

Building
better
together

Prolam® PLX Portal

Prolam® PLX Portal

RESIDENTIAL | COMMERCIAL

prolamnz.com



Prolam®
Engineered Laminated Timber

The high performance timber bracing solution for residential construction

The innovative Prolam PLX glulam timber portal system revolutionalises building construction. Strong but lightweight, simple to install and sustainably made, the PLX Portal is the smart alternative to steel and other bracing portal options.

Innovative design for unparalleled load bearing and bracing capacity

Proudly designed and manufactured in New Zealand, the PLX Portal is constructed from three glulam timber elements - two Prolam PL12 Portal legs and a Prolam PLX20 Beam. The PLX20 is precision engineered from quality New Zealand-grown pine, reinforced with steel for exceptional load bearing capacity and spanning capability. The PLX Portal's custom-designed system of brackets provide next level bracing capacity.

Built to perform and to resist wind and earthquake loads

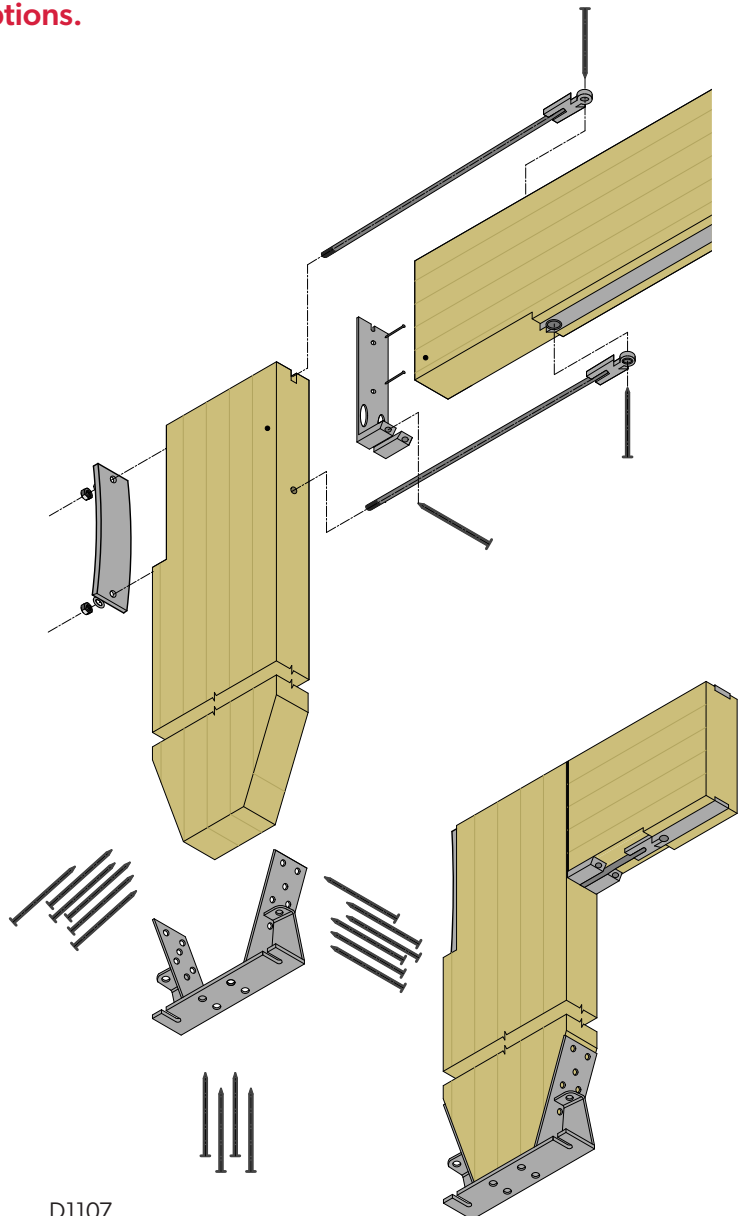
The PLX Portal has been specifically designed and independently tested to provide a structural bracing solution for buildings within the scope of NZS3604. Tested using the BRANZ 21 methodology, the PLX Portal provides bracing units to resist wind and earthquake loads.

Easy assembly and installation

The PLX Portal has been designed to be flexible in both length and height (able to be cut to length on site) and installed using traditional carpentry tools. Trusses and frames can be connected directly to the portal using brackets, nails and screws.

A more sustainable choice

The PLX Portal timber elements are made from timber sourced from renewable and sustainably managed New Zealand plantations using 14 times less energy than their steel equivalents.

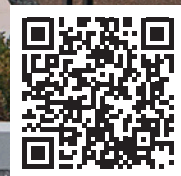


D1107
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The PLX Portal replaces the hassle of steel with a high strength timber portal that has been rigorously tested to New Zealand building standards.

John Woodman, Managing Director, Prolam



SCAN FOR MORE

Detailed specs
and information



Innovative structural timber solution

Prolam[®] PLX Portal

Optimal design freedom & flexibility

Columns:	360mm x 90mm 240mm x 90mm
Lintel:	290mm x 90mm PLX20
Treatment:	H1.2
Grade:	Non-Visual
Limitations:	Only for use in interior areas (Service Class 1) Not for exterior use.

A cut above

- ▶ Highest timber bracing system available
- ▶ Better insulation values and lower thermal bridging properties than steel bracing options
- ▶ High performance and durability
- ▶ Increased spanning capability of the lintel
- ▶ Up to 40% lighter than steel portals
- ▶ Easy on-site assembly using standard tools
- ▶ Fast installation – no hiabs or additional staff
- ▶ Cut to length on site
- ▶ Simple concrete anchoring
- ▶ FSC timber options available
- ▶ Easy to specify with free PS1 certificate
- ▶ Made in New Zealand

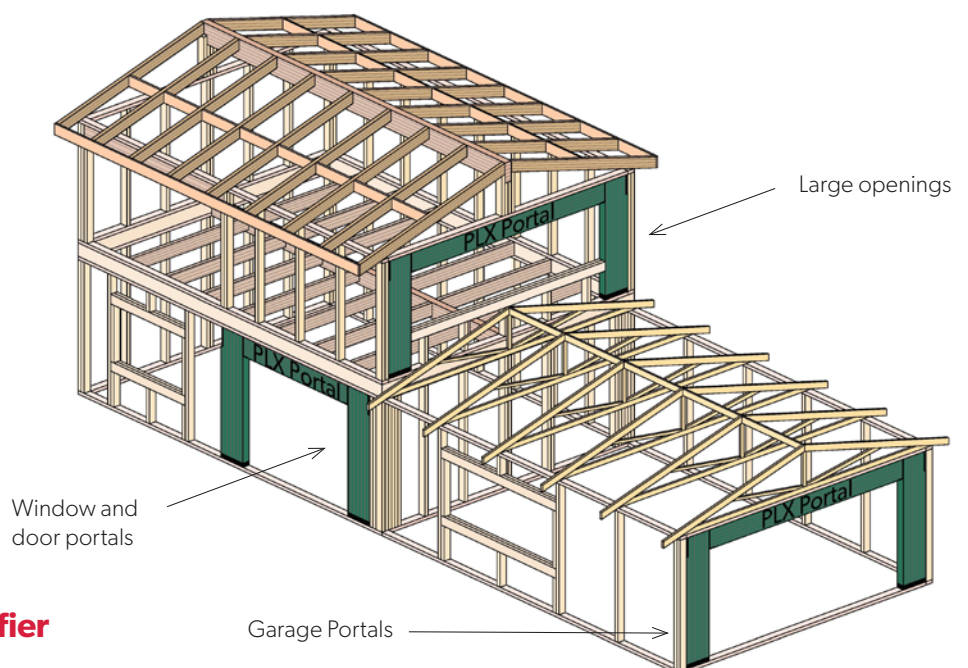


As a customisable solution for large residential openings, the PLX Portal has real benefits for house builders.

Andy Van Houtte, Structural Engineer, Potius

Ideal applications

- ▶ Anywhere you want a low thermal transfer, low carbon option for bracing
- ▶ Anywhere you require significant bracing, but have narrow wall space
- ▶ Anywhere you want to use the most innovative timber bracing system
- ▶ Large internal openings
- ▶ Garage portals
- ▶ Window and door portals



Specify on the Prolam Specifier

Refer to page 11 for a full list of specifications.

Prolam® PLX Portal

Bracing Design

The PLX Portal has been independently tested using the BRANZ P21 test methodology for use for NZS3604 style residential buildings.

The PLX Portal has an approx. ductility of $\mu = 3.0$, making it compatible with NZS3604 bracing systems.

The PLX Portal can be used for both timber and concrete subfloors in accordance with NZS3604 (refer to pages 10 - 15).

Bracing values may be used for lintel spans up to 6.0m.

The walls adjacent to the portal shall be attached at top plate level with a 6kN connection as per NZS3603 cl. 8.7.3.3 (b)

Stud Height (m)	Opening Width (m)	Column Size (mm)	Max Total Bracing Length (m) (Max Opening Width + Columns)	Wind BU's	Eq. BU's	Product Code
2.4 (Opening Height < 2.2)	2.1 - 2.4	240x90	2.88	108	135	PLXP135H1-2.4H-2.4L
		360x90	3.12	184	202	PLXP200H1-2.4H-2.4L
	2.4 - 2.7	240x90	3.18	108	135	PLXP135H1-2.4H-2.7L
		360x90	3.42	184	202	PLXP200H1-2.4H-2.7L
	2.7 - 3.0	240x90	3.48	108	135	PLXP135H1-2.4H-3.0L
		360x90	3.72	184	202	PLXP200H1-2.4H-3.0L
	3.0 - 3.3	240x90	3.78	108	135	PLXP135H1-2.4H-3.3L
		360x90	4.02	184	202	PLXP200H1-2.4H-3.3L
	3.3 - 3.6	240x90	4.08	108	135	PLXP135H1-2.4H-3.6L
		360x90	4.32	184	202	PLXP200H1-2.4H-3.6L
	3.6 - 3.9	240x90	4.38	108	135	PLXP135H1-2.4H-3.9L
		360x90	4.62	184	202	PLXP200H1-2.4H-3.9L
	3.9 - 4.2	240x90	4.68	108	135	PLXP135H1-2.4H-4.2L
		360x90	4.92	184	202	PLXP200H1-2.4H-4.2L
	4.2 - 4.5	240x90	4.98	108	135	PLXP135H1-2.4H-4.5L
		360x90	5.22	184	202	PLXP200H1-2.4H-4.5L
	4.5 - 4.8	240x90	5.28	108	135	PLXP135H1-2.4H-4.8L
		360x90	5.52	184	202	PLXP200H1-2.4H-4.8L
	4.8 - 5.1	240x90	5.58	108	135	PLXP135H1-2.4H-5.1L
		360x90	5.82	184	202	PLXP200H1-2.4H-5.1L
5.1 - 5.4	240x90	5.88	108	135	PLXP135H1-2.4H-5.4L	
	360x90	6.12	184	202	PLXP200H1-2.4H-5.4L	
5.4 - 5.7	240x90	6.18	108	135	PLXP135H1-2.4H-5.7L	
	360x90	6.42	184	202	PLXP200H1-2.4H-5.7L	
5.7 - 6.0	240x90	6.48	108	135	PLXP135H1-2.4H-6.0L	
	360x90	6.72	184	202	PLXP200H1-2.4H-6.0L	
2.7 (Opening Height 2.2 - 2.4)	2.1 - 2.4	240x90	2.88	96	120	PLXP150H1-2.7H-2.4L
		360x90	3.12	180	199	PLXP200H1-2.7H-2.4L
	2.4 - 2.7	240x90	3.18	96	120	PLXP150H1-2.7H-2.7L
		360x90	3.42	180	199	PLXP200H1-2.7H-2.7L
	2.7 - 3.0	240x90	3.48	96	120	PLXP150H1-2.7H-3.0L
		360x90	3.72	180	199	PLXP200H1-2.7H-3.0L
	3.0 - 3.3	240x90	3.78	96	120	PLXP150H1-2.7H-3.3L
		360x90	4.02	180	199	PLXP200H1-2.7H-3.3L
	3.3 - 3.6	240x90	4.08	96	120	PLXP150H1-2.7H-3.6L
		360x90	4.32	180	199	PLXP200H1-2.7H-3.6L
	3.6 - 3.9	240x90	4.38	96	120	PLXP150H1-2.7H-3.9L
		360x90	4.62	180	199	PLXP200H1-2.7H-3.9L
	3.9 - 4.2	240x90	4.68	96	120	PLXP150H1-2.7H-4.2L
		360x90	4.92	180	199	PLXP200H1-2.7H-4.2L

Notes: Refer product table for specification codes

1. The Portal height is taken from floor level to top of column. For different columns heights the values above may be interpolated.
2. The same bracing units apply to shorter lintel spans.
3. Allow 360mm or 240mm each side of opening for portal columns (total portal width = opening width + 0.72m or 0.48m).
Height may be altered (legs shortened) as required to give reduced opening and total portal heights (total portal height = opening height + 0.29m).
4. Bracing values assume moisture content of timber is ~15% this must be maintained during and after delivery and installation.


Stud Height (m)	Opening Width (m)	Column Size (mm)	Max Total Bracing Length (m) (Max Opening Width + Columns)	Wind BU's	Eq. BU's	Product Code	
2.7 (Opening Height 2.2 - 2.4)	4.2 - 4.5	240x90	4.98	96	120	PLXP150H1-2.7H-4.5L	
		360x90	5.22	180	199	PLXP200H1-2.7H-4.5L	
	4.5 - 4.8	240x90	5.28	96	120	PLXP150H1-2.7H-4.8L	
		360x90	5.52	180	199	PLXP200H1-2.7H-4.8L	
	4.8 - 5.1	240x90	5.58	96	120	PLXP150H1-2.7H-5.1L	
		360x90	5.82	180	199	PLXP200H1-2.7H-5.1L	
	5.1 - 5.4	240x90	5.88	96	120	PLXP150H1-2.7H-5.4L	
		360x90	6.12	180	199	PLXP200H1-2.7H-5.4L	
	5.4 - 5.7	240x90	6.18	96	120	PLXP150H1-2.7H-5.7L	
		360x90	6.42	180	199	PLXP200H1-2.7H-5.7L	
	5.7 - 6.0	240x90	6.48	96	120	PLXP150H1-2.7H-6.0L	
		360x90	6.72	180	199	PLXP200H1-2.7H-6.0L	
	3.0 (Opening Height 2.4 - 2.7)	2.1 - 2.4	240x90	2.88	87	108	PLXP150H1-3.0H-2.4L
			360x90	3.12	176	195	PLXP200H1-3.0H-2.4L
2.4 - 2.7		240x90	3.18	87	108	PLXP150H1-3.0H-2.7L	
		360x90	3.42	176	195	PLXP200H1-3.0H-2.7L	
2.7 - 3.0		240x90	3.48	87	108	PLXP150H1-3.0H-3.0L	
		360x90	3.72	176	195	PLXP200H1-3.0H-3.0L	
3.0 - 3.3		240x90	3.78	87	108	PLXP150H1-3.0H-3.3L	
		360x90	4.02	176	195	PLXP200H1-3.0H-3.3L	
3.3 - 3.6		240x90	4.08	87	108	PLXP150H1-3.0H-3.6L	
		360x90	4.32	176	195	PLXP200H1-3.0H-3.6L	
3.6 - 3.9		240x90	4.38	87	108	PLXP150H1-3.0H-3.9L	
		360x90	4.62	176	195	PLXP200H1-3.0H-3.9L	
3.9 - 4.2		240x90	4.68	87	108	PLXP150H1-3.0H-4.2L	
		360x90	4.92	176	195	PLXP200H1-3.0H-4.2L	
4.2 - 4.5		240x90	4.98	87	108	PLXP150H1-3.0H-4.5L	
		360x90	5.22	176	195	PLXP200H1-3.0H-4.5L	
4.5 - 4.8		240x90	5.28	87	108	PLXP150H1-3.0H-4.8L	
		360x90	5.52	176	195	PLXP200H1-3.0H-4.8L	
4.8 - 5.1		240x90	5.58	87	108	PLXP150H1-3.0H-5.1L	
		360x90	5.82	176	195	PLXP200H1-3.0H-5.1L	
5.1 - 5.4		240x90	5.88	87	108	PLXP150H1-3.0H-5.4L	
		360x90	6.12	176	195	PLXP200H1-3.0H-5.4L	
5.4 - 5.7		240x90	6.18	87	108	PLXP150H1-3.0H-5.7L	
		360x90	6.42	176	195	PLXP200H1-3.0H-5.7L	
5.7 - 6.0	240x90	6.48	87	108	PLXP150H1-3.0H-6.0L		
	360x90	6.72	176	195	PLXP200H1-3.0H-6.0L		

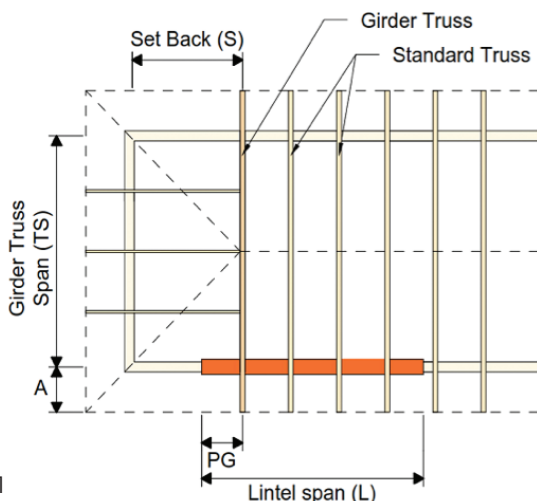
Span Tables for Roof Loads

Lintel Supporting Truss Roof and Ceiling - 40kg/m ²							
Truss Span (m)	4	5	6	7	8	9	10
Wind Zone	Opening Width (m)						
Low and Medium	6.0	6.0	6.0	5.8	5.6	5.5	5.3
High and Very High	5.5	5.3	5.1	5.0	4.8	4.7	4.6
Extra High	5.3	5.1	4.9	4.7	4.6	4.5	4.4

Lintel Supporting Girder Truss - 40kg/m ²								
Wind Zone	Roof Width (m)	4	5	6	7	8	9	10
	Set Back (m)	Opening Width (m)						
Low and Medium	2	6.0	6.0	5.9	5.7	5.6	5.4	4.9
	3	6.0	6.0	5.9	5.7	5.4	4.7	4.2
	4	6.0	6.0	5.8	5.6	4.7	4.0	3.5
High and Very High	2	5.5	5.2	5.1	4.9	4.7	4.6	4.5
	3	5.5	5.2	5.0	4.9	4.7	4.6	4.2
	4	5.4	5.1	4.9	4.8	4.6	4.0	3.5
Extra-High	2	5.2	5.0	4.8	4.7	4.5	4.4	4.1
	3	5.2	5.0	4.8	4.6	4.5	3.9	3.4
	4	5.1	4.9	4.7	4.5	3.8	3.2	2.7

- Notes:**
1. Ground snow loads up to 0.9kPa.
 2. Maximum 750mm eaves width.
 3. Up to 25 degrees roof pitch.
 4. Girder Truss can be positioned anywhere along the length of the Lintel.
 5. Lintel Top edge is assumed to be restrained.
 6. Please contact us at techsupport@prolamnz.com for more information on Span Tables.

 Lumberlok 8T15 Tylok Plate Required. Refer to detail D1101.

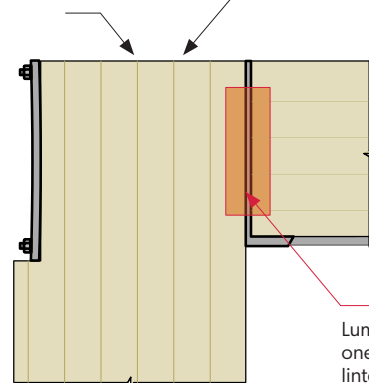


PLXP-1
2023-06-19

D1101
11/2024

The walls adjacent to the portal shall be attached at top plate level with a 6kN connection as per NZS3603 cl. 8.7.3.3 (b)

Spring plate and conical washer to be flattened to timber as torque indication



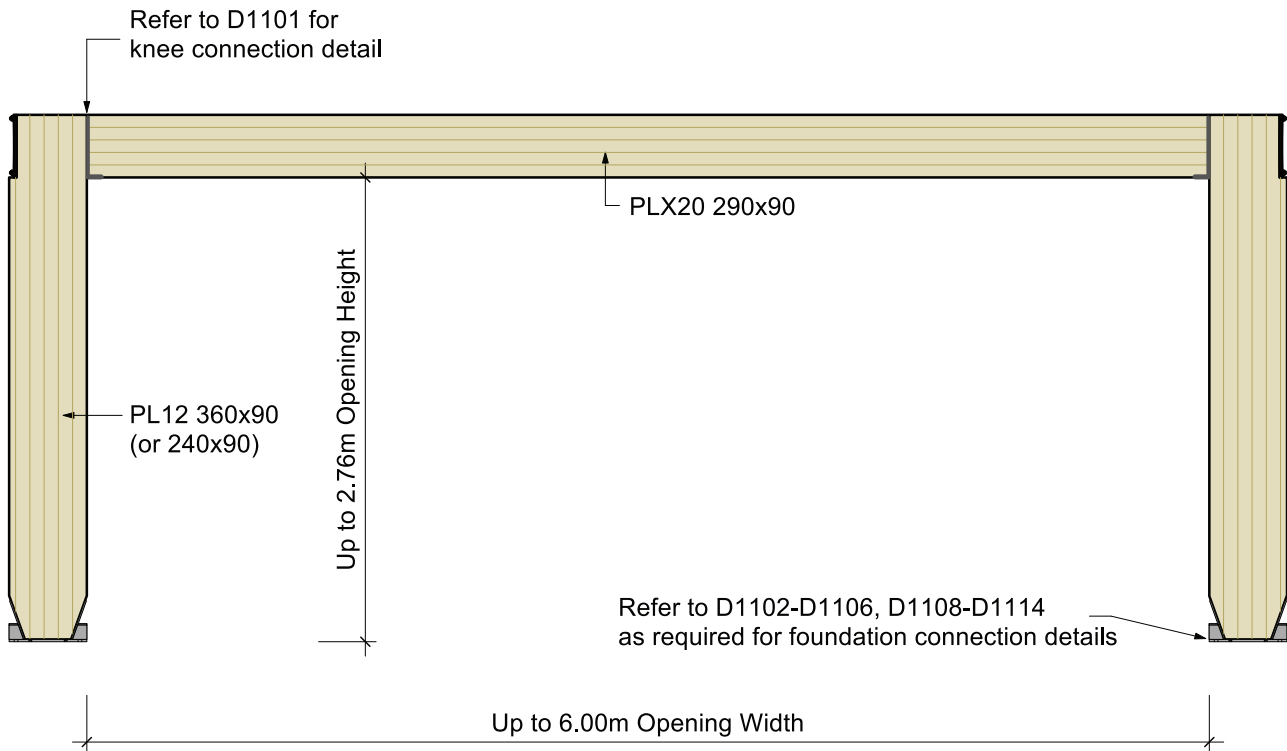
Lumberlok 8T15 Tylok Plate one side, between PLX20 lintel and portal leg

Specify on the Prolam Specifier

Refer to page 19 for a full list of specifications.

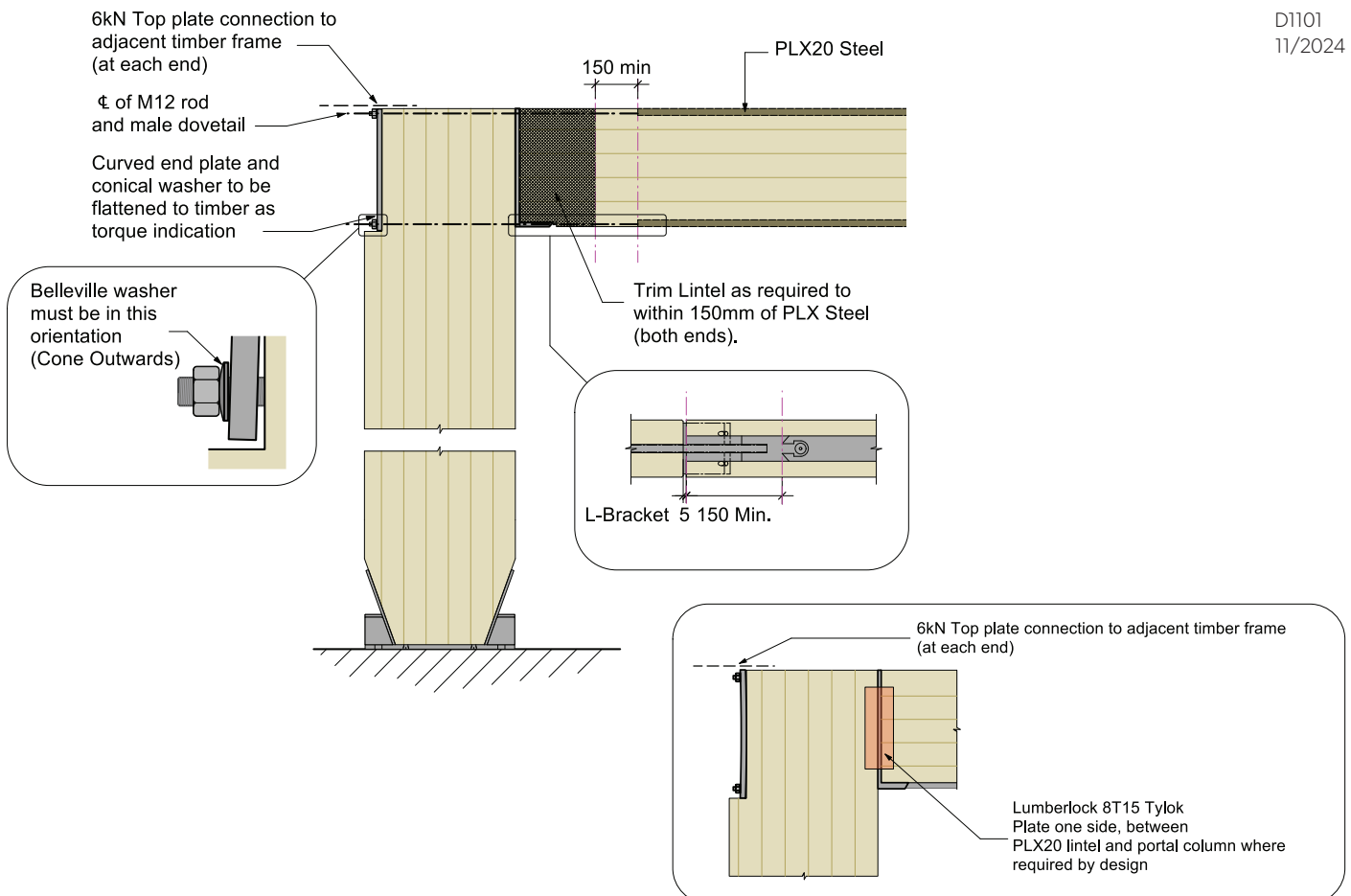
Side View Elevation

D1100
11/2024

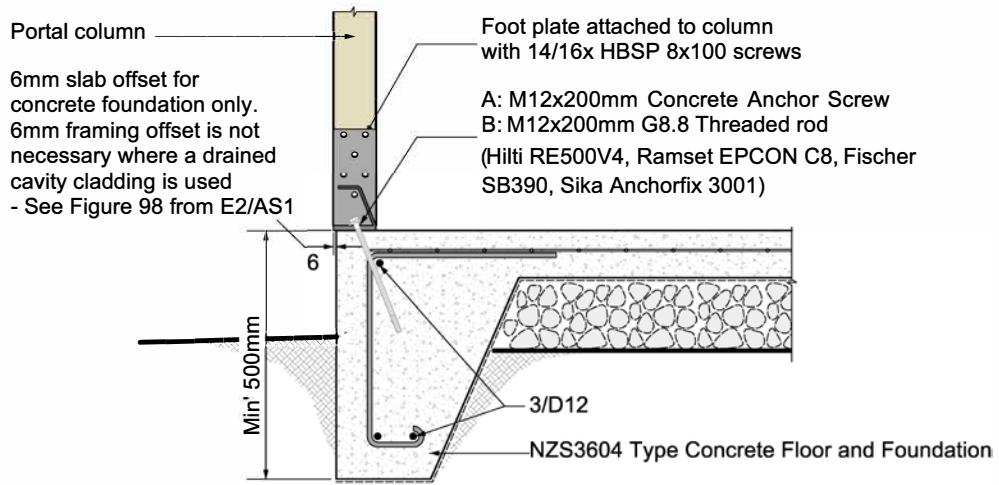


Knee Connection Detail

D1101
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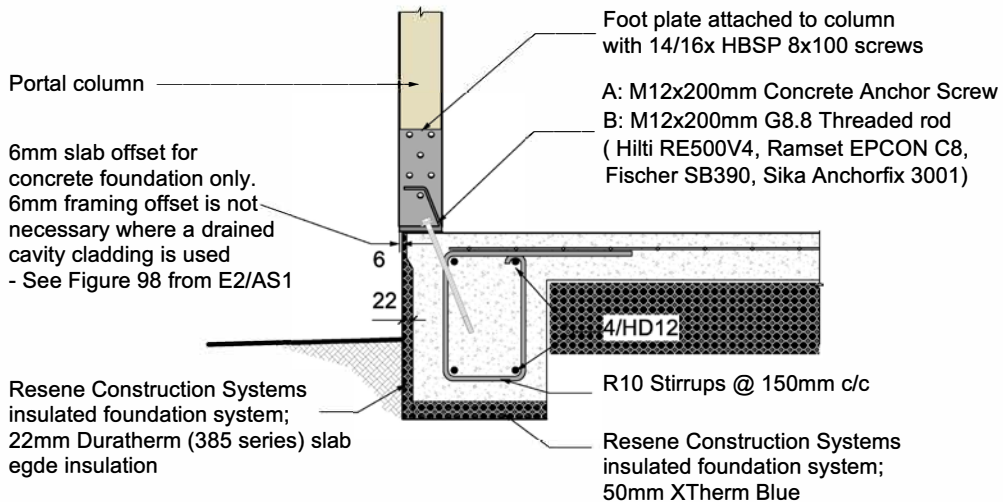


3604 Concrete Foundation Connection



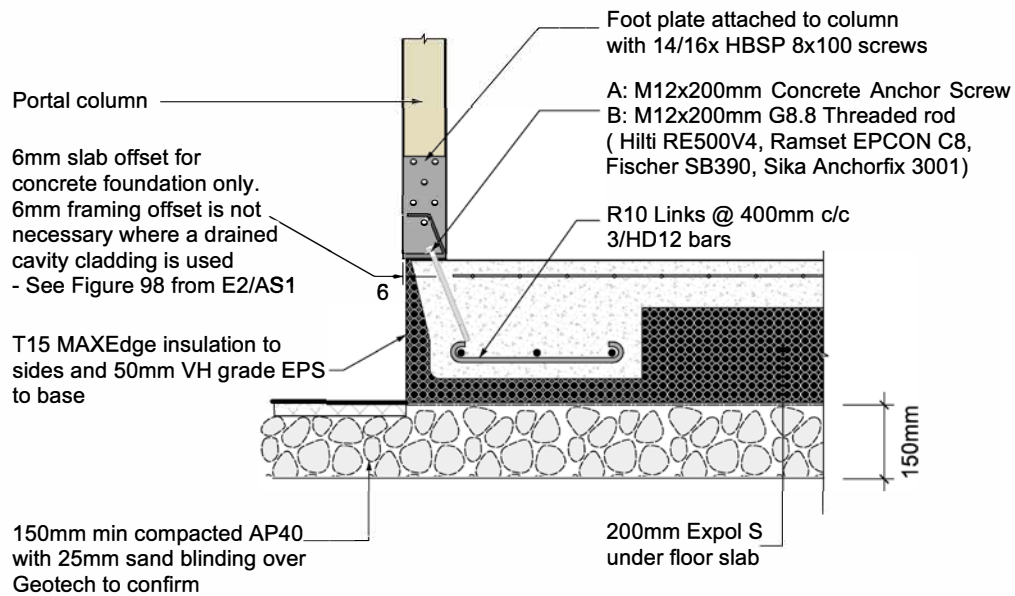
D1102
11/2024

Hotedge Waffle Slab Foundation Connection



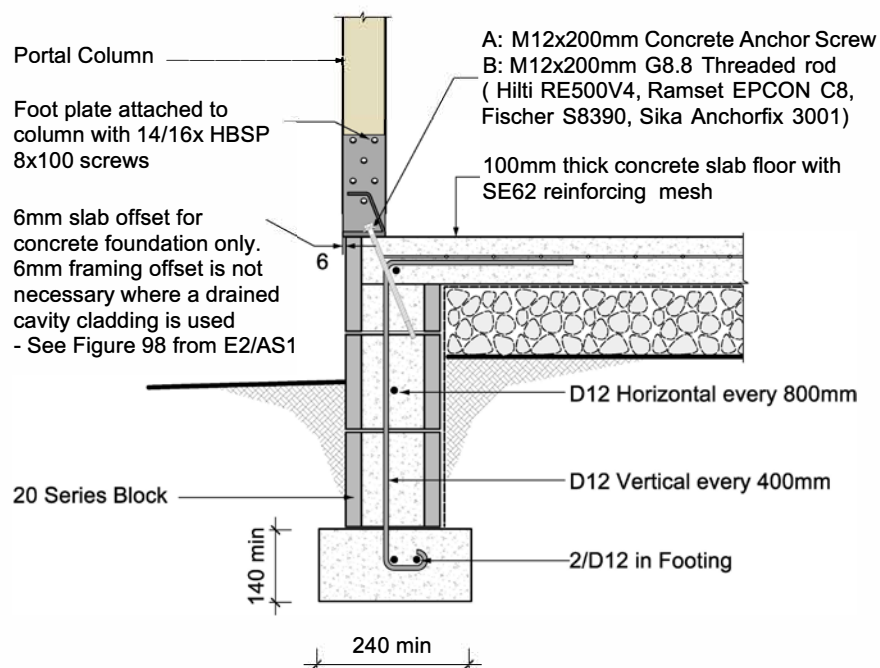
D1103
11/2024

MAXraft Slab Foundation Connection



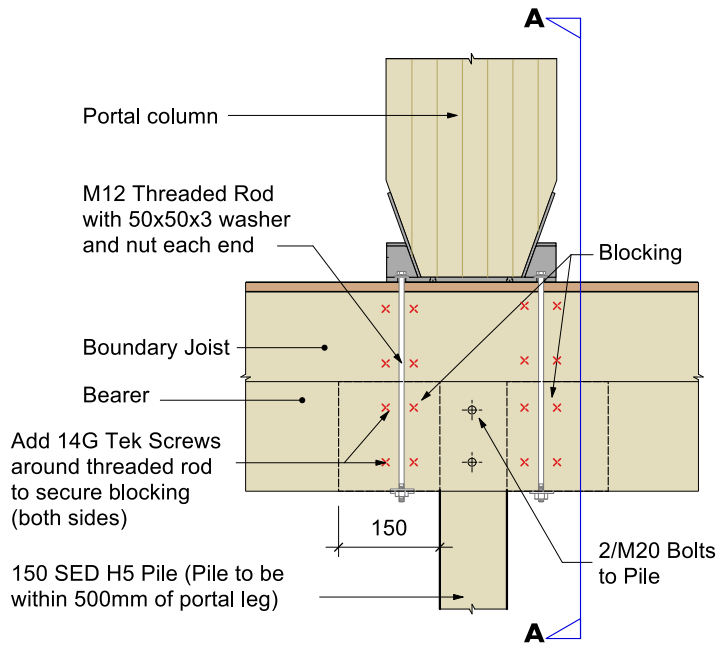
D1108
11/2024

Block Concrete Edge Connection

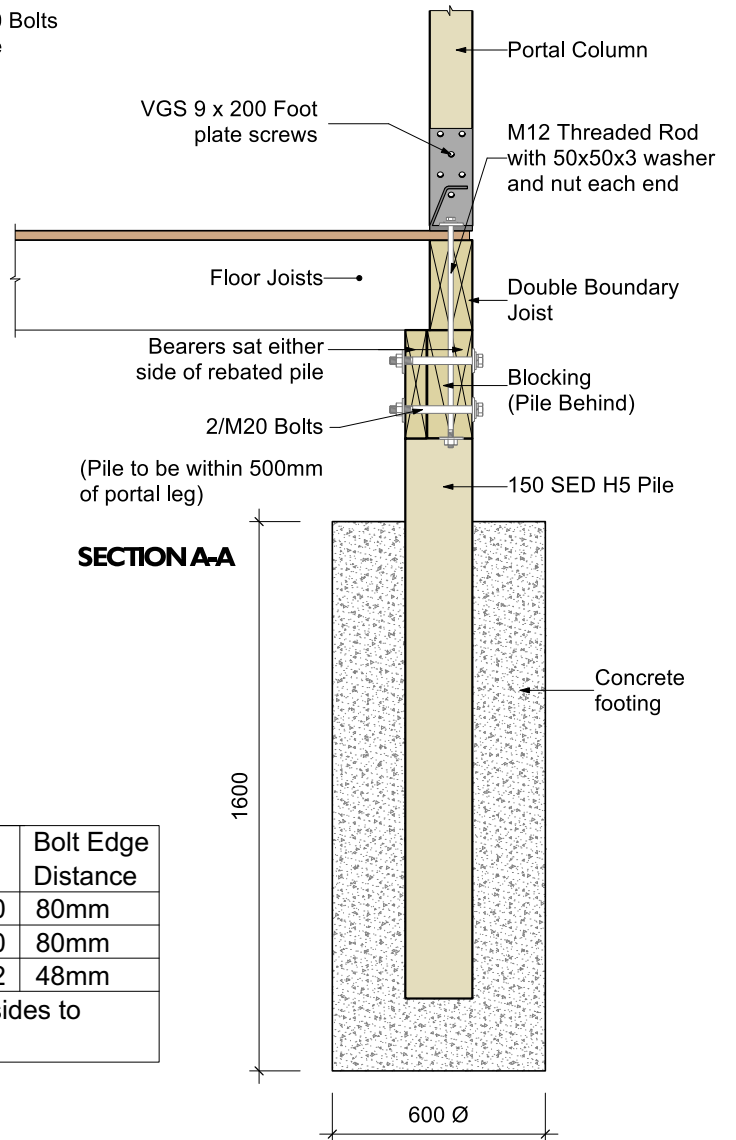


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11/2024

Timber Floor Connection

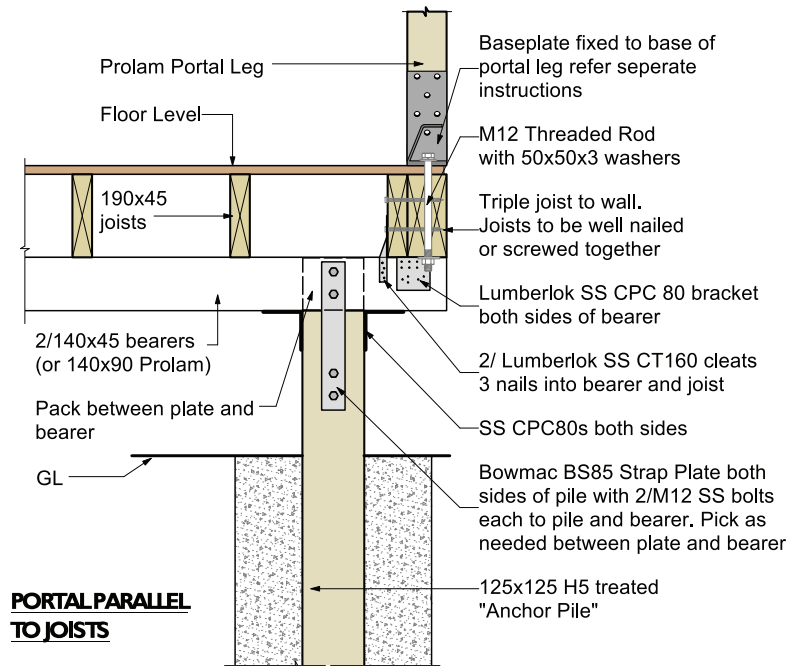


D1105
11/2024



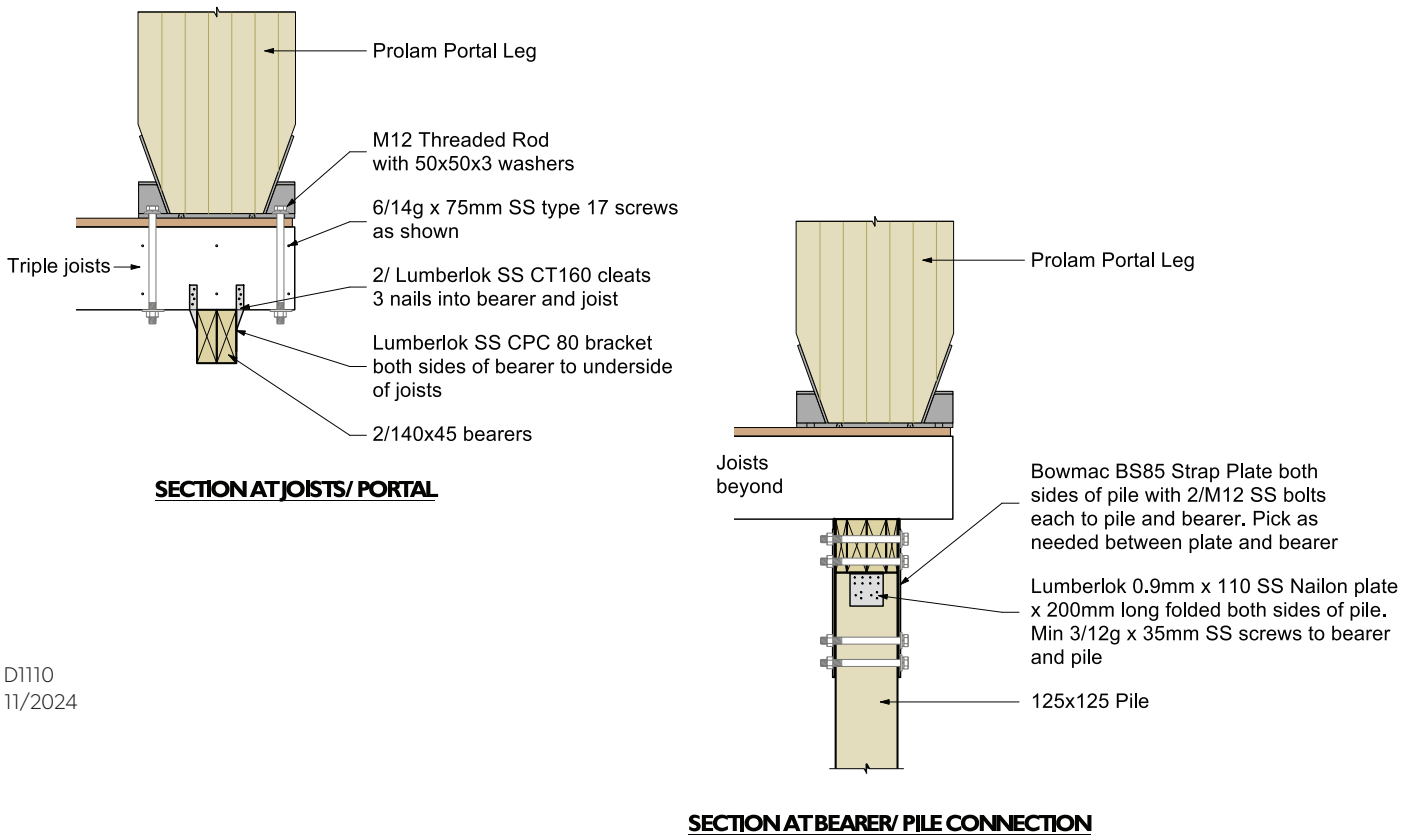
Required Bearers	Bolts	Bolt Edge Distance
2/290x45 SG8	2/M20	80mm
2/240x45 SG8	2/M20	80mm
4/190x45 SG8	4/M12	48mm
Double up bearers both sides to adjacent piles		

Timber Floor Connection - Parallel to Joists



D1109
11/2024

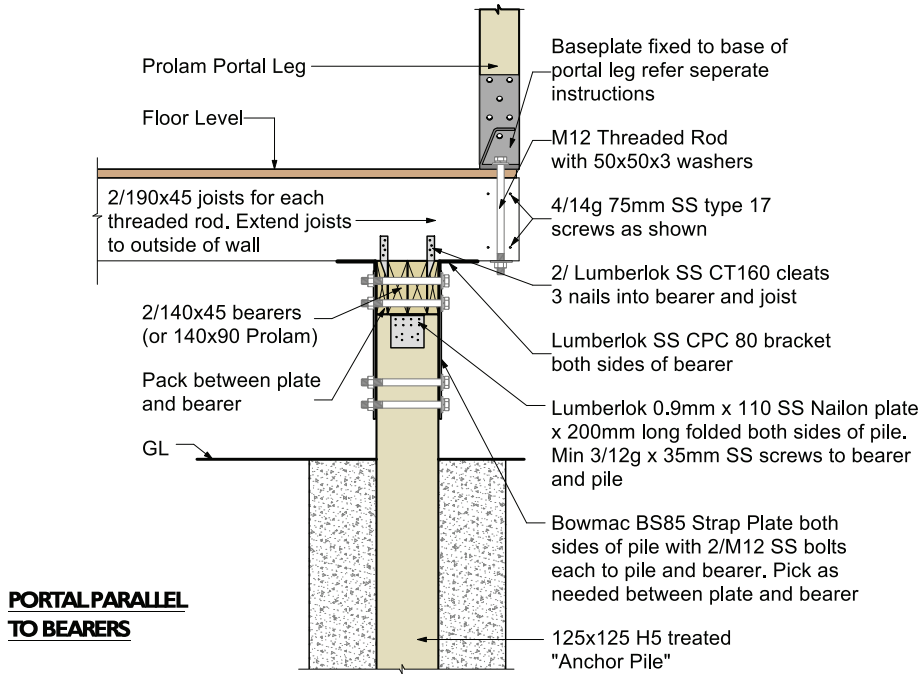
Timber Floor Connection - Parallel to Joists - Sections



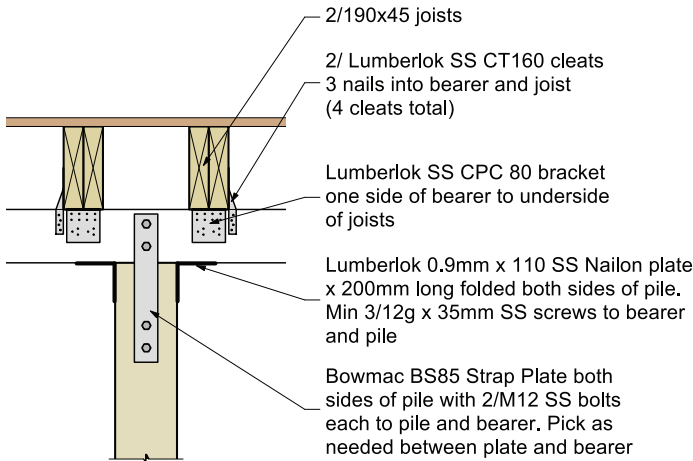
D1110
11/2024

Timber Floor Connection - Parallel to Bearers

D1111
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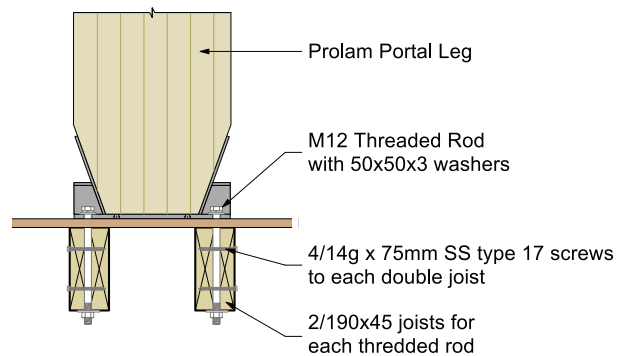


Timber Floor Connection - Parallel to Bearers - Sections



SECTION AT BEARER/ PILE CONNECTION

D1112
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SECTION PORTAL

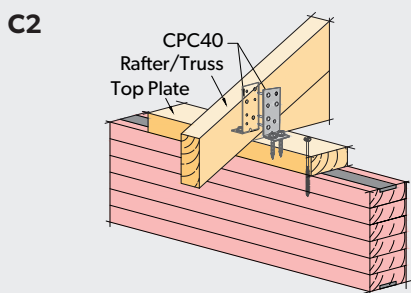
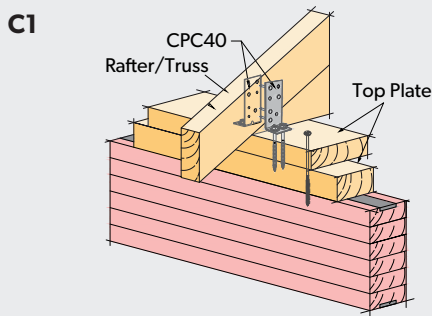
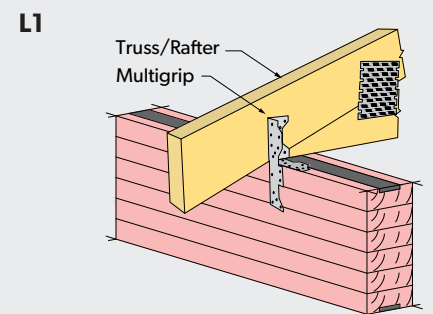
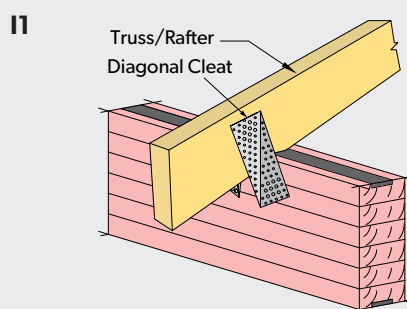
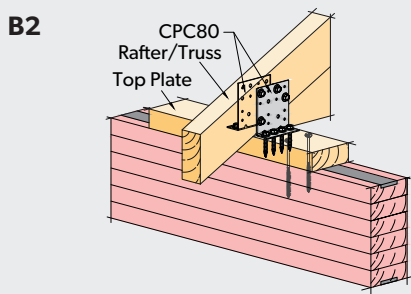
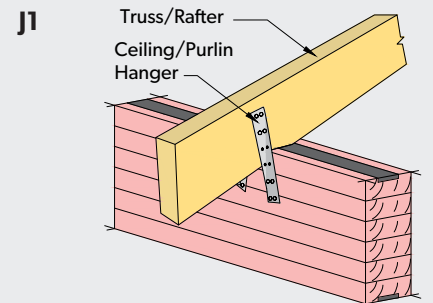
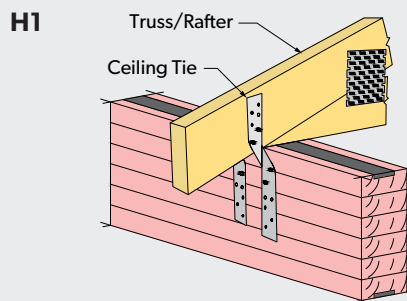
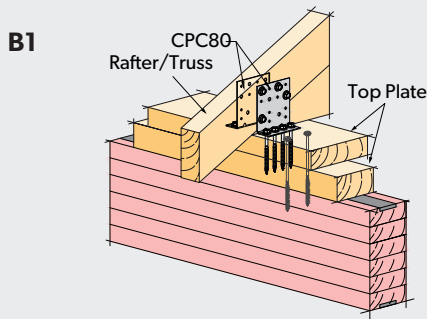
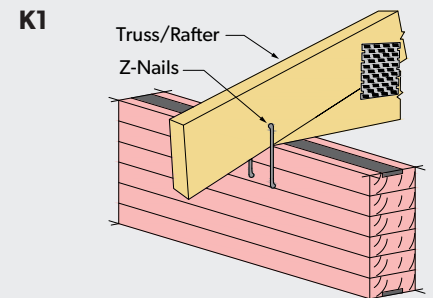
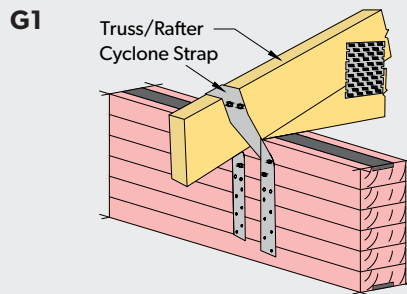
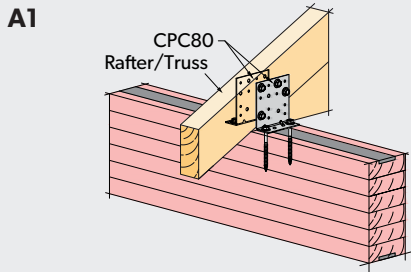


Prolam PLX Portal Frame

FRAME & ROSS

Innovative structural timber solution

Uplift fixings



	Characteristic Strength	ULS Capacity
A1	16 kN/Pair	11.2 kN/Pair
B1 & B2	16 kN/Pair	11.2 kN/Pair
C1 & C2	8 kN/Pair	5.6 kN/Pair
G1	12 kN	9.6 kN
H1	10.5 kN/Pair	8.4 kN/Pair
I1	20 kN/Pair	16 kN/Pair
J1	-	5 kN/Pair
K1	3.2 kN/Pair	2.5 kN/Pair
L1	4 kN/Pair	3.2 kN/Pair

Avoid drilling through or damaging the steel bar for fixings and take care to prevent the steel plate from damaging the screw threads.

The next generation portal bracing solution is here

Structural Properties

Structural Properties		Characteristic Strength (MPa)		Elastic Moduli (GPa)
		Bending f'_b	Shear in beam f'_s	MoE short duration
Beam	PLX20 290x90	45	3.7	21.0
	PL12 360x90	25	3.7	11.5
Column	PL12 240x90	25	3.7	11.5

Notes:

1. PLX20 is intended for use as a beam and not a tension or compression member.
2. PLX20 pre camber is L/800.
3. Bending strength and MoE have been determined from testing. Other properties are based on SG6 timber.
4. PL12 Columns have the same properties as GL12 Glulam as per NZS AS1720.1.
5. Use ϕ factor of 0.8 for design.
6. Provisional K2/J2 factor of deflection = 1.5
7. Joint group = JD5.

Compliance Statement

The PLX Portal has been specifically designed and independently tested in New Zealand to provide a structural bracing solution for residential buildings within the scope of NZS3604. The PLX Portal has been tested in accordance with the BRANZ P21 (2010) bracing test and evaluation procedure, which is cited by NZS3604, paragraph 8.3.1.2.

When the PLX Portal is installed as per these installation details it will meet the requirements of the New Zealand Building Code with respect to:

- Clause B1 Structure: Performance B1.3.1, B1.3.2 and B1.3.3 and B1.3.4
- Clause B2 Durability: Performance B2.3.1 of not less than 50 years, internal use only.

Once the PLX Portal has been installed and prior to lining, the Building Consent Authority should inspect the portal during pre lining inspections.

For use other than with NZS3604 type structures, Specific Engineering design will be required.

Inspection Schedule

1. Foundation connection. Ensure the hold down nuts are tight and the anchor bolts/screws are well secured into the timber or concrete subfloor according to the appropriate foundation connection.
2. Knee Connection. Ensure the M12 G8.8 nuts on the outside of the portal knee are tightened to 50Nm or both the curved end plate and conical washers are flattened against the columns.
3. Uplift screws. Ensure the two 45 degree uplift VGZ screws are installed into the L Brackets at each end of the lintel.
4. Tylok uplift plate. If a Tylok uplift plate is required (refer to Span Table on page 7) check this is installed at each end of the lintel.
5. 6kN top plate connection. Ensure the adjacent walls are connected to the portal with a 6kN top plate connection. See detail D1101.

Note: Inspection must be carried out by a certified third party.

Producer Statement

Potius Building Systems Ltd have been engaged by Prowood to develop and prepare the PLX Portal.

P21 testing has been performed at the Scion test facilities and engineering design has been carried out in accordance with widely accepted engineering principals of AS/NZS1170, NZS3604 & NZS/AS1720 using the structural properties shown below.

On behalf of Potius Building Systems Ltd (Producer statement to be reviewed by June 2028)

Andy Van Houtte
CMEngNZ, CPeng 250791




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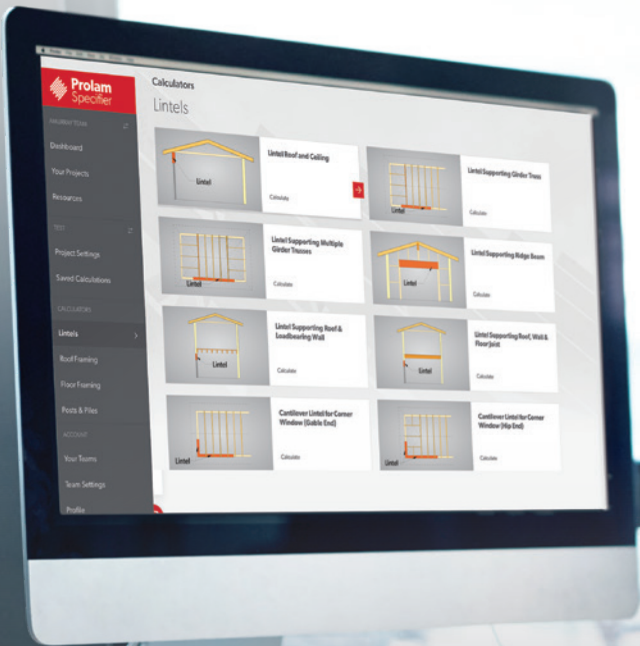
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PLX Portal can be specified for the following situations:

- ▶ **Lintel Roof and Ceiling**
- ▶ **Lintel Supporting Girder Truss**
- ▶ **Lintel Supporting Ridge Beam**
- ▶ **Lintel Supporting Roof & Loadbearing Wall**
- ▶ **Lintel Supporting Roof, Loadbearing Wall & Floor Joist**
- ▶ **Lintel Supporting Roof with Attic Truss**
- ▶ **Internal Floor Beams/Bearers Supporting Joist**



Beyond its practical benefits, specifying wood with the PLX Portal also aligns with our commitment to environmental sustainability, showcasing our dedication to eco-friendly solutions to clients.

Mark Bishop, Bishop Architecture



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