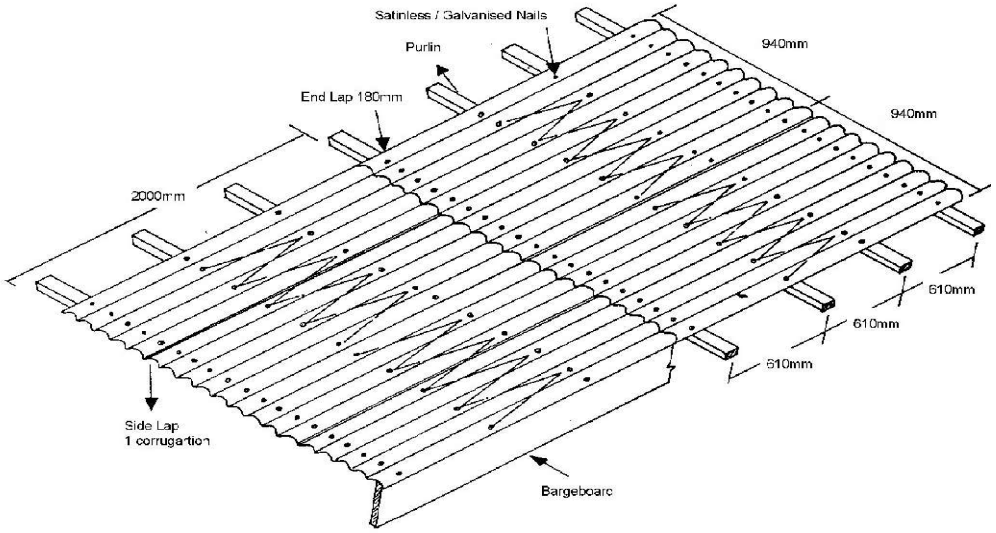
**Table 3a: Fixing Centres (Intermediate Supports)**

| Location | NZS 3604 Wind Zone | Fixing Centres at the Nominated Support Centres | | | |
|---|---|---|---|---|---|
| | | Lined Buildings | | Unlined Buildings | |
| | | 450 | 600 | 450 | 600 |
| Roofs | Low | Fix every 2nd corrugation | | | |
| | Medium | | | | |
| | High | | Fix every corrugation | | |
| | Very High | | | | Not allowed |
| Walls | Low / Medium | Fix every 2nd corrugation | | | |
| | High | | Fix every trough | | |
| | Very High | | | | Not allowed |

Use compressible foam strips at eaves to minimise the entry of snow or water in severe exposures. Use similar strips at the bottom of walls to minimise the entry of moisture, powdered snow, dust, and draughts in exposed locations, and birds and vermin.

## 4.2 Sheet Layout & Screwing

| Roof Pitch 15° and over | Roof Pitch 10° to 15° | Roof Pitch 5° to 10° |
|---|---|---|
| Purlin distance at 610mm | Purlin distance at 450mm | Purlin distance at 300mm |
| End lap 180mm | End lap 180mm | End lap 300mm |
| Side lap 1 corrugation | Side lap 1 corrugation | Side lap 2 corrugations |
| 20 nails required to fix each sheet | 20 nails required to fix each sheet | 20 nails required to fix each sheet |
| Maximum overhang 75mm | Rigid sheathing (e.g. plywood) | Rigid sheathing (e.g. plywood) |



## 5 Fixing to Curved Roofs

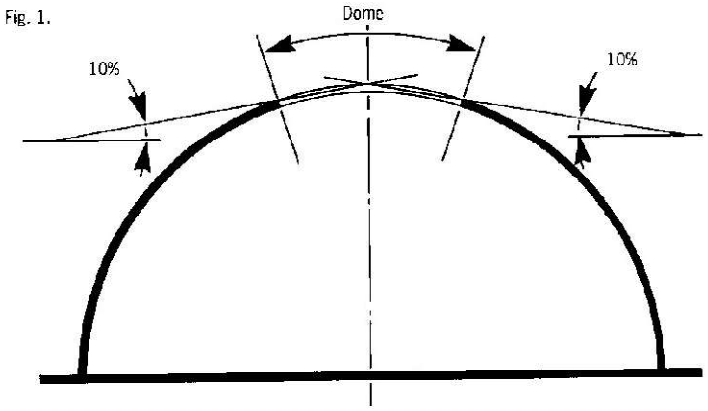
**5.1** Onduline roof sheeting as curved cladding on barrel vaults, shell structures.

Onduline sheets can be contoured to a radius from 5m to 9m.

Calculation for the number of purlins required.

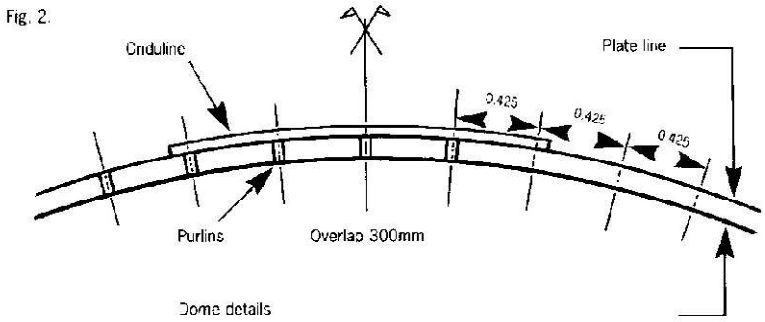
This calculation can be done either on the drawing or traced in full size on the floor. The tracing is done by drawing a secant on each side of the vertex with a 10% slope from the horizontal (fig. 1).

Fig. 1.




Within that pre-determined dome, the slope inclines between 0% and 20%. The sheet installation is done on three intermediate purlins with a purlin span of 425mm (centre to centre), and an overlap of 300mm (fig. 2).

Fig. 2.



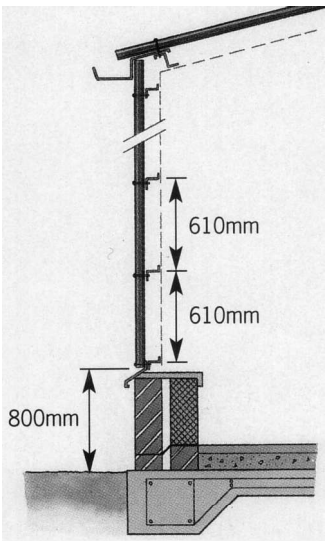

Dome details

On both sides of this dome, the sheet fixing will be carried out on two intermediate purlins, with a purlin span of 600mm (centre to centre), and an endlap of 200mm.

**NB:** It is imperative that the sidelap is two corrugations.

**Caution:** Onduline sheets must not be used for windbracing or purlin strut-bracing nor to stiffen the shells and to maintain the boards curvature over the vault.

Vertical Cladding Onduline forms a tough lightweight side cladding material, which can be fixed to either timber or steel structures. Building Regulations in most countries require a minimum of 1 metre brick or block base to side wall cladding for agricultural buildings.




Onduline must not be in contact with the floor. It should be fixed a minimum of 100mm clear of ground level.

Set the side purlins at 610mm centres. Commence fixing the Onduline cladding at the bottom of the side opposite the direction of prevailing wind. the

The sheets should be fixed as with roof applications (20 fixings per sheet). Single corrugation side lap, 170mm end lap (corrugation going horizontally, 100mm end lap, corrugation going vertically).