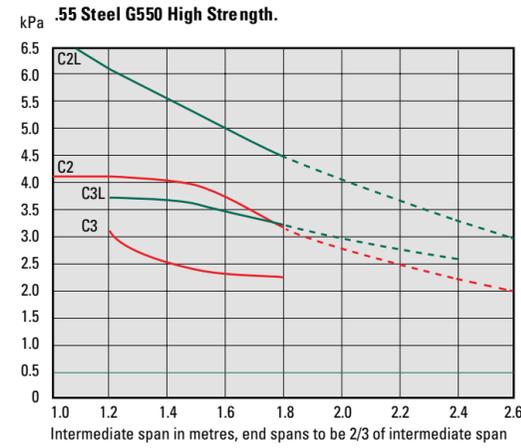
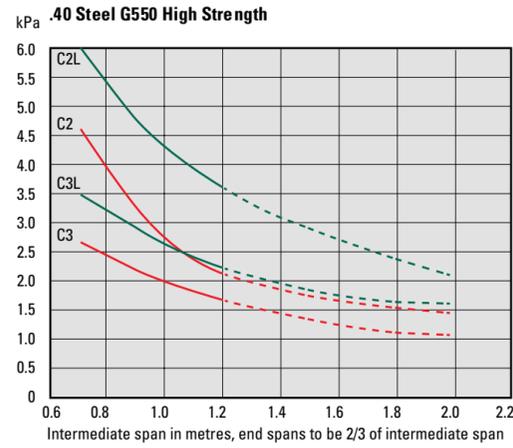


## Wind & Concentrated Load Span Design Graph

### Roofing - Steel Based Material



C2L, C3L, C2 and C3 represent alternative primary fixing methods. The dotted lines indicate purlin spans only suitable for non accessible roof areas and wall cladding. Testing confirms that .70mm Aluminium has similar results to .40mm Steel and that .90mm Aluminium has similar results to .55mm Steel and is adjusted for practical application. Aluminium requires load spreading washers and EPDM washers at all times. For compliance with NZ Metal Roof and Wall Cladding Code of Practice.

### PRIMARY FIXING METHODS\*

#### Roofing Application



**C2L** Fix side laps and miss 1, hit 1, miss 2, hit 1, miss 1, hit 1, miss 2 etc with approved screws and load spreading profiled metal washers and EPDM washers. End purlins and periphery of roof to be fixed every 2nd crest.



**C3L** Fix side laps and miss 2, hit 1, miss 3, hit 1, miss 2 etc with approved screws and load spreading profile metal washers and EPDM washers. End purlins and periphery of roof to be fixed every 2nd crest.



**C2** Fix side laps and miss 1, hit 1, miss 2, hit 1, miss 1, hit 1, miss 2 etc with approved fasteners alone. End purlins and periphery of roof to be fixed every 2nd crest.



**C3** Fix side laps and miss 2, hit 1, miss 3, hit 1, miss 2 etc with approved fasteners alone. End purlins and periphery of roof to be fixed every 2nd crest.

\* Note - Compliance with E2/AS1 is dependent on purlin spacing and gauge of roofing. See section on Purlin/Girt Spacing Limitations and Recommendations available from the True Oak® Profile Technical Summary at [www.roof.co.nz](http://www.roof.co.nz)

#### Drape Curved Roofing

The first two purlins at each end of the sheet in drape curving situations should, in all cases, be fixed using profile metal washers and EPDM washers with the balance of the roof fixed as above.

### PRIMARY FIXING METHODS\*\*

#### Wall Cladding Application

Fix in the pan adjacent to every side lap over rib and every 2nd pan, and at all external and internal corners. (No metal washer required)

#### Wall Cladding Wind Load Span

Pan fixed wall cladding can be assumed to have a wind load design at least equivalent to C2L from the above graphs.

\*\* Note - Compliance with E2/AS1 is dependent on girt spacing and gauge of cladding. See section on Purlin/Girt Spacing Limitations and Recommendations available from the True Oak® Profile Technical Summary at [www.roof.co.nz](http://www.roof.co.nz)



# TRUE OAK®

## A return to the original corrugate

#### Roof pitch

True Oak® Corrugate can be installed at a minimum roof pitch of 4°. Refer to Table 1.

#### Materials

- Zinalume® steel: .40 mm BMT or .55 mm BMT, AZ150 (150gm/m<sup>2</sup>) G550 Mpa Yield Stress.
- Galvanised steel: .40 mm BMT or .55 mm BMT, Z450 (450gm/m<sup>2</sup>) G550 Mpa Yield Stress.
- Pre-painted Colorcote® or Colorsteel® over Zinalume® .40 mm BMT or .55 mm BMT, AZ150 (150gm/m<sup>2</sup>), G550 Mpa Yield Stress.
- Pre-painted Colorcote® or Colorsteel® over Galvanised steel: .40 mm BMT or .55 mm BMT ZM275 (275gm/m<sup>2</sup>) G550 Mpa Yield Stress.
- Pre-painted Colorcote® over ZAM™ .40 mm BMT or .55 mm BMT, ZA275 (275gm/m<sup>2</sup>) G550 Mpa Yield Stress.

For information on aluminium, stainless steel, pure zinc and copper True Oak® Corrugate products, contact Roofing Industries.

#### Durability

Selection of the correct grade of material and appropriate surface coating is imperative to ensure True Oak® Corrugate will perform satisfactorily in the environment it is to be installed, and meets the requirements of the NZ Building Code. Environmental categories and surface coating literature is available from our website [www.roof.co.nz](http://www.roof.co.nz).

#### Accessories

A full range of matching accessories is available, including ridging, ridge caps, flashings, fasteners, insulation and rainwater systems.

#### Translucent Roofing

True Oak® Corrugate is available as glass reinforced translucent natural roof lighting.

#### Fixings and fasteners

All fixings and fasteners are to be of an approved type, compatible with all materials, the environment and meeting the requirements of the NZ Building Code. Installation is to be in accordance with the NZ Metal Roof and Wall Cladding Code of Practice or manufacturer's instructions.

#### Roof application\*

Using the appropriate fixing method from the Wind & Concentrated Load Span Design Graphs.

- From the ridge down, for roof sheets up to and including 15 metres - solid fix, (except where a variation may be required by E2/AS1).
- For sheet lengths in excess of the above, refer to Roofing Industries True Oak® Profile Technical Summary available at [www.roof.co.nz](http://www.roof.co.nz).
- Fix every second crest to: ridge, hip, valley, gutter and periphery areas.

Standard primary fixings are:

For timber purlins use 12 x 55 or 12 x 65 Timbertite® class 4 or class 5 screws with neos and with (or in some cases without) appropriate washers as required.

For steel purlins use 12 x 45 Steeltite® class 4 or class 5 screws with neos and with (or in some cases without) appropriate washers as required. For further information, refer to Roofing Industries Profile Technical Summary available at [www.roof.co.nz](http://www.roof.co.nz).

#### Wall cladding application\*

Using the appropriate fixing pattern from the Wind Load Span Design Graph, fix every second pan using 12 gauge class 4 or class 5 Steeltites® or Timbertites® and neos as appropriate, ensuring that when the fastener is into timber it is

of sufficient length to penetrate the framing by 30 mm. The pan fixing at the lap is to be in the over pan.

\* Note: These recommendations are suitable for steel based materials, for other materials refer to our website [www.roof.co.nz](http://www.roof.co.nz). Other fixing methods may be applicable in some circumstances.

#### Curving

Steel substrate True Oak® Corrugate can be drape curved to the following radius: .40 mm BMT - 18 metres, .55 mm BMT - 25 metres. True Oak® Corrugate can be bullnosed, ridge curved, concave or convex curved, underslung or "S" curved to a practical radius of 400mm.

#### Ordering

Roofing Industries staff can provide technical assistance to ensure accurate ordering of roofing and accessories thereby avoiding costly errors. True Oak® Corrugate is delivered cut to length subject to transport restrictions.

#### Handling and storage

- On delivery, visually inspect sheets for damage.
- Store True Oak® and accessories on evenly spaced and supportive dunnage, clear of the ground and under cover. If packs become wet and the product not used immediately, separate the sheets to allow air circulation and drying.

- Do not drag sheets across each other.
- Long lengths of roofing should be lifted onto the roof using an approved load spreading beam.
- If protected with strippable plastic film, keep under cover and remove as the product is being installed.

#### Installation

Prior to commencing the project, refer to Roofing Industries technical literature and website [www.roof.co.nz](http://www.roof.co.nz). Failure to install True Oak® Corrugate and accessories to industry requirements will void any warranty.

#### Maintenance

Maintenance Guides are available and should be consulted in order that warranty conditions are fulfilled.

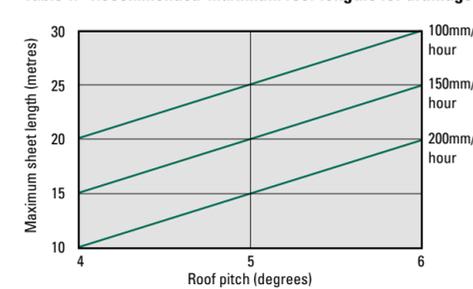
#### Warranties

Warranties meet or exceed the statutory requirements of the NZ Building Code, are available on request and reflect our New Zealand owned and operated company, test facilities and local climatic conditions. Available at [www.roof.co.nz](http://www.roof.co.nz).

#### Further technical advice

For full technical information, refer True Oak® Profile Technical Summary available at [www.roof.co.nz](http://www.roof.co.nz).

Table 1. Recommended maximum roof lengths for drainage



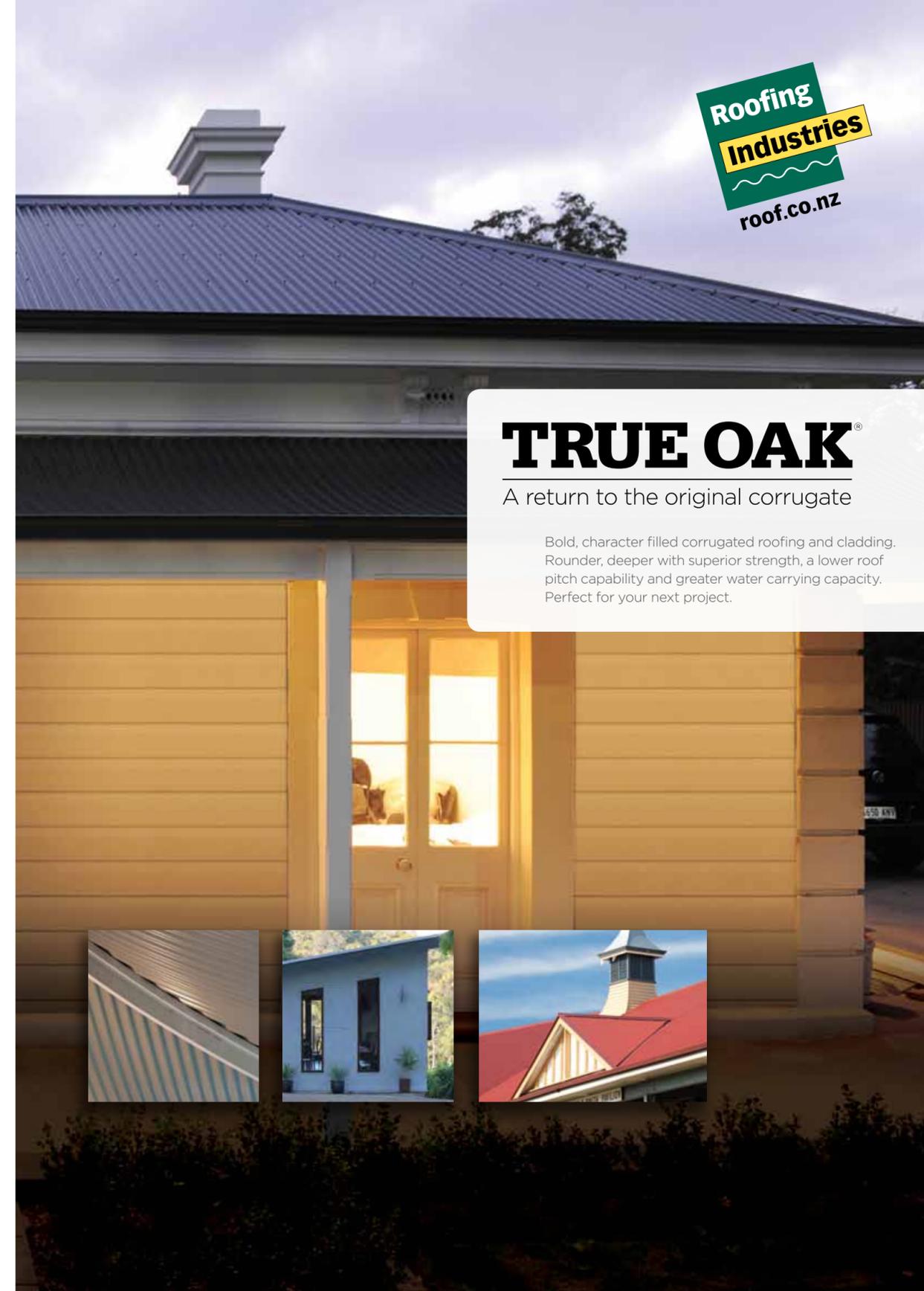
Note 1: Based upon a steady rate of flow.  
2: The above does not consider gutter and downpipe requirements

### SPECIFY TRUE OAK® FOR YOUR NEXT PROJECT

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# TRUE OAK®

## A return to the original corrugate

Bold, character filled corrugated roofing and cladding. Rounder, deeper with superior strength, a lower roof pitch capability and greater water carrying capacity. Perfect for your next project.



# TRUE OAK®

A return to the original corrugate

## DEEPER + STRONGER



PATENTED MANUFACTURING TECHNOLOGY

In an industry starved of innovation, Roofing Industries is bringing to the market a distinct change to New Zealand roofscapes by manufacturing and supplying a bolder and character filled corrugated roofing and cladding product which is aesthetically appealing and far stronger than traditional corrugate.

Designed to stimulate the imagination of building designers and customers, the revolutionary new True Oak® Corrugate is strikingly different to current shallow corrugated profiles. It's a return to a rounder, fuller, deeper and more shapely corrugated roofing, based on the original 19th Century Walker's Gospel Oak profiles and is suitable for both residential and commercial roofing and cladding.

With superior strength, a lower roof pitch capability and greater water carrying capacity, the superior strength of True Oak® Corrugate lessens the risk of foot traffic damage and offers a seamless and attractive appearance.



### APPLICATIONS

- Residential roofing and cladding
- Reroofing of historical buildings
- Low pitch roofs and verandahs
- Commercial roofing and cladding
- Ceiling and wall cladding in both horizontal and vertical applications
- A stronger cladding and walling for farm buildings
- Fencing
- Curved and bullnosed projects



### FEATURES

- True Oak® Corrugate is the first major advance in metal corrugated roofing for over 70 years.
- Strikingly different to traditional shallow corrugated profiles with no flat areas.
- Smooth rounded and deeper sinusoidal wave profile integrating both form and function thereby creating distinct shadowlines that can be seen from afar.
- Stronger and deeper than traditional corrugated roofing and cladding.
- Much stronger underfoot and is far less susceptible to denting by foot traffic.
- Opportunity to down-gauge offering significant cost savings.
- Greater spanning ensures less purlins per project reducing construction costs.
- Superior water carrying capacity.
- Can be installed at a lower roof pitch compared to traditional corrugated roofing.
- Can be both drape and mechanical curved.
- True Oak® Corrugate features an extensive colour and metal substrate selection, providing greater design options and more choices.
- Improved lapping design reduces sagging and gaping thereby reducing unsightly lap- shadow lines.
- Exclusive patented manufacturing technology.
- Full product warranty meets the statutory requirements of the NZ Building Code.

### Building Design/ Performance Criteria/ Product selection

During the design of buildings, it is necessary for the designer to take into account a number of issues to ensure that the most appropriate roofing and cladding product is chosen.

Whilst aesthetics and product availability do play a part, the chosen profile must meet certain performance criteria. These are centred around the profile's ability to shed water from the roof, the ability of the product to span purlin and girt spacings plus meet design criteria. The minimum pitch for this profile is outlined elsewhere within this literature.

In terms of purlin spans and girt spacing it is necessary to follow due process.



If a building is being designed and constructed in full accordance with E2/AS1 and roofing and cladding products as covered by that document are chosen, then it is necessary for the design spans and fixing methodology to comply with those of E2/AS1. However E2/AS1 states that the use of the manufacturer's information may provide a more optimum spacing of fixings, and this is recommended by Roofing Industries.

Further, where a building is outside of the scope of E2/AS1 and the building or parts thereof are of specific design then it is necessary for the roofing and cladding to be suitable for the design and vice versa.

In most cases, to take advantage of the unique characteristics of True Oak® Corrugate the use of same will be



True Oak® compared with standard 'shallow' corrugate.

outside the prescriptive requirements of E2/AS1. By designing and installing True Oak® Corrugate in accordance with this Profile Technical Summary True Oak® Corrugate will meet the requirements of NZBC E2.

Loadings referred to in Roofing Industries graphs are the result of testing to a serviceability limit state which is more conservative than an ultimate limit state as quoted by some manufacturers.

Our Design Graphs are presented in a form to allow the designer to select suitable products and purlin spacings.

For most roof installations the purlin spacings will be limited by the trafficable limitations of the profile or the structural design. It is then necessary for the designer to calculate the design wind load for the roofing and cladding in accordance with generally acceptable practice, by reference to AS/NZS 1170.2:2011 and/or NZS 3604:2011. For a fuller explanation of this refer to the NZ Metal Roof and Wall Cladding Code of Practice. This result should be referenced to the Wind Load Span Design Graphs.

The purlin spacings should be limited to the lower of the trafficable limitations and design wind load with the capacity of the structure being greater than the design load for the application. However for roofs that are not able to be walked on and for wall cladding applications, the trafficable limitations may be exceeded providing the design wind loading criteria is met. However this should be done with caution as

it may require considerable extra secondary fasteners within the laps.

The designer should always take into account in areas of heavy roof traffic, snow loadings, or where the roofing supports such items as air conditioning units, purlin spacing should be reduced accordingly. Consideration also needs to be given to limitations of purlin spacings for any translucent sheeting.

Reference should be made to the notes in the graphs.

It is our recommendation that for commercial and industrial roofing applications, particularly at wider purlin spacings, that .55mm BMT steel or .90mm BMT Aluminium is used as it has more resilience to damage particularly by other trades.

Underlay as per the project specifications should be used.

With an aluminium substrate, steel netting should not be used where it may be in contact (either directly or through underlay degradation) with the aluminium roofing or cladding. Alternative material such as polypropylene strapping should be used where support is required, or the cladding separated from the underlay by a high density polystyrene batten or Thermakraft Drainage Matt or similar, and the use of an aluminium gutter flashing. This is also applicable to coated metal and pure zinc roofing in severe marine applications. In all the above cases, self supporting paper should be used including when support is required.



Roofing Industries Technical Helpline 0800 844 822 [WWW.ROOF.CO.NZ](http://WWW.ROOF.CO.NZ)