

BRACING NOTES:

Where exterior ply bracing elements are used & not continued the entire length of the wall, allow to pack out the rest of the cavity battens to achieve an even straight-through cavity for the selected cladding.

Refer to supporting documents for IPL Bracing Ply fixing requirements. Treatment to be a minimum of H3.2.

Reading the Bracing Plan:

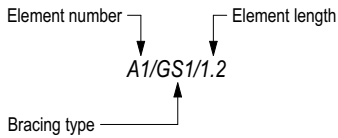
- GS1-N

0.4m min. length.  
Any 10mm or 13mm GIB Standard Plasterboard fixed to one side only
- BL1-H

0.4m min. length.  
10mm or 13mm GIB Braceline fixed to one side only  
Framing hold downs
- BLP-H

0.4m min. length.  
10mm or 13mm GIB Braceline fixed internally  
plus 7mm structural plywood manufactured to AS/NZS 2269.0:2012 externally  
Framing hold downs
- IPL1

0.4m min. length.  
7mm DD IPL Bracing Ply fixed externally  
Framing hold downs



Openings in Bracing Elements (as per GIB EzyBrace System)

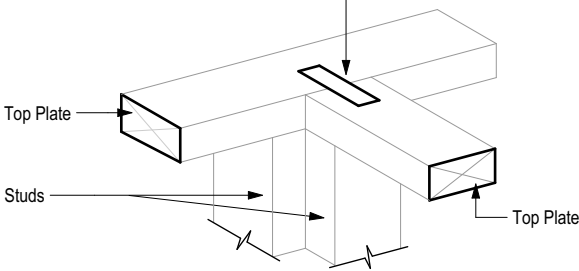
Small openings

Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud.

Large openings

Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

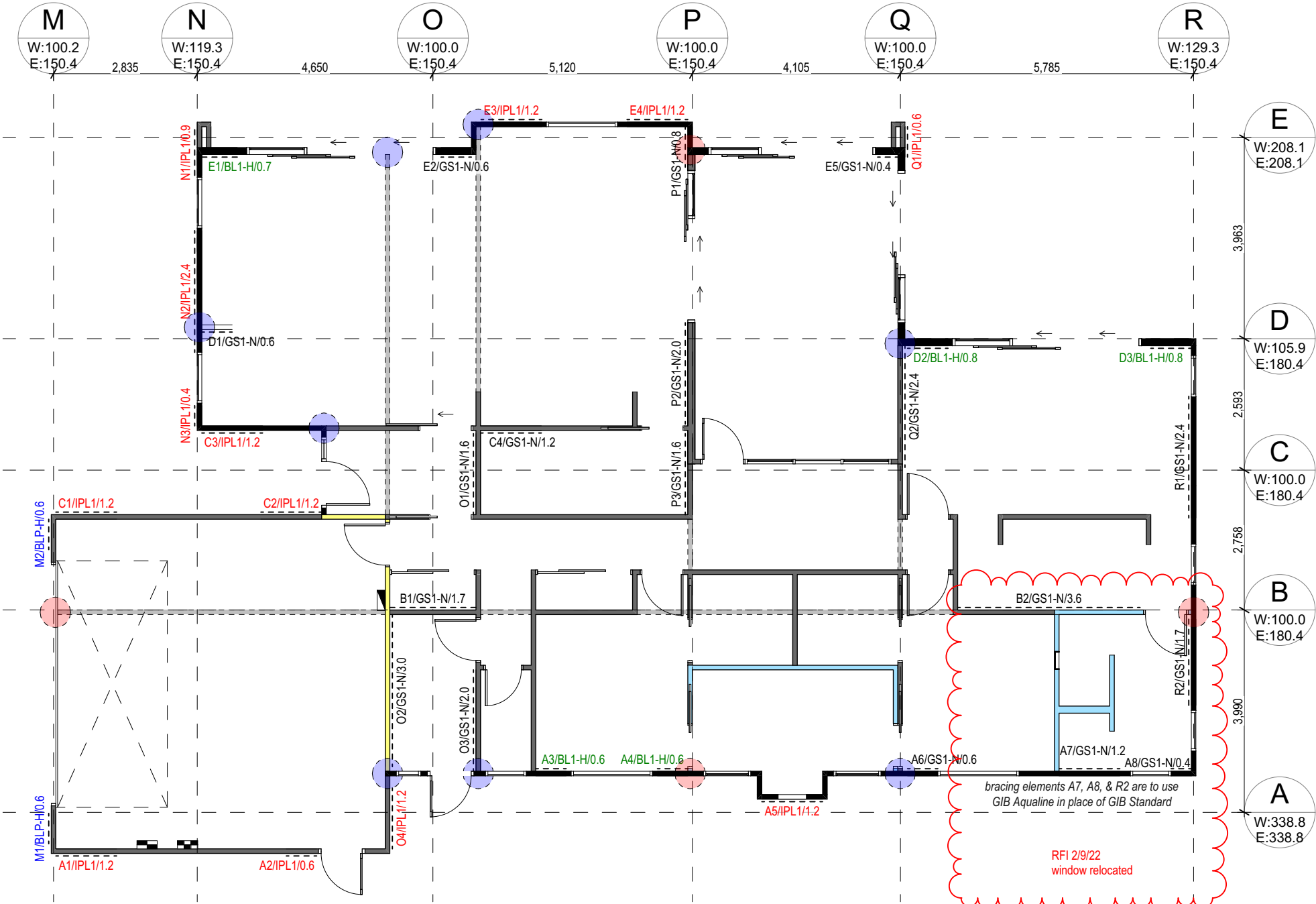
6/30 x 3.15mm nails per side achieving 6 kN.  
3/30 x 3.15mm nails per side achieving 3 kN.



CONNECTING TOP PLATES TO EXTERNAL WALLS - WALLS CONTAINING BRACING

**Note:** "Each wall that contains one or more wall bracing elements shall be connected at the top plate level, either directly, or through a framing member in the line of the wall, to external walls at right angles to it. Top plate fixing(s) of the capacity in tension or compression along the line of the wall bracing element are given as follows:

- (a) For each wall containing wall bracing elements with a total bracing capacity of not more than 125 bracing units: to at least one such external wall by a fixing as shown in figure 8.16 of 6 kN capacity;  
shown as:
- (b) For each wall containing wall bracing elements with a total bracing capacity of not more than 250 bracing units: to at least 2 external walls by fixings as shown in figure 8.16 each of 6 kN capacity;  
shown as:
- (c) For each wall containing wall bracing elements with a total bracing capacity of more than 250 bracing units: to at least 2 external walls by fixings as shown in figure 8.16 each having a rating of not less than 2.4 kN per 100 bracing units."



|   |  |                                       |  |  |                             |                   |                      |                        |
|---|--|---------------------------------------|--|--|-----------------------------|-------------------|----------------------|------------------------|
| <div><div><div>© Mike Greer Homes NZ Ltd</div><div>(03) 354 0166   0800 mikegreer</div><div>Tower 2, 7 Deans Avenue, Addington, Christchurch 8011</div><div>www.mikegreerhomes.co.nz</div></div></div> | JOB TITLE:<br><b>MIKE GREER HOMES For Kelvin &amp; Sharon Inch</b> | DRAWING TITLE:<br><b>Bracing Plan</b> | LEGAL DESCRIPTION:<br>LOT: 7      DP: TBC<br><br>Meadowlands Green<br>Meadowlands<br>Ashburton | LEGAL NOTES:<br>1. Subject to council approval<br>2. All measurements to be confirmed on site by the contractor prior to the commencement of work<br><br>© 2022 Mike Greer Homes NZ Limited.<br>All rights reserved. No part of this work covered by copyright may be reproduced or copied in any form or by any means without the written permission of Mike Greer Homes NZ Limited | DATE OF ISSUE:<br>08.12.21  | DESIGNER:<br>NM   | SCALE:<br>1:100      | SHEET:<br><b>A2.04</b> |
|   |  |                                       |  |  | AMENDMENT DATE:<br>01.09.22 | TECHNICIAN:<br>CM | BASE PLAN:<br>CT5499 |                        |
|   |  |                                       |  |  | VERSION:<br>V10             | CODE:<br>1        | JOB #<br>M0470       |                        |

| BRACING CALCULATIONS    |                |                 |                  | TABLE: Default | BRACING ALONG |         |          |            |           |            |             |             |          |         |          | BRACING ACROSS |         |           |            |           |            |             |             |          |         |          |       |
|-------------------------|----------------|-----------------|------------------|----------------|---------------|---------|----------|------------|-----------|------------|-------------|-------------|----------|---------|----------|----------------|---------|-----------|------------|-----------|------------|-------------|-------------|----------|---------|----------|-------|
| Location of Storey      |                | Single          | Wind Zone        | High           | Required      |         | Provided |            |           |            |             | Achieved    |          |         |          | Required       |         | Provided  |            |           |            |             | Achieved    |          |         |          |       |
| Room in Roof Space      | No             | Earthquake Zone | 2                |                | Line          | W<br>BU | EQ<br>BU | Brace Type | W<br>BU/m | EQ<br>BU/m | Length<br>m | Height<br>m | Angle    | W<br>BU | EQ<br>BU | Line           | W<br>BU | EQ<br>BU  | Brace Type | W<br>BU/m | EQ<br>BU/m | Length<br>m | Height<br>m | Angle    | W<br>BU | EQ<br>BU |       |
| Building Width (BW)     | 14.4m          | Soil Class      | D - Deep or Soft |                | A             | 338.8   | 338.8    | A-1 IPL1   | 130.0     | 125.0      | 1.2         | 2.2         | -        | 156.0   | 150.0    | M              | 100.2   | 150.4     | M-1 BLP-H  | 135.0     | 135.0      | 0.6         | 2.4         | -        | 81.0    | 81.0     |       |
| Gross Floor Area (GFA)  | 250.59m²       | W along         | 45.0BU/m         |                |               |         |          | A-2 IPL1   | 85.0      | 95.0       | 0.6         | 2.2         | -        | 51.0    | 57.0     |                |         |           | M-2 BLP-H  | 135.0     | 135.0      | 0.6         | 2.4         | -        | 81.0    | 81.0     |       |
| Floor Height to Apex    | 4m             | W along x BW    | 648.9BU          |                |               |         |          | A-3 BL1-H  | 90.0      | 100.0      | 0.6         | 2.4         | -        | 54.0    | 60.0     |                |         |           |            |           |            |             |             |          |         | 162.0    | 162.0 |
| Roof Height Above Eaves | 2m             | W across        | 40.0BU/m         |                |               |         |          | A-4 BL1-H  | 90.0      | 100.0      | 0.6         | 2.4         | -        | 54.0    | 60.0     | N              | 119.3   | 150.4     | N-1 IPL1   | 105.0     | 105.0      | 0.9         | 2.4         | -        | 94.5    | 94.5     |       |
| Roof Pitch              | 0 - 25°        | W across x BL   | 903.2BU          |                |               |         |          | A-5 IPL1   | 130.0     | 125.0      | 1.2         | 2.4         | -        | 156.0   | 150.0    |                |         |           | N-2 IPL1   | 130.0     | 125.0      | 2.4         | 2.4         | -        | 312.0   | 300.0    |       |
| Roof Style              | Gable          |                 |                  |                |               |         |          | A-6 GS1-N  | 90.0      | 55.0       | 0.6         | 2.4         | -        | 30.0    | 33.0     |                |         |           | N-3 IPL1   | 85.0      | 95.0       | 0.4         | 2.4         | -        | 34.0    | 38.0     |       |
| Double Top Plate        | No             | EQ              | 7.2BU/m²         |                |               |         |          | A-7 GS1-N  | 70.0      | 60.0       | 1.2         | 2.4         | -        | 84.0    | 72.0     |                |         |           |            |           |            |             |             |          |         | 440.5    | 432.5 |
| Floor Load              | 2kPa           | EQ x GFA        | 1,804.2BU        |                |               |         |          | A-8 GS1-N  | 50.0      | 55.0       | 0.4         | 2.4         | -        | 20.0    | 22.0     | O              | 100.0   | 150.4     | O-1 GS1-N  | 70.0      | 60.0       | 1.6         | 2.4         | -        | 112.0   | 96.0     |       |
| Cladding Weights:       |                |                 |                  |                |               |         |          |            |           |            |             |             |          | 605.0   | 604.0    |                |         |           | O-2 GS1-N  | 70.0      | 60.0       | 3.0         | 2.4         | -        | 210.0   | 180.0    |       |
| - Subfloor              | Concrete Floor |                 |                  |                | B             | 100.0   | 180.4    | B-1 GS1-N  | 70.0      | 60.0       | 1.7         | 2.4         | -        | 118.1   | 102.1    |                |         |           | O-3 GS1-N  | 70.0      | 60.0       | 2.0         | 2.4         | -        | 140.0   | 120.0    |       |
| - Wall                  | Heavy          |                 |                  |                |               |         |          | B-2 GS1-N  | 70.0      | 60.0       | 3.6         | 2.4         | -        | 252.0   | 216.0    |                |         |           | O-4 IPL1   | 130.0     | 125.0      | 1.2         | 2.4         | -        | 156.0   | 150.0    |       |
| - Roof                  | Light          |                 |                  |                |               |         |          |            |           |            |             |             |          | 371.1   | 318.1    |                |         |           |            |           |            |             |             |          | 618.0   | 546.0    |       |
|                         |                |                 |                  |                |               |         |          |            |           |            |             |             |          |         |          | P              | 100.0   | 150.4     | P-1 GS1-N  | 50.0      | 55.0       | 0.8         | 2.4         | -        | 40.0    | 44.0     |       |
|                         |                |                 |                  |                |               |         |          | C-2 IPL1   | 130.0     | 125.0      | 1.2         | 2.4         | -        | 156.0   | 150.0    |                |         |           | P-2 GS1-N  | 70.0      | 60.0       | 2.0         | 2.4         | -        | 140.0   | 120.0    |       |
|                         |                |                 |                  |                |               |         |          | C-3 IPL1   | 130.0     | 125.0      | 1.2         | 2.4         | -        | 156.0   | 150.0    |                |         |           | P-3 GS1-N  | 70.0      | 60.0       | 1.6         | 2.4         | -        | 112.0   | 96.0     |       |
|                         |                |                 |                  |                |               |         |          | C-4 GS1-N  | 70.0      | 60.0       | 1.2         | 2.4         | -        | 84.0    | 72.0     |                |         |           |            |           |            |             |             |          |         | 292.0    | 260.0 |
|                         |                |                 |                  |                |               |         |          |            |           |            |             |             |          | 552.0   | 522.0    | Q              | 100.0   | 150.4     | Q-1 IPL1   | 85.0      | 95.0       | 0.6         | 2.4         | -        | 51.0    | 57.0     |       |
|                         |                |                 |                  |                |               |         |          | D-1 GS1-N  | 50.0      | 55.0       | 0.6         | 2.4         | -        | 30.0    | 33.0     |                |         |           | Q-2 GS1-N  | 70.0      | 60.0       | 2.4         | 2.4         | -        | 168.0   | 144.0    |       |
|                         |                |                 |                  |                |               |         |          | D-2 BL1-H  | 90.0      | 100.0      | 0.8         | 2.4         | -        | 72.0    | 80.0     |                |         |           |            |           |            |             |             |          |         | 219.0    | 201.0 |
|                         |                |                 |                  |                |               |         |          | D-3 BL1-H  | 90.0      | 100.0      | 0.8         | 2.4         | -        | 72.0    | 80.0     |                |         |           |            |           |            |             |             |          |         |          |       |
|                         |                |                 |                  |                |               |         |          |            |           |            |             |             |          | 174.0   | 193.0    | R              | 129.3   | 150.4     | R-1 GS1-N  | 70.0      | 60.0       | 2.4         | 2.4         | -        | 168.0   | 144.0    |       |
|                         |                |                 |                  |                |               |         |          |            |           |            |             |             |          |         |          |                |         | R-2 GS1-N | 70.0       | 60.0      | 1.7        | 2.4         | -           | 119.0    | 102.0   |          |       |
|                         |                |                 |                  |                | E             | 208.1   | 208.1    | E-1 BL1-H  | 90.0      | 100.0      | 0.7         | 2.4         | -        | 63.0    | 70.0     |                |         |           |            |           |            |             |             |          |         | 287.0    | 246.0 |
|                         |                |                 |                  |                |               |         |          | E-2 GS1-N  | 50.0      | 55.0       | 0.6         | 2.4         | -        | 30.0    | 33.0     |                |         |           | Total      |           |            |             |             | Achieved | 2,018.5 | 1,847.5  |       |
|                         |                |                 |                  |                |               |         |          | E-3 IPL1   | 130.0     | 125.0      | 1.2         | 2.4         | -        | 156.0   | 150.0    |                |         |           |            |           |            |             |             | Required | 903.2   | 1,804.2  |       |
|                         |                |                 |                  |                |               |         |          | E-4 IPL1   | 130.0     | 125.0      | 1.2         | 2.4         | -        | 156.0   | 150.0    |                |         |           |            |           |            |             |             |          |         |          |       |
|                         |                |                 |                  |                |               |         |          | E-5 GS1-N  | 50.0      | 55.0       | 0.4         | 2.4         | -        | 20.0    | 22.0     |                |         |           |            |           |            |             |             |          |         |          |       |
|                         |                |                 |                  |                |               |         |          |            |           |            |             |             |          | 425.0   | 425.0    |                |         |           |            |           |            |             |             |          |         |          |       |
|                         |                |                 |                  |                |               |         |          | Total      |           |            |             |             | Achieved | 2,127.1 | 2,062.1  |                |         |           |            |           |            |             |             |          |         |          |       |
|                         |                |                 |                  |                |               |         |          |            |           |            |             |             | Required | 648.9   | 1,804.2  |                |         |           |            |           |            |             |             |          |         |          |       |

RFI 2/9/22  
window relocated

Amendment 18/10/22  
Ecoply bracing elements changed to IPL Bracing Plywood



Construction Range

# Structural Ply™



Proven performance and strength

# Structural Ply™

IPL's structural ply is the safe and reliable option when it comes to providing bracing and structural support for timber framed buildings. It's built to withstand earthquakes, high winds, and anything else mother nature throws at your building.

## At a glance

- Guaranteed quality via EWPA Product Certification Scheme
- Site damage resistance (cross laminated construction)
- Bonded with durable 'marine' A bond
- Easy and light to handle
- Simple installation (gun nail to within 7mm of edges)
- High strength and stiffness in relatively short panels
- Braces building frame during construction period
- Economical and environmentally friendly
- Super EO – less than 0.3mg/l AS/NZ Standard formaldehyde emissions
- Use in conjunction with GIB board

## Structure

Framing that complies with NZS 3604:2011 will meet the requirements of the Building Code. Studs are at a maximum of 600mm centre - dwangs are not necessary for effective bracing but may be used.

IPL Structural Ply is structural plywood manufactured to AS/NZ 2269:2012, and is suitable for design of earthquake and wind bracing for timber framed buildings in accordance with design codes NZS 3603 and AS/NZ 1170. This has been confirmed by EWPA testing.

## Durability

As IPL Structural Ply is an integral part of the building structure, it must be durable in each application i.e. have at least 50 years durability rating. In interior dry applications (i.e. 18% moisture content or less) untreated IPL Structural Ply is acceptable for use.

However, in applications where IPL Structural Ply may be subject to wetting, dampness or condensation (basically where the moisture content may exceed 18% for prolonged periods), IPL Structural Ply must be preservative treated to at least H3.2 hazard rating and fixed with non-corrosive fasteners (i.e. stainless steel or silicone bronze).

## Exposure during construction

IPL Structural Ply will withstand rain exposure for at least 3 months. The possible wetting may cause slight buckling of panels but generally, after drying, there is close to full recovery.

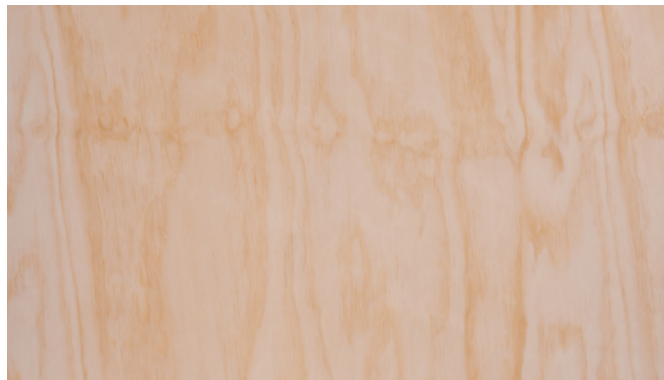
## Installation, Sheet Fasteners and Connections

IPL Structural Ply is to be installed and fixed as per the building design. As plywood dimensions can vary with changes in ambient humidity and wetting during construction, it is recommended to allow expansion gaps between adjacent panel edges of at least 2mm.

The minimum fastener requirement in New Zealand is 50mm x 2.8mm dia hot dip galvanised structural clouts.

Treated IPL Structural Ply must be fixed with non corrosive fasteners – a minimum of 50mm x 2.8mm dia stainless steel annular grooved flat head nails or hot dipped galvanised. Refer to GIB HandiBrac® installation instructions for correct installation of galvanised steel angle brackets and bolt types to be used for concrete and timber floors. Please note that IPL Structural Ply is not to be installed in contact with the ground.





## Face Grade A

Superior clear wood grain with only extremely minor filled splits for high end finishing.

Possible Uses:

- High end joinery
- Decorative walls and panelling
- Retail and display

Available thicknesses: 4, 7, 9, 12, 17mm



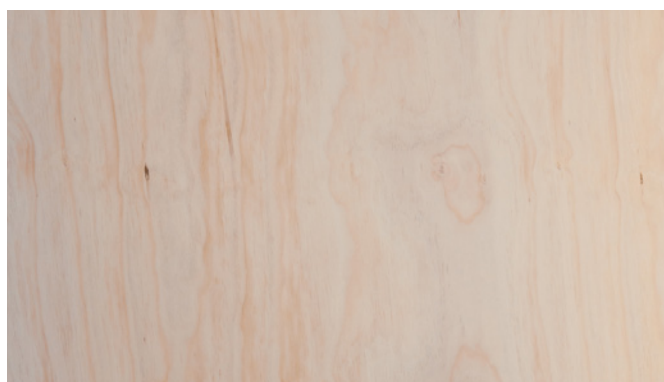
## Face Grade S

Shows attractive wood character finish with minor filled splits and small filled holes that are filled to blend in to give attractive appearance.

Possible Uses:

- Interior / Exterior Finishing
- Clear paint finish
- Joinery
- Multi use where structural and decorative is required

Available thicknesses: 4, 7, 9, 12, 15, 17, 19, 22, 25, 32 mm



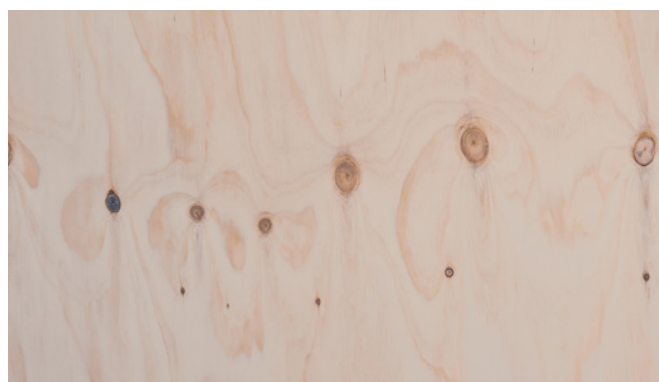
## Face Grade C

Wide range of face finishes from the relatively clean finish to filled knots and splits. Faces are sanded smooth and solid but could have minor "rough grain" around areas of disturbed wood grain. Could be used where the natural knotty features are preferred.

Possible Uses:

- Membrane substrates
- Hoardings
- Structural and bracing
- Trailer / shed linings
- Flooring

Available thicknesses: 4, 7, 9, 12, 15, 17, 19, 22, 25, 32 mm



## Face Grade D

Has non-appearance face and can have open defects. Usually used for strength values – splits and knots acceptable.

Possible Uses:

- Roofing substrate
- Unseen formwork
- Packaging
- Structural & Bracing
- Shed linings & hoardings

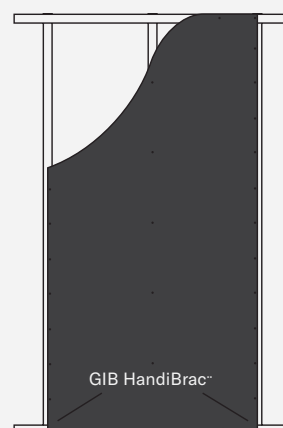
Available thicknesses: 4, 7, 9, 12, 15, 17, 19, 22, 25, 32 mm

### IPL Bracing Ply™ Bracing BU Values

|       | Lining                      | Min Length (mm) | Wind (BU/m) | Earthquake (BU/m) |
|-------|-----------------------------|-----------------|-------------|-------------------|
| IPL 1 | 7mm Bracing Ply™ one side   | 400mm           | 85          | 95                |
|       | 7mm Bracing Ply™ one side   | 600mm           | 105         | 105               |
|       | 7mm Bracing Ply™ one side   | 1200mm          | 130         | 125               |
| IPL 2 | 7mm Bracing Ply™ both sides | 400mm           | 110         | 130*              |
|       | 7mm Bracing Ply™ both sides | 600mm           | 140*        | 150*              |

Above P21 testing conducted on behalf of IPL by BRANZ

\*Bracing panels must not exceed 120 BU/m when used on timber framed floor as per NZ3604:2011 Section 5.4.2



7mm Structural Ply™ fixed with 50 x 2.8mm flat head nails at 150mm centres around perimeter at no less than 7mm from sheet edge. 300mm centres to intermediate studs





Crafted on the Coast  
Made for New Zealand