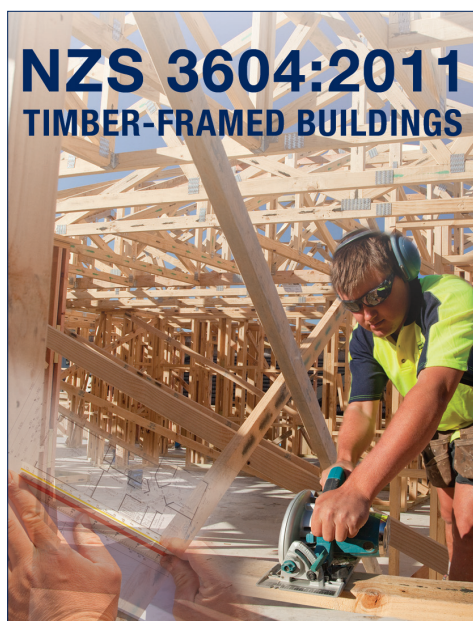




**Pryda Building Guide for
Fixings and the Installation
of Pryda Connectors &
Engineered Systems**

October 2014

Buy Standards at www.standards.co.nz



The Standard provides methods and details for the design and construction of timber-framed structures not requiring specific engineering design. NZS 3604:2011 is now cited as an Acceptable Solution under the New Zealand Building Code B1/AS1.

SNZ HB 3604:2011

**TIMBER-FRAMED BUILDINGS—
SELECTED EXTRACTS FROM
NZS 3604:2011**



SNZ HB 3604:2011 includes extracts from NZS 3604:2011 on construction requirements for timber-framed buildings not requiring specific engineering design, up to a maximum of three storeys in height. This handbook is designed to be durable for on-site use.

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Richard Wilden, Richard Wilden Design, Dunedin

Pryda Building Guide

Pryda has developed this guide to accommodate New Zealand building practices. It is important that designers, engineers, builders, inspectors and building authorities are familiar with the benefits and critical requirements of the system. Pryda timber connectors, trusses and beams comply with the New Zealand Building Code, Section B1 Structure and B2 Durability, having been designed in accordance with sound and widely accepted engineering principles to comply with NZS3604:2011.

The capacities reported in this publication are limited state design capacities and not characteristics strength thereby allowing direct comparison with design reactions reported in Pryda design software and Pryda design reports. For engineers requiring characteristic strength please refer to the Pryda Product Catalogue which is available in hard copy or downloadable from our website – www.pryda.co.nz.

For further design advice or engineering support regarding the Pryda products discussed in the publication please phone us at **0800 88 22 44** or visit our website - www.pryda.co.nz.

The Pryda Builders Guide features a Building Consent Documentation Reference for many connection details. This is aimed to encourage designers to align details in the building consent documentation with useful information in the Pryda Builders Guide for easy reference for builders and building officials at the time of inspection. The process is illustrated on the following page. It should be recognised that this is not a requirement and fabricators may choose to present information in various formats.

The **Building Consent Documentation Reference** should not be confused with the Pryda product code.

The Company

Pryda New Zealand is an autonomous division of USA-based Illinois Tool Works Inc (ITW). A Fortune 200 diversified manufacturing company with 100 years of history. Other successful brands in the ITW stable include Paslode, ITW Proline, Ramset and Reid Construction Systems. Pryda also gains valuable benefits in product, fabrication machinery and software development from its association with other ITW software and truss connector suppliers from around the world.

Who is Pryda?

Pryda was born in Napier, New Zealand in 1964 and still manufacturers over 90% of our timber connector requirements from the same premises. Pryda has remained an integral part of the building industry in New Zealand for over 50 years, particularly in timber truss and frame solutions with the development of a diverse range of timber connectors and structural brackets. Today Pryda remains a trusted New Zealand brand on building sites, in trade stores and in offices of architects, engineers and designers.

Pryda utilises world-best technology to provide a total system package to its licensed truss and frame plants, including fully integrated software and production systems, access to world leading manufacturing equipment and the highest levels of technical support.

Our Philosophy

Pryda develops customer solutions based on the philosophy, “**identify the need, understand the problem, and develop the best solution**”.

Pryda’s philosophy is a unique method of looking at the total business needs of its licensed truss and frame fabricators, and providing cost effective solutions that not only meet current requirements but also identify and satisfy long term goals.

Building Consent Documentation Reference Index

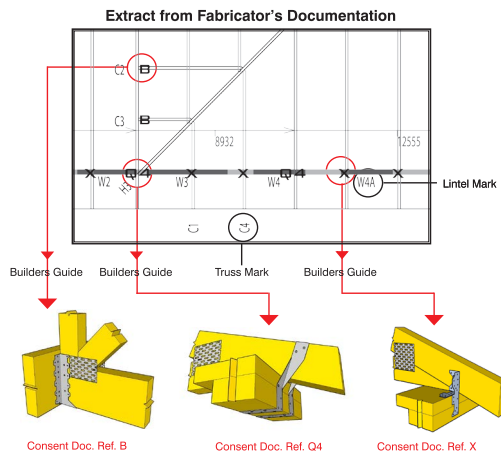
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Building Consent Documentation Reference

The Pryda Builders Guide features building consent documentation references for many connection details. This is aimed to encourage designers to align details in the building consent documentation with useful information in the Pryda Builders Guide for easy reference for builders and building officials at the time of inspection. The process is illustrated below.



Frame & Truss Manufacturers Association Code of Practice

1 The Code of Practice

1.1 Purpose

The FTMA Code of Practice is intended to provide a means of assurance to consumers, specifiers and Building Consent Authorities (BCAs) by way of publishing the standards and procedures that members agree to. In this way there is a basis for comparison with non-members as well as an industry based benchmark from which expectations can be managed.

1.2 Intention

It is intended that:

- Adherence to the Code of Practice will enable a qualifying fabricator to certify and mark their product as compliant to the Code of Practice;
- After a period of implementation and review adherence to the Code of Practice will be audited by a third party auditor;
- That adherence to the Code of Practice will be required for membership of FTMA.

1.3 Content

The Code of Practice includes:

- Section 2 - Truss Documentation

2 Truss documentation

2.1 Introduction

The intention of this section is to describe the documentation required to be produced by a fabricator of nail-plated timber trusses for use by its customer. The information contained in the document may be used by a Building Consent Authority (BCA) to satisfy the provisions of the Building Act 2004 and reasonable BCA processes in the issuing of a Building Consent or Code Compliance Certificate (CCC).

For practical purposes the production of the documentation is a two stage process. The first stage is to provide documentation to support the issuing of a building consent.

This can be achieved by providing:

- a 'Buildable' truss layout;
- a Fabricator Design Statement and;
- a Producer Statement – Design.

These documents show that trusses have been designed by an accredited fabricator¹, licensed to use specific design software, applying the appropriate loads and using the appropriate materials to ensure compliance with the NZ Building Code (NZBC) as well as giving notification of any resultant loads that may affect the supporting structure.

This documentation is intended to be provided to the "design lead"² to then consider when completing the structural design before providing it to the BCA as part of a building consent application. The BCA may then issue a building consent that is subject to receiving further documentation.

The second stage is to support the issuing of the CCC and is required prior to on-site inspection by the BCA.

This can be achieved by providing:

- an 'As Built' truss layout;
- a Fabricator Design Statement;
- a Producer Statement – Design and;
- a Manufacturing Statement.

This is similar documentation to that provided for the first stage but ensures that the final construction details of the manufactured trusses accurately reflect what was built, which can then be recorded by the BCA as part of the project documentation. Such further documentation then satisfies the conditions on which the consent had been issued. The documentation is intended to be provided to the builder on-site and to the customer who should make it available to the BCA prior to on-site inspection.

When producing an 'As Built' truss layout and final truss detailing for supply, it is expected that a fabricator shall give consideration to any 'Buildable' truss layout that has been consented by a BCA. The fabricator shall consider any structural implications that may result from a different layout to that consented and if any changes are to be made then these shall be communicated to the customer to pass on to their design team for consideration and approval before proceeding with supply. It is not expected that fabricators should have to follow exactly a consented layout, particularly when it may have been provided by a competitive party. However a fabricator will have to produce an 'As Built' truss layout as per 2.3.1.

This two stage process is reflected in section 7.5 of the guidance document "Guide to applying for a building consent" published by the Department of Building and Housing. Acknowledgement and support for the COP Section 2 – Truss Documentation is also outlined in the publication from DBH Codewords issue 044. Both publications are available online at www.dbh.govt.nz

While it is expected that the documentation is going to be provided to assist a BCA in the consent or CCC process it should be noted that the contractual relationship is between a fabricator and its customer and that the responsibility to provide this information to a BCA rests with the applicant for a building consent.

¹ An accredited fabricator is a company that has a formal agreement with a nail-plate manufacturer to use their products in the manufacture of trusses. The nail-plate manufacturer in turn licenses the fabricator to use specific design software supplied and underwritten by the nail-plate manufacturer.

² A design lead refers to the architect or draftsman responsible for the overall design of the building

A QUICK GUIDE TO TIMBER TREATMENT FOR ENCLOSED FRAMING

A new timber treatment system for Acceptable Solution B2/AS1:

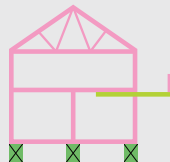
- **tough** against fungal decay and insect attack
- simpler and easier to use
- protects framing from decay
- time and cost effective

Timber treatment in Acceptable Solution B2/AS1 has changed to a new, simpler system:

If you are using the Acceptable Solution to demonstrate compliance with the Building Code, H1.2 is now required for nearly all radiata pine and Douglas fir enclosed timber framing.

FOR TIMBER FRAMING WITH:

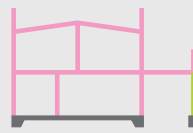
Cantilevered enclosed balcony and balustrade



Enclosed balcony and balustrade with living space below



Enclosed balcony and balustrade open below



H1.2

H3.2

H5

H5 post if in contact with the ground.

What's new with timber treatment?

The Acceptable Solution B2/AS1 has changed. The timber treatment hazard class H1.2 is now required for radiata pine and Douglas fir timber in buildings, where it is protected from the weather (ie, enclosed timber framing). Consult the tables in a **Quick Guide to Timber Treatment** for Enclosed Framing for the few exceptions to H1.2 treatment.

Why H1.2?

Research shows that H1.2 gives framing timber good protection from decay. H1.2 boron treatment is colour-coded pink.

How can I be sure my timber framing complies with the Building Code?

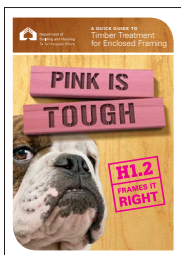
The changes shown here outline one way to comply with the New Zealand Building Code durability clause B2. However, this is only a very brief introduction, so consult Acceptable Solution B2/AS1 for full details.

Why continue to treat timber?

Timber must be adequately protected against damage from fungal and insect attack so that buildings are durable and comply with the Building Code. The new system improves the overall level of protection against decay.

What about other species of wood for framing?

For other species of wood and engineered wood products (such as LVL and Glulam), the Acceptable Solution does not change. For information on other species which can be used under the Acceptable Solution, consult NZS 3602:2003 Tables 1 and 2.



This is only a very brief introduction to the changes made to the timber treatment requirements effective July 2011.

For further information see **A Quick Guide to Timber Treatment for Enclosed Framing** which is available from the Department of Building and Housing, or consult Acceptable Solutions B2/AS1 for full details.

Pryda New Zealand acknowledges the Department of Building and Housing as the source of this information.

Producer Statement

Pryda Timber Connectors

January 2012

This Producer Statement is issued by Pryda NZ to cover the use, installation and durability of PRYDA TIMBER CONNECTORS for both structural application and durability as required by the New Zealand Building Code clauses B1 & B2 respectively.

Description

The PRYDA timber connectors are manufactured from either Z275 or Z600 galvanised steel. Some brackets are also available hot dipped galvanised or stainless steel for use in certain exposed and covered situations.

Application

PRYDA timber connectors are designed for specific connections of timber to timber mostly but also to other materials such as masonry, concrete and steel. Please contact PRYDA technical service should you require assistance relating to these connectors.

Installation

The PRYDA timber connectors should be installed without damage to the finished surfaces. Storage prior to use to be in dry moisture free conditions that would not affect the future durability of the product.

Design Capacity

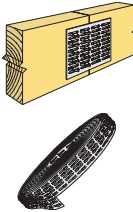
As timber grades vary the design capacity is derived by the verification method as with the NZBC standards NZS3603:1993 mostly dependant on the shear values of the nails and bolts in timber. Most commonly used brackets have published characteristic strengths published in our literature.

Durability

The durability of the PRYDA timber connectors is in accordance with the acceptable solutions contained in Table 4.1 and Table 4.2 of NZS3604:2011 in order to achieve a 50 year life expectancy for the connectors where applicable. Alternative solutions and direct applications are to be found else where in this publication.

Pryda Timber Connectors Guide

Knuckle Nailplates



Codes: As per table below
Material: 1.0mm G300 Z275 galv steel

Pryda Knuckle Nailplates are designed for on-site use for a range of structural and non-structural timber jointing and timber protection uses such as butt joints, mitre joints, timber repairs, plank protectors and fence construction. A natural arc or dove-tail effect is created as the nails penetrate into the timber providing a very positive resistance to nail withdrawal.

Knuckle Nailplates are also available in coil form making it ideal for the on-site user to cut to the required length by using metal cutters.

Knuckle Nailplate code MP6R10 = Merchant pack 8 rows of nails long x 10 teeth wide

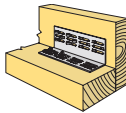
Code	Width	Length	Code	Width	Length	Code	Width	Length
MP2R4	33mm	63mm	MP2R10	76mm	63mm	MP2R16	134mm	63mm
MP2R5	38mm	63mm	MP4R10	76mm	127mm	MP4R16	134mm	127mm
MP4R5	38mm	127mm	MP6R10	76mm	190mm	MP6R16	134mm	190mm
MP6R5	38mm	190mm	MP8R10	76mm	254mm	MP8R16	134mm	254mm
MP8R5	38mm	254mm	MP10R10	76mm	317mm	MP10R16	134mm	317mm
MP10R5	38mm	317mm	MP12R10	76mm	381mm	MP12R16	134mm	381mm
MP12R5	38mm	381mm	NCR10	76mm	12.7m	NCR16	134mm	8.45m
NCR5	38mm	12.7m						

Codes: As per table below
Material: 1.0mm G300 Z275 galv steel

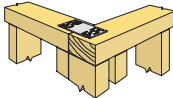
The Knuckle Angle Nailplates are an internal or external angled fastening making it ideal when timber needs to be attached at right angles. It's properties and features are similar to the Knuckle Nailplates.

Internal Code	External Code	Width	Length
MP2RA	MP2RAE	38 x 38mm	63mm
MP3RA	MP3RAE	38 x 38mm	95mm
MP4RA	MP4RAE	38 x 38mm	127mm
MP6RA	MP6RAE	38 x 38mm	190mm

Knuckle Angle Nailplates



Strap Nails

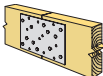


Codes: As per table below
Material: 1.0mm G300 Z275 galv steel

Pryda Strap Nails are pre-punched nailplates offering a quick, simple, economical and easy to use method of jointing timber. Strap Nails use the sharper tooth profile featuring the exclusive pre-punched twisted nail resulting in increased holding power due to better penetration of all timber types. Install simply by placing Strap Nail over joint and hammer into place.

Code	Width	Length
MPSN2 or SN25	25mm	100mm
MPSN50 or SN50	50mm	100mm
SN50L	50mm	150mm

Nail-on Plates



Material: 1.0 mm G300 Z275 or G300 Z600 galv steel or stainless steel or 2.0 mm G300 Z275 galv steel
Pryda Nail-on Plate is a flat steel bar that has been pre-punched with both nail and screw holes. Pryda Product Nails 30 x 3.15mm shall be used or alternatively hex head # 17 screws. Either method provides a quick and economical means of providing a strong joint for many different on-site applications. Nail-on Plate is available in 3 widths – 75, 100 & 150mm and 2 thicknesses NPA = 1.0mm and NPB = 2.0mm. Standard lengths are available however Nail-on Plate can be cut and folded to customers requirements upon request.

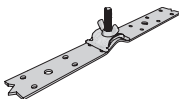
Angle Brace



Codes: AB30 – 3.0m long, AB33 – 3.3m, AB36 – 3.6m, AB42 – 4.2m, AB48 – 4.8m
Material: 1.0 x 20 x 20mm G300 Z275 galv steel

Pryda Angle Brace is a fast effective way to brace interior or exterior timber framing. Angle Brace is pre-punched making it simple to secure with nails. It utilises the tension and compression strength of steel. For installation instructions refer to the Pryda Product Catalogue.

Strap Brace



Codes: SB10 – 10m coil, SB10T – 10m coil with 5 tensioners, SB30 – 30m coil, SB30T – 30m with 5 tensioners, SBT – Bag of 5 tensioners. Stainless: SB15/S – 15m coil, SBT/SS316 – Tensioner
Material: 0.8mm x 25mm G550 Z275 galv steel or stainless steel

Pryda Strapbrace is a high tensile strap ideally suited for bracing walls or roof planes in residential buildings. Strapbrace acts in tension only so must be applied in pairs. It is pre-punched to accept both 3.15mm nails and the 6mm tensioner bolt. The tensioner is available individually or within SB10T or SB30T kits. For installation instructions refer to the Pryda Product Catalogue. Pryda Strapbrace is **not designed** for use as a hold down strap on braced wall panels – use Pryda Sheet Brace Straps for this application.

Maxi Strap

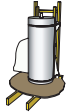


Codes: SB1/10 – 10m coil, SB1/15 – 15m coil, SB1 – 30m coil, SB1/T – tensioner. Stainless: SB1/S – 30m coil, SB1/TS – Tensioner
Material: 0.8mm x 50mm G550 Z275 galv steel coil or stainless steel

Pryda Maxi Strap is a high tensile strap ideally suited for larger spans in walls or roof planes usually found on commercial or industrial buildings. Like the Strapbrace, Maxi Strap acts in tension only so braces must be applied in pairs. Holes have been pre-punched to accept both 3.15mm nails as well as the Maxi Strap tensioner. Tensioners are available individually. For installation instructions refer to the Pryda Product Catalogue.

Refer to Pryda Catalogue for: characteristic design loadings, design strengths, load capacities, installation information and suggested uses.

Plumber's Strap

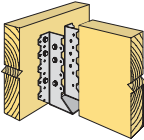


Code: PS30

Material: 0.5 x 25mm x 30m G300 Z275 galv steel

Pryda Plumber's Strap has been developed as a seismic restraint for hot water cylinders and as a support for any service pipes. This strap is pre-punched. Preferred fixing method is to use 12g x 35mm Type 17 screws or with a Pryda Strap Brace tensioner to tension the strap. Note that hot water cylinders placed at heights exceeding 3 stories require special design. For installation instructions refer to the Pryda Product Catalogue.

Framing Brackets



Codes: Codes as per table below*

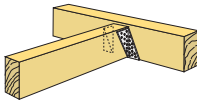
Material: 1.0mm G300 Z275 or G300 Z600 galv steel or stainless steel

The Pryda Framing Brackets are suitable for fixing joist to joist, joist to beam, truss to truss, rafter to purlin and hangers to joists where a strong, rigid joint is required between members meeting at 90 deg. and eliminating costly on-site skilled labour to make special housing joints etc. All these framing brackets use 30 x 3.15mm Pryda Product Nails or 12g x 35mm Type 17 Hex Head screws. The Framing Brackets must be fully nailed or screwed to achieve full design load capacities.

Product Code	Suitable for Timber	Product Code	Suitable for Timber
MPFB3890	38 x 90 - 150mm	MPFB5274*	50 x 90 - 150mm
MPFB4590‡	45 x 90 - 150mm	MPFB52124*	50 x 120 - 200mm
MPFB45120‡	45 x 120 - 200mm	MPFB52174*	50 x 190 - 300mm
MPFB45180‡	45 x 190 - 300mm	FB94/152*	2/45 x 190 - 290mm
		FB65/170	65 x 190 - 290mm
		FB72/163	70 x 190 - 290mm

* Available in Stainless Steel ‡ Available in Z600

Nail-on Diagonal Cleats

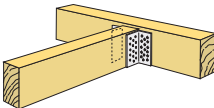


Codes: NPD

Material: 1.0mm G300 Z275 galv steel

The Pryda Nail-on diagonal Cleat is manufactured from 190 x 100 x 1.0mm Nail-on Plate diagonally folded, to either LH or RH cleats. If this cleat is used as a butt joint connection for larger timber then use 30 x 3.15mm Pryda Product Nails however when nailing into poles as a girt to pole connection then 75 x 3.15mm flat head nails should be used.

Nail-on Angles

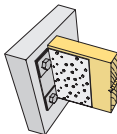


Codes: NPA – 190 x 100mm folded in half along it's length

Material: 1.0mm G300 Z275 galv steel

The Pryda Nail-on Angle is manufactured from Nail-on Plate and shares similar characteristics and uses. It is ideal for butt joint situations as well as beam to bearer situations and gives a strong, economic alternative to framing brackets where the size of the width of the beam is non-standard. This Nail-on Angle is pre-punched to accept 30 x 3.15mm Pryda Product Nails however if used as a connection to poles then 75 x 3.15mm flat head nails should be used.

Tim-Con Brackets

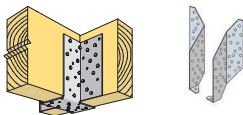


Codes: TCF130 – 130 x 40/110mm, TCF190 – 190 x 40/110mm

Material: 2.0mm G300 Z275 galv steel

This Pryda Tim-Con Bracket is a high strength bracket for fixing timber beams or trusses to concrete or concrete block walls. Use 30 x 3.15mm Pryda Product Nails into the timber beam. The bolt load capacity into the concrete or concrete blocks is critical and as bolt strength varies with different concrete grades, it is the responsibility of the specifier to check adequacy of bolts in each application. Either used singly or in pairs dependent upon design loading required. Refer to the Pryda Product Catalogue for further information on bolt selection.

Nail-on Joist Hangers and Split Joist Hangers



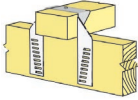
Codes: JHH75 – Suitable for 75mm timber, JHH100 – Suitable for 100mm timber,

JHHS, JHSS212, JHSS275 & JHSS401 – Suitable for variable width timber

Material: 1.2mm G300 Z275 galv steel for JHH75 & JHH100, 1.8mm G300 Z275 galv steel for JHHS

The Pryda Nail-on Joist Hangers and Split Joist hangers are the heavy duty hangers in the Pryda hanger range and are pre-punched to accept the 30 x 3.15mm Pryda Product Nails. The JHHS is a split hanger and will accept timber beam width as narrow as 32mm with beam heights commencing at 280mm.

Batten/ Purlin Straps

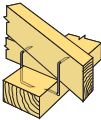


Codes: BS70

Material: 1.0mm G300 Z275 galv steel

The Pryda BS70 provides a simple solution for tying down roof battens to trusses or rafters. The BS70 has high uplift capacity, is fast and easy to install and suitable for all New Zealand wind zones.

Z & U Nails

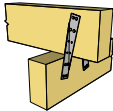


Codes: MPZU or ZU, MPZR or ZR, MPZL or ZL Stainless: MPZU/S, MPZR/S, MPZL/S

Material: 5mm diameter mild steel wire galvanised or stainless steel

Z or U nails are manufactured in left handed, right handed or U (staple). It provides an effective and quick means of holding down purlins to rafters, rafters and joists to plates, joists to beams etc in high wind zones making a strong, low cost tie against wind uplift. Each nail is 100mm shank with 40mm spikes. The spikes at 85deg to the shank and the unique "humpty backed" formation in the shank combine to draw the timbers to each other. For installation instructions refer to the Pryda Product Catalogue.

Ceiling & Purlin Hangers

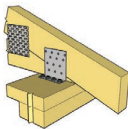


Codes: CPH126-LH, CPH126-RH, CPH190-LH, CPH-190RH, Stainless: CPH126-LH/S, CPH126-RH/S, CPH190-LH/S, CPH-190RH/S

Material: 1.0mm G300 Z275 galv steel or stainless steel

Pryda Ceiling and Purlin Hangers are a simple cost effective fastening method providing a variety of uses in a building. They are simply nailed onto two pieces of timber crossing each other at right angles using 30 x 3.15 Pryda Product Nails. The Ceiling and Purlin Hanger are available in two sizes 126mm and 190mm long and are normally used in pairs.

Concealed Purlin Cleats

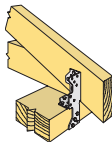


Codes: NPPC4, NPPC6 & NPPC8. Stainless: NPPC4/S or NPPC8/S

Material: 1.85mm G300 Z275 galv steel or stainless steel

The Pryda Concealed Purlin Cleats provide a strong and rigid connection for rafters, trusses and beams to wall top plates. Ideally suited as truss tie downs with ceiling plates if 14g x 75mm Type 17 hex head screws are used instead of the normal 12g x 35mm screws as used in other applications. This is a versatile fastening and is also suitable for purlin fixing with or without ceiling to resist wind uplift. Available in 40, 60 or 80mm wide cleats to meet most applications.

Multigrips

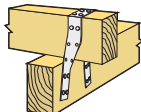


Codes: MPMG – 100 x 3 x 36mm, MGL – 132 x 36 x 36mm, Stainless: MG S – 100 x 36 x 36mm stainless steel

Material: 1.0mm G300 Z275/ G300 Z600 galv steel or stainless steel

Pryda Multigrips are as the name suggests a multi-purpose one product fastening with no left hand or right hand requirements whilst using the 30 x 3.15mm Pryda Product nail. The in-built bending slot ensures accurate bending on site. The long Multigrip has been designed to provide increased truss to top plate connection length allowing the truss to be tied directly to both top plate and ceiling plate.

Windstraps

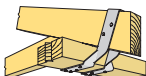


Codes: WS4E – 400mm, WS6E – 600mm

Material: 1.0mm G300 Z275 galv steel

The Pryda Windstrap is ideal as an anchoring device for trusses, rafters and purlins. The WS4E can be used for holding down 75 x 50mm and 100 x 50mm purlins whilst the WS6E can be used for purlins greater than 100 x 50mm. The WS6E is also used as a tie down for trusses to top plates. Extra capacity is obtained by bending the Windstrap legs around the supporting member. The Windstraps are supplied flat with twisted legs so can be bent on-site to suit 35mm and 50mm wide timber.

Cyclone Straps

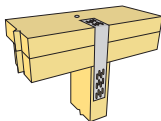


Codes: MPQHS4 – 400mm, MPQHS6 – 600mm, QHS9 – 900mm

Material: 0.95mm G300 Z275 galv steel

The Pryda Cyclone Strap has been designed as a simple, efficient tie down with the greatest design capacity for wind uplift prior to using a special design capacity. Tests have proven that bending the Cyclone strap legs under the support member increases the design load that the strap is capable of carrying.

Stud Ties

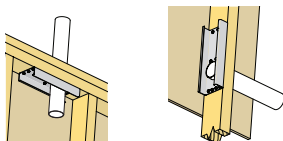


Codes: SST – 400mm

Material: 0.95mm G300 Z275 galv steel

The Pryda Ezi Stud Tie is a quick and effective connector for studs and wall plates. The Ezi Stud Tie's teeth are driven into the side grain of the stud to resist wind uplift in lateral shear. It can be applied during manufacture of the wall panels or on-site. The Ezi Stud Tie is supplied with one 90 deg bend ("L" shape).

Pryda Frame Fix

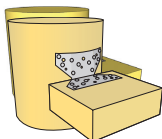


Codes: PFF

Material: 1.6mm G300 Z275 galv steel

The Pryda Frame Fix has a unique design which satisfies both download and uplift capacities where a 60mm hole has been cut into a top plate with ceiling plate for service requirements. In these situations 14g x 75mm hex head type17 screws shall be used. The TPS is designed to sit inside the wall space and will not interfere with either internal or external wall claddings. This product can also be used to reinstate the integrity of studs where 60mm holes have been drilled to allow service pipes/ducting to pass. In these cases 12g x 35mm hex head type17 screws shall be used.

Pole to Girt Brackets

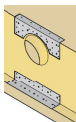


Codes: NPP2G. Stainless NPP2G/S

Material: 0.95mm G300 Z275 galv steel or stainless steel

The Pryda Pole to Girt bracket provides a robust means of fixing timber girts to poles in Pole & Rafter buildings. The bracket is designed in a butterfly shape to easily wrap around the poles. The NPP2G is a variation of the multigrip but with greater extension into the connected member and with the addition of screw holes provides greater fixing capacity.

Pryda Stren-joist

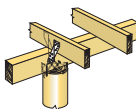


Code: NPSJ

Material: 1.6mm G300 Z275 galv steel

The Pryda Stren-joist has been designed to allow service holes to be cut in floor joists. The fitting of a Pryda Stren-joist re-instates the integrity of the penetrated joist. They are quick and easy to install, come in a kit and shall be used on joists 140mm – 290mm high. Each kit contains the 3 part Stren-joist bracket, 1 x 500gr 30 x 3.15mm Pryda Product Nails and 10 x 8g x 20mm screws. If the hex head screwing installation is used then 30 x 12g x 35mm hex head type17 galv screws will be required.

6kN & 12kN Pile-Bearer Kits

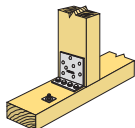


Codes: PBK6 & PBK12 for standard conditions, **PBK6S & PBK12S** for severe conditions

Material: Standard Kit – G300 Z600 galv steel. Severe Corrosion Kit – Stainless steel

The 6kN kit is suitable for the fixing of cantilever timber piles to bearers and joists and the 12kN kit for the fixing of anchor or braced timber piles to bearers and joists. Each kit includes their fixing requirements of nails and "U" nails

Sheet Brace Anchor Kit

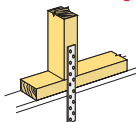


Codes: SBA – contains 2 x NPPC8, 16 x 30 x 3.15mm Pryda product nails and 8 x 12g x 35mm Hex Head Type17 screws

Material: 2.0mm G300 Z275 galv steel

Provides 6kN and 12kN capacity wall stud to bottom plate connection. Can be retrofitted if external wall lining and cladding installed. Use 2 connectors where 12kN fixing required.

Sheet Brace Straps



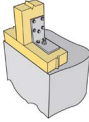
Codes: SBS300 – 300mm long, **SBS400** – 400mm long, **SBS600** – 600mm long.

Stainless **SBS300/S**, **SBS400/S**, **SBS600/S**

Material: 1.0mm G300 Z275 galv steel or stainless steel

Pryda Sheet Brace Straps are mild steel straps providing 6kN or 12kN capacity fixing for sheet-braced wall panels. They comply with the requirements of NZS3604:2011 for a 6kN capacity strap. Use 2 straps where or wrap around bottom plate where 12kN capacity fixing is required. The SBS is also very popular as a method of lintel tie down.

Pryda Brace Anchor

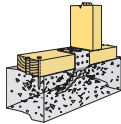


Codes: PBA

Material: 5mm G250 Steel

The PBA is designed to be used in conjunction with all gypsum wallboard manufacturers bracing systems, references and literature. The PBA can satisfy the hold down requirements and is a substitute for the pre-fitted double strap.

Bottom Plate Anchors

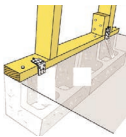


Codes: BPA – 235 x 1.2 x 50mm

Material: 1.2mm G300 Z600 galv steel

The Pryda Bottom Plate Anchor is a pressed steel bracket for fixing timber wall plates to concrete floors. Removes the need to pre-drill bottom plates. Cost saving over anchor bolts.

Header Block Anchors

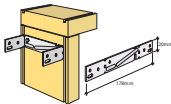


Codes: HBA

Material: 1.2mm G300 Z600 galv steel

The Pryda Header Block Anchor is a pressed steel bracket for fixing bottom wall plates to concrete floors where floor base is contained by concrete header blocks. Removes the need to pre-drill bottom plates as well as the need to lift / locate over preplaced cast-in bolts. Cost saving over anchor bolts.

Jamb Fixa's & Jamb Ties

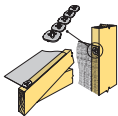


Codes: JFB100 – 175 x 1.0 x 20mm, JT58 – 58 x 1.0 x 18mm, JT75 – 75 x 1.0 x 18mm

Material: 1.0mm G300 Z275 galv steel

The Pryda Jamb Fix and Jamb Tie provide a quick and easy means to install door and window frames without the need to use wedges. No jamb face nailing is required and they can be used on both solid timber and customwood mouldings.

Pryda Fix & Foil Fix

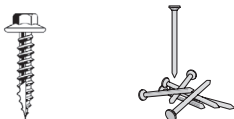


Codes: SFI – Pryda Fix, SFF – Pryda Foil Fix

Material: 0.8mm galv steel

Pryda Fix (for shade cloth) and Pryda Foil Fix (for insulation foil) are designed as a non-tear economical fixing for sheet insulation and shade netting. They eliminate tearing on sharp surfaces, the rounded coined edge holding the material firmly against the timber when the sharp pre-punched fastenings are driven home. The Pryda Foil Fix exclusive twisted nail profile is suitable for use with the hardest of timbers and resists "pull out".

Fasteners



Product Nails

GBCU30315 - galv	30 x 3.15mm 500g (approx 220 nails)
GBHU30315 - galv	30 x 3.15mm 5kg (approx 2,200 nails)
CSBU30315 - stainless	30 x 3.15mm 500g (approx 203 nails)

Screws

HH1235NS - galv	12g x 35mm hex head type 17 (each)
HH1235SS - stainless	12g x 35mm hex head type 17 (100 pack)
HH1475S - galv	14g x 75mm hex head type 17 (100 pack)

Can be used as an alternative fixing method for most Pryda products.

Producer Statement

Pryda Structural Brackets

January 2012

This Producer Statement is issued by Pryda NZ to cover the use, installation and durability of PRYDA Structural Brackets for both structural application and durability as required by the New Zealand Building Code clauses B1 & B2 respectively.

Description

PRYDA Structural Brackets are fabricated from flat bar steel. They are mostly available in hot dipped galvanised finish with a selection also available in stainless steel for use as an architectural feature or in certain exposed and covered situations as covered in NZS3604:2011. The zinc coating is applied in accordance with AS/NZS 4690:1999 and has a thickness of at least 1000gm/m² which is in excess of the requirements in Table 4.2 in NZS3604:2011.

Application

PRYDA Structural Brackets are designed to connect timber to masonry, concrete and steel. The brackets are designed for specific connections of timber to other materials. Please contact PRYDA technical service should you require assistance for your intended application.

Installation

The PRYDA Structural Brackets should be installed without damage to the finished surfaces. Storage prior to use to be in dry moisture free conditions that would not affect the durability of the product. PRYDA Structural Brackets are designed for embedment into concrete, such as those with a fishtail, are required to have a 150mm minimum embedment into the footing in accordance with NZS 3604 Fig 9.2.

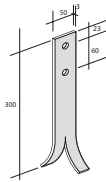
Characteristic Strength

As with timber grades, the characteristic strength is derived by the verification method in accordance with the NBC standard NZS3603:1993. The characteristic strength of a structural bracket is limited to the values derived from the above mentioned standards taking cognisance of bolt spacing and end distances. The mode of failure is limited to bolt in timber failure and not the steel bracket when used for its intended application.

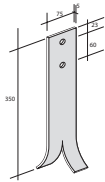
Durability

The durability of the PRYDA Structural Brackets is in excess of the acceptable solutions contained in Table 4.1 of NZS3604:2011 in order to achieve a 50 year life expectancy for the brackets. Pryda Structural Brackets are hot-dipped galvanised to a level of 1000gm/m² or higher. Independent tests show that the >3mm hot dipped galvanised steel performs as well as 304 stainless steel in corrosive situations.

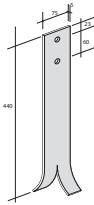
Pryda Structural Brackets Guide



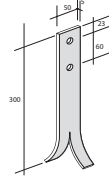
SBK2/S



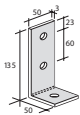
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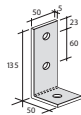
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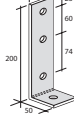
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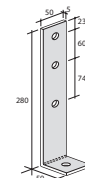
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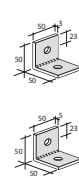
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SBK11A
(B52)



SBK12A
(B53)



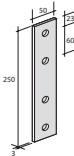
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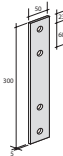
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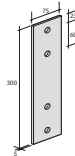
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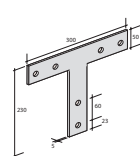
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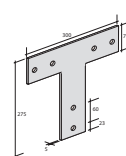
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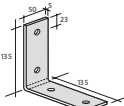
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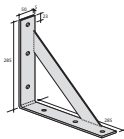
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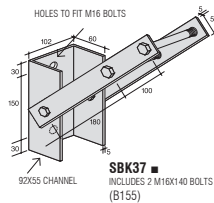
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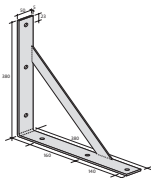
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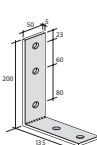
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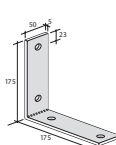
SBK37 ■
INCLUDES 2 M16X140 BOLTS
(B155)



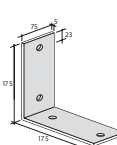
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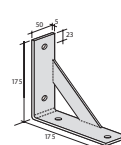
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SBK53
(B55)

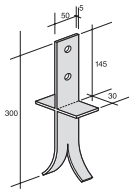


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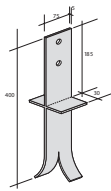


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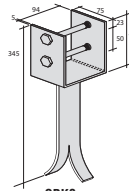
ALL BOLT HOLES TO ACCOMMODATE M12 BOLTS UNLESS NOTED * BRACKETS WITH HOLES FOR 6MM COUNTERSUNK SCREWS. ■ ALSO AVAILABLE IN STAINLESS STEEL
GALVANISED AND STAINLESS STEEL PLATES AND BRACKETS FOR CONCRETE, TIMBER AND STEEL CONNECTIONS



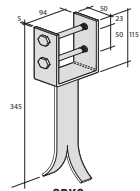
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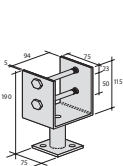
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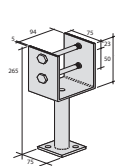
SBK8 ■
INCLUDES 2 M12X120 HDG BOLTS
(B138)



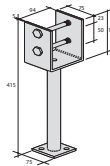
SBK9 ■
INCLUDES 2 M12X120 HDG BOLTS
(B135)



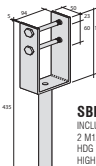
SBK15
INCLUDES 2 M12X120 HDG BOLTS
(B12)



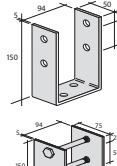
SBK16 ■
INCLUDES 2 M12X120 HDG BOLTS
(B14)



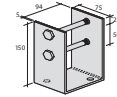
SBK16B
INCLUDES 2 M12X120 HDG BOLTS
(B18)



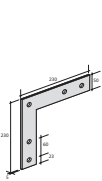
SBK16H
INCLUDES 2 M12X120 HDG BOLTS, HIGH WIND
(B16)



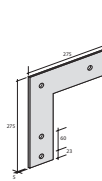
SBK17 ■
12MM BOLTS INCLUDED, MASONRY ANCHOR NOT SUPPLIED
(B25)



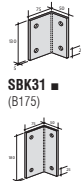
SBK18 ■
12MM BOLTS INCLUDED, MASONRY ANCHOR NOT SUPPLIED
(B28)



SBK29 ■
(B45)



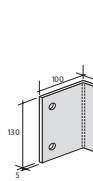
SBK30
(B48)



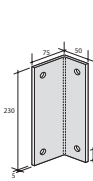
SBK31 ■
(B175)



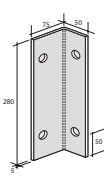
SBK31A ■
(B176)



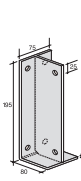
SBK32 ■



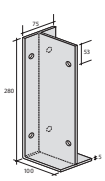
SBK33 ■
(B177)



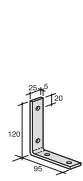
SBK33A
(B178)



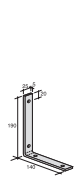
SBK38 ■
(B108)



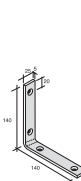
SBK38A
(B109)



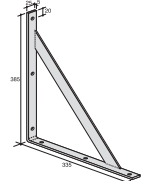
SBK41
(B553)



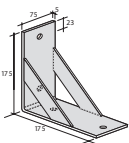
SBK42
(B554)



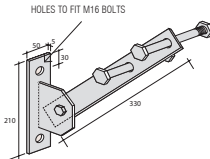
SBK43



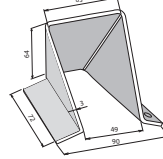
SBK50
(B567)



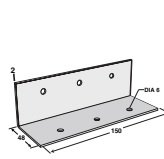
SBK55A
(B68)



SBK57 ■
INCLUDES 2 M16X120 BOLTS
(B145)



SBKFS
(BSB2)



P2BB ■

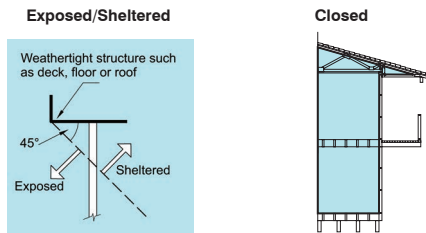
Durability

Alternative solution to Table 4.1 NZS3604:2011

Under the building code, **Clauses B2 Durability**, requirements for steel fasteners are:

- For structural steel fasteners with difficult access and replacement—50 years or nominated period
- For structural steel fasteners with moderate ease of access and replacement—15 years or nominated period

Environment Definitions



Zone	Location		Environment	Product
All Zones	Fully enclosed walls, floors & roof spaces		Closed	Pryda Zinc Coated Products
Zones B & C	All subfloor fastenings more than 600mm above the ground	Vented 7000mm ² /m ² or LESS	Sheltered	Pryda Z600 Products
		Vented MORE than 7000mm ² /m ²	Exposed	Pryda Stainless Steel Products
	All subfloor fastenings within 600mm of the ground	Sheltered and exposed		Pryda Stainless Steel Products
	All other structural fixings	Sheltered		Pryda Z600 Products
		Exposed		Pryda Stainless Steel Products Pryda SBK HDG Brackets
Zones D	All structural fittings	Sheltered and exposed		Pryda Stainless Steel Products

Notes:

All PRYDA galvanised products comply with NZS3604:2011 Table 4.2

PRYDA Z600 is an alternative solution to Hot Dipped Galvanising (HDG) of steel fastenings as required under NZS3604:2011 Table 4.1 Evidential documentation comprising testing and an appraisal from Les Boulton and Associates is available.

Exposure Zones

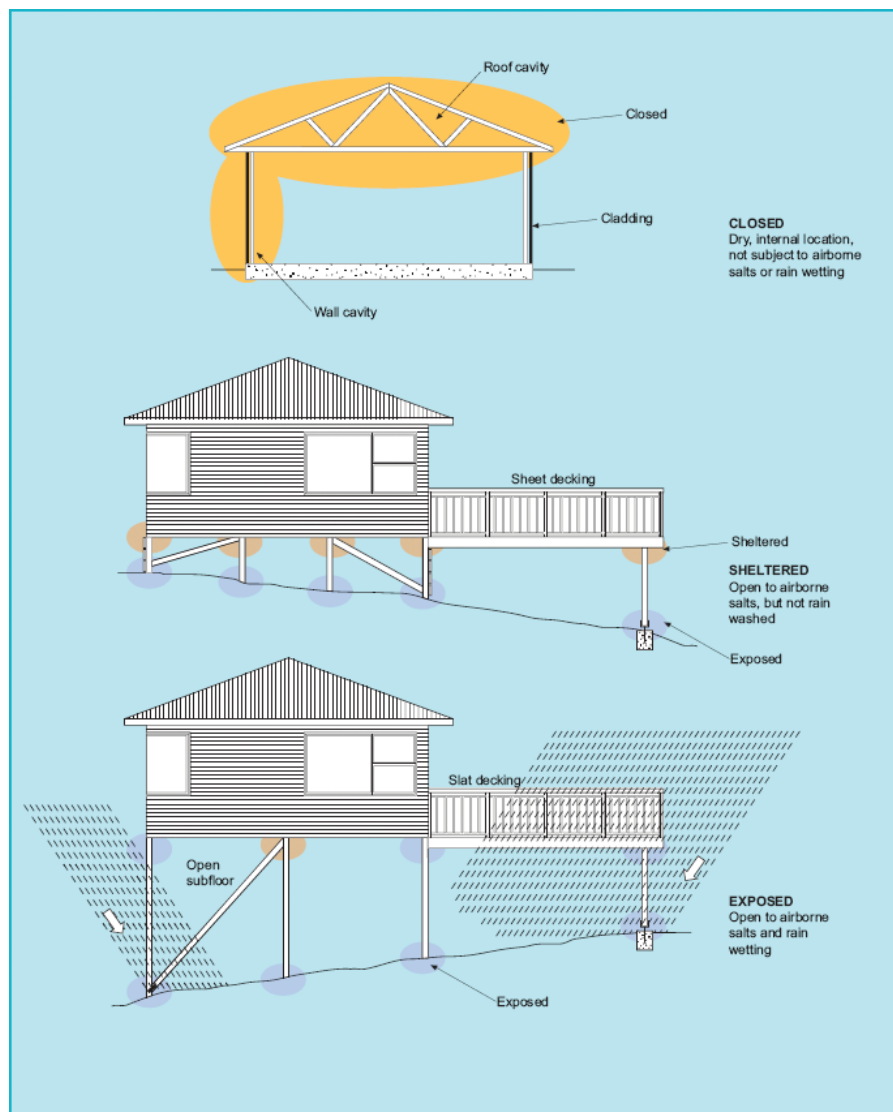


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Exposure Zones



Exposure Definitions



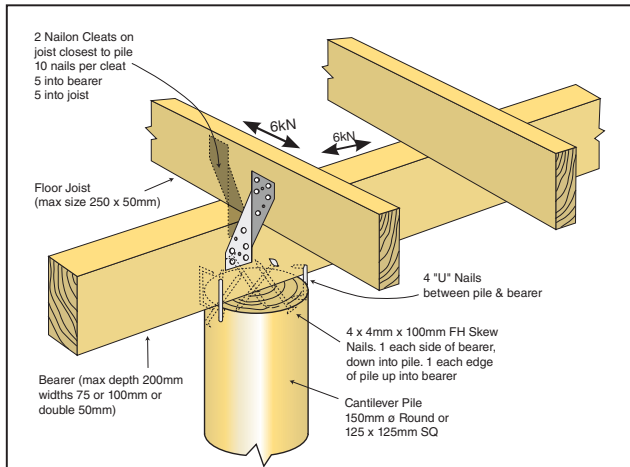
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©Copyright Standards New Zealand 2011. Figure 4.3(b) from NZS 3604:2011 has been reproduced with permission from Standards New Zealand under Copyright Licence 000925.

6kN Pile-Bearer Kit

Consent Doc. Ref.
P6

6kN Capacity Fixing of Cantilever Pile to Bearer and Joists



6 kN Horizontal Capacity Fixing of Bearer/Joists to CANTILEVER PILE in accordance with NZS 3604:2011 Clauses 6.7.3.1, and 6.7.3.3.

Features

- Allows CANTILEVER Pile to be in line with and same height as other piles.
- Connection detail covers bearer sizes up to 200mm deep, joists up to 250mm deep.
- Design Capacity verified by extensive testing program carried out by BRANZ.
- All components supplied as one complete package.
- Available in all stainless steel components for use in environments with severe corrosion risk.

Installation

As detail drawing above but subject to the following:-

1. On round pile bearer must be central. Bearer may be offset on square pile but must not overhang edge.
2. Nailon cleats fix to joist closest to pile. At building corner where fixing to boundary joist is precluded fix cleats to next closest joist along bearer.
3. At external wall where joists do not overhang bearer enough for cleats to be fixed on outside face, they may be fixed to inside face only of that bearer provided a similar detail is used on the other side of the floor system.
4. Joist must have lateral support (blocking or perimeter joist) within 300mm of bearer in accordance with NZS3604:2011 cl 7.1.2.1.
5. All components must be protected after installation against wind-blown sea salt deposition by coating with 2mm thick grease, Sellsys roof and gutter (silicone) sealant, or other approved coating.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Durability

Complies with NZ Building Code - Clause B2 for a structural component with 50 year durability.

PBK6: Standard Kit ("U" Nails and 100mm nails hot dip galvanised, Cleats Z600 galvanised steel coil, 45mm nails HDG) - Not suitable for use in the sea spray or geothermal zones. Components must be minimum 600mm above ground and the subfloor ventilations to be 7000 mm²/m² or less in zone C. See Durability Alternative Solution Table in this guide

PBK6S: Severe Corrosion Kit (All Grade 304 Stainless Steel Components) - suitable for all sea spray zone conditions.

Specifications

"U" Nails:

5mm diameter, 100mm shank and 40mm spikes (4 off).

Cleats:

150 x 63 x 1mm diagonally folded (2 off).

Nails:

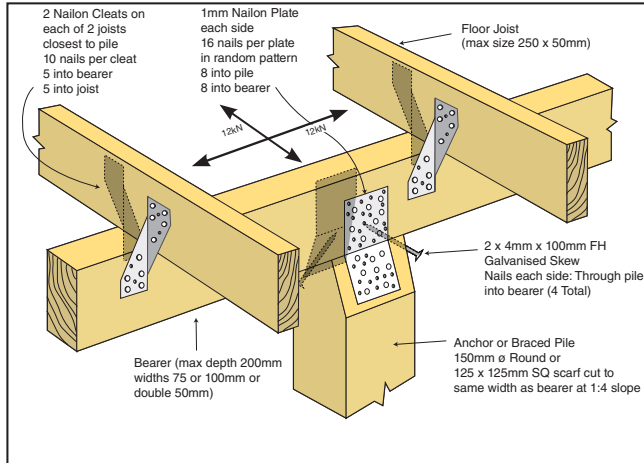
45 x 3.15mm Flat Head Square Twist (22 off)

100 x 4.0mm Flat Head (4 off).

12kN Pile-Bearer Kit

Consent Doc. Ref.
P12

12kN Capacity Fixing of Cantilever Pile to Bearer and Joists



12 kN HORIZONTAL CAPACITY Fixing of Bearer/Joists to ANCHOR PILE or BRACED PILE, in accordance with NZS 3604:2011 Clauses 6.8.5, 6.8.6 and 6.9.3.

Features

- Allows ANCHOR/BRACED Pile to be in line with and same height as other piles.
- Connection detail covers both Anchor and Braced Piles, with bearer sizes up to 200mm deep, joists up to 250mm deep.
- Design Capacity verified by extensive testing program carried out by BRANZ.
- All components supplied as one complete package.

Installation

As detail drawing above but subject to the following:-

1. On round pile bearer must be central. Bearer may be offset on square pile but must not overhang edge.
2. Nail on cleats fix to two joists closest to pile. At building corner where fixing to boundary joist is precluded fix cleats to next two closest joists along bearer.
3. At external wall where joists do not overhang bearer enough for cleats to be fixed on outside face, they may be fixed to inside face only of that bearer provided a similar detail is used on the other side of the floor system.
4. Joists must have lateral support (blocking or perimeter joist) within 300mm of bearer in accordance with NZS3604:2011 cl 7.1.2.1.
5. Braced Piles - connection is required at top of both piles to which each brace attaches.
6. All components must be protected after installation against wind-blown sea salt deposition by coating with 2mm thick grease, Selleys roof and gutter (silicone) sealant, or other approved coating.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Durability

Complies with NZ Building Code - Clause B2 for a structural component with 50 year durability.

PBK12: Standard Kit (Nailon plates/Nails Hot Dip Galvanised, Cleats Z600 galvanised steel coil) - Not suitable for use in the sea spray or geothermal zones. Components must be minimum 600mm above ground and the sub-floor ventilations to be 7000 mm²/m² or less in zone C. See Durability Alternative Solution Table in this guide.

PBK12S: Severe Corrosion Kit (All Grade 304 Stainless Steel Components) - suitable for all sea spray zone conditions.

Specifications

Nailon Plates:

100 x 190 x 1 mm (2 off).

Cleats:

150 x 63 x 1mm diagonally folded (2 LH and 2 RH).

Nails:

45 x 3.15mm Flat Head Square Twist (74 off)

100 x 4.0mm Flat Head (4 off).

Internal Single Storey Concentrated Loads on Concrete Floor Foundations

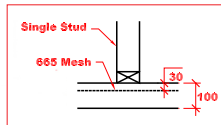
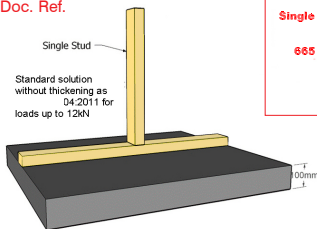
Scope:

To determine the correct adjustments requirement in addition to the requirements of NZS3604:2011 to foundations in the event of concentrated gravity loads by the roof layout.
To determine the additional studs required for the above wind uplift and gravity situations.

Design Assumptions

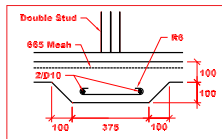
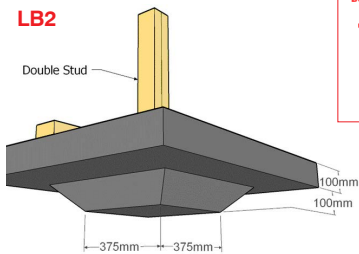
1. Buildings within NZS3604:2011 limits - truss spans within 12m.
2. Truss spacings not greater than 1200mm. Timber shown in studs SG8 or better.
3. Soil conditions 300kPa ultimate. Bearing Capacity or better as per NZS3604:2011 Ch. 3.
4. Where 2 or more studs are required, the concentrated load truss face will be within 50mm of the centre of support.
5. The number of top plates to be determined from NZS3604:2011.

Consent Doc. Ref. LB1



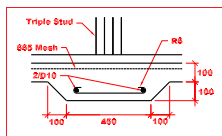
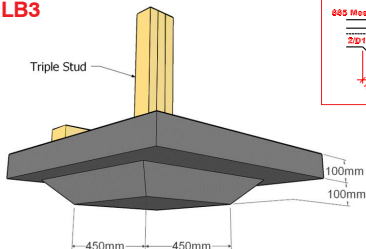
12kN load		SG8
Height m	Stud size (mm)	No. of studs under load
2.4	90 x 45	1
2.7	90 x 45	2
3.0	90 x 45	2

Consent Doc. Ref. LB2



24kN load		SG8
Height m	Stud size (mm)	No. of studs under load
2.4	90 x 45	2
2.7	90 x 45	2
3.0	90 x 45	3

Consent Doc. Ref. LB3

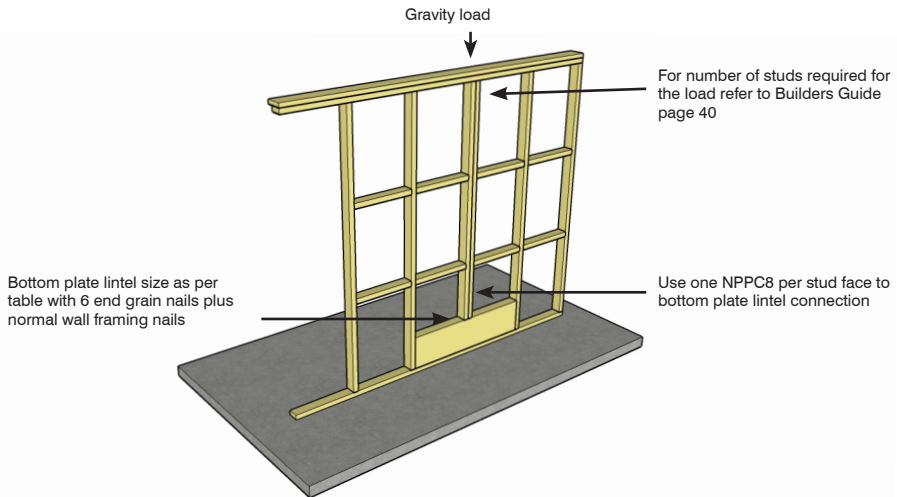


36kN load		SG8
Height m	Stud size (mm)	No. of studs under load
2.4	90 x 45	3
2.7	90 x 45	3
3.0	90 x 45	4

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Truss Gravity Point where no Floor Thickening has been approved

This retrofit can be used when an internal support has no concrete floor thickening and loads are greater than 12kN provided that:



	Gravity Load		
	12kN - 23kN	24kN - 36kN	36kN
Bottom Plate Lintel Size SG8	1/250 x 100mm or 2/250 x 50mm	1/300 x 100mm or 2/300 x 50mm	SED*

- Use bottom plate lintel size as per table
- The building to be built within NZS3604:2011 limits with roof spans less than 12m
- Soil conditions shall be 300kPa ult. bearing or better as per NZS3604:2011 Ch3
- Where 2 or more studs are required, the concentrated load truss face shall be within 50mm from the centre of the support
- For number of studs to match load, refer to Pryda Builders Guide page 40
- If multiple studs are loaded by more than 12kN, the bottom plate lintel shall be extended continuously by one stud spacing past the last loaded stud
- Concrete is assumed to be 17.5MPa grade or better, 100mm thick with mesh
- SED required for gravity loads exceeding 36kN

*SED = Special Engineering Design

Pryda Stren-Joist

Alternative Solution to NZS3604:2011 Cl 8.51.6 and 8.7.5

Alternative solution where strengthening of joists are required after a hole or notch has been made in a joist, refer to NZS3604:2011 cl 8.5.1.6 and cl 8.7.5.

Specification

Product Code:

NPSJ

Material:

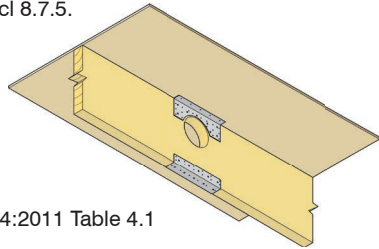
1.65mm G300 Z275 galvanised steel

Durability:

Suitable for use in closed environment as per NZS3604:2011 Table 4.1

Application:

Designed to reinstate the structural integrity of a joist after a service hole has been drilled through the member using the verification methods in accordance with the New Zealand Building Code B1 & B2.



Joist Size (mm)	Max Hole Size (mm)
140 x 45	72
190 x 45	122
240 x 45	125
290 x 45	125

Advantages:

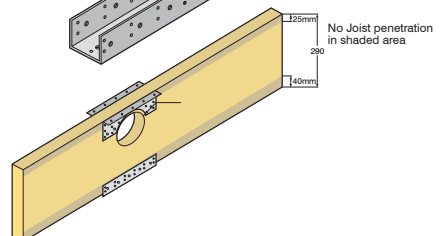
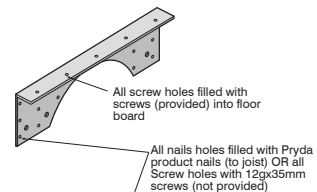
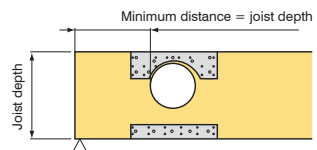
- Quick and easy to install
- Fixing option of either nails or screws
- Can be retro-fitted
- One size designed for use on 140—290mm joists

Installation:

1. Use NPSJ to locate and correct vertical location of hole along the joist. Care shall be exercised when installing NPSJ in 140x90mm joist where hole location is critical.
2. The hole can be made in any position along the span of the joist provided that the hole edge is no closer than one joist depth from the end supports of the joist. Refer to table for maximum hole size in joist
3. Present the two angles to either side of hole as shown and nail or screw into place ensuring a tight snug fit onto joist and underside of flooring (use 10 / 8gx20mm screws for top flange)
4. Present channel to underside of joist and nail or screw into place ensuring a tight and snug fit.

Notes:

- If hex screw fixing option is used then 30 / 12g x 35mm T17 hex head screws are required. (not supplied with the NPSJ kit.)
- All nail or screws holes shall be filled
- Intended for use in internal 'closed space' as per Table 4.1 of NZS3604:2011



Framing Brackets

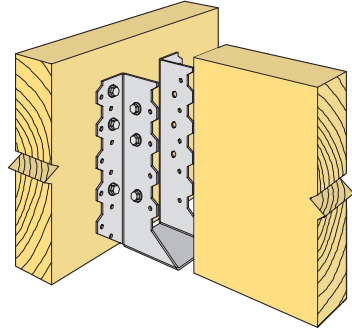
Fixings Requirements for Joists

Loading as per AS/NZS 1170:2002 (Table 3.1)

Domestic/Balcony live loads:
1.5/2.0kPa and 1.8kN point load

Commercial/Industrial live loads:
3.0kPa max and 2.7kN point load

Select joist span using NZS 3604:2011 tables or similar. Hanger size in table corresponds to joist size.



			Domestic and Balcony Loads		Commercial and Industrial Loads				
			Nails per flange		Screws per flange		Nails per flange		Screws & Nails per flange
Joist Size (mm)	Hanger Size	Consent Doc. Ref.	Joist	Bearer	Joist	Bearer	Joist	Bearer	
90 x 45	MPFB4590	A	2	3	1	1	2	4	1 Screw + 1 Nail
140 x 45	MPFB4590	A	2	3	1	1	2	4	1 Screw + 1 Nail
190 x 45	MPFB45120	B	3	5	2	2	3	6	2 Screws + 2 Nails
240 x 45	MPFB45120	B	3	5	2	2	3	6	2 Screws + 2 Nails
290 x 45	MPFB45180	C	4	7	3	3	4	8	3 Screws + 3 Nails

Notes:

- Use 30 x 3.15 mm Pryda product nails and/or Type 17 12g x 35mm Hex Head Screws
- The above values apply to SG 8 or better
- Framing brackets to suit rough sawn timber also available: MPFB5274, MPFB52124, MPFB52174
- All 45mm and 52mm framing brackets are available in both 1.0mm G300 Z600 galvanised steel and stainless steel

Pryda Floor and Rafter Trusses

Pryda Longreach Trusses

Pryda Longreach is a premium performance floor and rafter truss system using all timber webs and chords for maximum stiffness, and can be manufactured to any depth required from 235 to 450 mm.

A major feature of all-timber Longreach is that low-cost increases in depth will significantly increase span capacity or stiffness.

Pryda Span Trusses

Pryda Span floor and rafter trusses have galvanised high strength steel diagonal webs for lightweight and economy, and are available in nominal 250, 300 and 400 mm depths. The steel web design has a patented deep V profile incorporating stiffeners for improved performance and resistance to damage during handling on site.



Floor Truss Spans and Depth

This table illustrates the significant increase in span capacity by increasing floor truss depth and/or higher timber grade.

Example: Spans for residential floor loads (1.5kPa/1.8kN) at 450mm centres

Top & bottom chord timber		Truss depth (mm)			
Size (mm)	Grade	250	300	350	400
90x45	SG 8	4300	4900	5200	5700
90x45	SG 12	5800	6500	7100	7700

Guide to Specification

This guide contains information for designers on the design principles for Pryda floor and rafter truss systems to incorporate relevant details within their specifications.



For more information

More information on Pryda floor and rafter truss systems is available from the Pryda website www.pryda.co.nz or contact Pryda New Zealand on 0800 88 22 44.

Header Block Anchor

Consent Doc. Ref.
BP5

A pressed steel bracket for fixing timber wall framing to concrete floors

Features

- Used when laying concrete header block pads
- Holds down the bottom plate of timber wall frames
- Eliminates the need to bolt down the bottom plates
- Must be fitted at 600mm centres or less

Specification

Product Code:

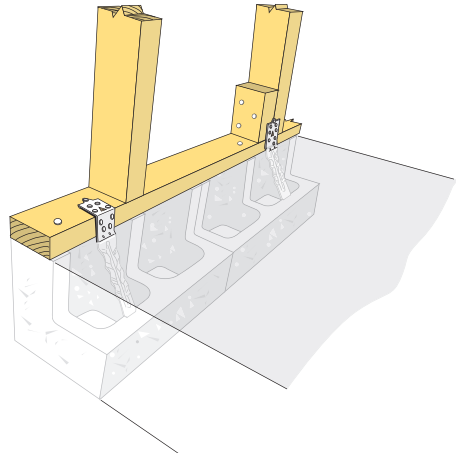
HBA

Material:

1.2mm G300 Z600 galvanised steel coil

Nails:

30 x 3.15mm Pryda Product Nails



Installation

Pryda Header Block Anchors are fitted at 600mm centres or less over the outside edge of the header block before the concrete is poured.

Once the concrete has hardened, install the wall frames, then lift the exposed top flap of the Pryda Header Block Anchor back far enough to allow the wall frames to be located onto the concrete base.

Two Pryda (30 x 3.15mm) Product Nails are required to secure the Pryda Header Block Anchor to the side of the bottom plate and four Pryda Product Nails need to be fitted into the top of the bottom plate or the side of a stud. Should the Pryda Header Block Anchor not line up correctly with a stud then a block must be fitted. A 75 x 4mm concrete nail must also be fitted alongside the Pryda Header Block Anchor and a minimum of 70mm from the edge of the concrete.

Capacities in compliance with CL.7.5.12.3 NZS3604:2011

– (per anchor in 17MPa concrete)

	Along Plate
	Design (W or E) = 3.9 kN Capacity = 6.4 kN

	Across Plate
	Design (W or E) = 2.8 kN Capacity = 5.1 kN

	Uplift
	Design (W or E) = 4.4 kN Capacity = 8.0 kN

Product testing by Monash University Melbourne
(NATA Registered Laboratory)

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Bottom Plate Anchor

Consent Doc. Ref.
BP6

A pressed steel bracket for fixing timber wall framing to concrete floors

Features

- Replaces NZS 3604:2011 Bolt/Dowel fixing of timber wall plate to concrete slab.
- Speedier concrete finishing - allows floating to slab edge and avoids messy hand trowelling around cast-in bolts.
- Easier wall frame placement - no drilling of plates and no lifting/locating over preplaced bolts.
- Cost savings over cast-in anchor bolts.

Specification

Product Code:

BPA

Material:

1.2mm G300 Z600 galvanised steel coil

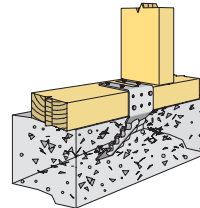
Nails:

30 x 3.15mm Pryda Product Nails

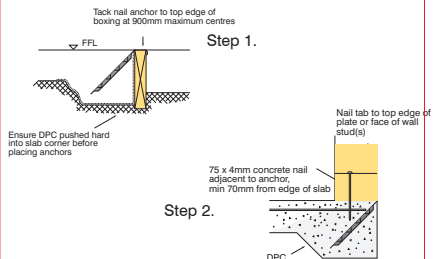
Installation

1. Tack nail anchors to top edge of boxing at maximum 900 ctrs (if wall contains sheet brace element, refer to sheet brace manufacture literature. Position anchors with tabs horizontal and crimped end downwards at 45° angle.
2. After initial concrete cure position wall frame.
Bend anchor up and over plate and nail with 30 x 3.15mm Pryda Product Nails-2 into edge of plate and 2 per tab. If tabs coincide with stud position, nail to stud with 2 per tab. Fix one 75 x 4mm concrete nail adjacent to anchor, minimum 70mm from edge of slab.

NOTE: Bottom plate fixings are designed to be used in DRY service conditions - i.e., with concrete protected from moisture by continuous damp proof membrane.

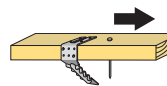


Installation



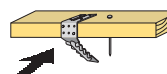
Capacities in compliance with CL.7.5.12.3 NZS3604:2011

– (per anchor in 17MPa concrete)



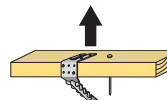
Along Plate

Design (W or E) = 3.9 kN
Capacity = 6.4 kN



Across Plate

Design (W or E) = 2.8 kN
Capacity = 5.1 kN



Uplift

Design (W or E) = 4.4 kN
Capacity = 8.0 kN

Product testing by Monash University Melbourne
(NATA Registered Laboratory)

Capacities assume minimum timber grade of SG8.

Pryda Sheet Brace Straps

Consent Doc. Ref.
6kN application **BP1** / 12kN application **BP2**

6kN or 12kN capacity fixing for sheet-braced wall panels

Features

Mild steel strap fixing complying with the requirements of NZS3604:2011 for a 6kN Capacity Strap.

Use 2 straps, each with nailing as below, where 12kN Capacity fixing is required.

Specification

Code:

SBS300 (25mm x 1.0mm x 300mm)

SBS400 (25mm x 1.0mm x 400mm)

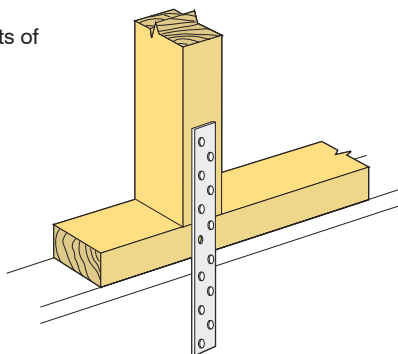
SBS600 (25mm x 1.0mm x 600mm)

Material:

1.0mm G300 Z275 galvanised steel coil or stainless steel

Nails:

30 x 3.15mm Pryda Product nails



Application

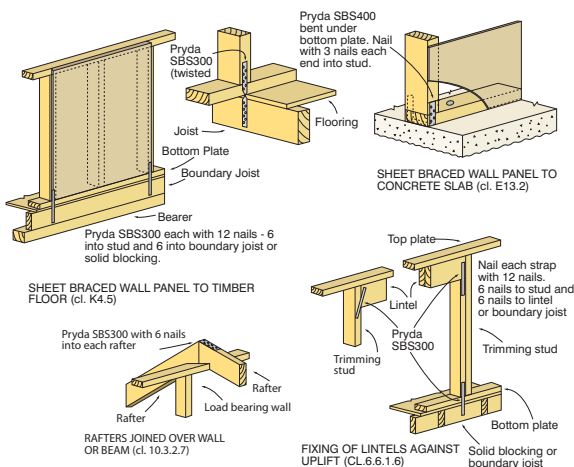
6kN: Nail with 6 nails at each end of strap

12kN: Form U-shaped strap wrapped under the bottom plate and nail with 6 nails either side.

Boundary/Floor joist to stud tie down and 12kN capacity, use 2 straps with 6 nails on all ends.

APPLICATIONS

Figures in brackets refer to NZS3604:2011 Clause numbers.)



All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Pryda Stud Anchor

6kN or 12kN capacity fixing

Consent Doc. Ref.
6kN application **BP3** / 12kN application **BP4**

Features

6kN: One connector provides 6kN capacity fixing of wall stud to bottom plate.

12kN: Use 2 connectors, one on each face of stud.

Able to be retrofitted if external wall lining / cladding already installed.

Specification

Code:

SBA

Material:

2.0mm G300 Z275 Galvanised Steel

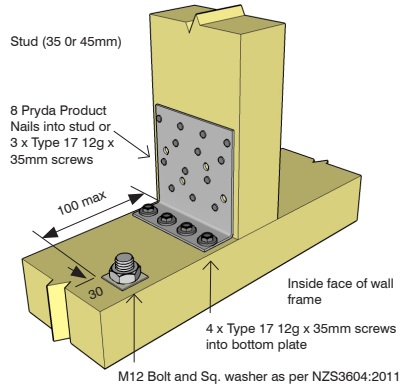
Nails:

30 x 3.15mm Pryda Product Nails

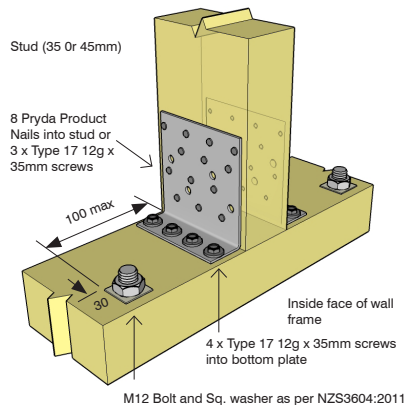
Screws:

Type 17 12g x 35mm hex head galvanised screws

6kN - 1 x SBA



12kN - 2 x SBA



Installation

Locate fixing hard against face of stud and roughly central about stud width. Fix 4 screws down into bottom plate through the four holes in the narrow flange. Nail with 8 nails supplied into stud (spread nails evenly over nailing area – not all nail holes will be filled). Alternately 3x Type 17 12g x 35mm screws can be used. Note: A 6kN fixing of bottom plate to concrete (eg. One M12 bolt) is required within 100mm of the 6kN stud to plate fixing.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Lintel Fixing Schedule

Acceptable solutions in conjunction with tables 8:14 & Fig 8:12 of NZS3604:2011

Span Meters	Wind Zone	LIGHT ROOF Loaded Dimensions Meters					HEAVY ROOF Loaded Dimensions Meters				
		2	3	4	5	6	2	3	4	5	6
0.6	L	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
	M	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
	H	L1	L1	L1	L2	L2	L1	L1	L1	L1	L1
	VH	L1	L1	L2	L2	L2	L1	L1	L1	L2	L2
	EH	L1	L2	L2	L2	L3	L1	L1	L2	L2	L2
0.9	L	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
	M	L1	L1	L1	L1	L2	L1	L1	L1	L1	L1
	H	L1	L1	L2	L2	L2	L1	L1	L1	L2	L2
	VH	L1	L2	L2	L3	L3	L1	L2	L2	L2	L2
	EH	L2	L2	L3	L3	L3	L2	L2	L2	L3	L3
1.2	L	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
	M	L1	L1	L2	L2	L2	L1	L1	L1	L1	L1
	H	L1	L2	L2	L3	L3	L1	L1	L2	L2	L2
	VH	L2	L2	L3	L3	L3	L1	L2	L2	L3	L3
	EH	L2	L3	L3	L3	L3	L2	L2	L3	L3	L3
1.8	L	L1	L1	L1	L2	L2	L1	L1	L1	L1	L1
	M	L1	L2	L2	L2	L3	L1	L1	L1	L1	L2
	H	L2	L3	L3	L3	L3	L1	L2	L2	L3	L3
	VH	L3	L3	L3	L3	L4	L2	L3	L3	L3	L3
	EH	L3	L3	L3	L4	L4	L3	L3	L3	L3	L4
2.1	L	L1	L1	L2	L2	L2	L1	L1	L1	L1	L1
	M	L2	L2	L2	L3	L3	L1	L1	L1	L2	L2
	H	L2	L3	L3	L3	L3	L2	L2	L3	L3	L3
	VH	L3	L3	L3	L4	L4	L2	L3	L3	L3	L3
	EH	L3	L3	L4	L4	L4	L3	L3	L3	L4	L4
2.4	L	L1	L1	L2	L2	L2	L1	L1	L1	L1	L1
	M	L2	L2	L3	L3	L3	L1	L1	L1	L2	L2
	H	L2	L3	L3	L3	L4	L2	L2	L3	L3	L3
	VH	L3	L3	L4	L4	L4	L3	L3	L3	L3	L4
	EH	L3	L4	L4	L4	SED	L3	L3	L4	L4	L4
3.0	L	L1	L2	L2	L3	L3	L1	L1	L1	L1	L1
	M	L2	L3	L3	L3	L3	L1	L1	L2	L2	L2
	H	L3	L3	L3	L4	L4	L2	L3	L3	L3	L3
	VH	L3	L4	L4	L4	SED	L3	L3	L3	L4	L4
	EH	L3	L4	L4	SED	SED	L3	L4	L4	L4	SED
3.6	L	L2	L2	L2	L3	L3	L1	L1	L1	L1	L1
	M	L2	L3	L3	L3	L3	L1	L2	L2	L2	L3
	H	L3	L3	L4	L4	L4	L2	L3	L3	L3	L4
	VH	L3	L4	L4	SED	SED	L3	L3	L4	L4	L4
	EH	L4	L4	SED	SED	SED	L3	L4	L4	SED	SED
4.2	L	L2	L2	L3	L3	L3	L1	L1	L1	L1	L1
	M	L3	L3	L3	L3	L4	L1	L2	L2	L3	L3
	H	L3	L4	L4	L4	SED	L3	L3	L3	L4	L4
	VH	L4	L4	L4	SED	SED	L3	L4	L4	L4	SED
	EH	L4	L4	SED	SED	SED	L4	L4	L4	SED	SED
4.8	L	L2	L3	L3	L3	L3	L1	L1	L1	L1	L1
	M	L3	L3	L3	L4	L4	L1	L2	L2	L3	L3
	H	L3	L4	L4	L4	SED	L3	L3	L3	L4	L4
	VH	L4	L4	SED	SED	SED	L3	L4	L4	SED	SED
	EH	L4	SED	SED	SED	SED	L4	L4	SED	SED	SED

Notes:

Lintel spans and loaded dimensions measured in metres.

All frame nailing not indicated, refer to table 8.19 of NZS 3604:2011.

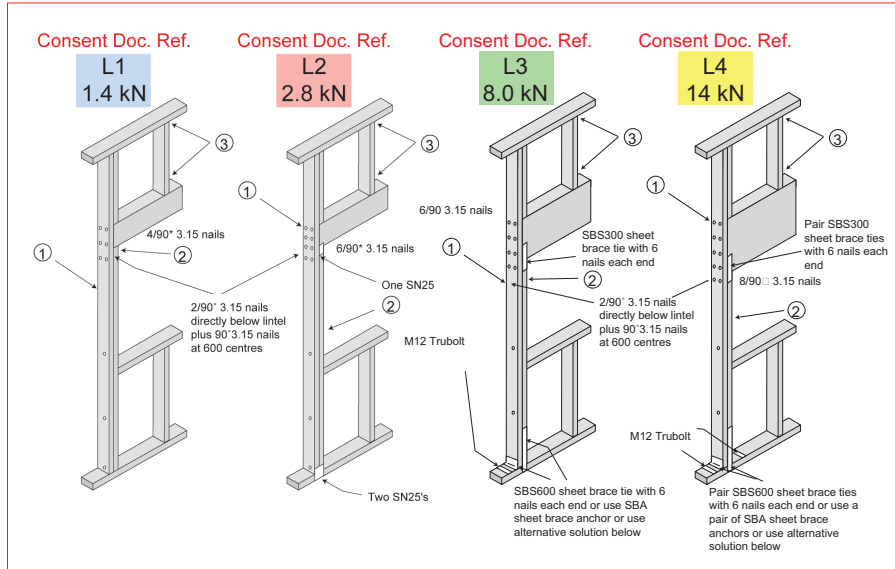
In all cases a 90mm thick external wall is assumed.

600mm overhangs allowed for in the tables.

SED designates that a Specific Design is required.

Lintel Fixing Schedule

Acceptable solutions in conjunction with tables 8:14 & Fig 8:12 of NZS3604:2011

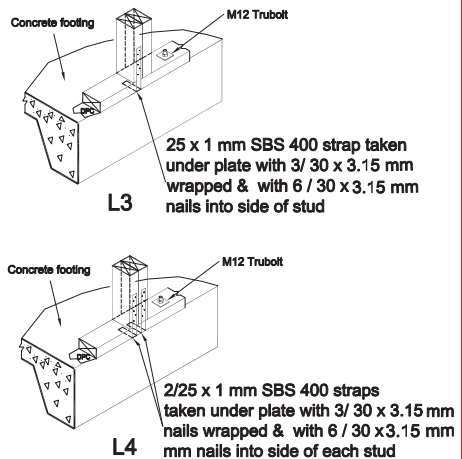


1. For trimming stud thickness refer to Table 8.5 NZS 3604:2011. Additional studs to that shown to have a minimum stud to stud fixing of 11/90 x 3.15mm nails.

2. Where a double stud which provides support for a lintel is shorter by 400mm or more than the full stud height, its thickness shall not be included as contributing to the thickness of trimming studs.

3. Studs & Jack Studs to be fixed in accordance with the Pryda Top Plate to Stud Fixing Guide on page 39.

Alternative solution for L3 & L4 SBS use



All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Pryda Bracing Anchor

The PRYDA Bracing Anchor (PBA) has been designed to be used in conjunction with gypsum wallboard and plywood manufacturers bracing systems, references or literature. The PBA can satisfy the hold down requirements and is a substitute for the pre-fitted double strap or other bracing anchors / brackets.

Product Code:

PBA

Material:

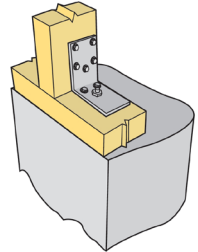
5mm electro galv steel

Size:

85/85 x 5 x 50mm

Packing:

10 sets per ctn (Set includes 2 x PBA plus 14 / 12g x 35mm T17 screws)

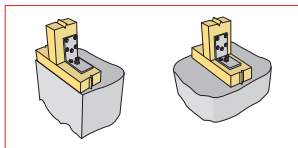


Features:

- Installation is quick and simple
- No checking of timber frame to achieve a flush fitting of gypsum wallboard
- PBA is a one piece anchor for either side of stud
- Slotted bolt hole provides flexibility in bolt and bracket position ensuring a tight snug fit into stud and bottom plate
- Can be retrofitted or installed at any stage prior to the fixing of interior gypsum wallboard
- Allows easy and visible inspection

Installation:

- Identify where PBA is to be located from details below. Ensure PBA fits within the wall frame plane
- Present PBA to junction of bottom plate and stud ensuring a snug fit to both surfaces referring to relevant floor installation detail below to ensure correct placement across face of bottom plate
- Mark position of 15kN bolt or M12 screw using the PBA as a guide and remove PBA
- Drill appropriate size hole for bolt or screw with reference to supplier's data sheet for correct hole size and use of the fastening
- Place the PBA into position and fasten home the screw or bolt to a snug fit, ensuring face of PBA is tight against face of stud.
- Screw 5 / 12g x 35mm hex head tek screws in to the stud flange
- Re-check the tightness of the M12 screw or 15kN bolt
- Finally screw 2 / 12g x 35mm hex head tek screws into the bottom plate flange

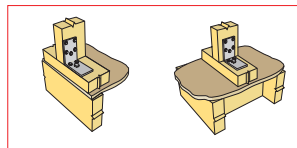


External Brace Wall

Minimum concrete edge distance shall be maintained in accordance with the 15kN proprietary fixing manufacturer's requirements.

Internal Brace Wall

PBA shall be fixed centrally to the wall frame.



External Brace Wall

PBA shall be fixed centrally over a solid joist using an M12 x 150mm galvanised coach screw .

Internal Brace Wall

PBA shall be fixed centrally on the bottom plate using an M12 x150mm galv coach screw ensuring that screw is fixed centrally into a solid joist. Extra solid nog may be required to achieve solid fixing.

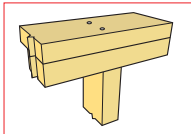
Top Plate to Stud Fixing Guide

Alternative Solution to NZS3604:2011 Table 8.18

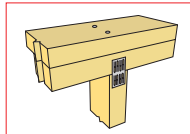
It is proposed that PRYDA Strapnails, Stud Ties or Concealed Cleats be preferred as opposed to PRYDA Z and U nails for ease of fixing and to lessen interference with the cladding.

Notes:

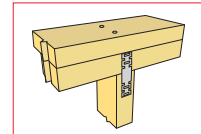
- Refer to NZS3604:2011 Table 8.18 and 8.19
- All truss to top plates to be fixed as per truss manufacturer's fixing schedule and details
- SG8 min dry wall framing with moisture content < 18%
- Studs at 600mm centres. For 400mm stud centres divide loaded dimension by 1.5
- Nails specified are 90 x 3.15mm power driven or 100 x 3.75mm hand driven
- Assumed that the top plate is 45mm



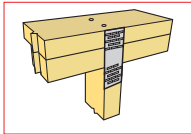
TPO - 0.7kN



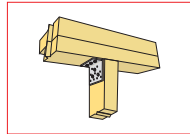
TP1 - 1.7kN



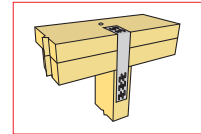
TP2 - 2.5kN



TP3 - 4.7kN



TP3 - 6.0kN



TP3 - 6.0kN

Minimum Top Plate to Stud Joint Fixing Table for roof member 600, 900 & 1200 Centres										
Loaded Dimension (m)	Light Weight Roof Wind Zone					Heavy Weight Roof Wind Zones				
	L	M	H	VH	EH	L	M	H	VH	EH
2.0	TPO	TPO	TP1	TP2	TP3	TPO	TPO	TPO	TP1	TP2
3.0	TPO	TP1	TP2	TP3	TP3	TPO	TPO	TP1	TP2	TP3
4.0	TPO	TP2	TP3	TP3	TP3	TPO	TPO	TP2	TP3	TP3
5.0	TP1	TP2	TP3	TP3	TP3	TPO	TPO	TP2	TP3	TP3
6.0	TP2	TP3	TP3	TP3	TP3	TPO	TPO	TP3	TP3	TP3

Consent Doc Ref.	Fixing Capacity	Fixing Detail
TPO	0.7kN	2/End Nails
TP1	1.7kN	2/End Nails + MP2R4 Knuckle Plate
TP2	2.5kN	2/End Nails + MPSN2 Strapnail
TP3	4.7kN	2/End Nails + SN50L Strapnail
TP3	4.7kN	2/End Nails + NPPC6 with 3/T17 14g x 75mm hex head screws
TP3	6.0kN	2/End Nails + SST

Guide to number of Studs under Concentrated Gravity Loads on External Single Storey Wall

Scope:

To determine the additional studs required under concentrated gravity loads

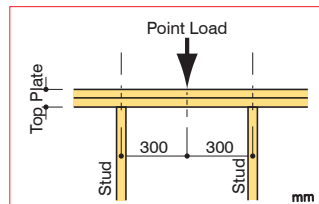
Table based on following assumptions:

- Building to be within NZS3604:2011 scope
- Truss spans shall be 12m or less
- Truss centres shall be 1200mm or less
- Timber grades of studs shall be SG8 or better.
- The number of top plates to be determined from NZS3604: 2011.
- Stud size and centres to be determined from NZS3604: 2011.
- Table does not include EH wind zone

Number of studs required under Point Loads					
Stud Height (m)	Reaction of Concentrated Gravity Load				
	3kN	6kN	12kN	24kN	36kN
2.4	1a	1b	1	2	3
2.7	1a	1b	1	2	3
3	1a	1b	1	2	3

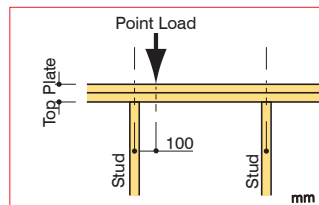
1a

Single stud centre shall be within 300mm of concentrated load centre



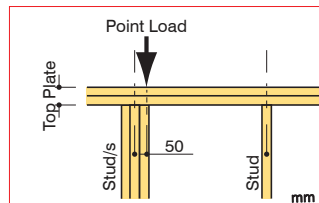
1b

Single stud centre within 100mm of concentrated load centre



1, 2 & 3

Where 1, 2 or 3 studs are required, the concentrated load centre shall be within 50mm of the centre of the support

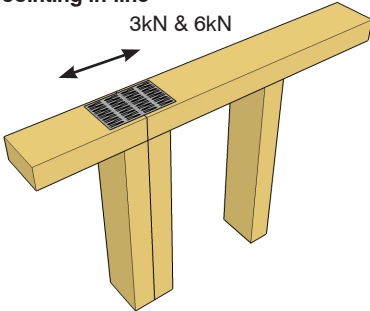


Wall: Top Plate Jointing Guide

As per Cl.8.7.3 of NZS3604:2011

Jointing in-line

3kN & 6kN



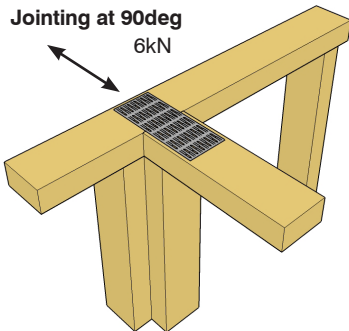
Pryda Connectors to achieve capacities

3kN: SN50 or MP6R5

6kN: SN50L or MP6R10

Jointing at 90deg

6kN

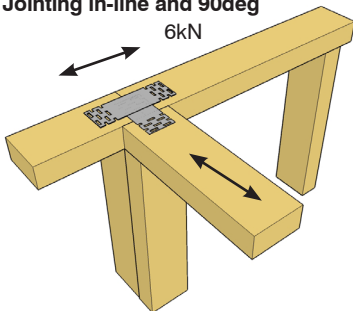


Pryda Connectors to achieve capacities

6kN: SN50L or MP6R10

Jointing in-line and 90deg

6kN



Pryda Connectors to achieve capacities

6kN: 2 x SN50L

Pryda Frame Fix

Alternative Solution to NZS3604:2011 C8.5.1.6 and C8.7.5

Alternative solution where strengthening of top plate or stud is required after a notch or hole has been made, refer to NZS3604:2011 C8.5.1.6 and C8.7.5.

Product Code:

PFF

Material:

1.65mm G300 Z275 galvanised steel

Durability:

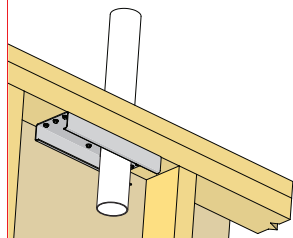
Suitable for use in closed environment as per table 4.1 NZS3604:2011

Usage:

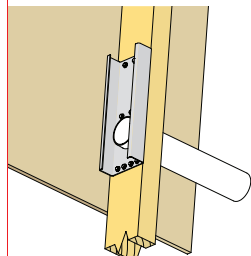
Designed to reinstate top plate or stud to FULL STRENGTH after a hole size up to 60mm has been drilled through the member.

- For internal vacuum and air conditioning systems
- Unique design provides greater top plate uplift resistance capacity
- Quick and easy to install to either top plate or stud
- Leaves clean faces to outside edges of the timber frames
- Fixing is by Type17 hex head screws
- Can be used with 90x45mm and 140x45mm

Top Plate Application



Stud Application



Installation:

Use Type17 14g x 75mm hex head screws when fixing to top plate with a top plate packer. Use Type17 12g x 35mm hex head screws when fixing to stud.

Service hole shall be centred across the timber member and the hole to be a maximum of 60mm diameter.

Maximum stud height shall be 2400mm.

Service hole can be made in any position along the top plate or stud provided that the hole edge is no closer than 45mm from a stud or nog/dwang.

PFF shall be fitted to the inside of the frame to ensure clean outside faces of the timber.

All screws holes shall be filled.

Not intended for use with 70 x 45mm timber.

Intended for use in internal 'closed space' as per Table 4.1 of NZS3604:2011.

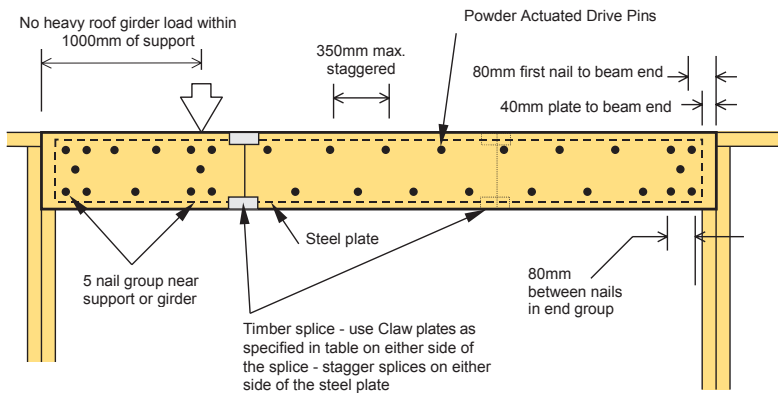
Pryda Flitch Beams

Pryda Flitch Beams comprise 2 timber beams which sandwich a 6mm, 8mm or 10mm steel plate. The 3 layers are joined together using powder actuated drive pins to make up a beam capable of longer spans than the equivalent sized timber beam. Pryda Flitch Beams are suitable for beams and lintels as they do not require the specialized packing and fixing systems associated with the use of steel beams.

Pryda Flitch Beams of nominal sizes up to 300mm x 100mm and lengths up to 6m can be readily fabricated from stock timber. The span tables in the Flitch Beam: Design and load specification guide are based on steel plates 5mm less depth than the dressed timber and a minimum timber grade of SG6 or better.

Pryda Flitch Beams are composite beams. It is relatively easy to introduce a camber during fabrication to overcome any problem with beam deflections. This often leads to the use of a smaller size than the required solid timber section.

Pryda Flitch Beams can be adapted to suit any span or continuous beam application as the product is custom made using ex stock steel plates and standard timber sizes.

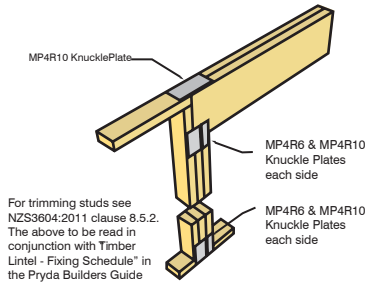


TYPICAL NAILING PATTERN

Pryda Flitch Beam Fixings

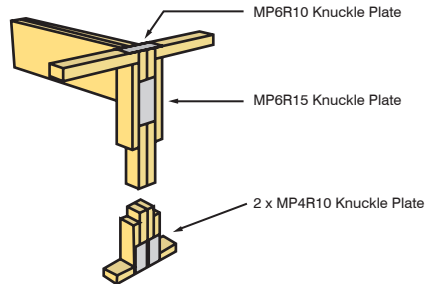
Typical Lintel Support

Consent Doc. Ref.
L5



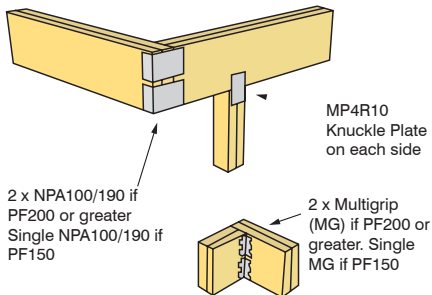
Right Angle Beam Pocket

Consent Doc. Ref.
L6



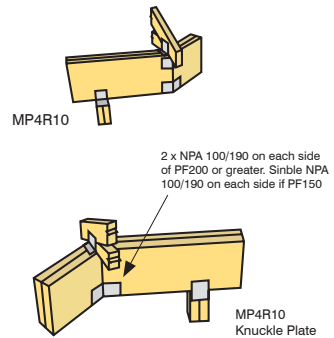
Right Angle Cantilever Lintel

Consent Doc. Ref.
L7



Oblique Angle Cantilever Beam

Consent Doc. Ref.
L8

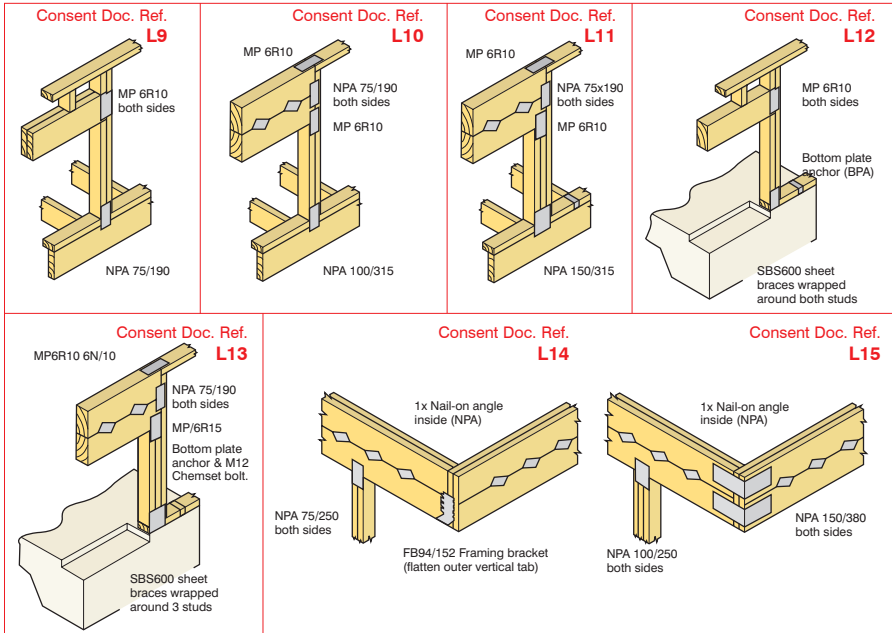


Notes

- Trimming and under studs in accordance with NZS3604:2011 Clause 8.5.2
- All cantilever lintel supports to be double studs
- The above assumes 90 x 45mm wall framing
- Wall framing timber grade to be SG8 or better
- The L5 fixing to be read in conjunction with "Timber Lintel - Fixing Schedule" in this publication

Pryda Claw Beam Lintels

Claw Beams are engineered timber beams made of commonly available timber sizes which are mechanically joined together to make up large sections for long spans. The individual members are held together by Pryda Claw nailplates. Clawbeams are manufactured by licensed Pryda Fabricators.



Roof Type	Beam Depths For Fixing Details Shown Above (mm)						
	L9	L10	L11	L12	L13	L14	L15
Light Roof standard trusses	150-200	250-300	350-600	150-200	250-300	-	-
Light Roof supported by Girder	-	150-250	350-600	-	150-300	-	-
Heavy Roof standard trusses	150-200	250-450	500-600	150-200	250-600	-	-
Heavy Roof supported by Girder	150-200	250-450	500-600	150-200	250-600	-	-
Light Roof cantilever	-	-	-	-	-	150-200	250-350
Heavy Roof cantilever	-	-	-	-	-	150-200	250-450

Details as specified are suitable for all wind conditions up to and including Very High wind. Extra High wind requires special engineering design.

Purlin/Batten to Truss/Rafter Connections

Alternative solution to NZS 3604:2011 Tables 10.10 and 10.12

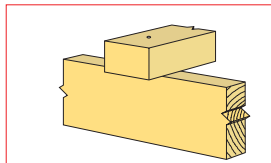
Connection Requirement for Purlin or Batten as follows:

Roof Type	Maximum Span	Maximum Spacing	Windzone as per NZS3604:2011				
			L	M	H	VH	EH
Light Weight Purlins	1200	900	P3	P3	P3	P4	P4
	1200	1200	P3	P3	P4	P4	P5
Light Weight Tile Battens	900	370	P2	P2	P2	P3	P3
	1200	370	P2	P2	P3	P3	P3
Heavy Weight Tile Battens	900	370	P1	P1	P1	P1	P1

P1

0.55kN

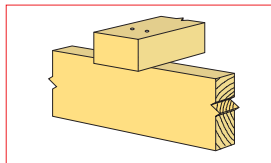
1/nail



P2

0.8kN

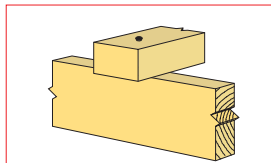
2/nails



P3

2.4kN

1/10g x 100mm Pryda Screw



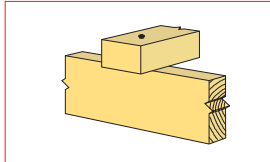
Purlin/Batten to Truss/Rafter Connections

Alternative solution to NZS 3604:2011 Tables 10.10 and 10.12

P4

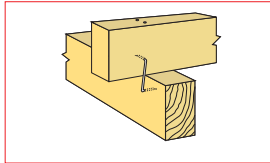
4.7kN

2 / 10g x 100mm PRYDA
Screw



or

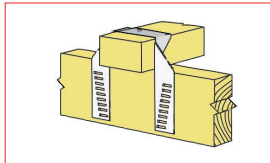
2 / PRYDA Z Nails + 2 /nails
(for purlin on edge)



P5

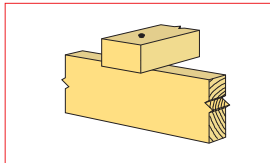
5.5kN

1 / PRYDA BS70 + 2/nails



or

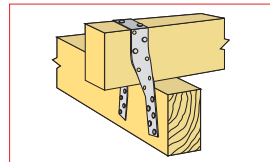
1 / 14g x 100mm screws



P6

7.0kN

1 / PRYDA WS4E + 2 / nails
with 5 / PRYDA product nails
per leg

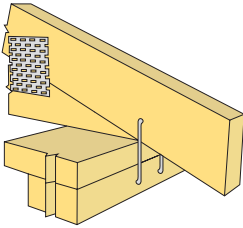


Notes:

- Wind zones as per NZS3604:2011
- All batten and purlin sizes to be as per NZS3604:2011 and fastened at each intersection
- Edge distances for fastenings as per NZS303:1999 shall be used
- P1 fixing detail—preferred P2 2 / nails fastening to improve stability of battens
- Nails are either 90 x 3.15mm power driven or 100 x 3.75mm hand-driven
- PRYDA Screw shall be 10g x 100mm sq drive self drilling
- PRYDA WS4E is PRYDA Windstrap a pre-bent 25 x 1.0 x 400mm strap
- 14g x 100mm Screw shall be per NZS3604:2011

Roof Component Tie Down Connections

Z-Nail

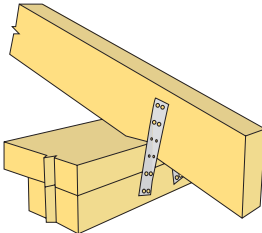


Product Code: ZR & ZL (right & left hand), ZU (U-nail)
 Also sold as MPZR, MPZL & MPZU
Durability: Suitable for all roof spaces that are closed. Stainless required in open soffits. Compliant with Table 4.1 of NZS3604:2011.
Application: Used in pairs when employed as a truss tie down.

Consent Doc. Ref	Product Code	Capacity Up Pair
Z	ZR & ZL	2.6kN*
U	ZU	2.4kN*

Note: The Z-nails should extend to the lower wall plate and may not terminate in the ceiling plate.
 *This is a reduced value from code values recently published but takes into account the serviceability of connection.

Ceiling & Purlin Hanger

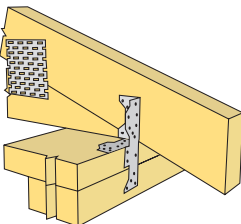


Product Code: CPH126, CPH190 -LH & -RH
Durability: Suitable for all closed roof spaces. Stainless required in open soffits. Compliant with Table 4.1 of NZS3604:2011.
Application: Usually used in pairs when employed as a truss tie down. All holes filled with 30 x 3.15mm Pryda product nails.

Consent Doc. Ref	Product Code	Capacity Up Pair
CP2	CPH126	2.5kN
CP9	CPH190	5.0kN

Note: The fixing is only used as a left and right handed pair.

Multigrip (long)



Product Code: MGL
Durability: Suitable for all roof spaces that are closed. Stainless required in open soffits with MG/S with single top plate. Compliant with Table 4.1 of NZS3604:2011.
Application: All holes filled with 30 x 3.15mm Pryda product nails.

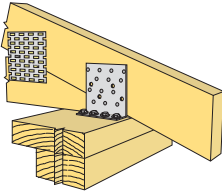
Consent Doc. Ref	Product Code	Capacity
X	MGL	2.6kN
2X	MGL (pair)	5.2kN

Note: MG (short) shall not be used in a double top plate scenario.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Roof Component Tie Down Connections

Concealed Purlin Cleat



Product Code:
Durability:

NPPC4, NPPC6, NPPC8 or SBA
Suitable for all closed roof spaces. Compliant with Table 4.1 of NZS3604:2011.

Application:

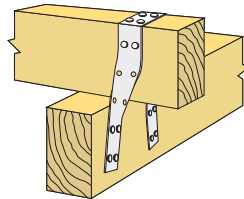
All holes in large flange filled with 30 x 3.15mm Pryda product nails or 12g x 35mm hex head screw. In small flange either Type 17 12g x 35mm or 14g 75mm hex head galv. screws.

Consent Doc. Ref	Product Code	Capacity Up	
		Single	Double
NC4	NPPC4	3.23kN	6.3kN
NC6	NPPC6	4.6kN	9.1kN
NC8	NPPC8/SBA	6.0kN	11.9kN

Note:

12g x 35mm screws can be used in single top plate.
14g x 75mm screws required in top plates more than 45mm thick.

Windstrap



Product Code:
Durability:

WS6E, WS4E
Suitable for all closed roof spaces. Stainless not available.
Compliant with Table 4.1 of NZS3604:2011.

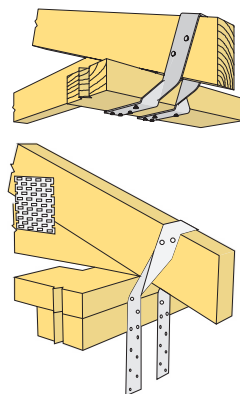
Application:

Consent Doc. Ref	Product Code	Capacity Up	
		Single	Double
W4	WS4E	5.0kN	10.1kN
W6	WS6E	6.3kN	12.6kN
W6*	WS6E	9.7kN	19.4kN

Note:

Values based on 5 nails per leg.
*With strap wrapped under support member.
Single windstrap to be placed on the outside face of wall. The ceiling plate requires notching on the inside when used in double scenario.

Cyclone Strap



Product Code:
Durability:

MPQHS4, MPQHS6, QHS9
Suitable for all closed roof spaces. Stainless not available.
Compliant with Table 4.1 of NZS3604:2011.

Application:

Consent Doc. Ref	Product Code	Capacity Up	
		Single	Double
Q4	MPQHS4	5.0kN	10.1kN
Q6	MPQHS6	6.3kN	12.6kN
Q9	QHS9	6.3kN	12.6kN
Q6*	MPQHS6	11.2kN	22.4kN
Q9*	QHS9	11.2kN	22.4kN

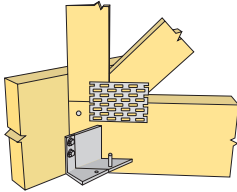
Note:

Values based on 5 nails per leg, except for MPQHS4 which can only hold 4 nails per leg
*With strap wrapped under support member.
Single windstrap to be placed on the outside face of wall. The ceiling plate requires notching on the inside when used in double strap scenario.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Roof Component to Roof Component Connections

Variable Skew Hanger



Product Code: LVSIA

Durability:

Application:

LVSIA

Suitable for all closed roof spaces. Stainless steel not available.

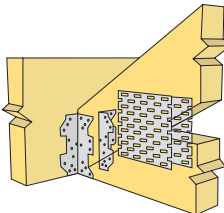
Compliant with Table 4.1 of NZS3604:2011.

Suitable for short span trusses only to accommodate angles.

Notch truss to achieve flush finish. Top flange - fill all screw holes with Type 12g 17 x 35mm hex head screws. Bottom flange - fix with one 6g 30mm type 17 bugle head screw. Skew nail fix top of bottom chord to bearer.

Consent Doc. Ref	Product Code	J5 Capacity Up	J5 Capacity Down
VS	LVSIA	1.3kN	2.8kN

Multigrip



Product Code: MG*/MGL *Also sold as MPMG

Durability:

Application:

MG*/MGL *Also sold as MPMG

Suitable for all closed roof spaces. Stainless steel required in open roofs in Sea spray zone and zone 1 in order to be compliant with Table 4.1 of NZS3604:2011.

Variable width 90 degree connection option.

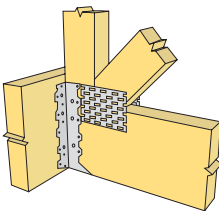
Used in pairs when employed as a truss to truss fixing. All holes filled with 30 x 3.15mm Pryda product nails.

Consent Doc. Ref	Product Code	J5 Capacity Pair Up	J5 Capacity Pair Down
MG	MG	5.1kN	4.1kN

Note:

Long multigrip (MGL - 125mm long) to be used when top chord of supported truss is deeper than 90mm.

Framing Bracket



Product Code: MPFB4590, MPFB45120, MPFB45180, FB94/152

Durability:

Application:

MPFB4590, MPFB45120, MPFB45180, FB94/152

Suitable for all closed roof spaces. Stainless steel required in open roofs in Zone D in order to be compliant with Table 4.1 of NZS3604:2011.

All holes filled with 30 x 3.15mm Pryda product nails or Type 17 12g x 35mm hex head screws unless otherwise noted. Reduced nailing requirements are possible but should be checked with Pryda engineers.

Consent Doc. Ref	Product Code	J5 Capacity Up	J5 Capacity Down
A	MPFB4590	2.5kN	5.2kN
B	MPFB45120	3.8kN	7.5kN
C	MPFB45180	6.6kN	12.4kN
D	FB94/152	5.9kN	9.9kN

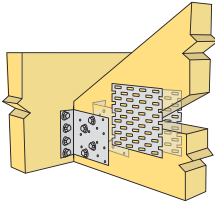
Note:

Greater downward capacity than uplift due to fewer nails in joist flanges.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Roof Component to Roof Component Connections

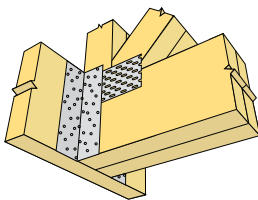
Concealed Purlin Cleat



Product Code: NPPC8
Durability: Suitable for all closed roof spaces. Compliant with Table 4.1 of NZS3604:2011.
Application: Variable width connection utilising screws. All screw holes filled.

Consent Doc. Ref	Product Code	J5 Capacity Pair Up	J5 Capacity Pair Down
NC8	NPPC8	8.6kN	6.8kN

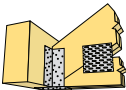
Nail-on Angle



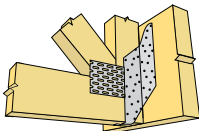
Product Code: NPA
Durability: Suitable for all closed roof spaces. Stainless steel available on request. Compliant with Table 4.1 of NZS3604:2011.
Application: Variable width connection utilising nails. Suitable for a high truss uplift and gravity loads.

Consent Doc. Ref	Product Code	J5 Capacity Pair Up	J5 Capacity Pair Down
NPA	NPA	20.5kN	16.4kN

Heavy Duty Nail-on Hanger



JHH100



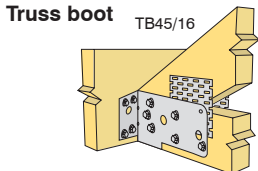
JHHS

Product Code: JHH75, JHH100, JHHS
Durability: Suitable for all closed roof spaces. Compliant with Table 4.1 of NZS3604:2011.
Application: Heavy Duty connection option. All holes filled with 30 x 3.15mm Pryda product nails unless otherwise noted. reduced nailing requirements are possible but should be checked with Pryda engineers. Call Pryda on 0800 88 22 44

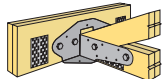
Consent Doc. Ref	Product Code	J5 Capacity Pair Up	J5 Capacity Pair Down
E	JHH100	14.5kN	18.6kN
F	JHH75	11.7kN	16.2kN
K	JHHS	17.4kN	21.7kN

Note: High capacity hanger with good uplift resistance.

Truss boot



TB45/16



TBHD7

Product Code: TB45/16, TBHD75
Durability: Suitable for all closed roof spaces. Compliant with Table 4.1 of NZS3604:2011.
Application: Heavy duty uplift and downward loading. TB45/16 - All screw holes filled. TBHD75 - All bolt holes filled

Consent Doc. Ref	Product Code	J5 Capacity Pair Up	J5 Capacity Pair Down
TB45	TB45/16	12.8kN	10.2kN
TB75*	TBHD7	20kN	27kN

Note: High capacity bracket with good uplift resistance.

All capacities are limit state design values and not characteristic strength therefore these may be compared directly to Pryda design software output. Capacities assume a minimum timber grade of SG8.

Roof Plane Diagonal Bracing

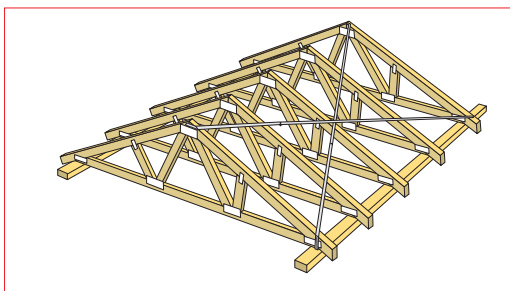
As per NZS3604:2011 Section 10

ROOF BRACE Definition

A “roof brace” comprises a diagonal pair of PRYDA Strap Braces intersecting at 45°, connecting the ridge of the roof to the top plate of the wall with both ends fixed as shown in the diagrams below. A “roof brace” can also be a valley or hip connected continuously.

Light Weight Roofs

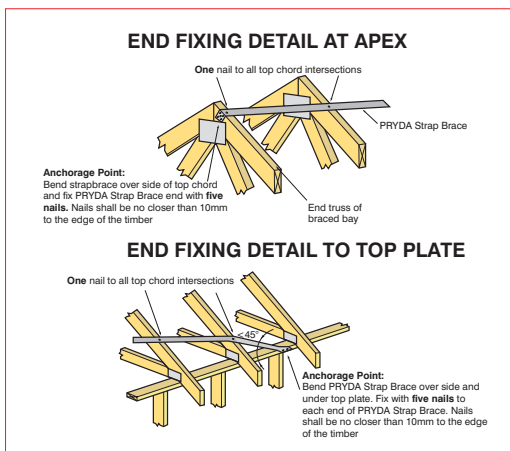
Require ONE “roof brace” in each plane of the roof area per 50m² of plan roof area which also includes any overhangs.



Heavy Weight Roofs

Require ONE “roof brace” in each plane of the roof area per 25m² of plan roof area which also includes the overhangs

Note: Porches, dormers and small roof planes of less than 6m² do not require bracing

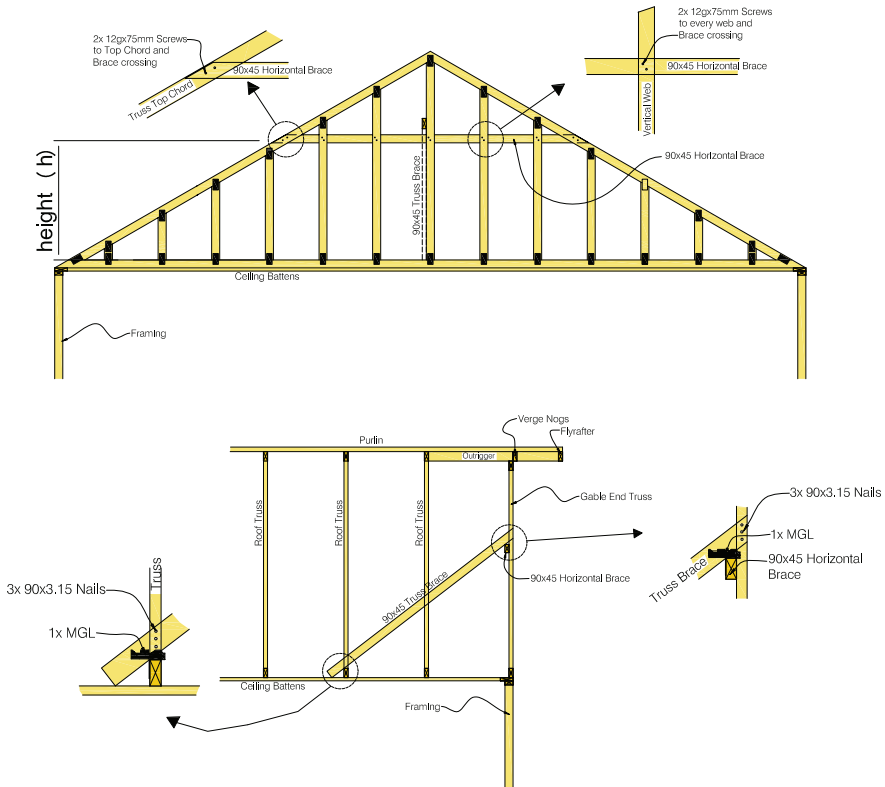


Installation Notes

1. The distribution of roof braces should be performed in an even and balanced fashion
2. For purlins / battens 50mm or deeper, the roof brace shall occupy the plane directly on top of the top chords or rafters
3. PRYDA Strap Brace shall be used for spans up to 12m. For spans over 12m PRYDA Maxibrace shall be used
4. Nail off PRYDA Strap Brace at apex end with 5 nails. Lay out PRYDA Strap Brace at 45° and nail off at heel end with 5 nails
5. Tension PRYDA Strap Brace using PRYDA Tensioner before final nailing of one nail per top chord crossing

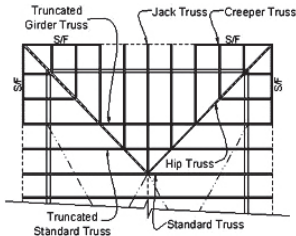
Gable Truss Web Lateral Bracing Guide

Maximum height (h) for vertical truss web before a lateral brace is required

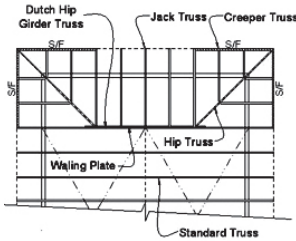


Web size (mm) SG8 or better		Wind Zone				
		Low	Medium	High	Very High	Extra High
Single Truss	70x45 SG8 at 400ctrs	2200	2000	1750	1600	1500
	90x45 SG8 at 400ctrs	2400	2150	1900	1850	1650
	70x45 SG8 at 600ctrs	1900	1700	1500	1400	1250
	90x45 SG8 at 600ctrs	2100	1900	1650	1500	1400
Double Trusses	2/70x45 SG8 at 400ctrs	2800	2550	2250	2050	1900
	2/90x45 SG8 at 400ctrs	3050	2750	2450	2250	2100
	2/70x45 SG8 at 600ctrs	2450	2200	1950	1750	1650
	2/90x45 SG8 at 600ctrs	2650	2400	2100	1950	1800

Pryda Roof Truss Installation Guide



Hip End



Dutch Hip End

Notes:

1. S/F in the above illustrations refers to structural fascia, which is mandatory at corners.
2. The immediate support structure of trusses should be checked for adequacy.
3. Refer Section 5 for all connection details and Section 4 for bracing information.

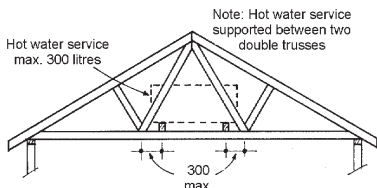
1.4 SERVICES

1.4.1 Hot Water Services

Hot water services are best supported directly on internal walls, but where this is not possible, and the trusses are required to carry this load, the trusses either side of the service may be spaced up to double the normal spacing, up to a maximum of 1800mm, with a double laminated truss either side of this service. In this case the service must be located midway between these two double trusses, sitting on bearers located within 300mm of a truss bottom chord panel point.

1.4.2 Solar Hot Water Services

For solar powered hot water services, with internally or externally mounted water storage tanks, refer to the truss fabricator for appropriate details.



Note: Hot water service supported between two double trusses

1.5 ANCILLARY TIMBER

Check that adequate ancillary timber is available where required (eg for temporary bracing).

1.6 TRANSPORT AND STORAGE

During transportation, in either the flat or upright positions, the trusses must be fully supported, taking care whilst tying down to avoid putting undue strain on the truss members. Trusses should be stored on the job site clear of the ground and kept flat to avoid distortion. All trusses should be inspected on delivery, and any damaged trusses reported to the fabricator immediately to ensure correct rectification.

Trusses must not be modified on site without the prior written approval from the fabricator.

1.7 SAFETY

The installation of timber roof trusses must adhere to the relevant safety work practices for the general construction of roofs. This will require that barriers or safety lines be installed at the appropriate time. These systems must not modify the trusses, not put loads onto the trusses, unless prior written approval is provided by the fabricator.

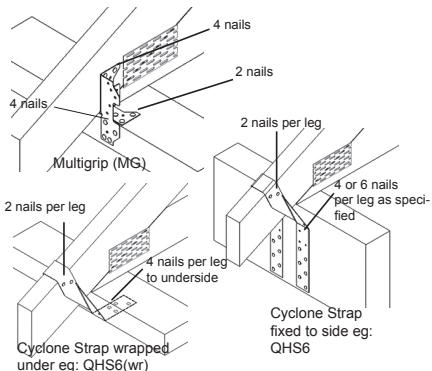
SECTION 2 SUPPORTING STRUCTURE

2.1 GENERAL

To ensure a satisfactory roof line on completion, the supporting structure must be plumb, and the load bearing top plates level. It is particularly important to maintain level when the trusses are supported on more than two walls. If a camber had been inadvertently provided at an internal supporting wall, insert packers prior to loading to ensure fully bearing at this support.

Care must be taken to ensure that the supporting structure is adequately designed and stable in its own right.

All trusses are to be fixed to the supporting structure with appropriate fixings, typically Pryda Multigrips, etc. The selection of the fixing depends on the magnitude of the wind uplift. Refer to Section 5 for details.



Pryda Roof Truss Installation Guide

2.2 LOAD-BEARING WALLS

This is where the full load from the roof trusses is supported on walls - generally the exterior perimeter walls, but may occasionally also include some internal walls.

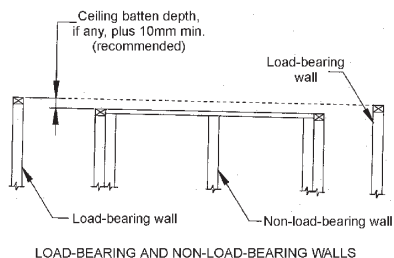
Refer to **AS1684 –2006** "Residential Timber-framed Construction" for the plate, stud and lintel sizes and installation details. Heavy, concentrated loads such as from girders and truncated girders are best supported directly over studs, with special attention given to the load pathway all the way down the structure to the foundations.

2.2.1 Lintels

Lintels must be correctly sized and supported in order to limit deflection. Lintels supporting heavy, concentrated loads will require a specific engineering design.

2.3 NON-LOAD-BEARING WALLS

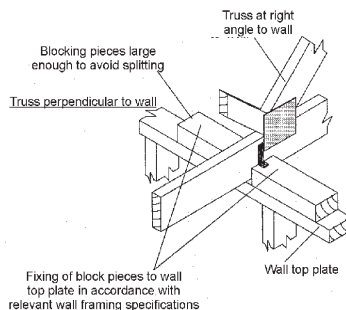
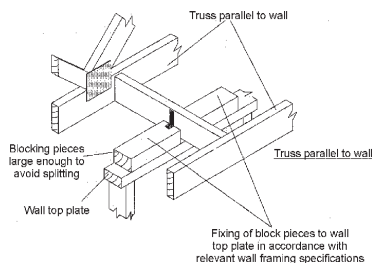
Non-load-bearing walls shall not carry any truss loading at any time, and shall not be packed to touch the underside of the truss. It is common to set non-load-bearing walls lower than the supporting walls by an amount equal to the depth of the ceiling battens plus 10mm. The truss is still required to stabilize the top of the wall, and this is done by using Pryda Partition Hitches which are nailed near the top of the vertical slots. Do not embed the nail heads fully home, as we must allow the truss to settle downwards as time passes and the camber comes out of the truss.



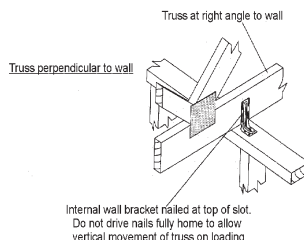
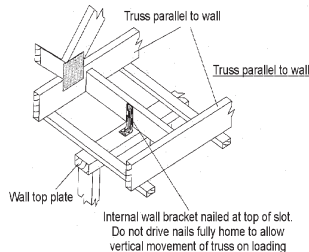
If internal walls are required for support, the truss itself and the layout shall be marked accordingly, and this intention must be made very clear. The supporting structure, including footings, should be checked by the builder to allow for this load. For a wall that is not designated as a bracing unit, the top plate of such walls shall be stabilised at 1800mm centres maximum..

2.3.1 Fixing to top plates of non-load-bearing walls

a) Bracing wall



b) Non-bracing wall



Pryda Roof Truss Installation Guide

SECTION 3 TRUSS INSTALLATION

3.1 GENERAL

The following recommendations are guidelines only, as the details are the responsibility of the roof truss erectors. Also refer to the Australian Standard® AS4440-2004 "Installation of nailplated timber trusses" for greater detail.

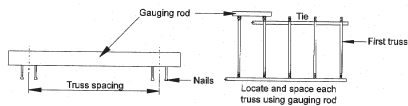
3.2 SET OUT

Prior to lifting any truss into place, it is often convenient to mark out the truss locations on the top plate, using the supplied truss layout for reference.

Girder and truncated girder trusses should be set out first as they have specific, fixed locations. Dual purpose trusses such as truncated girder / girders need special attention as they may appear similar to other trusses which must not be used accidentally instead.

Standard trusses must then be set out, taking care not to exceed the design spacing. Generally they would be evenly set out over runs of similar trusses. But it is also acceptable to space them at the design spacing and have a closing gap smaller than this - adjacent to a more heavily loaded truss, if possible.

A gauging rod is very useful for setting out trusses.



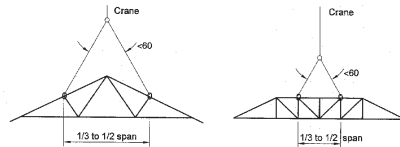
3.3 LIFTING

Trusses must always be lifted in a manner that minimises lateral bending stresses. It is preferable that they be kept strapped in bundles until they are erected, as this reduces the chances of damage.

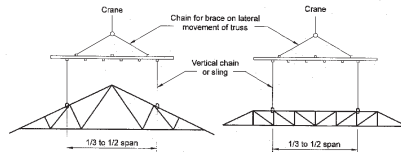
Trusses may be lifted either by crane, or manually. The choice will depend on the truss weight and wall height. They should be maintained in a vertical plane as much as possible when being handled individually.

Trusses lifted by crane require slings or spreader bars as shown in the diagrams. Where trusses are placed in bundles directly onto the top plate, it is imperative that they are supported by internal walls and that the supporting structure is stable in its own right.

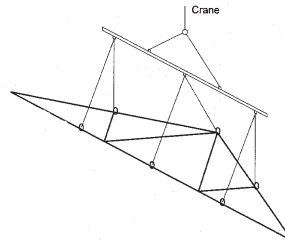
When erected manually, they may be slid flat over the side walls on skids spread at 3m intervals, then rotated vertically into position – supported at the apex and panel points to ensure that they do not distort or sag between supports during this process.



VERTICAL LIFTING OF TRUSSES—SPAN LESS THAN 9 m



VERTICAL LIFTING OF TRUSSES—SPAN FROM 9 m to 16 m



HORIZONTAL LIFTING OF TRUSSES

When positioning multiple span or cantilever trusses, take care that they are the correct way around. Such trusses will have markings on the bottom chord showing the point of internal support.

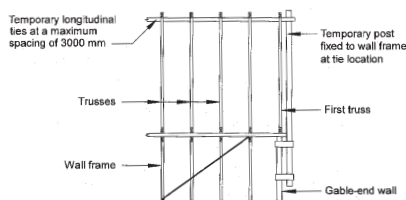
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3.4 FIRST TRUSS

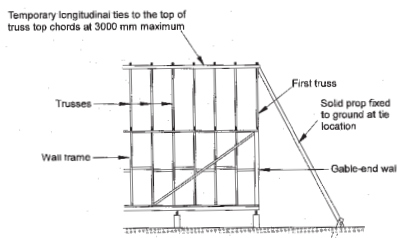
3.4.1 Gable roofs

On gable roofs, start with the gable truss which is located over or just inside the end wall. Then brace it back to the ground, or to some other stable part of the structure.

Some gable end trusses are designed to sit on the end wall. In these cases, it must be supported at every bottom chord panel point along its length, as it cannot act as a clear span truss.



(a) Method 1—Post to wall frame



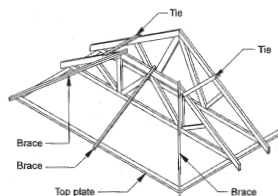
(b) Method 2—Prop to ground

TEMPORARY BRACING FOR GABLE-END ROOF

3.4.2 Hip and Dutch gable roofs

On hip and Dutch gable roofs, start with the truncated girder, apex girder or Dutch hip girder truss and brace it back to the corner of the building as shown. It is important that this truss be correctly plumbed and aligned, as other trusses must fit exactly up against it.

Where it is not feasible to install bracing of the first truss in the manner described, the first two or three trusses can be erected and cross-braced between them to form a stable unit.



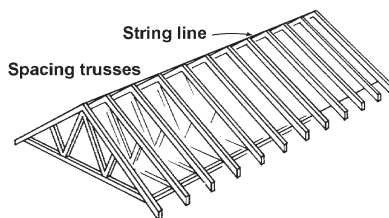
TEMPORARY BRACING FOR HIP OR DUTCH-HIP END ROOF

3.5 SUBSEQUENT TRUSSES

As each truss is installed, fix it to the top plate at the required location, usually indicated by setout marks, or by using a setout rule. Use a gauging rod and ties for spacing the trusses, and a string line along the apex to ensure correct alignment.

It is important that trusses are lined up along the apex, not the heels.

Any multiple ply trusses must be fixed together prior to being put onto position. If the truss fabricator has not done this at the factory, it is his responsibility to provide the information for fixings trusses together, and the erecting crews responsibility to ensure that this fixing is properly carried out.



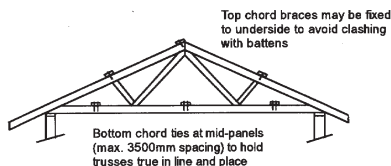
Pryda Roof Truss Installation Guide

3.6 ERECTION BRACING AND TOLERANCES

As the trusses are erected, they must be braced longitudinally. This is to provide stability to the trusses during the erection process, and the bottom chord ties should be maintained in place after full installation is completed.

However, the temporary top chord ties may be removed once the roof battens are adequately fixed in place.

Refer to AS 4440-2004 for the full details for temporary bracing, however the following is a brief summary.



3.6.1 Top chords

Temporary braces at each top chord panel point. (maximum 3.0m apart).

50 x 25 F5 or MGP10 for heavy, tiled roofs
70x35 F5 or MGP10 for light, steel roofs

3.6.2 Bottom chords

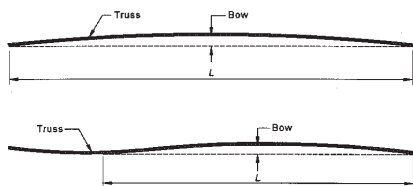
Temporary braces at all mid-panels (maximum 3.5m apart), but not required for creepers, jacks, hip trusses, Dutch hip girders and TG trusses with stations up to 3.6m. Use 70 x 35 F5 or better, fixed with 2/65 nails or 1/65 screw per truss crossing.

Where the bottom chord is not laterally restrained by the ceiling, or by battens, ie exposed trusses or suspended ceiling, then the truss designer's requirements must be strictly followed.

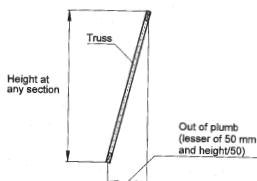
3.6.3 Tolerances

Trusses shall be installed straight and vertical and in their correct positions.

Bow – trusses shall be installed with bow not exceeding the smaller of span/200 nor 50mm.



Plumb – trusses shall be installed so that no part of the truss is out of plumb by more than the smaller of rise/50 or 50mm.



These tolerances will produce a good roof line, and the performance of the trusses will deteriorate rapidly if these are exceeded, producing excess deflections and over-stress in the truss.

SECTION 4 ROOF BRACING

4.1 GENERAL

The following recommendations allow for bracing of the roof system only and assume that the walls are stable in their own right.

Bracing to the trusses is essential to prevent buckling of members (chords and some webs), and to provide overall stability to the roof under all relevant loading conditions, including wind uplift where members may reverse from being in tension to being in compression.

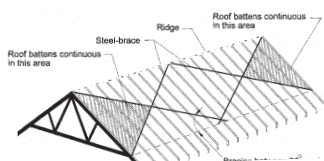
Care should be taken to ensure that all supporting structure bracing is in place prior to the trusses being installed.

4.2 BATTENS

The bracing of top chords is achieved via the overlying battens or purlins. Battens are to be nailed to both outer laminates of any multiple ply trusses eg. double girders. Splice locations are restricted:-

- Not more than one third of the battens should be spliced at a single truss, and there must not be two splices adjacent to each other at any truss.
- Areas in the vicinity of the ends of gable roofs, should be as free of splices as practical.
- Splices are not permitted at girder trusses unless approved by the fabricator in writing. This restriction does not apply to truncated girder trusses, nor to girder trusses that are designed to have roof plane bracing that is independent of the battens.
- Battens fixed to multiple ply girder trusses must be nailed into each outer ply forming the girder truss assembly.

Note: For battens in sheet roofs, provide special splice details as recommended by Pryda (refer Technical Update No. 12)



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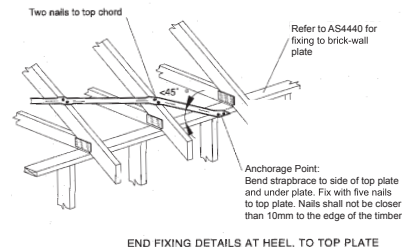
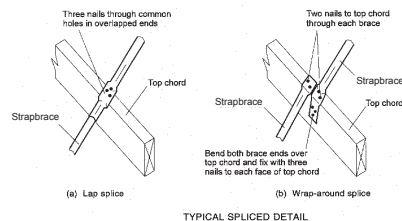
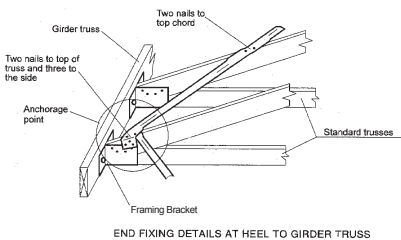
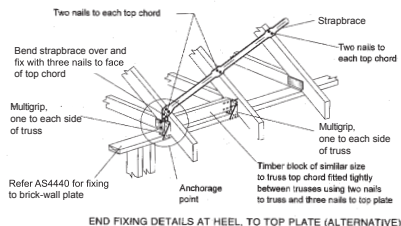
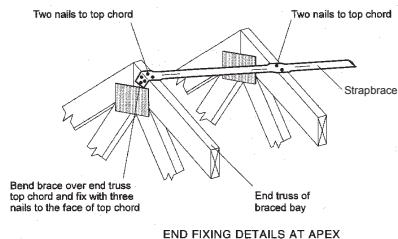
4.3 TOP CHORDS

All trussed roofs require diagonal bracing to the top chords, which is typically at an angle of 30-45 degrees to the ridge line, measured on plan. Braces should be installed such that each main truss has a brace on it.

Bracing is best located near the ends of buildings, and will be installed on both sides of the ridge line. Some typical examples are shown here, but full details are given in AS4440-2004.

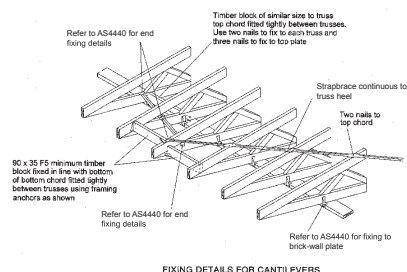
4.3.1 Strapbrace

The bracing shown here is Pryda Strapbrace which has been specifically designed for this purpose and should be fixed with Pryda 30x3.15 nails.



4.3.2 Cantilevers

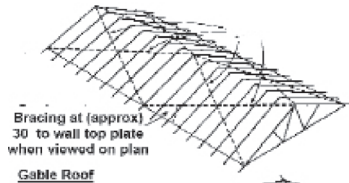
It is essential that the force in the top chord bracing be transferred to the supporting structure. In cantilever trusses, this is achieved through the use of special details as shown in the diagrams.



FIXING DETAILS FOR CANTILEVERS

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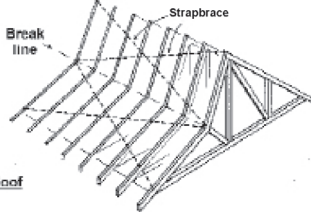
4.3.3 Typical Bracing Details



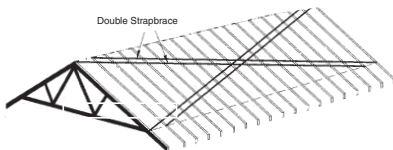
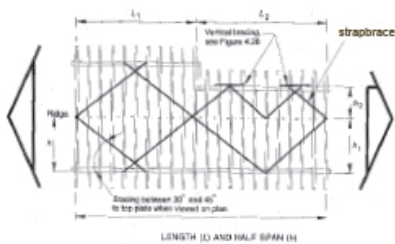
Gable Roof



Hip Roof

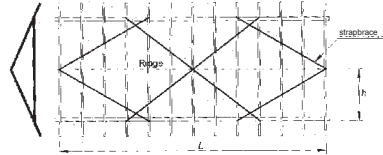


Bell Cast Roof



4.3.4 Gable end roofs – spans up to 8m

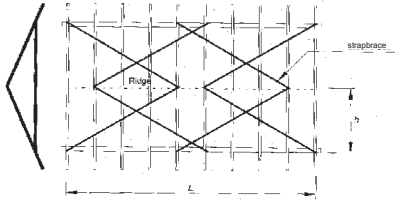
Refer to AS4440-2004 for details for specific roof shapes.



STEEL-BRACE LAYOUT FOR VERY LONG ROOF, SPANS UP TO 6 m

4.3.5 Gable end roofs – spans 8m to 13m

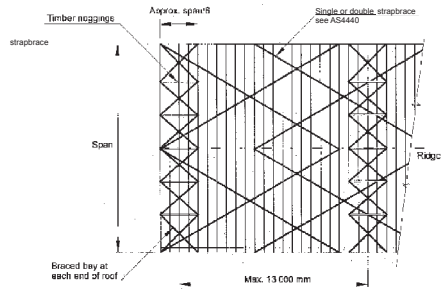
Refer to AS4440-2004 for details for specific roof shapes. In some instances double bracing is required.



STEEL-BRACE LAYOUT FOR LONG ROOF, SPANS 8 m TO 13 m

4.3.6 Gable end roofs – spans 13m to 16m

Refer to AS4440-2004 for details for specific roof shapes.

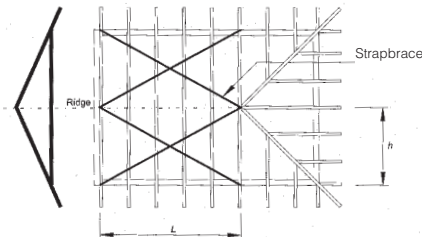


STEEL-BRACE LAYOUT FOR TRUSS SPANS 13 m TO 16 m

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4.3.7 Hip end roofs – General

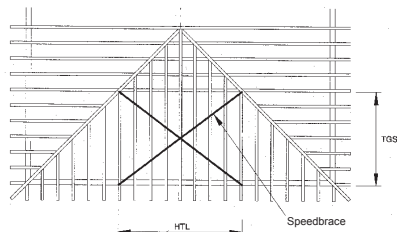
The portion of the roof between hip ends, ie along the length of the ridge, shall be braced as per gable roofs.



STEEL-BRACE LAYOUT FOR STANDARD TRUSSES OF HIP ROOF

4.3.8 Hip end roofs – jack truss

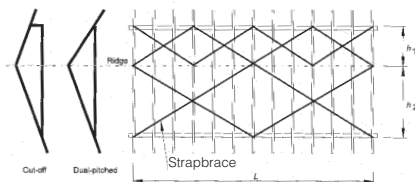
The jack trusses within the hip end itself, including Dutch gable ends, shall be braced as follows.



STEEL-BRACE LAYOUT FOR JACK TRUSSES (HTL = 1 TO 1.5 × TGS)

4.3.9 Asymmetric or dual pitch roofs

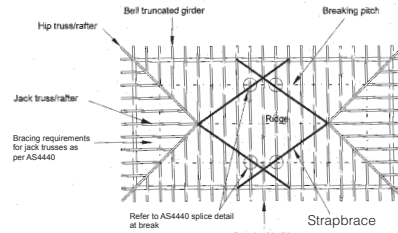
Consider each side of the ridge as a separate case, and use gable end details.



TYPICAL STEEL-BRACE LAYOUT FOR DUAL-PITCHED OR CUT-OFF ROOF

4.3.10 Bell cast roofs

The Speedbrace **must** be spliced at the breakline. (breaking pitch).



STEEL-BRACE LAYOUT FOR BELL ROOF

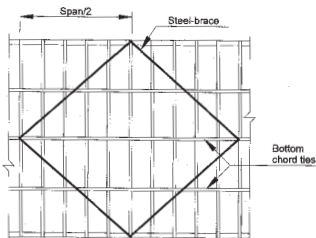
4.4 BOTTOM CHORDS

Generally ceiling battens or ceiling fixed directly to the underside of the bottom chords are sufficient for bottom chord bracing. The ceiling itself acts as a diaphragm to transfer wind and bracing loads to cross walls.

All bottom chord ties must be braced or fixed to the supporting structure.

- For trusses over 12m span, or trusses where there is no ceiling, additional bottom chord bracing will be required.
- Additional bottom chord bracing is also required where there are insufficient internal walls to brace the external load-bearing walls, or where large cantilevers are used.
- Additional bottom chord ties and bracing are required when ceiling is connected through metal furring channels that are only clipped onto the bottom chord. The truss layout should indicate details of this.

In each of these cases, the requirement must be checked by an experienced truss designer, and the details supplied by the fabricator.



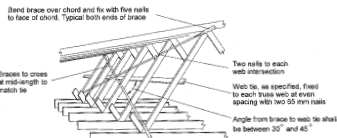
TYPICAL BOTTOM CHORD TIES BRACING LAYOUT

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4.5 WEBS

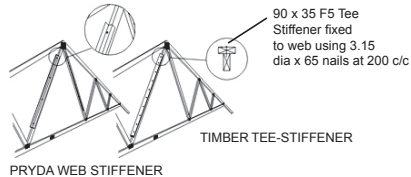
4.5.1 Long webs

Some webs must be braced if required by the truss designer. Generally this applies to long webs which are in compression during some part of the life of the structure. Typically this is a 70x35 F5 or MGP10 web tie located mid-length of the web. By itself it does nothing, so these web ties must be cross-braced back to part of the structure that can provide adequate resistance.



TYPICAL WEB TIES BRACING AND FIXING DETAILS

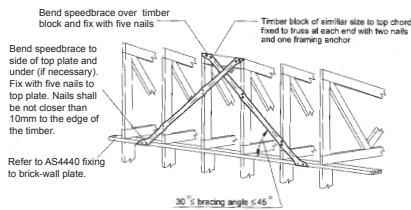
As an alternative to web ties, Pryda Web Stiffener, Tee-Stiffeners or scabs may be specified.



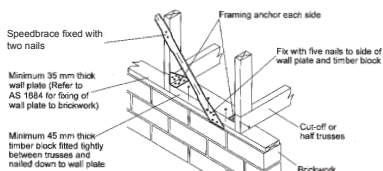
PRYDA WEB STIFFENER

4.5.2 End webs

All trusses with end vertical webs not intersecting with another truss, will need end web bracing similar to the top chord bracing. Diagonal bracing from the top chord to the supporting structure should be provided at each end of each run of trusses as shown.



FIXING DETAILS FOR CUT-OFF OR HALF TRUSSES



STEEL-BRACE FIXED TO BRICK-WALL PLATE

SECTION 5 TRUSS CONNECTIONS

5.1 HIP ENDS

The details shown here are for a maximum design wind of 50 m/sec (non-cyclonic). Refer to AS 4440-2004 for full details including up to 70 m/sec cyclonic.

The hip end connections provided by Pryda Build software are similar to those in AS4440-2004, but they may not be exactly the same, as every connection is designed specifically for the conditions at each site.

The requirements called up by Pryda Build take precedence over AS4440 or any other guideline. A document (Software Update No. 7) is available to produce to certifiers if required.

Description	Connection Details
Hip truss to truncated trusses Top chord - one framing anchor bent to suit, with 3.15 x 35mm reinforced head nails into the side of each top chord for truncated girder.	
Jack truss to truncated girder truss Top chord - one framing anchor bent to suit, with 3.15 x 35mm reinforced head nails into the side of each top chord for truncated girder. NOTE: For design wind speed up to 30 m/s, tile roofs, truncated girder with spans up to 8000mm and station up to 2400mm, detail C1 may be used. Bottom chord - three effective flathead 65mm nails each side of jack truss.	
Extended jack truss top chord to truncated standard trusses Two 65mm skew nails into the side of each top chord.	
Creepers truss to hip truss (maximum jack station 1900mm) Top Chord - three effective flat-head 65mm nails through jack truss top chord into hip truss to chord. Bottom chord - three effective flat-head 65mm nails through jack truss bottom chord to hip truss bottom chord.	
Creepers truss to hip truss (maximum jack station 3000mm) Top chord - fix as detail D1 plus one miter plate with 3.15 x 35mm reinforced head nails to each top chord. Bottom chord - three effective flat-head 65mm nails through jack truss bottom chord to hip truss bottom chord.	

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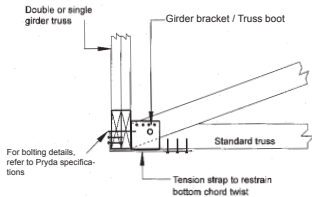
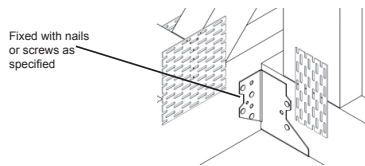
5.2 GIRDERS

Where a girder truss is utilised to support the standard trusses perpendicular to it, they must be connected to the girder with special devices which :-

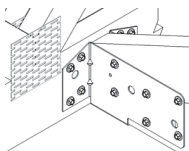
- Support the loads
- Prevent separation of the girder bottom chord away from the standard trusses
- Prevent rotational force being applied to the standard truss.

5.2.1 Main girders

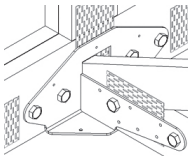
Standard trusses may be fixed to the girder truss by a Pryda products. The fabricator will generally supply the appropriate bracket for each connection, or otherwise specify



STANDARD TRUSS BOOT AND ANTI-TWIST BRACING



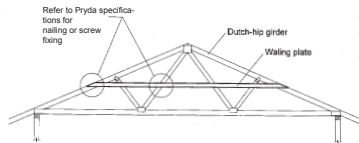
Screw fixed Truss Boot
Using No. 12 Type 17 screws (with appropriate screw lengths)
Single Ply = 35 long screws
Double Ply = 65 long screws
Triple Ply = 85 long screws + cluster of nails (or bolts)



Heavy-duty bolted Truss Boots
Using M16 bolts with washers

5.2.2 Dutch Hip girders

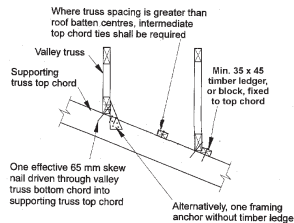
The waling plate must be fixed to the Dutch Hip girder truss in accordance with the details supplied by the fabricator.



DUTCH-HIP GIRDER FITTED WITH WALING PLATE

5.4 VALLEYS

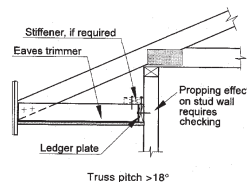
Where overlying members sit on the top chord of a truss, the nominated top chord restraint must still be maintained. This can be achieved with careful detailing as shown here.



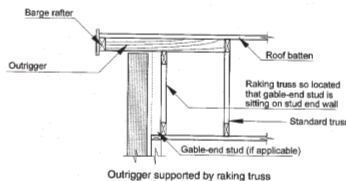
5.5 OVERHANGS

It is important that overhangs are supported as intended by the truss designer. Refer to AS4440-2004 for full details.

5.5.1 Boxed Eaves



5.5.2 Verge Overhangs



Product substitution can be OK without formal amendments

This letter is written following consultation with various councils and the Department of Building and Housing (DBH). Pryda has become aware of isolated cases in which members of the building industry have misinterpreted building code regulations and guidance on amendments or product substitution. This perception has arisen from situations in which on-site variations have quite rightly been rejected due to insufficient documentation for code compliance certificates. In other cases, councils have advised builders to substitute with caution but this has been misinterpreted as "don't substitute". The DBH has released a building controls update in Codewords 20 - May/June 2007 entitled Variations and building consent amendments. This update provides some clarity to the confusion surrounding substitution and the key messages are as follows:

- **If the building consent authority has existing knowledge about a suggested alternative, justifying its compliance can be a simple matter.**
- **Simple variations can be approved by the building official in a more informal manner (instead of formal amendments via Form 2), by making a note on the consented plans to show the building official has been consulted and given approval.**

Although each BCA will have a slightly different approach, Pryda expects the following scenario to transpire:

- A building official conducts a pre-lining inspection for a Code Compliance Certificate.
- The builder notifies the official that an equivalent Pryda bracket has been used for a connection instead of another manufacturer's bracket shown on the consent documentation.
- If the Building Official is unfamiliar with the bracket or connection, the builder will refer the official to the Pryda Builders Guide to justify compliance.
- Based on reasonable grounds, the Building Official approves the substitution and is likely to note the change on the site inspection report.

The Pryda organisation was founded in Napier in 1964 (originally A.R. Turner & Co), and its range of New Zealand made and engineered timber connectors continue to meet building code requirements to this day (including B1 Structure and B2 Durability). In most cases Building Officials have existing knowledge of the Pryda range and justification of compliance should be a simple matter.

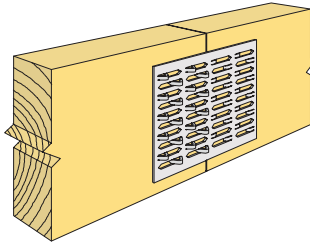
It is important to note that non-compliant structural timber connections are almost always the result of on-site omissions, and not the result of a substituted Pryda connector. In regards to structural stability, the industry would be better served by focusing on critical building elements & connections such as roof battens, bottom chord restraints, steel roof bracing, lintels supporting heavy loads, and any connection associated with girder trusses.

Pryda recommends that builders and building officials take time to read the Codewords 20 - May/June 2007 issue at www.dbh.govt.nz. Feel free to contact Pryda for further information on 0800 88 22 44.

Andre van Blerk MIPENZ CPEng IntPE
Engineering Manager

Pryda Substitution Guide

Knuckle Nailplates (Tylok Plate)



Competitor Code	Pryda Code	Dimensions
2T4	MP2R4	33 x 63mm
2T5	MP2R5	38 x 63mm
4T5	MP4R5	38 x 127mm
6T5	MP6R5	38 x 190mm
8T5	MP8R5	38 x 254mm
10T5	MP10R5	38 x 317mm
12T5	MP12R5	38 x 381mm
2T10	MP2R10	76 x 63mm
4T10	MP4R10	76 x 127mm
6T10	MP6R10	76 x 190mm
8T10	MP8R10	76 x 254mm
10T10	MP10R10	76 x 317mm
12T10	MP12R10	76 x 381mm
-	MP2R16	134 x 63mm
-	MP4R16	134 x 127mm
6T20	MP6R16	134 x 190mm
8T20	MP8R16	134 x 254mm
10T20	MP10R16	134 x 317mm
12T20	MP12R16	134 x 381mm

Knuckle Nailplates Coil (Tylok Coil)

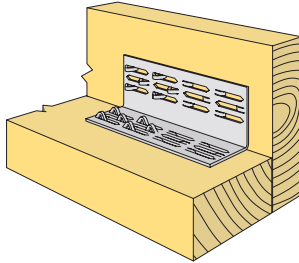


Competitor Code	Pryda Code	Dimensions
Coil T5	NCR5	38mm x 12.7m
Coil T10	NCR10	76mm x 12.7m
Coil T20	NCR16	134mm x 8.45m

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

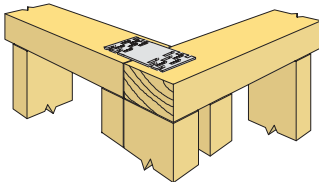
Pryda Substitution Guide

Knuckle Angle Nailplates (Tylok Angle)



Competitor Code	Pryda Code	Dimensions
Internal		
—	MP2RA	38/38 x 63mm
3A6 (Int.)	MP3RA	38/38 x 95mm
—	MP4RA	38/38 x 127mm
6A6 (Int.)	MP6RA	38/38 x 190mm
External		
—	MP2RAE	38/38 x 63mm
3A6 (Ext.)	MP3RAE	38/38 x 95mm
—	MP4RAE	38/38 x 127mm
6A6 (Ext.)	MP6RAE	38/38 x 190mm

Strap Nail (Strap Nail)

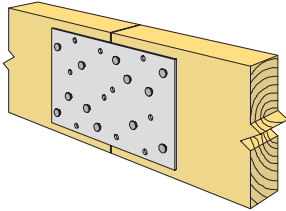


Competitor Code	Pryda Code	Dimensions
SNS	SN25 or MPSN2	25x100mm
—	SN50 or MPSN50	50x100mm
—	SN50L	50x150mm

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

Pryda Substitution Guide

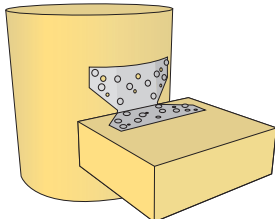
Nail-on Plate (Nail On Plate)



Competitor Code	Pryda Code	Dimensions
—	NPA75 BAR* ^	1 x 75 x 1260mm
—	NPA75/190	1 x 75 x 190mm
—	NPA75/250	1 x 75 x 250mm
—	NPA75/315	1 x 75 x 315mm
—	NPA75/380	1 x 75 x 380mm
NP1	NPA100BAR* ^	1 x 100 x 1260mm
NP120	NPA100/190*	1 x 100 x 190mm
NP124	NPA100/250	1 x 100 x 250mm
NP132	NPA100/315	1 x 100 x 315mm
—	NPA150BAR* ^	1 x 150 x 1260mm
—	NPA150/250	1 x 150 x 250mm
—	NPA150/315	1 x 150 x 315mm
RAFTERSPLICE	NPB75/380	2 x 75 x 380mm
—	NPB75 BAR ^	2 x 75 x 1260mm
NP2	NPB100BAR ^	2 x 100 x 1260mm
—	NPB150BAR ^	2 x 150 x 1260mm

^ Can be cut and/or folded to customer requirements upon request for an additional charge

Pole to Girt Bracket (Girt Plate)

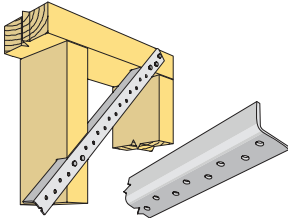


Competitor Code	Pryda Code	Dimensions
GIRTPLATE	NPP2G*	—

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

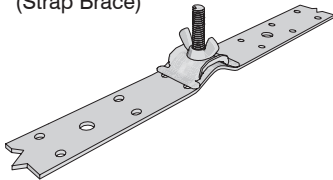
Pryda Substitution Guide

Angle Brace
(Angle Brace)



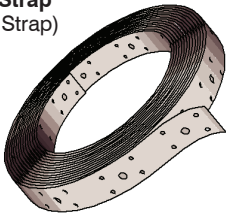
Competitor Code	Pryda Code	Dimensions
AB30	AB30	25/25mm x 3.0m
AB33	AB33	25/25mm x 3.3m
AB36	AB36	25/25mm x 3.6m
AB42	AB42	25/25mm x 4.2m
AB48	AB48	25/25mm x 4.8m

Strap Brace
(Strap Brace)



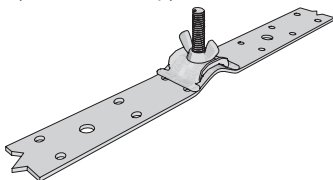
Competitor Code	Pryda Code	Dimensions
SB10	SB10	25 x 0.8mm x 10m
SB10T	SB10T	25 x 0.8mm x 10m 5x Tensioners
SB30	SB30*	25 x 0.8mm x 30m
SB30T	SB30T	25 x 0.8mm x 30m 5x Tensioners
SBTENS	SBT*	Tensioners
SSMB15	SB15/S	15m S/S

Maxi Strap
(Maxi Strap)



Competitor Code	Pryda Code	Dimensions
MB10	SBI/10	50 x 0.8mm x 10m
MB15	SBI/15	50 x 0.8mm x 15m
MB30	SBI*	50 x 0.8mm x 30m
MBTENS	SBI/T*	Tensioners

Plumbers Strap
(Plumbers Strap)

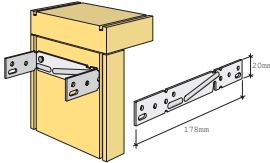


Competitor Code	Pryda Code	Dimensions
—	PS30	25 x 0.5mm x 30m

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

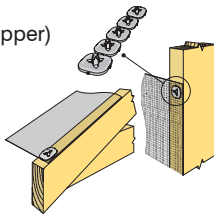
Pryda Substitution Guide

Jamb Ties



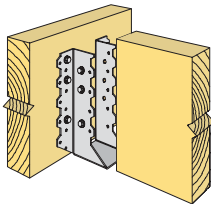
Competitor Code	Pryda Code	Dimensions
—	JT58	18 x 58mm
—	JT75	18 x 75mm
—	JFB100	20 x 175mm

Fixes (Little Gripper)



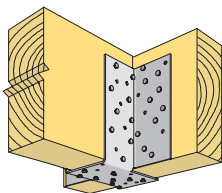
Competitor Code	Pryda Code	Dimensions
LG	SFI	Pryda Fix
		30 x 30mm
	SFF	Foil Fix
		20 x 20mm

Framing Brackets (Joist Hangers)



Competitor Code	Pryda Code	Dimensions
JH3790	MPFB3890	39mm x 81mm
JH4790	MPFB4590*	47mm x 77mm
JH47120	MPFB45120*	47mm x 111mm
JH47190	MPFB45180*	47mm x 177mm
JH5290	MPFB5274*	52mm x 74mm
JH52120	MPFB52124*	52mm x 124mm
JH52190	MPFB52174*	52mm x 177mm
—	FB65/170	65mm x 170mm
JH70	FB69/165	69mm x 165mm
JH95	FB94/152*	94mm x 152mm

Heavy Duty Joist Hangers (Split Hangers)

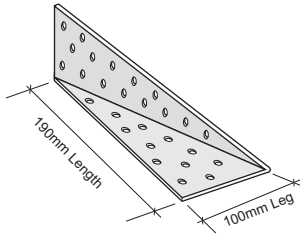


Competitor Code	Pryda Code	Dimensions
SPH140	JHH75	For 75mm timber
SPH180	JHH100	For 95mm timber
SPH220	JHHS	215mm depth. Adj. width

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

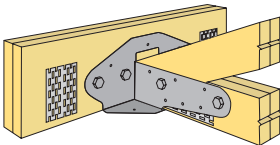
Pryda Substitution Guide

Nail-on Angle & Diagonal Cleat (Diagonal Cleat)



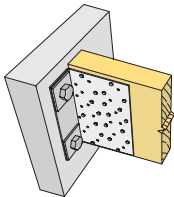
Competitor Code	Pryda Code	Dimensions
NP160F	NPA	50x50x1x190mm
N21	NPD	Ex 190 x 100 x 1mm plate

Truss Boots



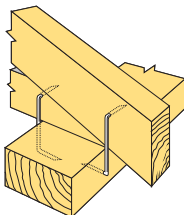
Competitor Code	Pryda Code	Dimensions
—	TB45/16	Truss Boot
—	TBHD75	Heavy Duty Truss Boot

Tim-Con Brackets (Concrete Fixing Cleat)



Competitor Code	Pryda Code	Dimensions
CF1	TCF130	130 X 2.0mm
CF2	TCF190	130 x 2.0mm

Z & U Nails (Wire Dogs)

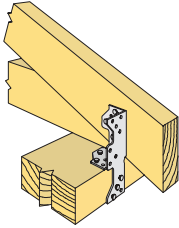


Competitor Code	Pryda Code	Dimensions
—	MPZR/ZR	—
—	MPZL/ZL	—
—	MPZU/ZU	—

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

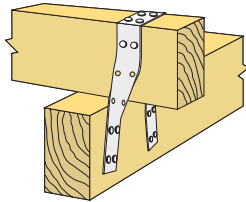
Pryda Substitution Guide

Multigrip (Multigrip)



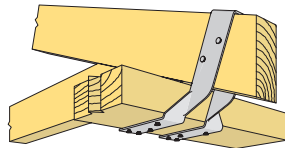
Competitor Code	Pryda Code	Dimensions
—	MG* or MPMG*	36x36x100mm
MGS	MGL	36x36x132mm

Windstraps



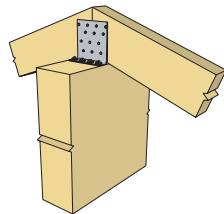
Competitor Code	Pryda Code	Dimensions
—	WS4E	25x1x400mm
—	WS6E	25x1x600mm

Cyclone Straps (Cyclone Ties)



Competitor Code	Pryda Code	Dimensions
CT400	MPQHS4	32 x 1.2 x 400mm
CT600	MPQHS6	32 x 1.2 x 600mm
—	QHS9	32 x 1.2 x 900mm

Concealed Purlin Cleats (Concealed Purlin Cleats)

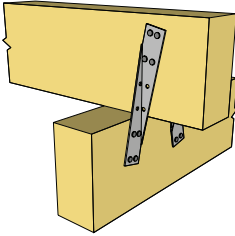


Competitor Code	Pryda Code	Dimensions
CPC40	NPPC4*	40 x 2.0mm
—	NPPC6	60 x 2.0mm
CPC80	NPPC8*	80 x 2.0mm
SBP	SBA	6kN / 12kN

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

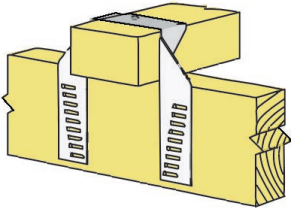
Pryda Substitution Guide

Ceiling & Purlin Hanger (Ceiling Tie)



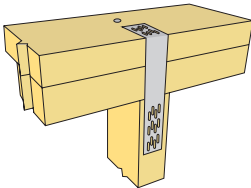
Competitor Code	Pryda Code	Dimensions
CT160LH	CPH126-LH*	126 x 25mm LH
CT160RH	CPH126-RH*	126 x 25mm RH
CT200LH	CPH190-LH*	190 x 25mm LH
CT200RH	CPH190-RH*	190 x 25mm RH

Batten/Purlin Strap



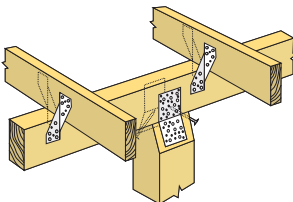
Competitor Code	Pryda Code	Dimensions
—	BS70	Batten/Purlin Strap

Stud Tie (Stud Tie)



Competitor Code	Pryda Code	Dimensions
STUDSTRAP	SST	185/65x30mm

6kN & 12kN Pile Bearer Kit (Subfloor Fixings)

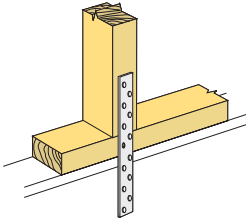


Competitor Code	Pryda Code	Dimensions
6KNM	PBK6	6 kN Std
6KNH	PBK6/S	6 kN Severe Corrosion
12KN/12KNM	PBK12	12 kN Std
12KNH	PBK12/S	12 kN Severe Corrosion
CT160HD	NPD150/63*	150 x 63mm

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

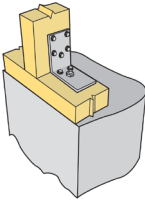
Pryda Substitution Guide

Sheet Brace Strap (Sheet Brace Strap)



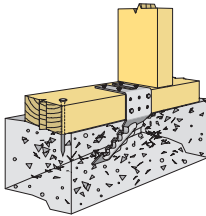
Competitor Code	Pryda Code	Dimensions
SBS3100	SBS300*	25x1x300mm
SBS4100	SBS400*	25x1x400mm
SBS6100	SBS600*	25x1x600mm
SBP	SBA	6kN Anchor

Pryda Brace Anchor (Gib Handibrac[®])



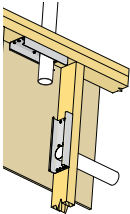
Competitor Code	Pryda Code	Dimensions
Gib HandiBrac	PBA	85/85x5x50mm

Bottom Plate Tie Down (Bottom Plate Fixing Anchor)



Competitor Code	Pryda Code	Dimensions
BPA	BPA	50x1.2x235mm
HBA	HBA	50x1.2x230mm

Frame Fix (Top Plate / Framing Stud Stiffener)

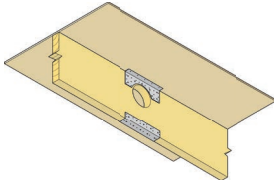


Competitor Code	Pryda Code	Dimensions
TPS & FSS	PFF	85x1.6x240mm

* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

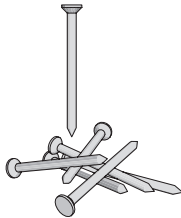
Pryda Substitution Guide

Stren-joist



Competitor Code	Pryda Code	Dimensions
—	NPSJ	3 pce kit

Product Nails



Competitor Code	Pryda Code	Dimensions
PN300500	GBC030315*	500gm Clam
PN3005L	GBH030315	5kg Box

Screws



Competitor Code	Pryda Code	Dimensions
SC3512DG	HH1235NS*	12g x 35mm type 17
SC7514EG	HH1475S	14g x 75mm type 17

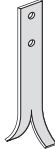
* All available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

Pryda Substitution Guide

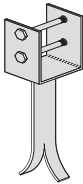
General

Structural Brackets

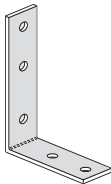
Rag Strap



Post Support



Angle Brackets



Strap



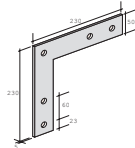
Competitor Code	Pryda Code
—	SBK2/S■
B78	SBK3■
B79	SBK3H■
B75	SBK4■
B195	SBK5■
B197	SBK6■
B138	SBK8■
B135	SBK9■
B12	SBK15
B14	SBK16■
B18	SBK16B
B16	SBK16H
B25	SBK17■
B28	SBK18■
B351	SBK10
B51	SBK10A■
B52	SBK11A
B53	SBK12A
B350	SBK14
B50	SBK14A■
—	SBK34■
B54	SBK52A
B55	SBK53
B58	SBK53A
B86	SBK21
—	SBK22■
B85	SBK23■
B88	SBK25■
B35	SBK27■
B38	SBK28

■ Also available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

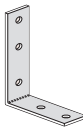
Pryda Substitution Guide

Structural Brackets

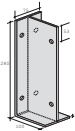
L Bracket



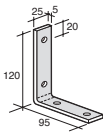
Angles



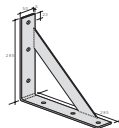
Beam Support



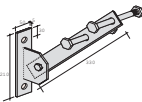
Shelf Bracket



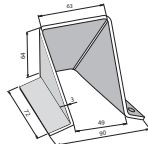
Angles Gussetted



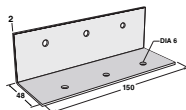
Pole Brace



Fence Stay



Pole to Beam



Competitor Code	Pryda Code
B45	SBK29■
B48	SBK30
B175	SBK31■
B176	SBK31A■
—	SBK32■
B177	SBK33■
B178	SBK33A
B108	SBK38■
B109	SBK38A
—	—
B553	SBK41
B554	SBK42
B567	SBK50
B163	SBK36■
B65	SBK55
B68	SBK55A
B165	SBK56
B145	SBK57■
B155	SBK37■
BSB2	SBKFS
—	P2BB■

■ Also available in stainless steel. Please Note: Whilst reference is made to competitor products it is intended as best fit only and may not be an identical match - if in doubt check.

Pryda Rafter and Pole Buildings

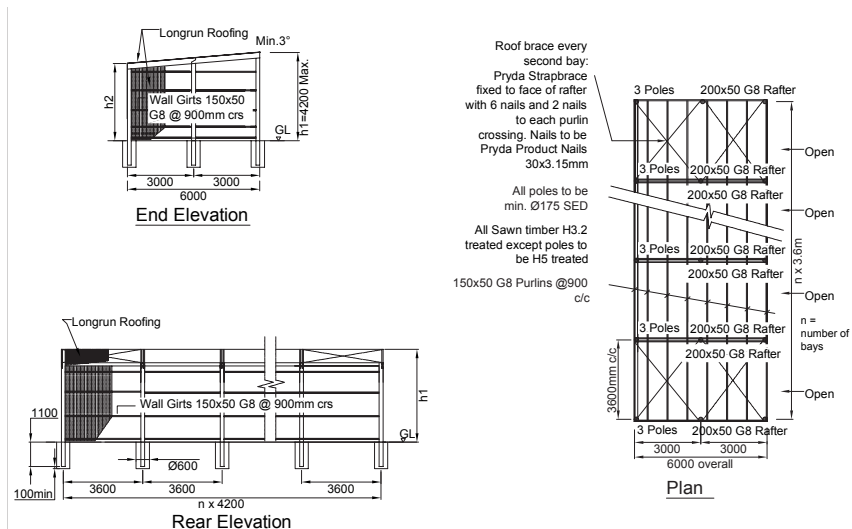
Pryda Rafter and Pole Buildings are a complete structural system for farm or low risk buildings. They have been proven over many years and provide basic shelter for a variety of purposes. The design relies on the strength from cantilevered vertical poles, horizontal wall girts, and bolted rafters set to fall with purlins in between.

The Pryda Rafter and Pole Building Design and Selection guide is available from Pryda. It includes a timber size selection chart and four worked examples to assist in developing price estimates for a range of structures.

For designs of farm buildings and similar industrial structures, Pryda's engineering department is available to develop design documentation for council permit applications. Please contact Pryda on 0800 88 22 44 or email engineering@pryda.co.nz. Designs are subject to design fees.



Example Rafter and Pole Building Design



Example: 3.6m Bay
 3.0m Rafter Span 6.0m Depth

Job Name:	Designed for High Wind and 0.75 kPa snow	Project Number:	Dwg:
Designed by:	Drawn by:	Date:	Scale:
AvB	YL	28/8/08	Not to scale
Checked by:	AvB		

Pryda New Zealand, A division of ITW NZ Ltd, Ph.0800 88 22 44 Fax 0800 27 79 32 e-mail: ln@pryda.co.nz

Other Available Guides



Pryda Product Catalogue



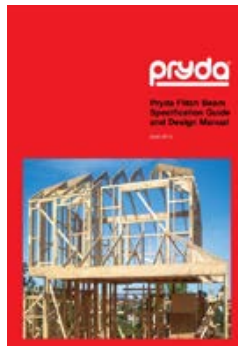
Pryda Mini Catalogue



Pryda SBK Catalogue



Pryda Floor & Rafter Truss Systems



Pryda Flitch Beams



Pryda Claw Beam Lintels



Pryda Roof Truss Installation Guide



Pryda Rafter & Pole Buildings

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