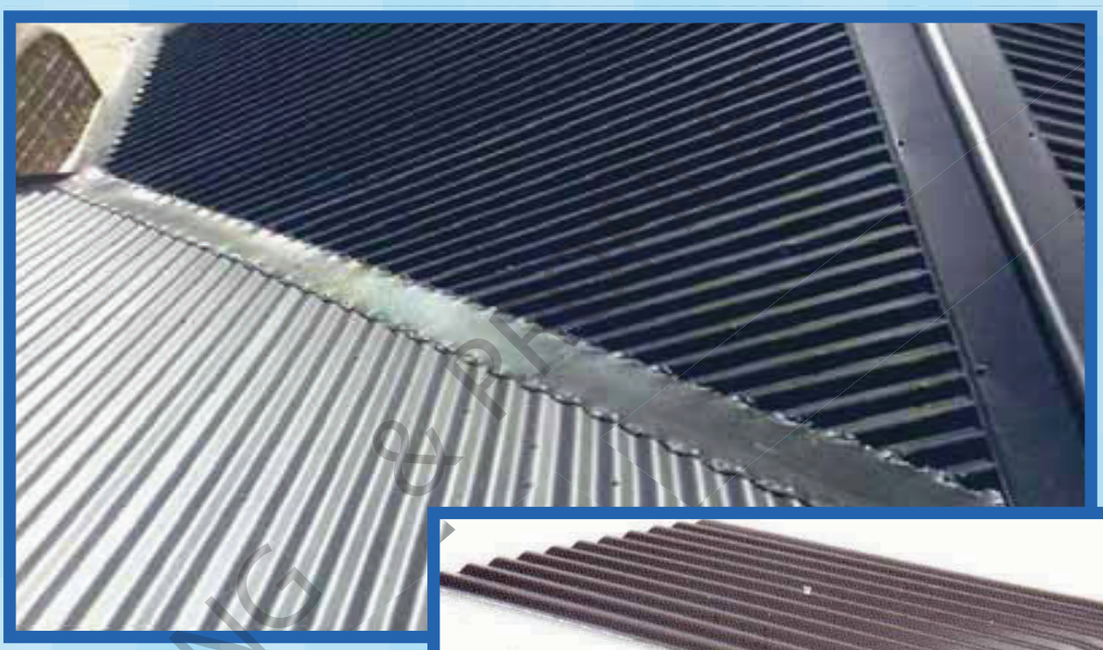
ROOFING & PROFILES (FIJI) LTD

Build With Confidence

ROOFING & SHEET METAL MANUFACTURERS

CorruDek®

"Profiles Tested for Cyclonic Conditions"



Steel Supplied by:

STEEL SUPPLIED BY NEW ZEALAND STEEL

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www.roofingandprofiles.com.fj

V-09/15

CorruDek®

Corrugated Profile Roofing

RPFL CorruDek® is the famous Australian corrugated profile. CorruDek® is equally at home with traditional and contemporary designs. It is available in three basic metal thicknesses, and is fixed with ease and speed. Use CorruDek® 0.55mm for curving famous corrugated profiles.

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

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

Minimum Roof Pitch
2 Degrees
(1 in 27)

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

Mass
BMT 0.42mm: 4.3kg/m^2
BMT 0.48mm: 4.9kg/m^2
BMT 0.55mm: 5.6kg/m^2

Minimum Roof Pitch
2 Degrees
(1 in 27)

Remember
* Accessories
* Capping
* Curved Flashings
* Flashings
* Fasteners
* Insulation
* Rainwater Goods
* Translucent Sheeting

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

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®
GALVSTEEL®
Colorbond® Ultra™
COLOUR FOR THE EXTREME
Colorbond® XRW™
PROVEN COLOURS OF THE PACIFIC

STEEL SUPPLIED BY NEW ZEALAND STEEL

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

Testing on the CorruDek® 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:

- C130901-15-Rev A, dated 27th February 2014
- C130901-16-Rev A, dated 24th February 2014
- C130901-21-Rev A, dated 26th February 2014
- C130901-22-Rev A, dated 27th 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 CorruDek® sheeting, G550.
- 1 Timber purlin batten, minimum width 45mm and minimum depth 45mm, MGP12 Pine, joint group JD4.
- Bremick Type 17 x 65mm 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	9.16	600	9.16	0.54
600	7.27	750	7.27	0.60
750	5.72	950	5.72	0.64
950	4.48	1200	4.48	0.68

2. Re: RPFL Cyclonic Testing of 0.42bmt CorruDek® G550 Steel Grade, Fixed into Steel Purlin

Testing on the CorruDek® 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:

- C130901-1-Rev A, dated 19 February 2014
- C130901-6-Rev A, dated 19 February 2014
- C130901-7-Rev A, dated 19 February 2014
- C130901-12-Rev A, dated 19 February 2014

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

Low High Low Cyclonic Wind Uplift Resistance - Strength Limit State Test Results
Load Span Table

- 0.42bmt CorruDek® 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 alternate crests.

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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	0.57
600	7.58	750	7.58	0.63
750	6.05	950	6.05	0.68
950	5.24	1200	5.24	0.79

3. RPFL Cyclonic Testing of 0.55bmt CorruDek® G300 Steel Grade, Fixed into Steel Purlin

Testing on the CorruDek® roofing profile has been carried out at the Cyclone Testing Station, James Cook University, Townsville, Queensland. The cyclic tests have produced the following results refer to Report No:

- TS1002, dated 27 March 2015

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

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

Load Span Table

- 0.55bmt CorruDek® sheeting, G300.
- Minimum steel purlin thickness, 1.5mm G450 grade.
- Bremick 14-10x65mm screw with 25mm diameter, 1.0mm thick, Aluminium Bonded washer used under the head of each screw and fastened at alternate crests.

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	4.78

We, Fyfe Pty. Ltd., confirm that the procedures used in carrying out the cyclonic load tests on product as listed above from for Roofing & Profiles (Fiji) Ltd., confirm to the structural requirements of the National Construction Code Series 2013 (NCC) and the relevant Australian Standards:

- NCC 2013 (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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4. RPFL Windborne Debris Impact Testing of 0.42bmt CorruDek® 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.: TS988a, dated 27th March 2015.

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 steet ball:** 32.7m/s
Equivalent Regional Wind Speed (V500):	**Vr=** 88m/s (Region D)
Tested Sheeting:	**Type:** CorruDek® **Base metal thickness:** 0.42bmt **Material grade:** G550
Tested Spans:	**Triple Equal Span:** 1200mm
Tested Fixings:	**Screws:** 14-10x65mm fixed at each rib. **Base metal:** Minimum steel purlin **Thickness:** 1.5mm thick, G450

5. RPFL Windborne Debris Impact Testing of 0.55bmt CorruDek® 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.: TS988b, dated 27th March 2015.

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 steet ball:** 32.7m/s
Equivalent Regional Wind Speed (V500):	**Vr=** 88m/s (Region D)
Tested Sheeting:	**Type:** CorruDek® **Base metal thickness:** 0.55bmt **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

We, Fyfe Pty Ltd., practicing structural engineers, confirm that the procedures used in carrying out the wind debris impact tests on the RPFL 0.42bmt G550 and 0.55bmt G300 CorruDek® 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)

Re: Letter of opinion RPFL Cyclonic Testing of 0.48bmt CorruDek® G550 - Steel Grade, Fixed into Timber & Steel Purlins

Dear Sir,

We have acted as a consultant technical advisor on your behalf and arranged cyclic load testing for Roofing & Profiles (Fiji) Ltd, in respect to their 0.42bmt CorruDek® roofing profile.

Fyfe Pty Ltd organised and reviewed cyclic testing, carried out by EngTest, The University of Adelaide testing facilities in accordance with the requirements of the then current National Construction Code 2013 (Building Code of Australia (BCA)) for cyclone area wind force resistance of the 0.42bmt CorruDek® roof sheeting configurations below:

Common data:
- CorruDek® sheet dimensions: 762mm cover, 76.2mm pitch, 16mm high profile, G550 steel grade.

Configuration 1:
- 0.42bmt CorruDek® sheeting, G550.
- 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 alternate crests.

Configuration 2:
- 0.42bmt CorruDek® sheeting, G550.
- 1 Timber purlin batten, minimum width 45mm and minimum depth 45mm, MGP12 Pine, joint group JD4.
- Bremick Type 17 x 65mm long screw with 25mm diameter, 1.0mm thick Aluminium Bonded washer used under the head of each screw and fastened at alternate crests.

Note: Purlins were not under test and must be considered by a qualified structural.

It is our opinion that if the 0.48bmt CorruDek® sheeting profile can achieve the cyclonic test results equivalent of the 0.42bmt CorruDek® sheeting profile (see Fyfe Pty Ltd 0.42bmt CorruDek® test reports issued 20/2/2014 and 26/2/2014) if the following criteria are met:

- 0.48bmt CorruDek® 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 0.42bmt CorruDek® sheeting.

- 0.48bmt CorruDek® Sheeting is to be installed to the identical purlin material and fixed using the same screw and washer assemblies (minimum screw length 65mm). 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.

Re: Letter of Opinion: Roofing & Profiles (Fiji) LTD (RPFL) - Windborne Debris Impact Testing of 0.48bmt CorruDek® 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 CorruDek® 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 CorruDek® 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 (V_{500}):	**Vr=**88m/s (Region D)
Tested Sheeting:	***Type:*** CorruDek® ***Base metal thickness:*** 0.42bmt ***Material grade:*** G550
Tested Spans:	***Triple Equal Span:*** 1200mm
Tested Fixings:	***Screws:*** 14-10x65mm fixed at each rib. ***Base metal:*** Minimum steel purlin thickness 1.5mm thick, G450

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

- 0.48bmt CorruDek® 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 CorruDek® sheeting.
- 0.48bmt CorruDek® 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.

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.

For Best Results

These suggestions will improve the appearance of the RPFL CorruDek® 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 CorruDek® sheets, use large metal snips.
- Metal abrasive/ cutting discs should 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.

RPFL

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