



**ROOFING & PROFILES (FIJI) LTD**

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**ROOFING & SHEET METAL MANUFACTURERS**

**SuperDek®**



**“Profiles Tested for Cyclonic Conditions”**



Steel Supplied by:



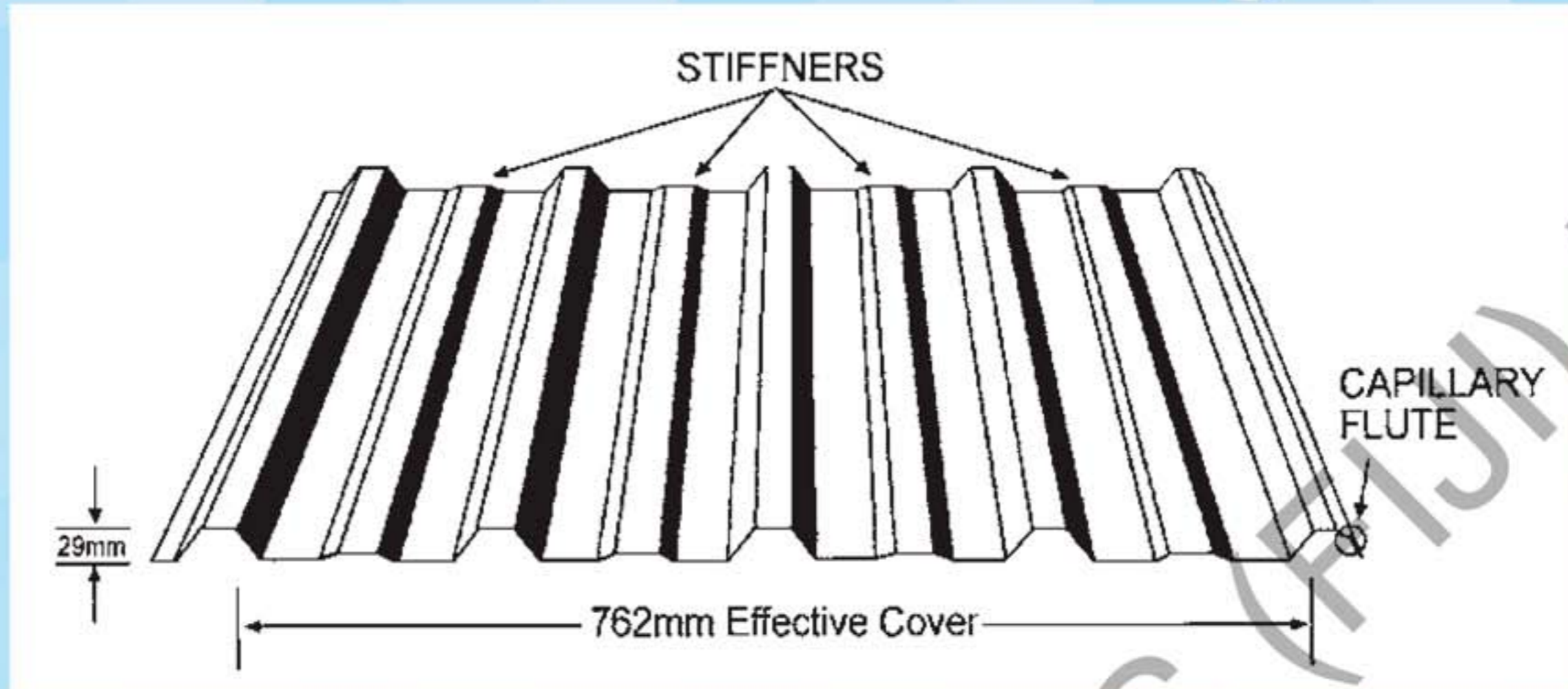
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# SuperDek®

## 5 Rib Profile Roofing



A modern, ribbed profile with stiffeners in the pans to provide strength and long spanning capabilities. **Capillary Flute** eliminates collection of rainwater in between sheet laps preventing risk of corrosion. Equally suitable for domestic, industrial and commercial applications.

### Base Materials

Steel Grade: G550 and G300  
 Coating: AZ150 and AZ200  
 BMT: 0.40mm (Z/A Export Only)  
 0.42mm (Minimum)  
 0.48 & 0.55mm

### Length

Lengths are custom cut.  
 Check maximum and minimum with us.

### Sheet Coverage

Width of Room (m)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	30	40	50	60
Number of Sheets	4	6	7	8	10	11	12	14	15	16	17	18	19	20	21	23	24	25	27	40	53	66

### Tolerance

Length: +0mm, -10mm  
 Width: +4mm, -4mm

### Minimum Roof Pitch

2 Degrees  
 (1 in 27)

### Mass

BMT 0.42mm: 4.3kg/m<sup>2</sup>  
 BMT 0.48mm: 4.9kg/m<sup>2</sup>  
 BMT 0.55mm: 5.6kg/m<sup>2</sup>

### Minimum Roof Pitch

2 Degrees  
 (1 in 27)

### Remember

- \* Accessories
- \* Capping
- \* Curved Flashings
- \* Flashings
- \* Fasteners
- \* Insulation
- \* Rainwater Goods
- \* Translucent Sheeting

### Recommended Fasteners

We recommend BRA Fasteners type B8 protection to AS 3566 Class 4 with 25mm diameter Marine Grade Aluminium / EPDM universal BRA cyclone washer (Specially designed cyclone washer). BRA Fasteners Exclusively available at RPFL.



Talk to your Roofing Specialist from an RPFL sales office about the best material for your next project. RPFL chooses Colorbond PrePainted Steel from New Zealand Steel for all of our SuperDek® product.

### Finishes

Zincalume®

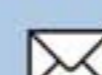


Colorbond XRW™  
 PROVEN COLOURS OF THE PACIFIC

Colorbond Ultra™  
 COLOUR FOR THE EXTREME



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## 1. RPFL Cyclonic Testing of 0.42bmt SuperDek® G550 Steel Grade, Fixed into Timber Purlin

Testing on the SuperDek® roofing profile has been carried out at The University of Adelaide, EngTest, South Australia, Australia. The cyclic tests have produced the following results refer to Report No's:

- C130901-13c-Rev A, dated 27 February 2014
- C130901-18-Rev A, dated 24 February 2014
- C130901-20-Rev A, dated 26 February 2014
- C130901-24-Rev A, dated 27 February 2014

The cyclic test results have been used as a basis for development of the load span table below.

### Lo-Hi-Lo Cyclonic Wind Uplift Resistance - Strength Limit State Test Results

#### Load Span Table

- 0.42bmt SuperDek® sheeting, G550
- 1 Timber purlin batten, minimum width 45mm and minimum depth 45mm, MGP12 Pine, joint group JD4
- Bremick Type 17 x 75mm long screw with 25mm diameter, 1.0mm thick Aluminium Bonded washer used under the head of each screw and fastened at alternate crests.

#### Strength Limit State Design Pressure:

Span (mm)	Strength (kPa) End Span (Trend Line)	Span (mm)	Strength (kPa) Internal Span (Trend Line)	Screw Force (kN)
480	9.52	600	9.72	0.73
600	7.81	750	7.81	0.81
750	6.24	950	6.24	0.88
950	4.96	1200	4.96	0.94

## 2. RPFL Cyclonic Testing of 0.42bmt SuperDek® G550 Steel Grade, Fixed into Steel Purlin

Testing on the SuperDek® roofing profile has been carried out at The University of Adelaide, EngTest, South Australia, Australia. The cyclic tests have produced the following results refer to Report No's:

- C130901-2-Rev A, dated 19 February 2014
- C130901-4c-Rev A, dated 19 February 2014
- C130901-8-Rev A, dated 19 February 2014
- C130901-10-Rev A, dated 19 February 2014

The cyclic test results have been used as a basis for development of the load span table below.

### Lo-Hi-Lo Cyclonic Wind Uplift Resistance - Strength Limit State Test Results

#### Load Span Table

- 0.48bmt SuperDek® sheeting, G550
- Minimum steel purlin thickness, 1.55mm G450 grade
- Bremick 14-10 x 65mm screw with 25mm diameter Aluminium Bonded washer used under the head of each screw and fastened at each crest.



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## Strength Limit State Design Pressure:

Span (mm)	Strength (kPa) End Span (Trend Line)	Span (mm)	Strength (kPa) Internal Span (Trend Line)	Screw Force (kN)
480	9.52	600	9.52	0.71
600	7.90	750	7.90	0.82
750	6.52	950	6.52	0.92
950	5.36	1200	5.36	1.02

### 3. RPFL Cyclonic Testing of 0.48bmt SuperDek® G550 Steel Grade, Fixed into Timber Purlin

Testing on the SuperDek® roofing profile has been carried out at The University of Adelaide, EngTest, South Australia, Australia. The cyclic tests have produced the following results refer to Report No's:

- C130901-14-Rev A, dated 19th February 2014
- C130901-14-Rev A, dated 24th February 2014
- C130901-14-Rev A, dated 26th February 2014
- C130901-14-Rev A, dated 26th February 2014

The cyclic test results have been used as a basis for development of the load span table below.

### Lo-Hi-Lo Cyclonic Wind Uplift Resistance - Strength Limit State Test Results

#### Load Span Table

- 0.48bmt SuperDek® sheeting, G550
- 1 Timber purlin batten, minimum width 45mm and minimum depth 45mm, MGP12 Pine, joint group JD4
- Bremick Type 17 x 75mm long screw with 25mm diameter, 1.0mm thick Aluminium Bonded washer used under the head of each screw and fastened at alternate crests.

## Strength Limit State Design Pressure:

Span (mm)	Strength (kPa) End Span (Trend Line)	Span (mm)	Strength (kPa) Internal Span (Trend Line)	Screw Force (kN)
480	11.28	600	11.28	0.84
600	9.28	750	9.28	0.96
750	7.59	950	7.59	1.07
950	6.18	1200	6.18	1.17





## 4. RPFL Cyclonic Testing of 0.48bmt SuperDek® G550 Steel Grade, Fixed into Steel Purlin

Testing on the SuperDek® roofing profile has been carried out at The University of Adelaide, EngTest, South Australia, Australia. The cyclic tests have produced the following results refer to Report No's:

- C130901-3-Rev A, dated 19th February 2014
- C130901-5-Rev A, dated 24th February 2014
- C130901-9-Rev A, dated 26th February 2014
- C130901-11-Rev A, dated 26th February 2014

The cyclic test results have been used as a basis for development of the load span table below.

### Lo-Hi-Lo Cyclonic Wind Uplift Resistance - Strength Limit State Test Results

#### Load Span Table

- 0.48bmt SuperDek® sheeting, G550
- 1 Steel purlin batten, minimum width 45mm and minimum depth 45mm, MGP12 Pine, joint group JD4
- Bremick Type 17 x 75mm long screw with 25mm diameter, 1.0mm thick Aluminium Bonded washer used under the head of each screw and fastened at alternate crests.

#### Strength Limit State Design Pressure:

Span (mm)	Strength (kPa) End Span (Trend Line)	Span (mm)	Strength (kPa) Internal Span (Trend Line)	Screw Force (kN)
480	9.72	600	9.72	0.73
600	7.81	750	7.81	0.81
750	6.24	950	6.24	0.88
950	4.96	1200	4.96	0.94

## 5. RPFL Cyclonic Testing of 0.55bmt SuperDek® G300 Steel Grade, Fixed into Steel Purlin

Testing on the SuperDek® roofing profile has been carried out at the James Cook Cyclone Testing Station in Townsville, Queensland, Australia. The cyclic tests produced no observable damage to the sheet, screws or washers (refer to Report No.TS986 Revision A).

### Description of Cladding and Set-Up tested

Product name: SuperDek®

Cladding details: 0.55mm bmt G300 grade steel tested and cover width of 762 mm

Sheet Profile: Rib/pan with 5 ribs per sheet, with peaks about 29 mm high and spaced at 190 mm centres

Span Configuration: Multiple un-equal triple spans.

Cladding Fastener: 14 gauge, 10 thread per inch self-drilling metal screw with length of 65 mm.

#### Fixed to supports

Assembly: with one fastener every rib of the/pan profile (about 190 mm fastener pitch).

Cyclone Washers: 25 circular Aluminium bonded.

Supports: 1.5mm bmt C15015 purlins. Strength of the supports was not evaluated.

Installation: Fixed to the purlins with screw assemblies through the ribs of the cladding into the supports.

Installed with one rib overlapped for each side lap and four fastener assemblies per support per sheet.



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## Manufacturer's Details

**Name of Manufacturer :** Roofing & Profiles (Fiji) Ltd.: P.O.Box 9. Ba, Fiji Islands

**Address of Manufacturer :** P.O.Box 9. Ba, Fiji Islands

## Report and Test Details

**Report Details:** Cyclone Testing Station Report No. TS986 revision A, dated 27 March 2015

**Report Title:** Cyclic Simulated Wind Load Strength Testing of SuperDek® Cladding

**Test Regimes:** Cyclic wind load to NCC 2014 LHL.

The cyclic test results have been used as a basis for development of the load span table below.

## Lo-Hi-Lo Cyclonic Wind Uplift Resistance - Strength Limit State Test Results

### Load Span Table

- 0.55bmt SuperDek® sheeting, G300
- Minimum steel purlin thickness, 1.55mm G450 grade
- Bremick 14-10x65mm screw with 25mm diameter Aluminium Bonded washer used under the head of each screw and fastened at each crest.

## Recommended limit State Design Wind Pressures

Cladding Base Metal Thickness (mm)	End Span Length (mm)	Internal Span Length (mm)	Recommended Cyclonic Ultimate Limit State Design Wind Capacity (kPa)
0.55	950	1200	7.04
0.55	750	950	9.09
0.55	600	750	11.57
0.55	480	600	14.04

We, Fyfe Pty. Ltd., confirm that the procedures used in carrying out the cyclonic load tests on

requirements of the National Construction Code Series 2014 (NCC) and the relevant Australian Standards:

- NCC 2014 (also known as the Building Code of Australia)
  - Volume 1: Specification B1.2 – Class 2 to 9 buildings
  - Volume 2: Part 3.10.1 – Class 1 and 10 buildings.
- AS 1562.1 – 1992 - Design and installation of sheet roof and wall cladding (Amdt 3-2012)
- AS 4040 – 1992 - Methods of testing sheet roof and wall cladding
  - Part 0: Introduction, list of methods and general requirements
  - Method 3: Methods of testing sheet roof and wall cladding - Resistance to wind pressures for cyclone regions, pressure test regime as per BCA Lo-Hi-Lo.



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## RPFL Windborne Debris Impact Testing of 0.42bmt SuperDek® G550

### Roof application – Vertical Trajectories

Tests were carried out by the James Cook University, Cyclone Testing Station (CTS), Townsville, Queensland, Australia. Refer to their report no.: TS987

### Test Description:

Where windborne debris loading is specified, the debris impact shall be equivalent to -

- (a) timber member of 4kg mass with a nominal cross-section of 100 mm x 50 mm impacting end on at 0.1 VR for vertical trajectories; and
- (b) spherical steel ball 8mm diameter (approximately 2 grams mass) impacting at 0.3 VR for vertical trajectories where VR is the regional wind speed given in Clause 3.2

### **Target Velocity-Vertical Trajectories:**

**Timber member:** 10.9m/s

**Spherical steel ball:** 32.7m/s

### **Equivalent Regional Wind Speed (V500):**

**Vr=** 88m/s (Region D)

### **Tested Sheeting:**

**Type:** SuperDek®

**Base metal thickness:** 0.42bmt

**Material grade:** G550

### **Tested Spans:**

**Triple Equal Span:** 1200mm

### **Tested Fixings:**

**Screws:** 14-10 x 65mm fixed at each rib.

**Base metal:** Minimum steel purlin

**Thickness:** 1.5mm thick, G450





## RPFL Windborne Debris Impact Testing of 0.55bmt SuperDek® G300

### Roof application – Vertical Trajectories

Tests were carried out by the James Cook University, Cyclone Testing Station (CTS), Townsville, Queensland, Australia. Refer to their report no.: TS987

### Test Description:

Where windborne debris loading is specified, the debris impact shall be equivalent to -

- (a) timber member of 4kg mass with a nominal cross-section of 100 mm x 50 mm impacting end on at 0.1 VR for vertical trajectories; and
- (b) spherical steel ball 8mm diameter (approximately 2 grams mass) impacting at 0.3 VR for vertical trajectories where VR is the regional wind speed given in Clause 3.2

### **Target Velocity-Vertical Trajectories:**

**Timber member:** 10.9m/s

**Spherical steel ball:** 32.7m/s

### **Equivalent Regional Wind Speed (V500):**

**Vr=** 88m/s (Region D)

### **Tested Sheeting:**

**Type:** SuperDek®

**Base metal thickness:** 0.55bmt

**Material grade:** G300

### **Tested Spans:**

**Triple Equal Span:** 1200mm

### **Tested Fixings:**

**Screws:** 14-10 x 65mm fixed at each rib.

**Base metal:** Minimum steel purlin

**Thickness:** 1.5mm thick, G450

We, Fyfe Pty Ltd., practicing structural engineers, confirm that the procedures used in carrying out the wind debris impact tests on the RPFL 0.55bmt G300 SuperDek® roof sheeting conform to the structural requirements of the following Australian Standard & CTS

Technical note:-

- AS/NZS 1170.2 :2011 Structural Design Actions, Part 2: Wind actions, Section 2.5  
Wind actions, Part 2.5.8 Impact loading from windborne debris-Vertical Trajectories (Roofing)
- CTS Technical Note No.4 Simulated Windborne Debris Impact Testing of Building Envelope Components (Version 3)



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## Re: Letter of Opinion: Roofing & Profiles (Fiji) LTD (RPFL) - Windborne Debris Impact Testing of 0.48bmt SuperDek® G550

### Roof application – Vertical Trajectories.

Dear Sir,

Fyfe Pty Ltd acted as a consultant technical advisor on your behalf for the Windborne Debris Impact Testing of the 0.42bmt SuperDek®, G550 sheeting profile. The testing was carried out by The James Cook University in accordance with the requirements of the National Construction Code 2014 (NCC 2014) and AS/NZS 1170.2:2011 Structural Design Actions, Part 2: Wind actions, Section 2.5 Wind actions, Part 2.5.8 Impact loading from windborne debris-Vertical trajectories (roofing).

The following details for the 0.42bmt SuperDek® were tested with all results acceptable:

### **Windborne Debris Impact Testing - Vertical Trajectories:**

#### **Target Velocity-Vertical Trajectories:**

**Timber member:** 10.9m/s  
**Spherical steel ball:** 32.7m/s

#### **Equivalent Regional Wind Speed (V500):**

**Vr=88m/s (Region D)**

#### **Tested Sheeting:**

**Type:** SuperDek®  
**Base metal thickness:** 0.42bmt  
**Material grade:** G550

#### **Tested Spans:**

**Triple Equal Span: 1200mm**

#### **Tested Fixings:**

**Screws: 14-10 x 65mm fixed at each rib.**

**Base metal:** Minimum steel purlin thickness  
1.5mm thick, G450

It is our opinion that the 0.48bmt SuperDek®, G550, sheeting profile with three equal 1200mm spans can achieve the wind debris impact testing results equivalent to the 0.42bmt SuperDek®, G550, sheeting profile listed above if the following criteria are met:

- 0.48bmt SuperDek® sheeting is to be manufactured from the identical steel grade, G550, manufactured using the same roll former, have identical profile and dimensions to that of the 0.48bmt SuperDek® sheeting.
- 0.48bmt SuperDek® Sheeting is to be installed to the identical purlin material and fixed using the same screw and washer assembly. The screws are to be manufactured from the same screw material, have undergone the same heat treatment, have the same thread form and dimensions remain unaltered.



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## NOTES:

- It is recommended that a qualified structural engineer check the suitability of the Limit State Design Wind Pressures for the intended site of use.
- It is our opinion that a qualified structural engineer may extrapolate for shorter spans and higher pressures provided that the screw force is not exceeded.
- After exposure of cladding to an extreme wind event, it is recommended that inspection be performed to confirm fixing and cladding integrity. Test data was “normalized” by trend line analysis (power equations).

## For Best Results

**These suggestions will improve the appearance of the RPFL SuperDek® Roof and make installation easier.**

- || Keep the roofing sheets dry when closely stacked OR keep the sheets well ventilated if subjected to wet condition.
- || Care should be taken to avoid dragging sheets which will cause scratching and scouring to the coated surface.
- || Always walk over battens / purlins positions and wear soft soled shoes.
- || Lay sheets from right to left to ensure tight fitting-note that the trailing edge of any sheet should not be fixed until the following sheet is installed beneath it.
- || Ensure the sheets are not bent unintentionally at the steps during handling.
- || Install sheets with fasteners at the eave and ridge only until all sheets have been installed.
- || Fix the roof permanently in position using the required fastener frequency.
- || Heads of fasteners to be matching color-available from RPFL.
- || When cutting or trimming SuperDek® sheets, use large metal snips.
- || **Metal Abrasive / Cutting Discs must NOT be used at any time.**
- || Turn up sheet ends at ridges and hips and cover with suitable accessories.
- || All accessories should be installed in accordance with good plumbing practice.
- || Upon completion of work always clean and sweep roof with soft broom and gutters free from metal cuttings and swarf.



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