



XLT BRACE **XLT PORTAL**

TECHNICAL GUIDE **BY XLAM**

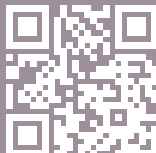


XLT is a range of products by XLAM that bring the benefits of mass timber to residential and light commercial construction. XLT products are 'ready made' building materials, including energy efficient flooring, structural flooring, beams, floor cassettes, bracing systems and portal structures.

Mass timber is strong, sustainable, durable and offers improved insulation properties. The XLT range is made from Australian grown plantation radiata pine offering simple onsite alterations, easy handling and fast install. Using timber alternatives means that you can minimise the reliance on fabricated steelwork and pair timber XLT products with timber framing.



AUSTRALIAN
GROWN & MADE



XLT INTEGRATED SYSTEM SOLUTIONS

The XLT Systems range brings together prefabricated engineered timber solutions designed for strength, precision and efficiency. Manufactured by XLAM to meet Australian and New Zealand Standards, the range includes XLT Brace and XLT Portal — each capable of working independently or together to suit a variety of structural requirements.

At the core of the range are engineered timber members that deliver the spanning strength and stability required for structural frames, floors and roofs.

The XLT Brace system uses the same engineered timber elements to provide lateral stability or an alternative framing solution. It delivers efficient wind and seismic resistance while maintaining a fully timber-based structure and reducing the need for secondary steelwork.

The XLT Portal system provides a prefabricated mass timber portal frame solution suited to residential and light commercial projects. Designed to perform where wall lengths are limited, it delivers high-capacity lateral and vertical load resistance in open-plan designs with larger openings and fewer internal walls — such as garage portals or wide window and door openings.

Together, the XLT Systems range offers scalable, sustainable and high-performing solutions for modern timber construction.



A photograph of a wooden structure, possibly a staircase or a walkway, with vertical wooden slats and a wooden floor. The text "VIT DRACE" and "ALI DRACE" is overlaid in a bold, red, sans-serif font. The background is slightly blurred, showing more of the wooden structure and a hint of a railing.

VIT DRACE
ALI DRACE

XLT BRACE

XLT Brace is a prefabricated short wall bracing system engineered for strength, simplicity, and seamless integration with conventional stud wall framing.

In this system, a 90mm wide engineered timber member is oriented vertically and installed within the plane of the building's stud frames. The length of the short wall bracing can be adjusted by selecting different widths from XLAM'S Standard XLT Brace cross sections, taking into account the stud spacing adopted in the framing design.

Secured with Multinail Stronghold tie down brackets at the base, XLT Brace delivers high-capacity lateral resistance, making it ideal for open-plan designs with fewer internal walls and larger openings.

Manufactured using XLAM's advanced XLT process, XLT Brace can be designed in accordance with AS 1720.1:2010 (Australia) or NZS AS 1720.1:2022 (New Zealand) and is made from sustainably grown Australian plantation pine.



IMAGE COURTESY OF MULTINAIL

MULTINAIL STRONGHOLD TIE DOWN BRACKET – STD320

Multinail Stronghold tie down brackets (STD320) are to be installed at both ends of the XLT Brace member. Brackets may be positioned either facing outwards or facing inwards, with anchors concealed when installed inward facing.

Brackets can be installed with either single or double studs at each end of the brace, depending on the framing design requirements.

Each bracket is to be fixed to the timber using Multinail 8mm pan head screws, in either 100mm or 150mm lengths.

Six spacers (three per side) are provided to allow clearance over the anchor heads where brackets are installed facing inwards. Refer to the Installation section of this document for further details.



IMAGE COURTESY OF MULTINAIL

BRACKET KIT SUITABILITY

SHORT WALL BRACING



XLT Brace size	Brackets inside	Brackets outside with or without single stud wall	Brackets outside with double stud walls
XLT Brace 200-600	STD320-100		STD320-150

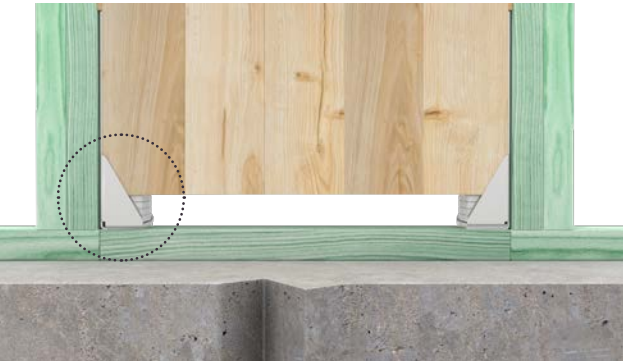
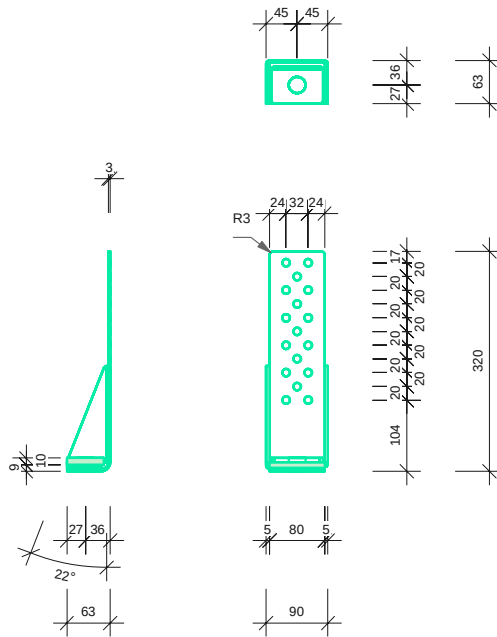


Figure 7. Brackets both inside



Figure 8. Brackets both outside with single stud wall

MULTINAIL STD320 BRACKET DIMENSIONS



CONCRETE ANCHORS

Multinail's STD320 brackets are designed to work with M20 anchors. With an additional washer, M16 anchors may also be used as an alternative. Concrete anchors for bracket connections must be designed by the project structural engineer. It is recommended post-installed anchors are to be designed in accordance with AS 5216:2021 and installed by an accredited installer. Anchor testing may be specified in some applications.

IMPORTANT NOTE:

The specified bracing capacity tables are based on an anchor capacity of 54kN in tension. If the anchor design requires a lower anchor capacity (for example if limited by slab edge or corner distances), then the capacity of the capacity tables must be reduced proportionally with the design capacity of the anchor.

XLT BRACE CAPACITY TABLES

The XLT Brace system delivers reliable lateral bracing performance using 17 predrilled pan head screws (8mm diameter, 100mm or 150mm length) fixed into the XLT Brace engineered timber members and paired with Multinail's STD320 bracket.

XLT Brace capacities are provided for Category 1 and Category 2 applications (as defined in AS 1720.1–2010), with values available for nominal wall heights. Capacities for intermediate heights can be easily interpolated to suit your design.

Category 1	Category 2
Structural members for houses for which failure would be unlikely to affect an area* greater than 25m ² ; OR secondary members in structures other than houses	Primary structural members in structures other than houses; OR elements in houses for which failure would be likely to affect an area* greater than 25m ²

The XLT Brace system can be used in both load-bearing and non-load-bearing wall applications to resist lateral racking forces in accordance with AS 4055:2021. Design bracing capacities for XLT Brace widths from 200mm to 600mm are outlined below.

Bracket location & stud wall arrangement	XLT Brace Width (mm)	Category 1				Category 2			
		Wall Height (mm)				Wall Height (mm)			
		2440	2590	2740	3000	2440	2590	2740	3000
STD320 bracket inside 90mm XL-10 OR outside without stud 	200	2.2	1.8	1.5	1.1	2.2	1.8	1.5	1.1
	240	3.8	3.1	2.6	2.0	3.8	3.1	2.6	2.0
	300	6.6	6.2	5.2	3.9	6.6	6.2	5.2	3.9
	360	7.9	7.5	7.0	6.4	7.4	7.0	6.6	6.0
	400	8.8	8.3	7.8	7.2	8.3	7.8	7.3	6.8
	450	9.9	9.3	8.8	8.1	9.3	8.7	8.3	7.6
	500	11.0	10.4	9.8	9.0	10.4	9.8	9.2	8.4
	550	12.1	11.4	10.8	9.9	10.4	9.8	9.2	8.4
	600	13.2	12.5	11.8	10.8	12.4	11.7	11.1	10.1
STD320 bracket outside with single stud 90mm XL-10 	200	2.2	1.8	1.5	1.1	2.2	1.8	1.5	1.1
	240	3.8	3.1	2.6	2.0	3.8	3.1	2.6	2.0
	300	7.4	6.2	5.2	3.9	7.4	6.2	5.2	3.9
	360	9.5	8.9	8.4	6.9	8.9	8.4	7.9	6.9
	400	10.4	9.7	9.2	8.4	9.7	9.2	8.7	7.9
	450	11.5	10.8	10.2	9.3	10.8	10.2	9.6	8.8
	500	12.6	11.8	11.2	10.2	11.8	11.1	10.5	9.6
	550	13.7	12.9	12.2	11.1	12.9	12.1	11.5	10.5
	600	14.8	13.9	13.2	12.0	13.9	13.1	12.4	11.3
STD320 bracket outside with double studs 90mm XL-10 	200	2.2	1.8	1.5	1.1	2.2	1.8	1.5	1.1
	240	3.8	3.1	2.6	2.0	3.8	3.1	2.6	2.0
	300	7.4	6.2	5.2	3.9	7.4	6.2	5.2	3.9
	360	11.0	10.4	9.0	6.9	10.4	9.8	9.0	6.9
	400	11.9	11.2	10.6	9.4	11.2	10.5	10.0	9.1
	450	13.0	12.3	11.6	10.6	12.2	11.5	10.9	9.9
	500	14.1	13.3	12.6	11.5	13.3	12.5	11.8	10.8
	550	15.2	14.3	13.5	12.4	14.3	13.5	12.7	11.6
	600	16.3	15.4	14.5	13.3	15.4	14.5	13.7	12.5
STD320 bracket outside with single+double studs 90mm XL-10 	200	2.2	1.8	1.5	1.1	2.2	1.8	1.5	1.1
	240	3.8	3.1	2.6	2.0	3.8	3.1	2.6	2.0
	300	7.4	6.2	5.2	3.9	7.4	6.2	5.2	3.9
	360	10.2	9.6	9.0	6.9	9.6	9.1	8.6	6.9
	400	11.1	10.5	9.9	9.0	10.4	9.9	9.3	8.5
	450	12.2	11.5	10.9	9.9	11.5	10.8	10.2	9.4
	500	13.3	12.6	11.9	10.8	12.6	11.8	11.2	10.2
	550	14.4	13.6	12.9	11.7	13.6	12.8	12.1	11.0
	600	15.6	14.6	13.8	12.6	14.6	13.8	13.0	11.9

Notes:

1. Use stud wall timber with a joint group classification of JD4 or better when brackets are connected via stud framing.
2. The horizontal deflection limit is 12mm, measured at the top of the XLT Brace.
3. For loadbearing external walls subject to wind uplift and face wind pressure, the maximum allowable opening width is 1800mm (applies to all AS 4055 wind loading categories up to C4).
4. If design requirements fall outside the parameters listed above, contact XLam for technical assistance.

POINT LOAD ON XLT BRACE

XLT Brace Type	Maximum Point Load on XLT Brace (kN)							
	Category 1				Category 2			
	Wall Height (mm)				Wall Height (mm)			
	2440	2590	2740	3000	2440	2590	2740	3000
200	20.1	18.2	15.8	13.2	17.9	16.2	14.1	11.7
240	24.1	21.8	19.0	15.8	21.5	19.4	16.9	14.0
300	30.2	27.3	23.7	19.8	26.9	24.3	21.2	17.6
360	36.2	32.8	28.4	23.8	32.2	29.2	25.4	21.1
400	40.2	36.4	31.6	26.4	35.8	32.4	28.2	23.4
450	45.2	41.0	35.6	29.7	40.3	36.5	31.7	26.3
500	50.3	45.5	39.5	33.0	44.8	40.5	35.3	29.3
600	60.3	54.6	47.4	39.6	53.7	48.6	42.3	35.1

XLT BRACE GENERAL PRODUCT NOTES

CONNECTIONS:

Additional elements connected to the XLT Brace should be designed in accordance with AS 1720.1 and NZS AS 1720.1, as well as AS 1684.2, AS 1684.3, and NZS 3604, for nails, screws, and bolts. Joint group: JD5.

Alternative screw-fixed connections may be designed in accordance with a relevant ETA, using a characteristic density of 430 kg/m³.

NOTCHES AND HOLES:

Notches and holes are not permitted in the XLT Brace system.

CONSTRUCTION NOTES

Installers must refer to the project drawings and specifications and complete all work to the quality standards agreed with the builder. The following notes are critical from both a structural engineering and compliance perspective.

FRAMING REQUIREMENTS:

Ensure all framing complies with relevant timber design standards. The design must support the permanent action of XLT Bracing, other linings, permanent fixtures, and any imposed loads.

Consult the project engineer to confirm appropriate loading requirements.

LOAD SUPPORT:

All line loads and concentrated point loads (e.g. anchor loads) must have a continuous structural support path directly beneath them.

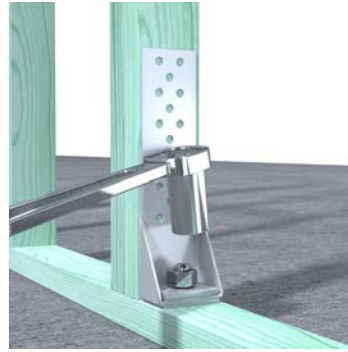
INSTALLATION NOTES

- Install XLT Braces in accordance with the following requirements. Reference may also be made to the Multinail Short Wall Bracing [Installation Guide](#).
- It is recommended that the project engineer inspect and certify that the completed works comply with the approved engineering drawings and project specifications.
- Inspections should be scheduled so that structural elements and connections are visible before being concealed by linings or finishes.
- Post-installed anchors should be designed in accordance with AS 5216:2021 and installed/ tested by an accredited installer.
- Use only the specified screws. Pre-drill to 5mm, not exceeding the penetration depth.
- Recommended torque setting is $\leq 10 \text{ N}\cdot\text{m}$. Impact drivers must not be used.

INSTALLATION STEPS

Step 1:

Install the M20 anchor directly into the concrete slab or through the wall bottom plate at the designated location, without tightening. Position the Stronghold tie down bracket with washer plate, then apply torque in accordance with the anchor supplier's instructions.



Step 2:

Insert the 90mm short wall structural member into the wall panel pocket and temporarily prop in place.



Step 3:

Pre-drill all screw holes using a 5mm drill bit, ensuring the hole depth does not exceed the required screw penetration.



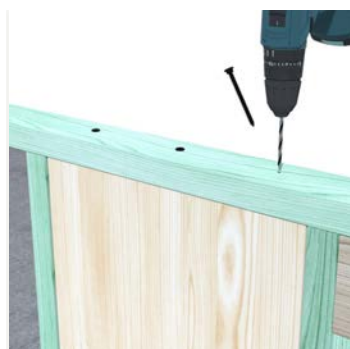
Step 4:

Install screws to fill all holes in the Stronghold bracket. Torque setting: maximum 10 N·m. Repeat Steps 1–4 for the bracket on the opposite side.

**Step 5:**

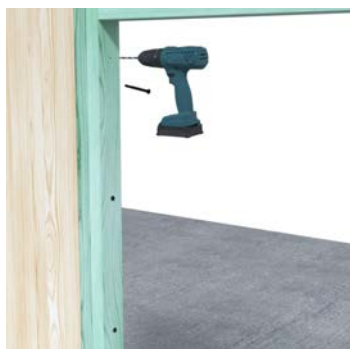
Pre-drill screw locations and fix the top plate to the glulam beam using:

- 3 screws for GLT sizes up to 360mm
- 4 screws for GLT sizes up to 500mm
- 5 screws for GLT sizes up to 600mm

**Step 6:**

Pre-drill and install screws from the studs into the 90mm short wall structural member at a maximum spacing of 600mm along the stud length.

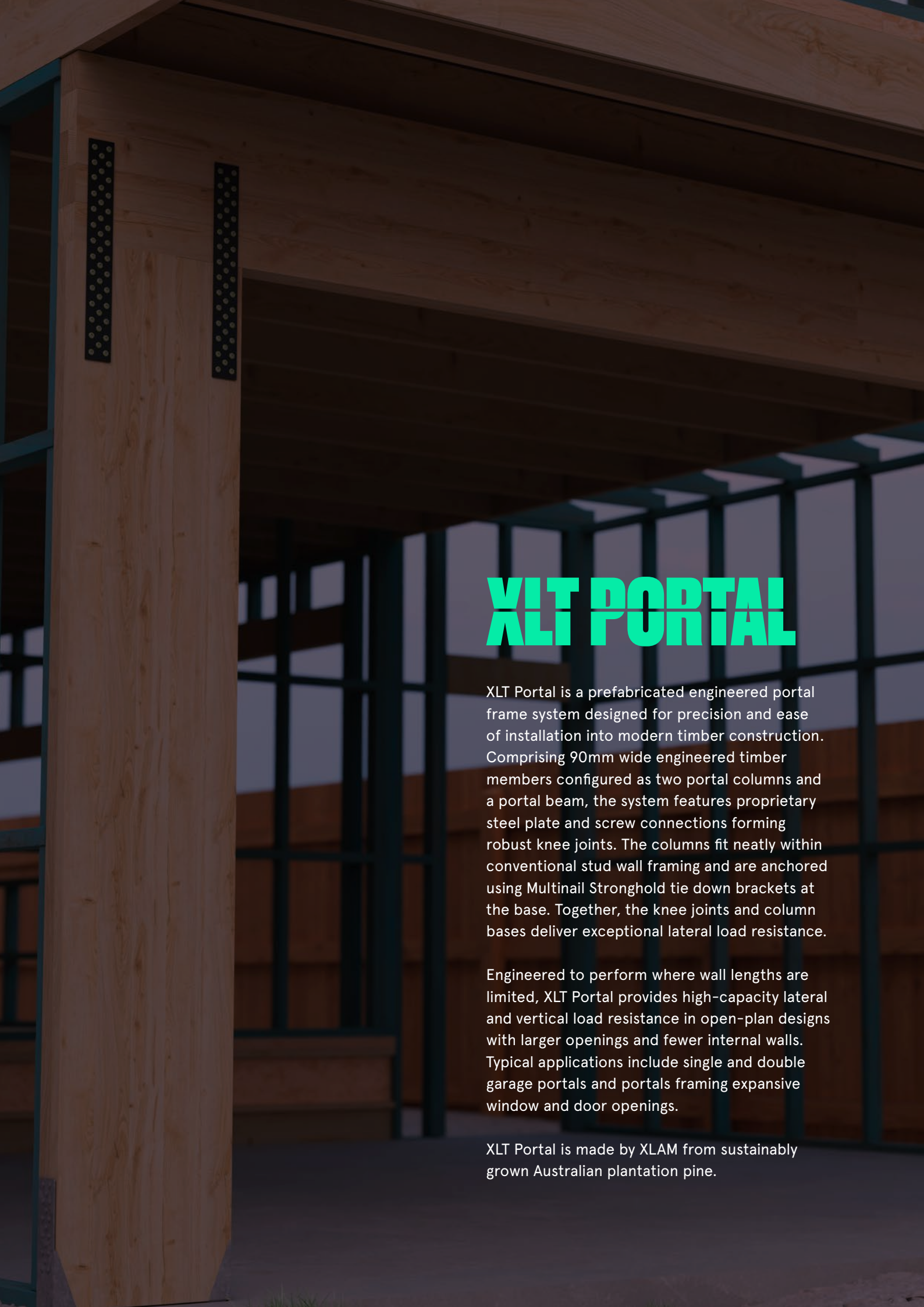
Each screw must embed at least 56mm into the structural member.

**INWARDS-FACING BRACKETS:**

When Stronghold brackets are installed in an inwards-facing configuration, note the following additional requirements:

- Using the provided template, plane down the corners of the structural member by 4mm on each side, leaving a residual thickness of 82mm to suit the bracket.
- Position the 90mm structural member between the inwards-facing brackets, ensuring both bottom corners are seated directly on the supplied steel spacers. Temporarily prop as required.
- Complete all fixings as previously detailed.
- If required, install 6mm plywood packers on both sides of the structural member above the bracket (extending to the underside of the top plate) to maintain stud alignment and prevent interference with the bracket.

Alternatively, the vertical leg of the bracket may be rebated 6mm into the structural member component.



XLT PORTAL

XLT Portal is a prefabricated engineered portal frame system designed for precision and ease of installation into modern timber construction. Comprising 90mm wide engineered timber members configured as two portal columns and a portal beam, the system features proprietary steel plate and screw connections forming robust knee joints. The columns fit neatly within conventional stud wall framing and are anchored using Multinail Stronghold tie down brackets at the base. Together, the knee joints and column bases deliver exceptional lateral load resistance.

Engineered to perform where wall lengths are limited, XLT Portal provides high-capacity lateral and vertical load resistance in open-plan designs with larger openings and fewer internal walls. Typical applications include single and double garage portals and portals framing expansive window and door openings.

XLT Portal is made by XLAM from sustainably grown Australian plantation pine.

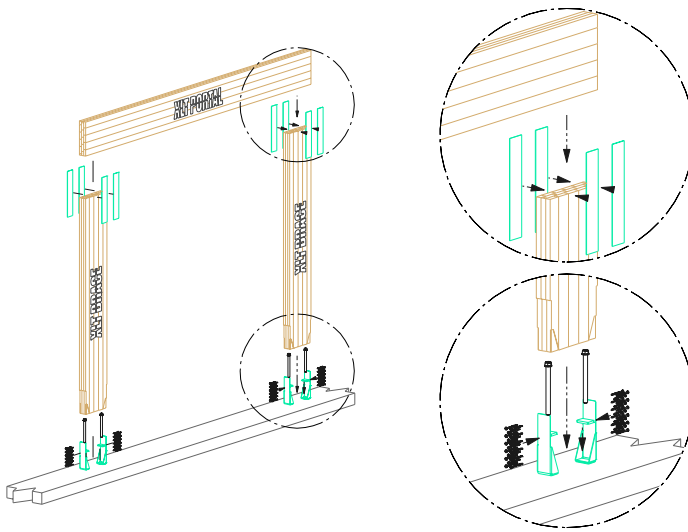
SYSTEM OVERVIEW

COMPLETE, READY-TO-INSTALL SYSTEM

The XLT Portal system is supplied as a prefabricated kit, making installation simple and efficient on site.

EACH KIT INCLUDES:

- **XLT Brace & XLT Portal** (2 columns + 1 beam) – manufactured by **XLAM**
- **Multinail** steel knee joint connectors (8 plates)
- **Multinail** column base tie down brackets (STD320) (4 brackets)



AVAILABLE SIZES:

The system is available in three standard sizes – **XLT Portal 300, 360, and 400** – to suit a range of span and load requirements. Untreated or Treated* options are available for XLT Portal.

XLT Portal	Column (2)		Beam (1)	
	d	b	d	b
XLT Portal 300	300mm	90mm	300mm	90mm
XLT Portal 360	360mm	90mm	360mm	90mm
XLT Portal 400	400mm	90mm	400mm	90mm

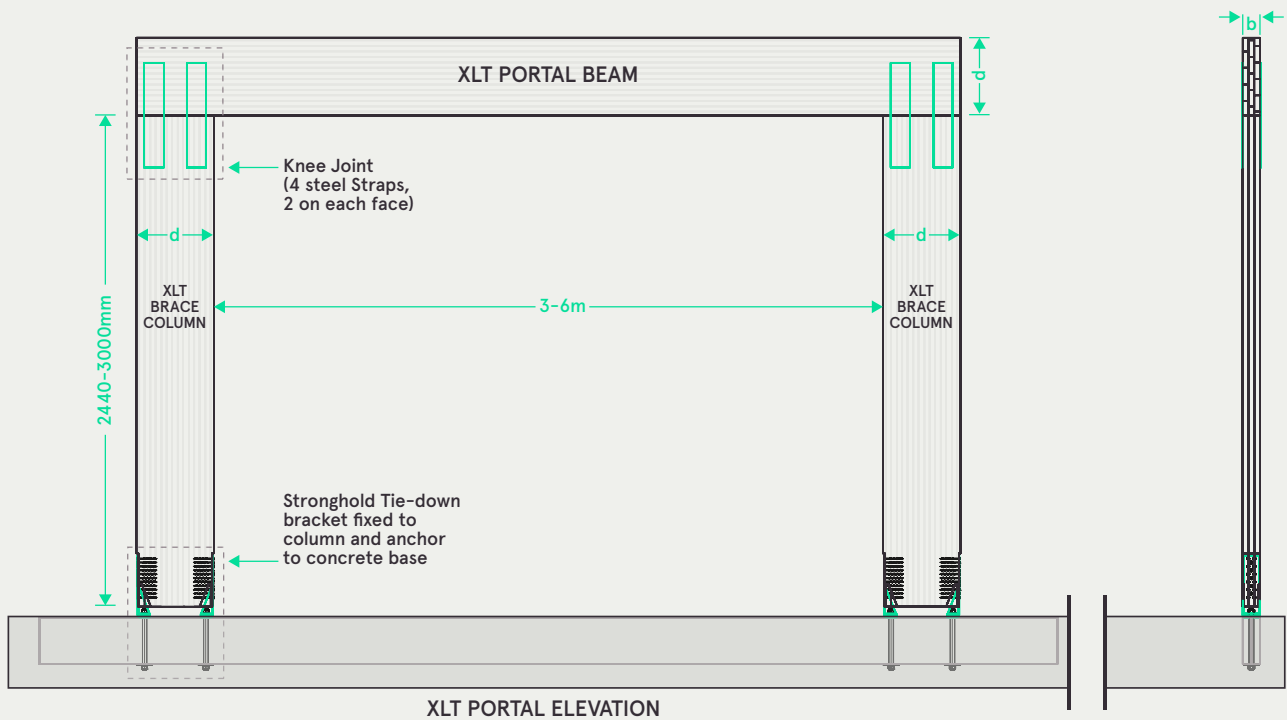
* XLT Portal may be supplied as T3+ treated. T3+ treatment is CodeMark certified H3 in Australia and H3.2 in New Zealand.

NOTE: For information on the vertical load bearing capacity of the XLT Portal System, please refer to the capacity tables within the product's Technical Guide.

CONSISTENT DESIGN:

Within each system, the column and beam member depths are matched for ease of specification and a uniform aesthetic.

Portal column heights range from 2440mm to 3000mm, with clear spans between 3m and up to 6m. In addition to providing lateral bracing, the portal beam section also provides vertical load-carrying support for the structure above.



KNEE JOINT – STEEL TENSION PLATE

The knee joint forms a moment-resisting connection between the portal columns and portal beam, utilising four flat steel straps (4mm thick, G250 grade, two per side) secured with 68 Multinail Advance pan head full-thread screws (8mm diameter x 100mm length) per joint. Screws are alternated from each side of the connection to optimise load transfer and joint performance.

The screw layout for both sides of the joint is illustrated in the figure below for the XLT Portal 300–400 configuration, where pink and green indicate screws installed from each respective side.

Connection capacities have been verified through product-specific testing conducted by Multinail.

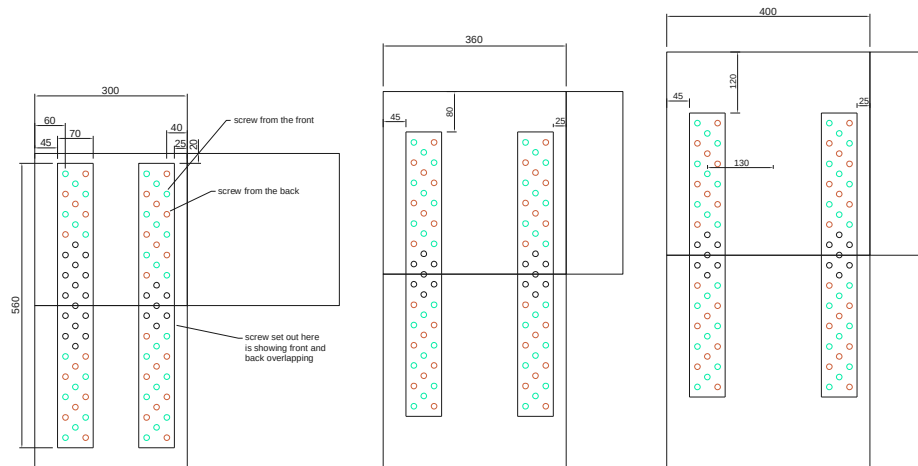


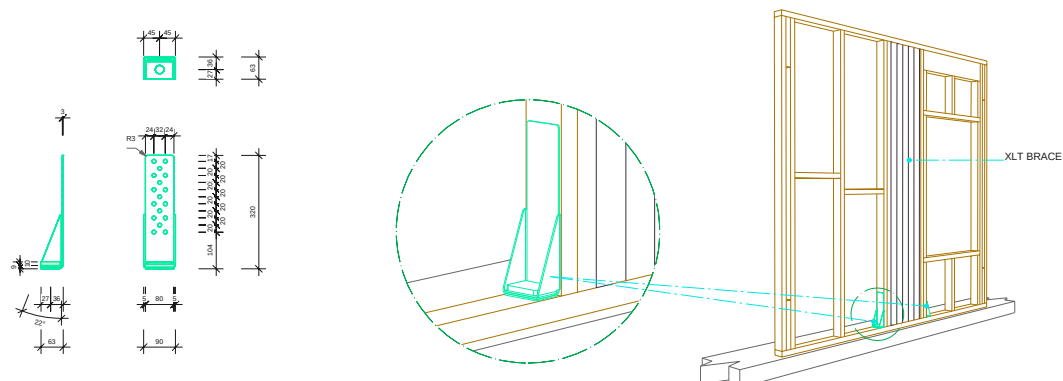
Image: Steel Strap Screw Arrangement for different size of XLT Portal

COLUMN BASE TIE DOWN BRACKET

Multinail Stronghold tie down brackets (STD320) are installed on both sides at the base of the portal columns, working in unison with the knee joints to resist structural moments and ensure overall frame stability. The brackets may be positioned with the face either outward or inward, allowing anchors to be concealed where preferred.

Each bracket is secured to the timber portal column with 17 Multinail 8mm pan head screws. Six spacers (three per side) are included to provide necessary clearance over anchor heads when brackets are installed facing inwards. Refer to the figure below for bracket kit dimensions.

Connection capacities for the Stronghold STD320 bracket have been verified through product-specific testing conducted by Multinail.



BRACKET KIT SUITABILITY

XLT Portal size	Brackets inside	Brackets outside with or without single stud wall	Brackets outside with double stud walls
300mm	STD320-100		STD320-150
360mm			
400mm			

*STD320-100 – STD320-P bracket with $\phi 8$ mm pan head screw in 100mm lengths.

*STD320-150 – STD320-P bracket with $\phi 8$ mm pan head screw in 150mm lengths.

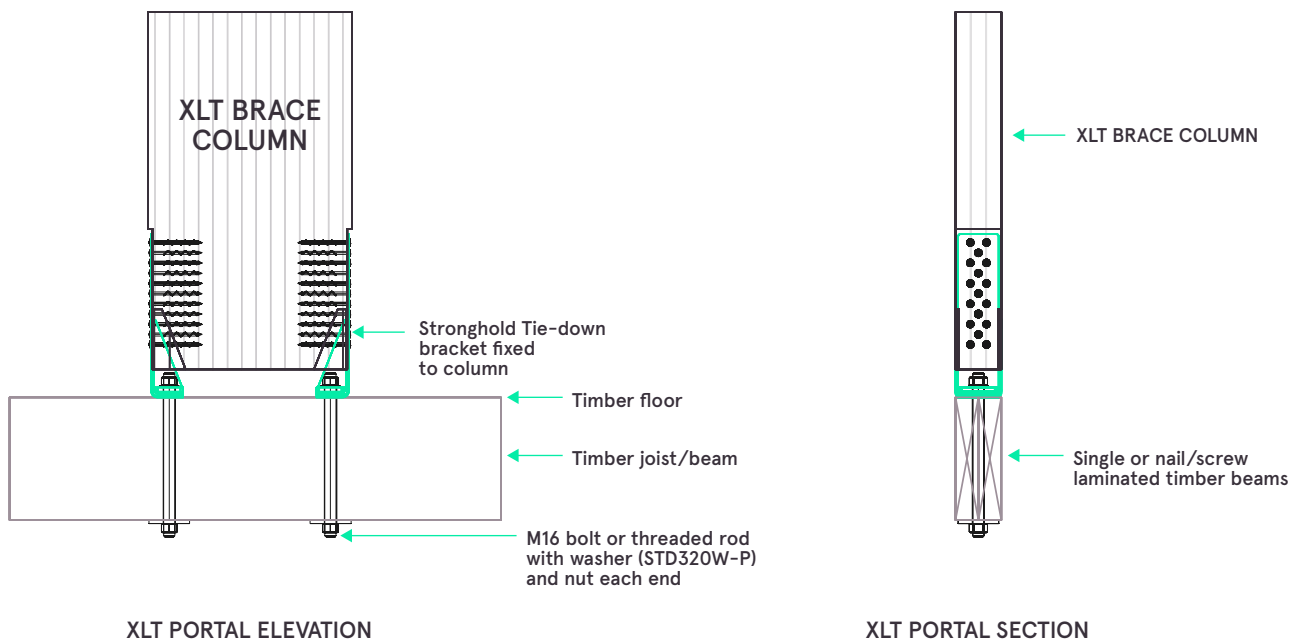
BRACKET TIE DOWN

CONCRETE ANCHORS

For bracket-to-floor connections, the Multinail Stronghold STD320 brackets are designed for use with M20 concrete anchors. Alternatively, M16 anchors may be used with the addition of a suitable washer.

Concrete anchors for bracket connections must be designed by the project's structural engineer. It is recommended post-installed anchors are to be designed in accordance with AS 5216:2021 and installed by an accredited installer. Anchor testing may be specified for some applications.

BRACKET TIE DOWN TO TIMBER FLOOR/BEAMS



IMPORTANT NOTE:

The specified bracing capacity tables are based on an anchor capacity of 54kN in tension. If the anchor design requires a lower anchor capacity (for example if limited by slab edge or corner distances), then the capacity of the capacity tables must be reduced proportionally with the design capacity of the anchor.

BRACING CAPACITY

STRUCTURAL PERFORMANCE

The XLT Portal system can be used in both load-bearing and non-load-bearing wall applications to resist lateral racking forces, in accordance with AS 4055:2021 and AS 1684 Parts 2 and 3.

Design bracing capacities for the XLT Portal system are provided in the table below.

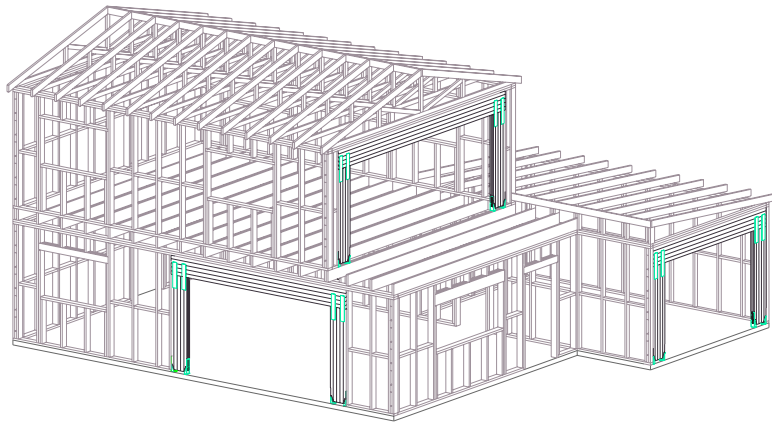
XLT Portal Type	Bracing Capacity (kN)							
	Category 1				Category 2			
	Wall Height (mm)				Wall Height (mm)			
	2440	2590	2740	3000	2440	2590	2740	3000
300	12.1	10.5	9.2	7.5	12.1	10.5	9.2	7.5
360	16.8	14.1	12.5	10.3	15.8	13.3	11.8	9.7
400	18.5	16.4	14.4	11.9	17.4	15.4	13.5	11.2

Notes:

1. The portal height is taken from floor level to top of column, allow depth of portal beam over the column.
(total portal height = opening height + 300/360/400)
2. Allow portal column width on each side of opening. (total portal width = opening width + 600/720/800mm)
3. Bracing capacities assume long term moisture content of the timber does not exceed 15%. In service, the bracing system must be protected within the building envelope.

For bracket-to-timber floor connections, the XLT Portal system shall be secured to the supporting timber floor structure using M16 bolt or threaded rod at each column end. The supporting timber joists or beams must be designed by a structural engineer to resist both compression and tension forces generated by the tie down connection, in accordance with AS 1720.1. or NZS 3603.

XLT PORTAL ALLOWABLE SPANS



SINGLE STOREY OR UPPER LEVEL PORTAL SUPPORTING 40kg/m² ROOF LOADS ONLY

	Roof Loaded Width (m)	0.7	1.5	2.1	2.4	3	4	5	6
	Opening Height (mm)	Maximum Opening Width (m)							
XLT Portal 300	2440, 2590, 2740, 3000	6.0	6.0	6.0	6.0	6.0	5.5	5.0	4.8
XLT Portal 360	2440, 2590, 2740, 3000	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.8
XLT Portal 400	2440, 2590, 2740, 3000	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

LOWER LEVEL PORTAL SUPPORTING 40kg/m² ROOF AND RESIDENTIAL FLOOR LOADS (1.8m FLW)

	Roof Loaded Width (m)	0.7	1.5	2.1	2.4	3	4	5	6
	Opening Height (mm)	Maximum Opening Width (m)							
XLT Portal 300	2440, 2590, 2740, 3000	4.3	4.0	3.9	3.8	3.7	3.7	3.6	3.5
XLT Portal 360	2440, 2590, 2740, 3000	4.8	4.7	4.6	4.5	4.4	4.2	4.1	4.0
XLT Portal 400	2440, 2590, 2740, 3000	5.3	5.2	5.2	5.0	4.9	4.7	4.5	4.3

LOWER LEVEL PORTAL SUPPORTING 40kg/m² ROOF AND RESIDENTIAL FLOOR LOADS (3.0m FLW)

	Roof Loaded Width (m)	0.7	1.5	2.1	2.4	3	4	5	6
	Opening Height (mm)	Maximum Opening Width (m)							
XLT Portal 300	2440, 2590, 2740, 3000	3.7	3.5	3.4	3.4	3.4	3.2	3.1	3.0
XLT Portal 360	2440, 2590, 2740, 3000	4.3	4.1	4.0	4.0	3.9	3.8	3.6	3.5
XLT Portal 400	2440, 2590, 2740, 3000	4.6	4.5	4.4	4.4	4.3	4.1	3.9	3.8

Notes:

1. The portal height is taken from floor level to top of column, allow depth of portal beam over the column.
(total portal height = opening height + 300/360/400)
2. Allow portal column width on each side of opening. (total portal width = opening width + 600/720/800mm)

XLT PORTAL PRODUCT NOTES

CONNECTIONS:

Additional structural elements connecting to the XLT Portal system shall be designed in accordance with AS 1720.1 and NZS AS 1720.1, as well as AS 1684.2, AS 1684.3, and NZS 3604 for nails, screws, and bolts. The joint group for design is JD5.

Alternative screw-fixed connections may be designed in accordance with a relevant European Technical Assessment (ETA), using a characteristic timber density of 430 kg/m³.

NOTCHES AND HOLES:

Notches and holes are not permitted in any part of the XLT Portal system.

CONSTRUCTION NOTES

The installer must refer to all project drawings and specifications and perform work to the quality standards agreed with the builder. The notes below are critical from a structural engineering and compliance perspective.

FRAMING REQUIREMENTS:

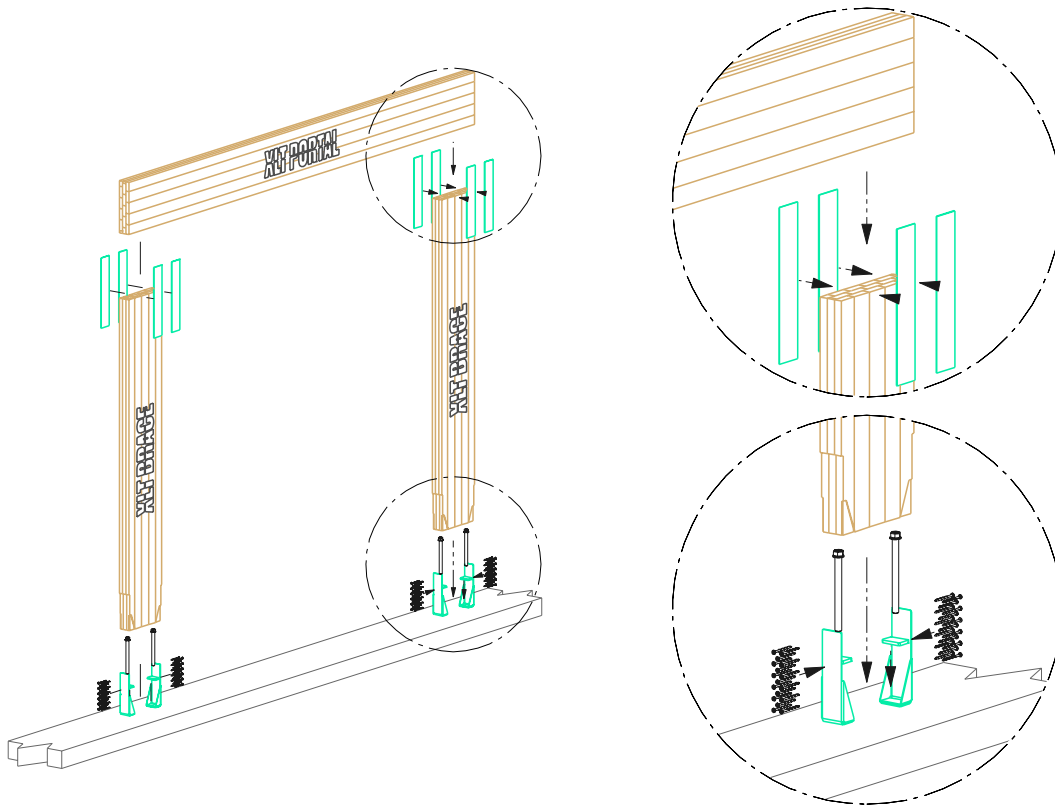
Framing must comply with all relevant timber standards and the project's structural engineering design. The design should adequately support the permanent actions of the XLT Portal system, linings, fixed installations, and any imposed actions. Confirm appropriate loading requirements with the structural engineer.

LOAD SUPPORT:

XLT Portal span tables account for uniformly distributed floor and roof loading only. Concentrated/point loads must be designed by the project structural engineer. Contact XLAM for technical assistance.

INSTALLATION NOTES

- Install XLT Portal systems in accordance with all specified requirements. For bracket-to-column connections, refer also to the Multinail Short Wall Bracing Installation Guide.
- It is recommended the project structural engineer inspect and certify that the constructed works comply with the approved engineering drawings and specifications.
- Inspections should be scheduled so that all structural elements and connections are visible prior to being concealed by linings or finishes.
- Post-installed anchors should be designed in accordance with AS 5216:2021 and installed/ tested by an accredited installer.
- Only specified screws are to be used. Pre-drilling should be to 5mm diameter and must not exceed the required penetration depth
- **Recommended torque setting is $\leq 10 \text{ N}\cdot\text{m}$. Impact drivers must not be used.**



NCC COMPLIANCE

When installed in accordance with the requirements of this technical guide, XLT Brace and XLT Portal are certified (by registered professional engineer) as compliant with the following structural performance requirements:

NCC2022 Volume 1: B1P1(1), B1P1(2) (a), (b) and (c), B1P2 (a) and (b). NCC2022

Volume 2: H1P1, H1P1(2) (a), (b) and (c), and H1P3 (a) and (b)

Please contact XLAM for a copy of the compliance certificate if required for your project.

GENERAL PRODUCT NOTES

CONNECTIONS:

Additional structural elements connecting to the XLT Portal system shall be designed in accordance with AS 1720.1 and NZS AS 1720.1, as well as AS 1684.2, AS 1684.3, and NZS 3604 for nails, screws, and bolts. The joint group for design is JD5.

Alternative screw-fixed connections may be designed in accordance with a relevant European Technical Assessment (ETA), using a characteristic timber density of 430 kg/m³.

DURABILITY:

Throughout its service life, the XLT Brace & Portal elements must be protected from environmental exposure and moisture cycling that may result from:

- Direct exposure to sunlight, rain, or weather in service.
- Contact with supporting structures without adequate air gaps or damp-proof course materials.
- Placement in environments subject to extreme moisture levels or elevated humidity.

Appropriate detailing, protection, and maintenance are essential to ensure long-term durability.

TERMITE PROTECTION:

An effective termite management system must be implemented in accordance with NCC or NZBC requirements. Acceptable systems include approved physical or chemical barriers, or a combination of both.

CONSTRUCTION NOTES

The installer must refer to all project drawings and specifications and perform work to the quality standards agreed with the builder. The notes below are critical from a structural engineering and compliance perspective.

MOISTURE CONSIDERATIONS:

Products are supplied with a factory moisture content of $12\% \pm 3\%$. Variations may occur due to site conditions. Appropriate handling and on-site storage are essential to maintain suitable moisture levels. Refer to the XLAM Site Guide for detailed handling and storage requirements.

STORAGE:

When on-site storage is required:

- XLT products must be evenly supported and kept clear of the ground on timber bearers.
- XLT should be fully protected from weather exposure on all sides.
- Factory-applied wrapping should remain in place until immediately prior to installation.
- Storage areas must be dry and adequately ventilated.

Responsibility for on-site storage and protection of XLT elements rests with the main contractor upon delivery.

WORKING SAFELY WITH XLT PRODUCTS

HEALTH & SAFETY:

- Contact XLAM for XLT Safety Data Sheet (SDS).
- Follow standard Health & Safety precautions when machining timber.
- Provide dust extraction; use PPE if dust exceeds WorkSafe standards:
 - ϕ Dust mask (AS/NZS 1715)
 - ϕ Safety glasses (AS/NZS 1337)
- Ensure fall protection when working at height.
- Provide adequate ventilation in work/storage areas.

MANUAL & ASSISTED HANDLING:

- Handle XLT products as per accepted timber practice.
- Use mechanical aids where beams are too heavy for manual handling.
- Avoid dropping or dragging XLT elements.

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