Designers Handbook

The Lockwood System

November 2023 | Version 2

LOCKWOOD

Designed for good

Contents

The Lockwood System

The Lockwood System utilises solid timber tongue and groove wall planks, sarking and integrated joinery to create beautiful, strong and safe homes and buildings. The Lockwood walls and ceilings are strengthened by intersecting walls, laminated timber stiffening posts and beams. These elements are connected by tight-fitting extruded aluminium profiles creating a strong and durable structure, designed to withstand earthquakes and extreme weather events.

Design Consultation Service

The Lockwood design team offers a consultation service during the initial concept design phase, particularly useful for complex designs.

The service offers early assistance to designers to navigate through the Lockwood structural system and the intricacies that are particular to Lockwood.

Before designs are costed and consent drawings started, the design team will look at beam sizing, post placement, general details, and buildability. They may also provide suggestions to make the design more cost-effective.

Contact technical@lockwood.co.nz to book this service.

Lockwood Extranet

Designers contracted to provide concept designs or consent documentation for Lockwood building contractors can access the Lockwood Extranet, this includes:

- Lockwood Detail Manuals
- Lockwood Engineer's Handbook
- Lockwood Bracing Spread Sheet Templates
- Lockwood Standard Plans
- Lockwood Design Templates
- CodeMark Certificate
- Design Declaration Template

Please contact technical@lockwood.co.nz to register for access to the Extranet

Lockwood Product Descriptions

Lockwood Walls

The Lockwood Wall System consists of interlocking, tongue and groove wall boards in various thicknesses for use in different applications. All interior and exterior wall boards cover a depth of 172mm.

Reference

Lockwood Detail Manual, Section 2

Lockwood Specification 107/62/44 wall

Exterior Wall Options

107mm exterior wall boards, comprised of integrated cladding, insulation and interior lining. The exterior finish can be Aluminium, VG Pine or Cedar.

62mm solid timber wall boards are used in garages and export applications.

44mm solid timber exterior wall boards with Ex 50 x 50 wall battens, insulation between and overlined with Lockwood 19mm weatherboard in Aluminium, VG Pine or Cedar. Used only for intersecting internal and external walls with kick-outs or special flashing detailing.

Lockwood Detail Manual, Section 2

2-210-107

The interior timber finish on all boards is available as Lockwood Grade or Clear Pine.

Lockwood 107mm Aluminium

The Lockwood 107 board construction integrates Aluminium Cladding. You can select your preferred exterior wall colour from the 'Lockwood Sheathing Selection List.' The list includes standard Group 1 colours, as well as premium Group 2 and 3, made-to-order colour choices. All colours have an LRV greater than 25 to prevent excessive heat transfer, expansion, and contraction of the Aluminium in relation to the timber wall. (Pure Black has an LRV of 0, and Pure White has an LRV of 100.)

Lockwood Detail Manual, Section 2
2-10-107

Lockwood 107mm VGPine

Vertical Grain Pine Exterior Board is H3.1 treated, striated exterior surface. VGPine is suitable for painting or staining in a colour of choice. To prevent excessive heat transfer and board movement, the LRV of the paint or stain should be above 40.

Lockwood Detail Manual, Section 2
2-20-107

Lockwood 107mm Cedar

Cedar Exterior board is H3.1 treated, striated exterior surface which is suitable for staining. Pricing for Ceder is on application and subject to availability. When designing with 107mm Cedar board, long lengths should to be avoided as they will require more board jointers and B profiles.

Lockwood Detail Manual, Section 2
2-30-107


Clear Pine


Lockwood Grade

Interior Wall Options

Interior wall boards are tongue and groove 44mm solid timber. Interior finish is available in Lockwood Grade or Clear No2 Pine.

Lockwood Detail Manual, Section 2
2-70-107

Lockwood 35mm Sarking

Lockwood Sarking is tongue and groove 35mm solid timber. The seen face shows a V between boards, the top face is flat for installation of the roofing structure. Sarking boards have 185mm cover and are available in Lockwood Grade or Clear No2 Pine.

Lockwood Detail Manual, Section 8
8-80-107

Lockwood Structure

The Lockwood System is comprised of solid timber tongue and groove wall planks and roofing sarking. Wall panels are stiffened by intersecting walls, or laminated timber stiffening posts. These elements are rigidly connected by tight fitting extruded aluminium profiles, forming an effective dovetail between them. Consideration of the structural integrity during the early design phase of a Lockwood home is essential. Wall connections, beam sizing, beam connections, braced wall panels and stiffener post positions are particularly important for structural integrity.

The Lockwood design team offers a consultation service during the initial concept design phase, giving early assistance to designers to navigate through the Lockwood structural system and characteristics particular to Lockwood.

Before designs are costed and consent drawings started, the design team will look at beam sizing, post placement, general details, and buildability. They may also provide suggestions to make the design more cost-effective.

Contact technical@lockwood.co.nz to book this service.

Wall Stiffeners and Beam Supports

Carefully consider the placement of wall stiffeners and beam supports during early design stages. This is especially important if the client has a specific kitchen layout, furniture, or wall fixtures that they want to include. You should also think about how the roof will be supported, where posts will need to be located, and how windows will fit in.

Room lengths can be unlimited, but there is a maximum span for both interior and exterior walls before a wall stiffener is required. There is also a minimum board length between windows or corner profiles.

Span for Lockwood 107mm Exterior wall	4.5m
Span for Lockwood 44mm Interior wall	3.6m
Minimum board length between windows or corner profiles	200mm

Stud Heights

Lockwood uses a measure of boards to establish stud/ceiling heights and joinery head heights.

In a standard skillion roof design, either gable or mono-pitched, the low side ceiling height is generally 13 boards. Each board has a cover of 172mm, so 13 boards x 172mm + 10mm for the bottom tongue = 2246mm wall height. This roof pitching height is taken from the inside point of the external wall.

For a trussed roof design, the ceiling height is generally 14 boards x 172mm + 10mm for the bottom tongue = 2418mm wall height.

Board Rise Chart

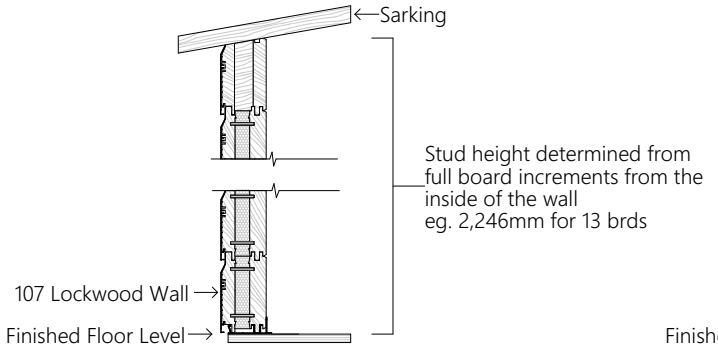
Boards	Board Height (mm)	Boards	Board Height (mm)	Boards	Board Height (mm)
1	172	11	1892	21	3612
2	344	12	2064	22	3784
3	576	13	2236	23	3956
4	688	14	2408	24	4128
5	860	15	2580	25	4300
6	1032	16	2752	26	4472
7	1204	17	3924	27	4644
8	1376	18	3096	28	4816
9	1548	19	3268	29	4988
10	1720	20	3440	30	5160

Note: add 10mm when calculating stud heights for bottom board tongue.

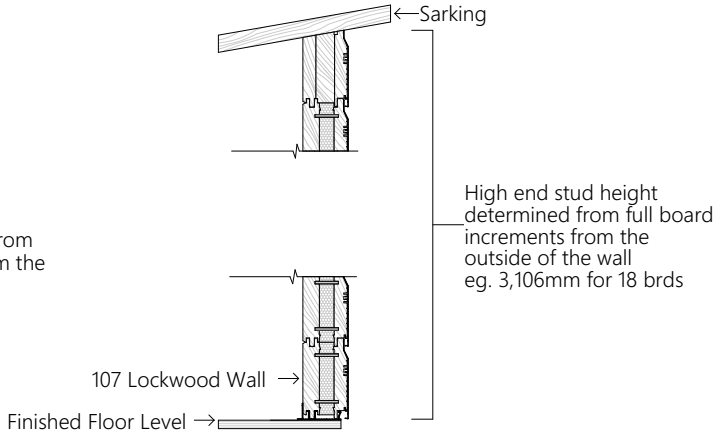
Mono-pitched Roofs

In standard skillion mono-pitched roof designs, aim to ensure that the board at the high end is as close to a full board as possible. It may mean changing the roof pitch until it works. The high end stud height is determined by measuring in full board increments from the outside of the wall.

Ceiling heights



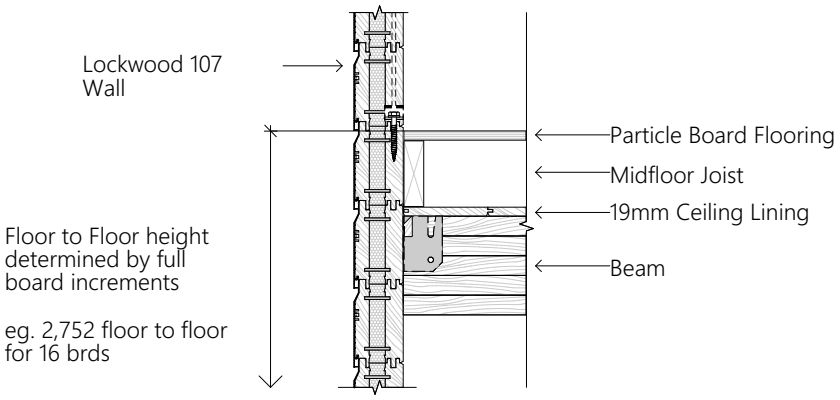
Mono-pitched ceiling heights



Lockwood manufacturing can only support full or some half degree roof pitch cuts.
The same applies to the starting stud height at the lower end, and to reduced stud heights due to kick-outs. Please check to see if we can produce to the roof pitch you are specifying.

Multi-Storey and Split-Level Dwellings

When Lockwood walls are being used over multiple storeys, the floor to floor height needs to be a full board of 172mm. This ensures that the walls are able to be fixed to the floor correctly using Lockwood componentry.



LOCKWOOD

Window and Door Frames

Lockwood windows and doors are comprised of a fabricated aluminium frame fitted into a Lockwood specific timber subframe complete with specialised profiles and flashings. This integrated joinery system is covered under the Lockwood CodeMark certificate.

Window and door joinery frames are designed to fit Lockwood board heights of 172mm. To ensure compliance and weather tightness, our head flashing and cill details must be located at a full board.

The majority of Lockwood joinery frames will have the head at the 12th board and 12 boards high is our adopted standard for full height joinery.

Over-height joinery up to 14 boards is available, subject to transportability, with the limit being 2.5m in either height or width. The other dimension is only limited by the length of the truck. If you are considering joinery over these limitations alternative delivery will need to be arranged. Contact technical@lockwood.co.nz for assistance.

Supporting information for designing with Lockwood joinery can be found on the Extranet.

- Lockwood Joinery Options Brochure
- Stellar Entrance Door Brochure
- uPVC Starke Joinery

Reference

Lockwood Detail Manual, Section 11

Lockwood Joinery Options Brochure

Joinery Options Brochure

The Lockwood Joinery Options brochure provides quick reference information about limits for panel sizes and outlines the parameters for sliders, stackers and sash options. The choice and configuration depends on windspeed and performance and needs to be carefully considered. For example, a Euroslider must be specified in Extra High wind zones. As it is an outside slider, it can not have a sash. This may then impact minimum ventilation requirements.

Additional Joinery Notes

- When selecting joinery on a design with a steep roof pitch, you should be aware of outward opening joinery such as doors and bifold windows as they may hit the fascia board or sarking.

- Level step sliders are not suitable for Extra High Wind or beach front areas. If using Level Step cills then consideration is also required for floor coverings.

Lockwood detail manual 10-255-107

- Bifold doors are not recommended in Lockwood designs.

- Gable windows have a minimum size of 200mm at the low end.

- Std Window & Door Joinery overall subframe heights are:
  - E Windows 3brds (516mm)
  - T Windows 4brds (688mm)
  - D Windows 5brds (860mm)
  - J Windows 6brds (1032mm)
  - H Windows 7brds (1204mm)
  - N Windows 8brds (1376mm)
  - R Windows 9brds (1548mm)
  - S,K,P Windows 12brds (2083mm)
  - B & F Doors 12brds (2083mm)
  - Z (Sliders/stackers) 12 boards (2083)

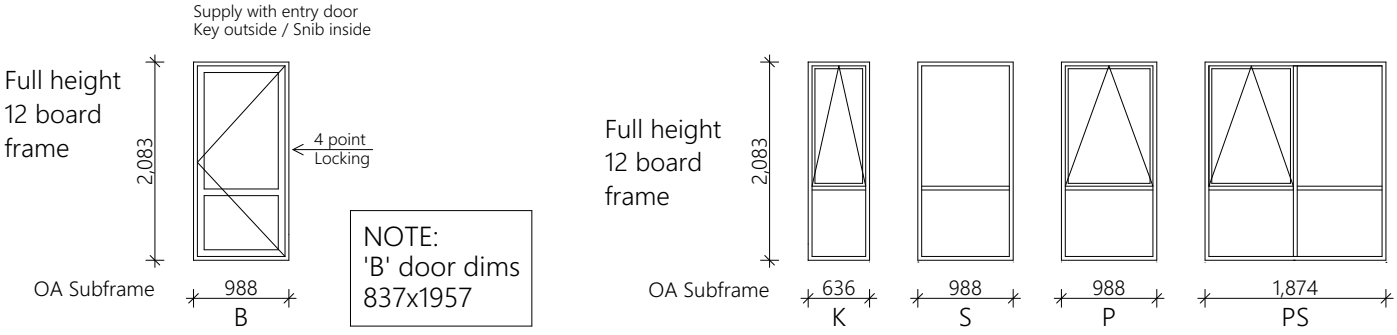
Lockwood detail manual Section 11 - Aluminium Joinery Suite

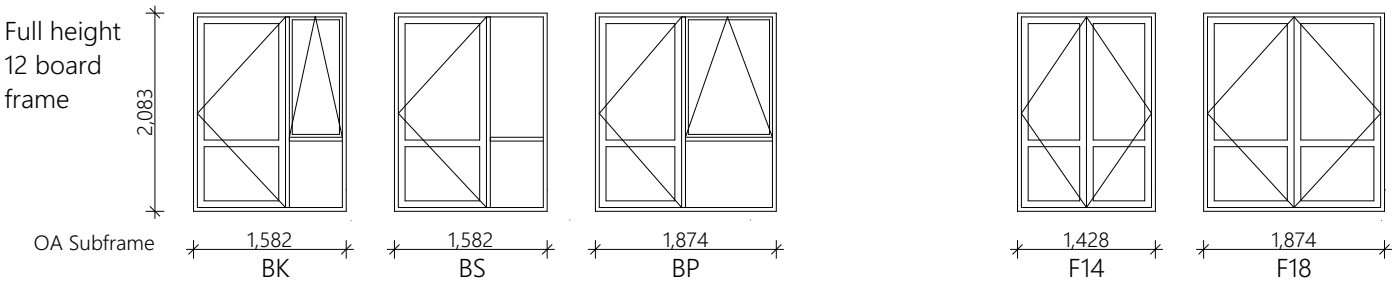
Lockwood Specific Requirements in the Joinery Schedule

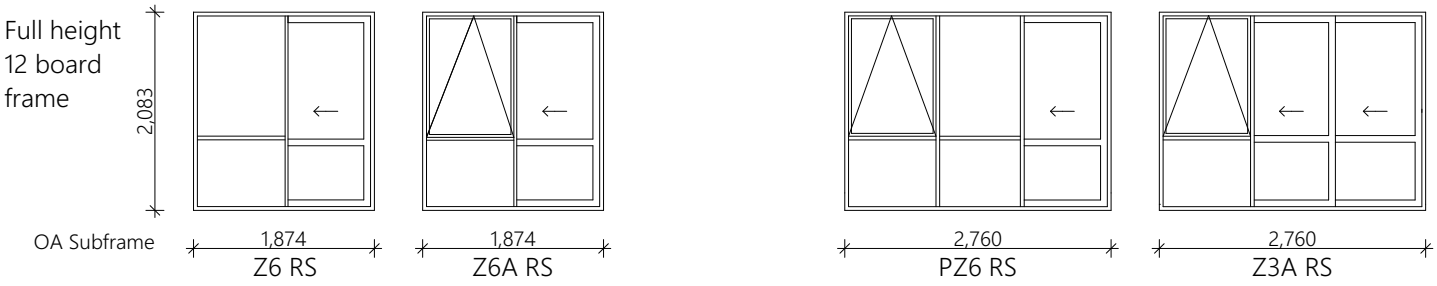
Dimensions - width and height of over-all of timber subframe
Specific reference to joinery system ie.Tasman35/Southern41 Thermal
Reference glazing/glass type, obscure glass or other special glass
Reference to special slider options and cills
Reference special doors (stellar doors model etc.)
Reference special hardware (doors handles / locks / restrictor stays / patio bolts)
Reference gable frames windows

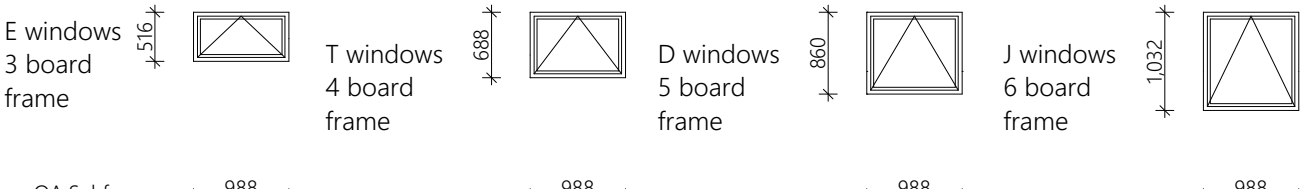
Standard Joinery Suite

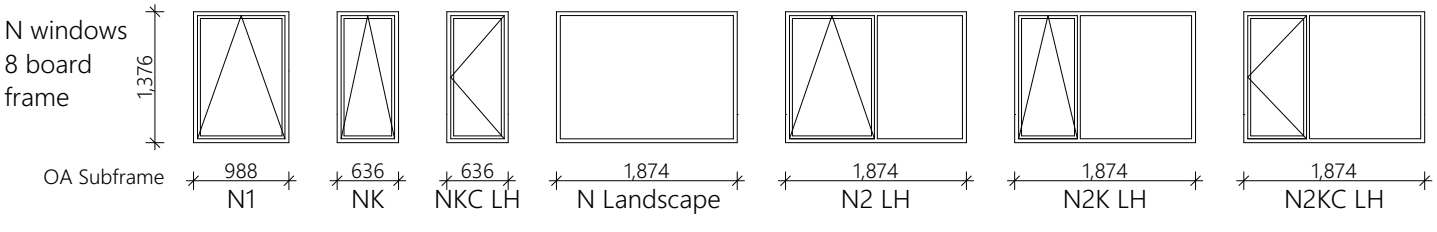
Full customisation of joinery configuration is possible as long as the height is in board height increments.

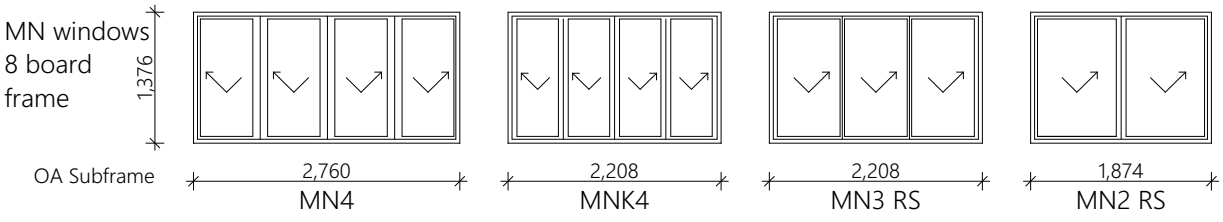


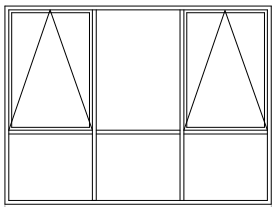




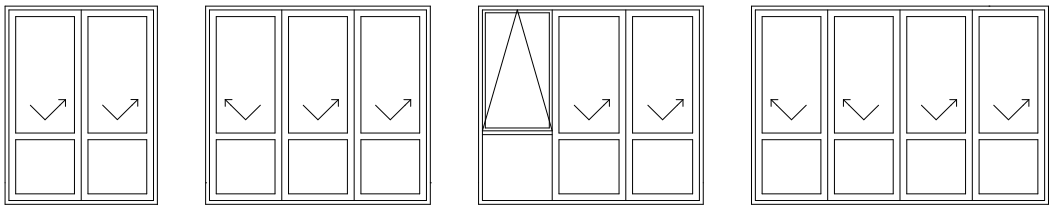




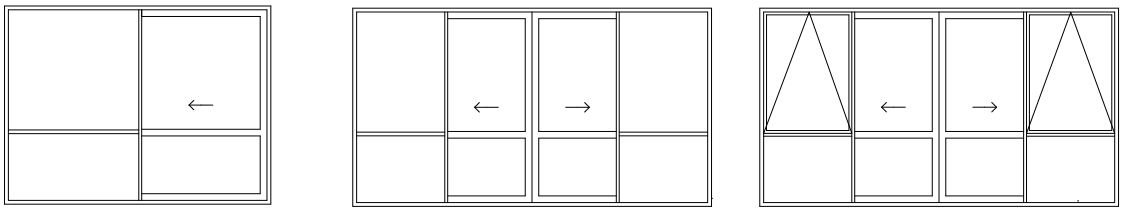




PSP

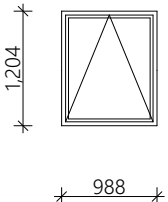


FB RS | FB3 RS | FB3A RS | FB4



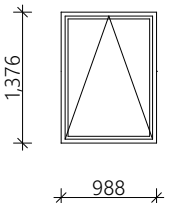
Z9 RS | Z12 | Z12A

H windows
7 board
frame



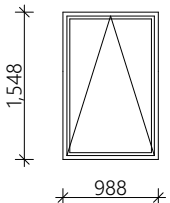
H1

N windows
8 board
frame



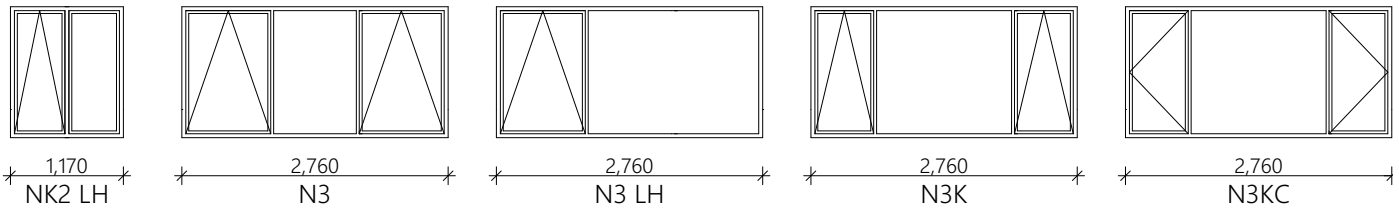
N1

R windows
9 board
frame



R1

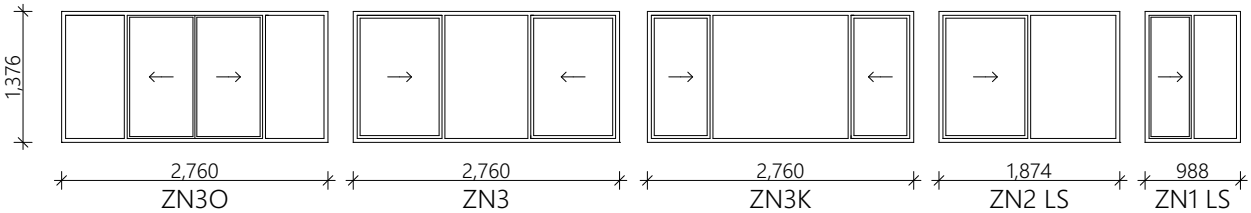
This row of Joinery is also available in the same options as the N range.



NK2 LH | N3 | N3 LH | N3K | N3KC

ZN windows
8 board
frame

OA Subframe



ZN3O | ZN3 | ZN3K | ZN2 LS | ZN1 LS

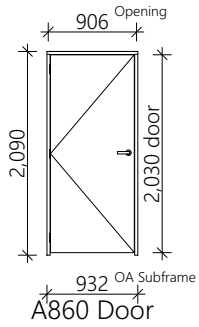
Lockwood Interior Doors

Lockwood Interior doors are mostly 2030mm paint quality flush hollow core doors. Avon V Groove Doors are also available as an option. Refer to the chart below and details in the Lockwood detail manual.

Doors frames are manufactured in the Lockwood factory and include checkouts for door handles. Hinges, striker plates and the associated hardware is provided to be installed on site. For the range of door handle options refer to the 'Schlage Form or Medio Series Brochure'

Lockwood detail manual
Section 13 - Interior Doors

Interior door

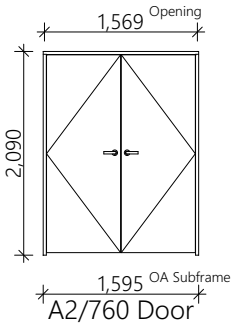


A860 Door

A doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
A660	706	732
A710	756	782
A760	806	832
A810	856	882
A860	906	932
A910	956	982

Interior double doors

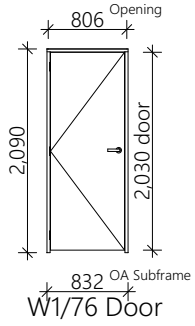


A2/760 Door

A doors are available in the following dimensions;

Door Type	Opening (mm)	Overall (mm)
A2/410	869	895
A2/460	969	995
A2/510	1069	1095
A2/560	1169	1195
A2/610	1269	1295
A2/660	1369	1395
A2/710	1469	1495
A2/760	1569	1595
A2/810	1669	1695
A2/860	1769	1795

Wardrobe door

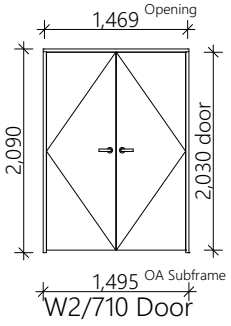


W1/76 Door

W1 doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
W1/4	456	482
W1/46	506	532
W1/5	556	582
W1/56	606	632
W1/6	656	682
W1/66	706	732
W1/7	756	782
W1/76	806	832
W1/8	856	882

Wardrobe double doors

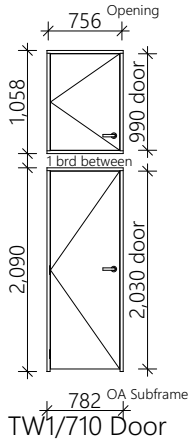


W2/710 Door

W2 doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
W2/4	869	895
W2/46	969	995
W2/5	1069	1095
W2/56	1169	1195
W2/6	1269	1295
W2/66	1369	1395
W2/7	1469	1495
W2/76	1569	1595
W2/8	1669	1695

Wardrobe, cubds over

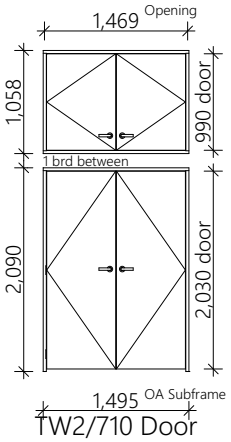


TW1/710 Door

TW doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
TW1/410	456	482
TW1/460	506	532
TW1/510	556	582
TW1/560	606	632
TW1/610	656	682
TW1/660	706	732
TW1/710	756	782
TW1/760	806	832
TW1/810	856	882

Wardrobe double, cubds over

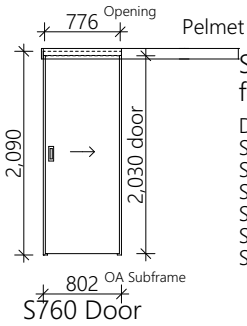


TW2/710 Door

TW2 doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
TW2/410	869	895
TW2/460	969	995
TW2/510	1069	1095
TW2/560	1169	1195
TW2/610	1269	1295
TW2/660	1369	1395
TW2/710	1469	1495
TW2/760	1569	1595
TW2/810	1669	1695

Interior slider



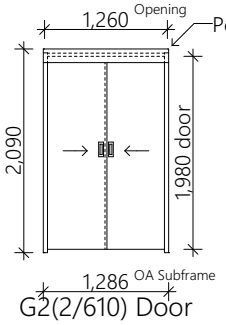
S760 Door

Pelmet length = 760 x 2 +500

S doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
S610	626	652
S660	676	702
S710	726	752
S760	776	802
S810	826	852
S860	876	902

Wardrobe double slider

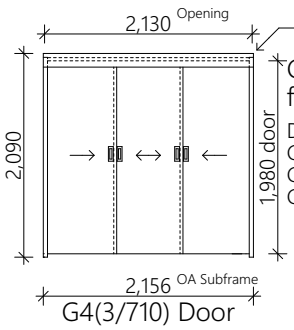


G2(2/610) Door

G2 and G3 doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
G2 (2/610)	1260	1286
G3 (2/810)	1660	1686

Wardrobe triple slider



G4(3/710) Door

G4 Doors are available in the following dimensions;

Door Type:	Opening (mm)	Overall (mm)
G4(3/610)	1830	1856
G4(3/710)	2130	2156
G4(3/810)	2430	2456

BUILDING IN NEW ZEALAND

— SINCE —

1951

NZ GROWN • NZ MADE • NZ BUILT

Compliance Pathways, Useful Documentation, and Tools

Compliance Pathways

Lockwood provides the tools to assist in the design of Lockwood residential and commercial structures that don't require Specific Engineering Design.

These tools include:

- CodeMark Certification for our complete wall system. If the conditions and limitations are met, the design must be accepted by local building authorities as 'deemed to comply'.
- Lockwood Design Detail Manual including Nailing Schedule
- Designers Condensed Structural Handbook
- Bracing Design, Bracing Approach & Spreadsheets
- Lockwood CAD detail library (design specific)
- Lockwood extranet
- In-house design and technical assistance
- Description of the Lockwood Products

Codemark Certification

We have CodeMark Accreditation for The Lockwood wall system. When a residential or commercial building is designed, installed and manufactured in accordance with the scope of the CodeMark certificate it will meet the provisions of the NZBC. Therefore, it must be accepted by Territorial Authorities as we are deemed to comply. The Clauses covered are listed within the 'CodeMark Certificate of Conformity' available on the Extranet.

Where designs exceed NZS 3604:2011 above Extra High Wind (55 m/s) the building is subject to specific design and is outside the scope of the certificate.

Designers are required to complete a 'CodeMark Designers Declaration' to confirm that all the Design Conditions of the CodeMark certificate are met.

CodeMark
CMNZ30044

Lockwood Detail Manual

The Lockwood detail manual contains all the standard details for use in the Lockwood design and manufacturing processes. A condensed version, specifically for designers, is available on the Extranet and DWG's are available on request.

Designers Condensed Structural Handbook

Section B of the Designers Condensed Structural Handbook will assist in the design of Lockwood residential structures for New Zealand wind and earthquake conditions. The data in this section of the handbook has been based on design and testing carried out in strict accordance with the verification Method B1/VM1 of the NZBC Handbook.

Providing this design section of the handbook is used correctly, resulting designs will comply with the requirements of clause B1 structure of the NZBC.

The handbook covers:

1. Exterior Wall System, 62 and 107mm
2. Exterior Wall System,44mm (battened) with Lockwood weatherboards
3. Exterior Wall Laminated Stiffener Posts
4. Lateral Stability - Bracing Unit Approach
5. Floor Beams
6. Roof Beams
7. Dummy Rafters
8. Fascia Spans and Minimum Concrete Foundation Sizes
9. Tie rods
10. Lintel design
11. Bracing Examples

Lockwood Laminated Stiffeners

Stiffener selection charts can be found in the Lockwood Structural Handbook pages B5-B8. The wind zone needs to be established before using the charts.

Exterior stiffener posts are always a minimum of 124mmx86mm, except when required for drop posts between gable windows. These can be 86x86.

Interior stiffener posts are generally 86mmx86mm.

Lockwood Structural Handbook Section B pages B5-B8

Lockwood Laminated Roof Beams

Information and selection charts can be found in the Lockwood Structural Handbook Appendix C - Addendum 3 - B16.1. Special engineered design is required for heavy roof designs, snow load or beam spans of 8m or more.

Lockwood Structural Handbook Appendix C - Addendum 3 - B16.1

Lockwood Laminated Floor Beams

Information and selection charts for open floor loadings with GL8 and GL10 structural beams can be found in the Lockwood Structural handbook pages B12 - B14.

Lockwood Structural Handbook Section B pages B12-B14

How to size a Lockwood Beam

To calculate roof beams, use the charts in Appendix C of the Lockwood Structural Handbook. To figure out the size of your roof or floor beams, use the selection and definition of loaded dimension charts on pages B16.1. You'll need to know where the beam is going to be supported to determine the span, as the beam takes half the span between supporting points.

Lockwood Structural Handbook Appendix C - Addendum 3 - B16.1

Larger beams and spans will likely require a post at each end. The best way to attach the beams to the posts is with a Mortice and Tenon connection, but a J18 bracket can work too. If your beam size is greater than 215x86, you'll need two J18 brackets at each end.

A J18 bracket can be used to attach the beam directly to the wall If you don't have posts, but keep in mind this could cause problems if the building experiences board growth during construction.

Lockwood Laminated Fascia for Verandah Overhangs.

Information on fascia beam spans and support post footings can be found in the Lockwood Structural handbook page B23.

Lockwood Structural Handbook Section B, Page B23

Lintels

Structurally, 62mm & 107mm solid wall boards over joinery frames are generally adequate as lintels. Various options, limitations and special requirements are covered in the Lockwood Structural Handbook, section B pages 26-32.

Lockwood Structural Handbook Section B pages 26-32

If a stud height is reduced below 13 boards, as in the case of a kick-out of the building envelope, then the head of the joinery is generally placed at 11 boards so the lintel can be maintained.

Lockwood Roof Structure

Where dummy rafters are installed on Lockwood 35mm Sarking, you may need to add in E Beams to reduce the dummy rafter span. If E Beams are used, the supporting wall will then become load bearing. Additional support beams through these areas should also be considered.

Lockwood Structural Handbook Section B pages 17-20

How to Brace a Lockwood

Refer to the Lockwood Structural Handbook Section B Pages B9 – B12 and B33 – B36 for the bracing unit approach, bracing panels and bracing units.

Bracing Design, Bracing Approach & Spreadsheets

Bracing in Lockwood buildings is very similar to how bracing is calculated using the New Zealand Building Code & Clause B1 Structure. The difference is that Lockwood brace panels use sections of internal 44mm walls and external 107mm / 62mm walls.

Before You Start

- Ascertain Wind and Earthquake Zone
- Identify where the 'B' profiles are located.
  'B' profiles are used to join boards of maximum length and indicate a vertical connection in a wall. A bracing panel cannot have a 'B' profile in it.

Bracing Panel Definition

- A minimum length of 1m
- Contains at least one X profile
- Contains a minimum of two tierods - 150mm from each end
- Contains no windows or doors
- Contains no 'B' profiles
- 107mm wall panels longer than 3m with a central tie rod and 44mm wall panels greater than 2.5m with a central tie rod allow for two bracing panels within the one wall panel.

Bracing Spreadsheets

Lockwood specific bracing spreadsheets are available to designers. The spreadsheet will tell you if there are sufficient bracing panels to meet the required amount of bracing units.

- Start by populating Sheet A with job details.
- Populate the Along sheet and Across sheet
- Bracing will be calculated as the information is entered, giving a Pass or Fail result at the bottom of the sheet.
- If the spreadsheet shows a Fail result, an engineer is required.

Lockwood Specific Requirements: Bracing Plan

The Lockwood walls are braced using steel tierods and profiles as per the above. The tierods need to be shown on the bracing plan at the end of each bracing panel (symbolised by a circle with a cross through it)
The general rule of thumb for 107 exterior walls is 2.7m max c/c for sarked & 2.1m for trussed. Interior walls 2.6m max c/c.

H1 Compliance

When designing Lockwood buildings, you can meet H1 requirements using the same tools as a conventional build. This includes both the Schedule Method and the Calculation Method.

If using the calculation method, keep in mind that a lower glazing percentage can dramatically affect your roof insulation requirements and subsequent building costs.

Common Lockwood element R-values:

Element type	Option	Built R Value
Wall systems	Lockwood 107mm wall	2.1
	Lockwood 44mm wall - batten - Weatherboard	2.04
	Lockwood 62mm wall	0.64
Joinery - Thermally broken aluminium	Standard Double Glazing	0.32
	Low-E2 Double Glazing	0.42
	Low-E4 Double Glazing	0.5
Joinery - Cold frame aluminium	Standard Single Glazing	0.15
	Standard Double Glazing	0.26
	Low-E2 Double Glazing	0.33
	Low-E4 Double Glazing	0.37
Joinery – uPVC*	Standard Double Glazing	0.4
	Low-E2 Double Glazing	0.55
	Low-E4 Double Glazing	0.69
Roof - Lockwood sarking 190x45 rafters - R5.0 batts	Rafters @ 900ctrs	4.98
	Rafters @ 600ctrs	4.76
	Rafters @ 480ctrs	4.6
	Rafters @ 400ctrs	4.46
Roof - Lockwood sarking 300x45 I-Rafters - R7.4 batts*	Rafters @ 900ctrs	7.76
	Rafters @ 600ctrs	7.69
	Rafters @ 400ctrs	7.58

*These construction elements have a sizeable effect on building costs

Design Plans - Lockwood Specific Requirements Checklist

	Stud heights 172mm modules (have these been maximised as much as possible)
	Check the minimum board length is 200mm
	Roof pitches (do these fit in with the board modules-are any open out joinery frames an issue)
	The face of exterior walls overhangs the subfloor by 19mm, so all subfloor/foundation overall dimensions need to make allowance for the overhang.
	Include note, “all foundations to be set out from Lockwood production drawings “
	Flashing baseboard configuration timber or aluminium options-Timber (A & B Type) or Alum (C & D Type) or VG pine or Cedar weatherboard-See section 1 Lockwood Detail Manual
	Exterior wall connections (are these std Lockwood details)-show exterior wall finish
	B profiles indicated on the floor plan (over length wall boards have been split into two there are maximum wall lengths)
	Joinery (do these fit in with the board modules use Lockwood labels where possible)
	Full height ranchsliders (are these inside/outside sliding, non-recessed, recessed or Level step sills)
	Extra high wind Zone – no sashes are allowed in ranchsliders, so alternative joinery options need to be considered to achieve the minimum ventilations requirements
	Joinery sizes (2.5m max size in one direction)
	Gable frames (min 200mm height at the lowest point)
	Beam to stiffener connections (post positions)-use Lockwood labels
	Wall panel sizes (4.5m for exterior walls & 3.6mm for 44mm walls)
	Correct wall stiffener sizes (Check wind zone)
	Can you do the bracing or does the design need to be engineered
	Correct beam sizes to roof spans
	Electrical/data requirements (these are critical) Note: Lockwood Electrical -The electrical/data/ security holes are drilled in the factory during manufacture – so positions and number of holes have to be finalised on the floor plans submitted for production.

Relevant Reference Information Available

Selections

- Lockwood exterior colours brochure
- Altus colourscape brochure
- Lockwood joinery options brochure
- uPVC Starke
- Schlage Form or Medio series brochure

Compliance

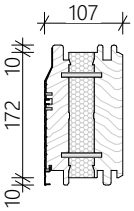
- CodeMark Certificate of Conformity
- CodeMark Designer's Declaration
- Designer's condensed structural handbook March 2015
- Designer's condensed Lockwood detail manual
- Nailing Schedule
- Lockwood Specification
- Lockwood wall bracing spreadsheet

Other Useful Documents

- Welcome to Lockwood
- Lockwood Extranet
- Carrying out minor alterations to a Lockwood home

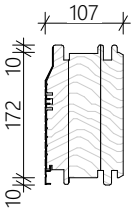
A set of Lockwood details in CAD specific to your design are available on request.

Lockwood Product Reference



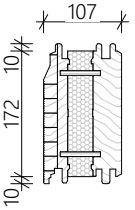
107 Aluminium Exterior Boards
Lockwood 107mm exterior board with aluminium cladding and PIR insulation.

See Lockwood exterior colours brochure for colour options.

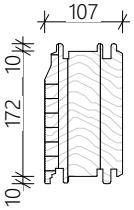


107 Aluminium Solid Exterior Boards
Lockwood 107mm laminated exterior board with aluminium cladding.

used on side walls as top boards and can be used for lintel design.

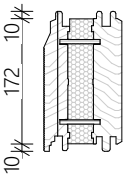


107 VG Pine Exterior Boards
Lockwood 107mm exterior board with laminated vertical grain pine cladding and PIR insulation.

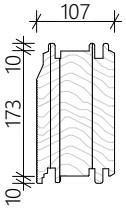


107 VG Pine Solid Exterior Boards
Lockwood 107mm laminated exterior board with laminated vertical grain pine cladding.

used on side walls as top boards and can be used for lintel design.

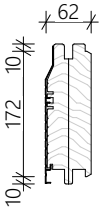


107 Cedar Exterior Boards
Lockwood 107mm exterior board with cedar cladding and PIR insulation.



107 Cedar Solid Exterior Boards
Lockwood 107mm laminated exterior board with cedar cladding.

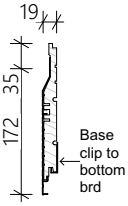
used on side walls as top boards and can be used for lintel design.



62 Aluminium Exterior Boards
Lockwood 62mm laminated exterior board with Aluminium cladding.

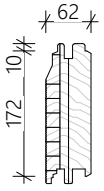
Used for exterior walls in non-habitable areas.

See Lockwood exterior colours brochure for colour options.



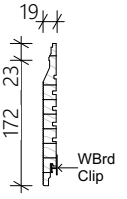
19mm Aluminium Weatherboards
Weatherboards are used where 44mm interior walls protrude outside of the thermal envelope. Installed over PIR insulation between 45mm battens at 450mm ctrs and building paper.

See Lockwood exterior colours brochure for colour options.

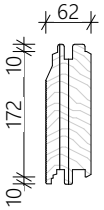


62 VG Pine Exterior Boards
Lockwood 62mm laminated exterior board with laminated vertical grain pine cladding.

Used for exterior walls in non-habitable areas.

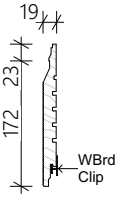


19mm VG Pine Weatherboards
Weatherboards are used where 44mm interior walls protrude outside of the thermal envelope. Installed over PIR insulation between 45mm battens at 450mm ctrs and building paper.

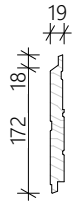


62 Cedar Exterior Boards
Lockwood 62mm laminated exterior board with cedar cladding.

Used for exterior walls in non-habitable areas.



19mm Cedar Weatherboards
Weatherboards are used where 44mm interior walls protrude outside of the thermal envelope. Installed over PIR insulation between 45mm battens at 450mm ctrs and building paper.

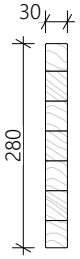


A Type flashing baseboard
Baseboards flash the bottom of our walls over the edge of the foundation over building paper.

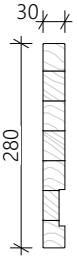
This option is generally used behind decks on timber subfloors in conjunction with the B type baseboard to cover larger joists.
On VG Pine and cedar walls, respective weatherboards can also be used for continuity.

B Type flashing baseboard
Baseboards flash the bottom of our walls over the edge of the foundation over building paper.

This option is used on concrete subfloors or below the A type on timber subfloors to cover the remainder of the boundary joist.



280 Fascia / Barge
Laminated timber barge / fascia boards conceal roof timbers and act as a partial fly rafter



280 Rebated Fascia / Barge
Laminated timber barge / fascia boards with a rebate to aid soffit construction.

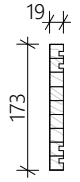
Gable Scotia - 60 x 32
To cover the junction between the top of the wall and the soffit.

Frieze Board - 95 x 32
To cover the junction between the top of the wall and the soffit.

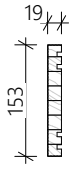
Used where a gable scotia would not achieve proper cover due to wall scallops or detailing

Garage Liner - 180 x 32
Timber liner for garage door openings.

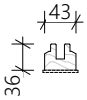
Timber B Cover Board
Laminated timber cover boards that are used on long walls where multiple board joins are needed for a neat transition.



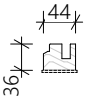
Box Corner 173
Laminated timber corner profiles are used on the external corners of VG Pine and Cedar Lockwood walls. They are used in conjunction with the 153mm corner profile.



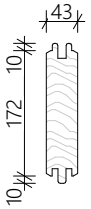
Box Corner 153
Laminated timber corner profiles are used on the external corners of VG Pine and Cedar Lockwood walls. They are used in conjunction with the 173mm corner profile.



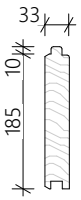
107 Head Packer
Used in the junction of the window head and the Exterior wall board above.



62 Head Packer
Used in the junction of the window head and the Exterior wall board above.



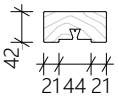
Lockwood 44 wall
Lockwood 44mm Interior wallboards



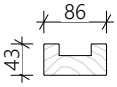
Lockwood 35mm sarking
Lockwood sarking is our structural ceiling solution. Sarking projects over the tops wall boards and are tied to them with our steel tie rods.

A skillion roof structure is directed fixed above our sarking planks.

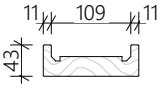
Jamb Stiffener - 58 x 43
Jamb stiffeners are used where a door is against a perpendicular wall



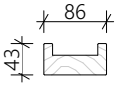
P7 Jamb Stiffener
Used where two door frames sit directly either side of a perpendicular wall



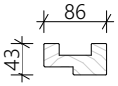
44 Capping
Used to cap the ends of interior walls that finish in the open



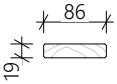
107 Capping
Used to cap the ends of 107mm exterior walls that project into the thermal envelope



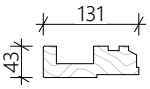
62 Capping
Used to cap the ends of 62mm exterior walls that project into the thermal envelope



Interior door jamb
Used to cap door openings to fit interior doors.

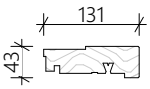


Cover Board - 86 x 19
Used to cover wall board junctions



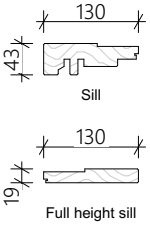
Joinery subframe - Head
Subframe profiles are integrated with your joinery during manufacturing, ready to be installed along with wall boards.

Example is indicative only as profiles differ with wall and joinery options - refer to section 10 of the Lockwood Detail Manual.



Joinery subframe - Jamb
Subframe profiles are integrated with your joinery during manufacturing, ready to be installed along with wall boards.

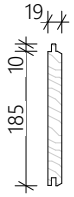
Example is indicative only as profiles differ with wall and joinery options - refer to section 10 of the Lockwood Detail Manual.



Joinery subframe - Sill
Subframe profiles are integrated with your joinery during manufacturing, ready to be installed along with wall boards.

Example is indicative only as profiles differ with wall and joinery options - refer to section 10 of the Lockwood Detail Manual.

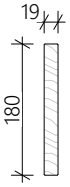
19mm Wall Lining Board
This profile matches the cover of our wall boards. Used to line packouts, damaged boards and other aesthetic issues.



19mm Ceiling Lining Board
This profile matches the cover of our sarking boards. Used to line ceilings beneath trussed roofs and other ceiling framing.

Skirting - 44 x 19
Timber moulding for finishing

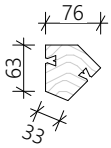
Skirting - 60 x 19
Timber moulding for finishing



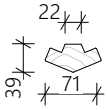
Shelving / Pelmet - 180 x 19
Used as our standard shelving fitout for cupboards and wardrobes.

This profile is also supplied to frame out pelmets over interior sliding doors.

Shelf Batten - 43 x 19
Used to frame cupboard walls to seat shelving.

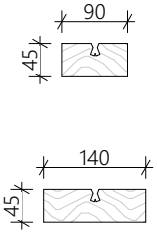


135° Packer
This packer is used where exterior walls meet a 45/135° junction.



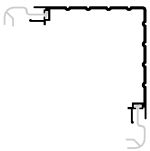
135° 44 Capping
This capping is used to cover 45/135° interior wall junctions

Wall Batten - 45 x 45
Battens are used in conjunction with Weatherboards where interior walls project beyond the thermal envelope.

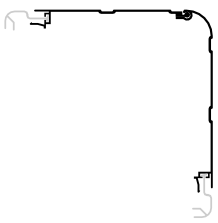


X Stud - 90 x 45 / 140 x 45
Used where a framed wall meets a perpendicular Lockwood wall.

Note: Framed walls cannot be used within our CodeMark



A Outer - 62 Exterior Corner
Used at external corners between either two aluminium walls or one aluminium and one VG Pine or cedar wall. Supplied with wing profiles.



A Outer - 107 Exterior Corner
Used at external corners between two timber clad walls, or with aluminium walls if a larger appearance is desired. Supplied with wing profiles.

C Outer - Altered 62 Exterior Corner
An altered version of the A outer for use on angles corners. Supplied with wing profiles.

L Profile - Internal Corner
Used at exterior internal corners.

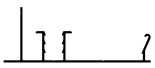
B Outer - Wall Board Jointer
Used to join wall boards on a single line where several board joints are needed due to board lengths. Supplied with wing profiles See detail 9-80-107

B Inner - Wall Board Jointer
Used in conjunction with the B profile to connect interior walls or stiffeners. Supplied with V profiles. See detail 9-80-107

X Profile
The patented 'X' profile is used for wall to wall, wall to stiffener, and wall to window frame connections.

T Profile
Used where three wall elements meet at the same point. Supplied with V profiles.

V Profile
Used with the B and T profiles at junctions involving walls and stiffeners.



107 Seating Profile
Used to connect 107mm exterior wall boards to the floor.

44 Seating Profile
Used to connect 44mm interior wall boards to the floor.

62 'S' Seating Profile
Used to connect 62mm exterior wall boards to the floor.

4 Fold Wall Flashing
Used to flash apron flashings into aluminium 107mm and 62mm exterior walls.
See detail 5-10-107

6 Fold Wall Flashing
Used to flash apron flashings into VG Pine and cedar 107mm and 62mm exterior walls.
See detail 5-20-107

3 Fold Head Flashing
Used to flash joinery frame heads into 44mm walls overlined with weatherboards.

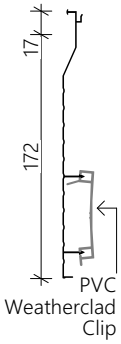
4 Fold Head Flashing
Used to flash joinery frame heads into aluminium 107mm and 62mm exterior walls.

6 Fold Head Flashing
Used to flash joinery frame heads into VG Pine and cedar 107mm and 62mm exterior walls.

B Repair - Exterior Jointer
Used for covering joints between two wall types, i.e. between 107mm and 62mm walls. Supplied with wing profiles.

C Inner Profile
For joining 44mm wall boards at a 45/135° angle. Supplied with V profiles.

Z Profile
Used in additions to join Lockwood walls to existing walls. Supplied with V profiles.



Weatherclad / C type flashing baseboard
As Weatherclad, this profile is used as an overcladding solution to renew old Lockwood homes. For this refer to our Weatherclad manual.

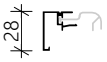
They are also used to flash our aluminium exterior walls over the edge of timber subfloors.

Weatherclad clip
Used to connect the aluminium profile to subfloors and exterior walls where overlining.

Base Clip
A clip for installing bottom 19mm aluminium weatherboards.

Weatherboard Clip
A spacer clip for installing 19mm VG Pine and cedar weatherboards.

W Profile
A profile that connects your joinery
They are integrated into your joinery frames when they arrive onsite. Supplied with wing profiles.



W Repair - Medium Leg
Used in special detailing when required such as additions and WeatherClad overlining. Supplied with wing profiles.

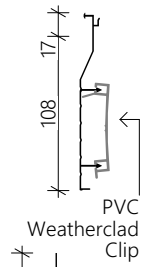
Sill trim - window
Flashes the sill subframe between the bottom of the joinery frame and wall board below.
See detail 10-20-107

Back Flashing
Used where weatherboards meet with joinery at an internal corner.
See detail 10-360-107

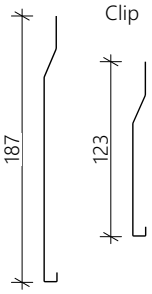
Angled Back Flashing
Used to flash 135° exterior internal corners.
See detail 2-250-107

PVC Base Flashing
Used to flash particleboard flooring behind flashing baseboards on timber subfloors.

PVC Wedge
Used to seal scallops in wallboards where walls meet joinery, corner profiles and B profiles.



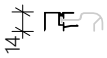
D type flashing baseboard
Used to flash our aluminium exterior walls over the edge of concrete subfloors as well as timber subfloors when used in conjunction with the C type flashing baseboard to cover larger joists.



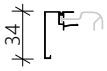
188 board Jointer
Used to cover connections between exterior walls and baseboards.

123 board Jointer
Used to cover connections between D type flashing baseboards.

Wing Profile
Used to flash corners, jointers and joinery to wall boards. Holds PVC wedges into board scallops.



W Repair - Short Leg
Used in special detailing when required such as additions and WeatherClad overlining. Supplied with wing profiles.



W Repair - Long Leg
Used in special detailing when required such as additions and WeatherClad overlining. Supplied with wing profiles.

Sill trim - full height sill
Flashes the sill subframe between the bottom of the joinery frame and the flashing baseboard.
See detail 10-70-107

Support Angle
Used to support stacker door sills over the edge of the subfloor.
See detail 10-170-107

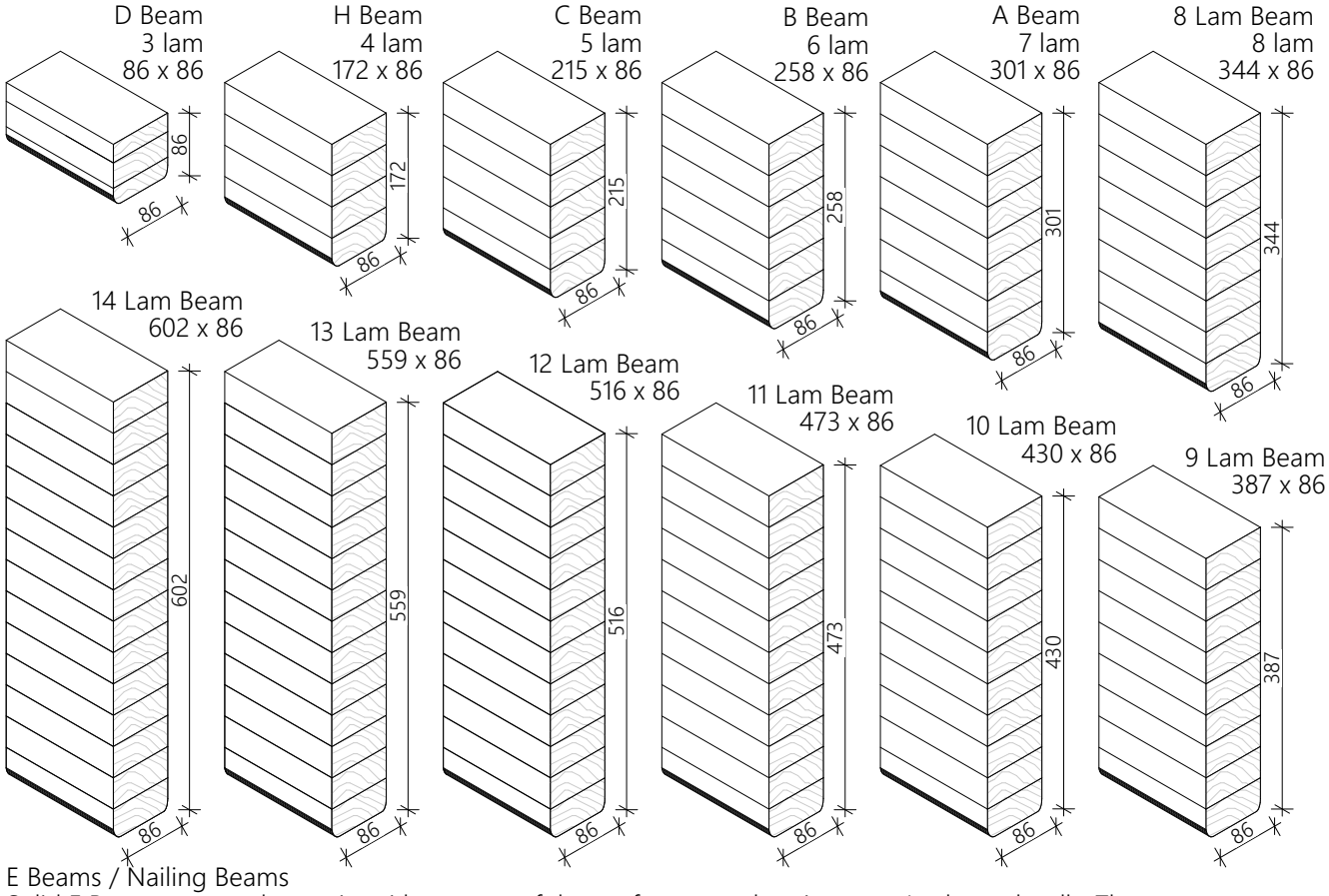
86 Aluminium Coverstrip
Used between two joinery frames that are connected with a central stiffener.
See detail 10-290-107

107 Corner Support Packer
a PVC packer to be used in conjunction with the 107 'A' Outer profile.

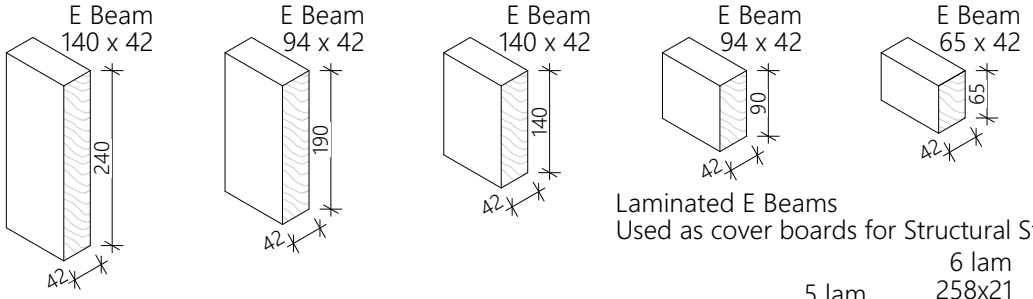
U channel
A profile that ties the interior of joinery frames to the timber subframe.

Laminated Beams
The Lockwood Structure is synonymous with laminated timber beams. Beams take roof loads down to the subfloor via walls and stiffener posts.

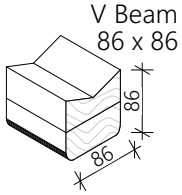
For Beam sizing requirements please refer to the Revised Lockwood Beam chart in Appendix C of the Structural Handbook.



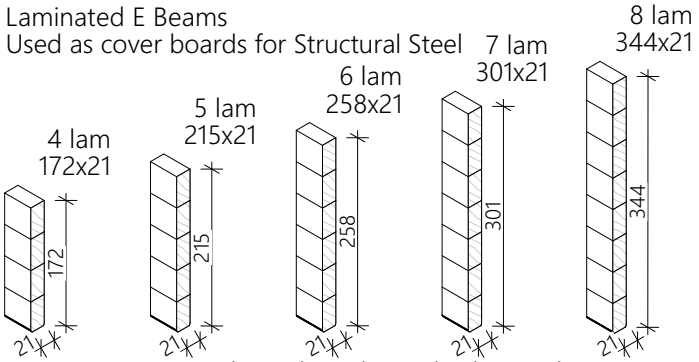
E Beams / Nailing Beams
Solid E Beams are used to assist with support of the roof structure bearing onto Lockwood walls. They are generally found along side walls, ridge walls and to increase lintel spans.



V Beams / Valley Beams
Used to support roof valley junctions



Laminated E Beams
Used as cover boards for Structural Steel

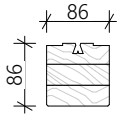


Note: 19mm x172 lining board can also be used.

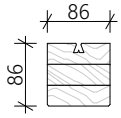
Laminated Stiffeners & Posts
Laminated stiffeners and posts are used to provide stiffness to long uninterupted wall spans and to support beams. On exterior walls, a stiffener is required for every 4.5 meters of uninterupted wall. For Interior walls this is a 3.6m

For stiffener sizing please refer to pages B5-B8 of the Structural Handbook.

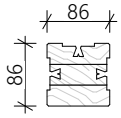
No.1 Stiffener
3 lam
86 x 86



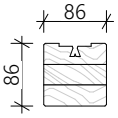
No.2 Stiffener
3 lam
86 x 86



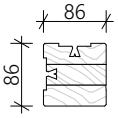
No.3 Stiffener
3 lam
86 x 86



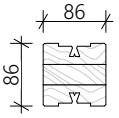
No.4 Stiffener
3 lam
86 x 86



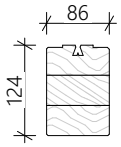
No.5 Stiffener
3 lam
86 x 86



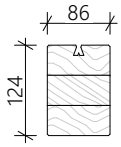
No.6 Stiffener
3 lam
86 x 86



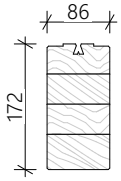
No.7 Stiffener
3 lam
124 x 86



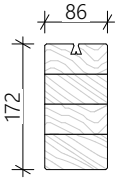
No.8 Stiffener
3 lam
124 x 86



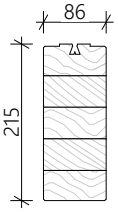
No.10 Stiffener
4 lam
172 x 86



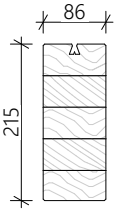
No.11 Stiffener
4 lam
172 x 86



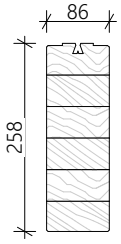
No.12 Stiffener
5 lam
215 x 86



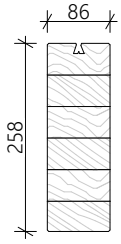
No.13 Stiffener
5 lam
215 x 86



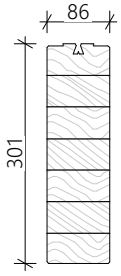
No.14 Stiffener
6 lam
258 x 86



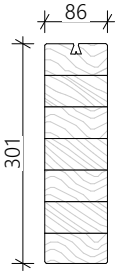
No.15 Stiffener
6 lam
258 x 86



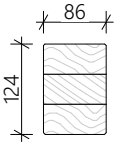
No.16 Stiffener
7 lam
301 x 86



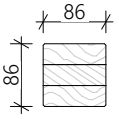
No.17 Stiffener
7 lam
301 x 86



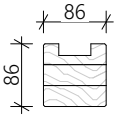
124 Post
3 lam
124 x 86



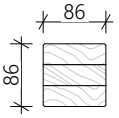
86 Post
3 lam
86 x 86



86 Capping Post
3 lam
86 x 86



86 Exterior Post
H5 - 3 lam
86 x 86

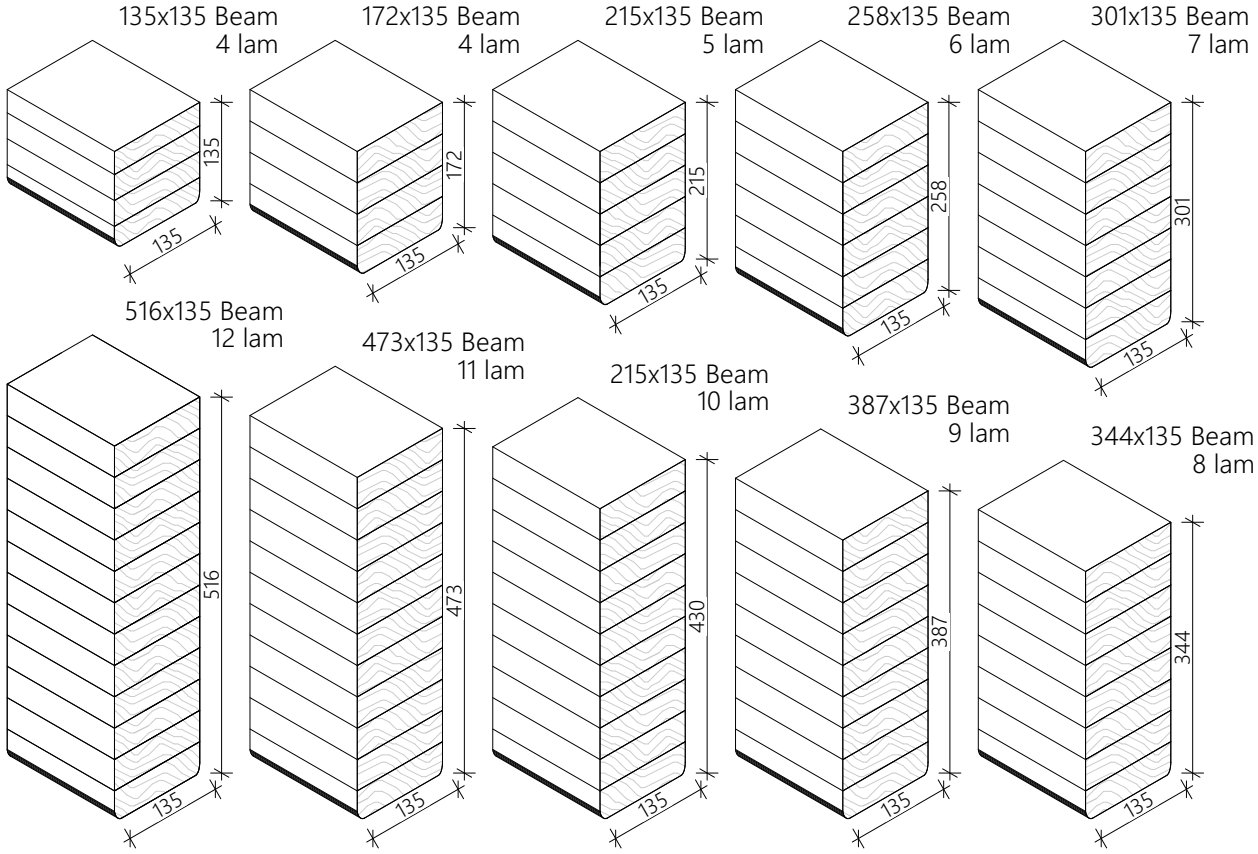


Beams, posts and stiffeners are supplied H3.1 as standard. H3.1 components are available in No2 clears timber.
H5 components are also available as preprimed, No2 clears timber.

H5 Exterior posts are used for exterior support structures such as overhangs, lean-to structures etc.
Extierior posts are not to be installed into ground.

135 Laminated Beams
135 Beams can be used architecturally where a larger aesthetic may be preferred.

For sizing you can refer to the Revised Lockwood Beam chart in Appendix C of the Structural Handbook for the equivalent depth of an 86 beam, or verify sizing through SED.



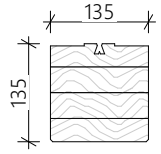
Beams, posts and stiffeners are supplied H3.1 as standard. H3.1 components are available in No2 clears timber.
H5 components are also available as preprimed, No2 clears timber.

H5 Exterior posts are used for exterior support structures such as overhangs, lean-to structures etc.
Extierior posts are not to be installed into ground.

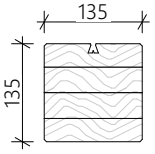
135 Laminated Stiffeners & Posts
135 stiffeners and posts are generally used in conjunction with 135 beams, but can also be used architecturally where a larger aesthetic may be preferred.

For sizes you can refer to pages B5-B8 of the Structural Handbook for the nearest lesser equivalent size, or verify sizing through SED.

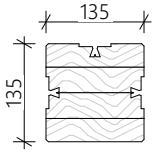
135 No.1 Stiffener
4 lam
135 x 135



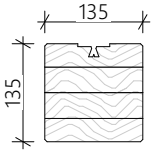
135 No.2 Stiffener
4 lam
135 x 135



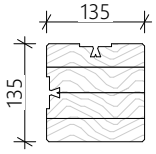
135 No.3 Stiffener
4 lam
135 x 135



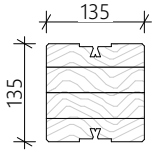
135 No.4 Stiffener
4 lam
135 x 135



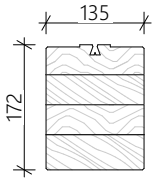
135 No.5 Stiffener
4 lam
135 x 135



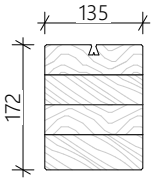
135 No.6 Stiffener
4 lam
135 x 135



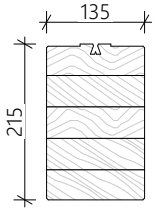
135 No.10
Stiffener
4 lam
172 x 135



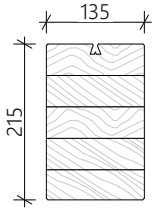
135 No.11
Stiffener
4 lam
172 x 135



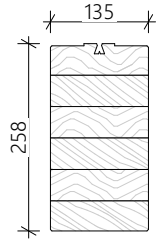
135 No.12
Stiffener
4 lam
215 x 135



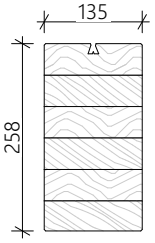
135 No.13
Stiffener
4 lam
215 x 135



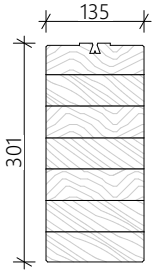
135 No.10
Stiffener
4 lam
258 x 135



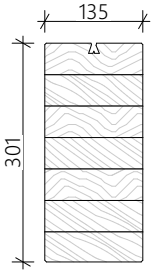
135 No.11
Stiffener
4 lam
258 x 135



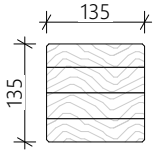
135 No.12
Stiffener
4 lam
301 x 135



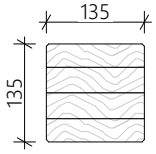
135 No.13
Stiffener
4 lam
301 x 135



135 Post
4 lam
135 x 135

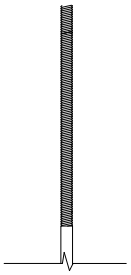


135 Exterior Post
H5 - 4 lam
135 x 135

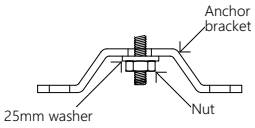


Beams, posts and stiffeners are supplied H3.1 as standard.
H3.1 components are available in No2 clears timber.
H5 components are also available as preprimed, No2 clears timber.

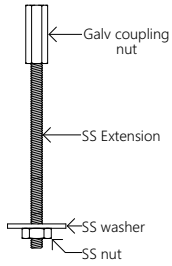
H5 Exterior posts are used for exterior support structures such as overhangs, lean-to structures etc.
Extierior posts are not to be installed into ground.



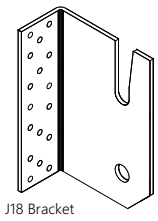
10mm Tierod
Used as a tie down and bracing element as described in the Lockwood Structural Handbook. Tierods are supplied complete with a washer and nut for the bottom and a top assembly kit determined by your roof construction.

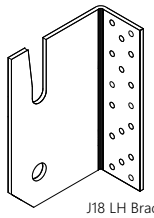


Tierod Anchor assembly
Tie rods are supplied with an anchor bracket to fix to midfloors and concrete subfloors. Relevant fixings supplied for standard applications

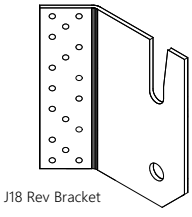


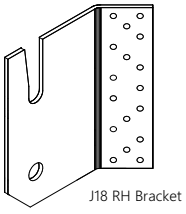
Sea Spray Kit
In high exposure zones, tie rods are supplied with stainless steel components to mitigate corrosion from sea spray. This includes a galvanised coupling nut as well as stainless steel tierod extension, washer and nut.



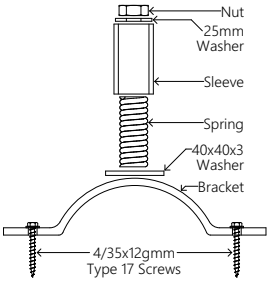


J18 Brackets
Used as a low profile connection from beams to walls and posts. fixed to beams with galvanised pins.

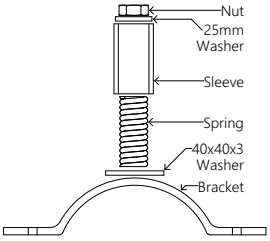




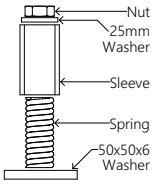
J18 LH & RH Brackets
Used as a low profile connection from beams to walls and posts on 45° angles. fixed to beams with galvanised pins.



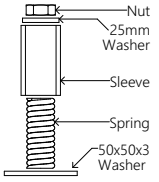
TR Top Assembly - Roofs Over 15°
Tie rods are supplied with: a nut, 25mm washer, spring, sleeve,40x40x4mm washer, tension bracket and 4/35mmx12g type 17 screws.



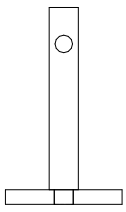
TR Top Assembly - Roofs Over 7°
Tie rods are supplied with: a nut, 25mm washer, spring, sleeve,40x40x4mm washer and tension bracket.



TR Top Assembly - Roofs Under 7°
Tie rods are supplied with: a nut, 25mm round washer, spring, sleeve, and 50x50x6mm square washer.



TR Top assembly - Trussed roofs
Tie rods are supplied with: a nut, 25mm washer, spring, sleeve, and 50x50x3mm washer.



J9 Bracket
Used to connect posts to beams and posts to floors.

Galvanised Pins
Used to fix posts and beams to J profiles.
Supplied at 70mm x 12mmØ or 120 x 12mmØ

LOCKWOOD

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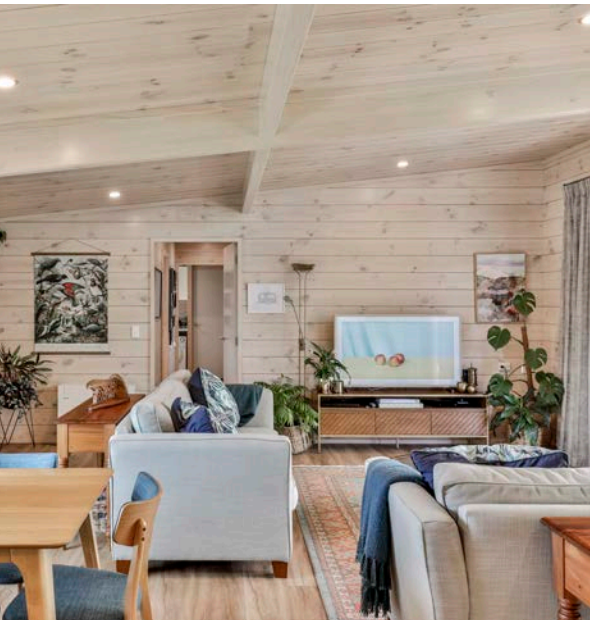

For more information email:
technical@lockwood.co.nz
lockwood.co.nz

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