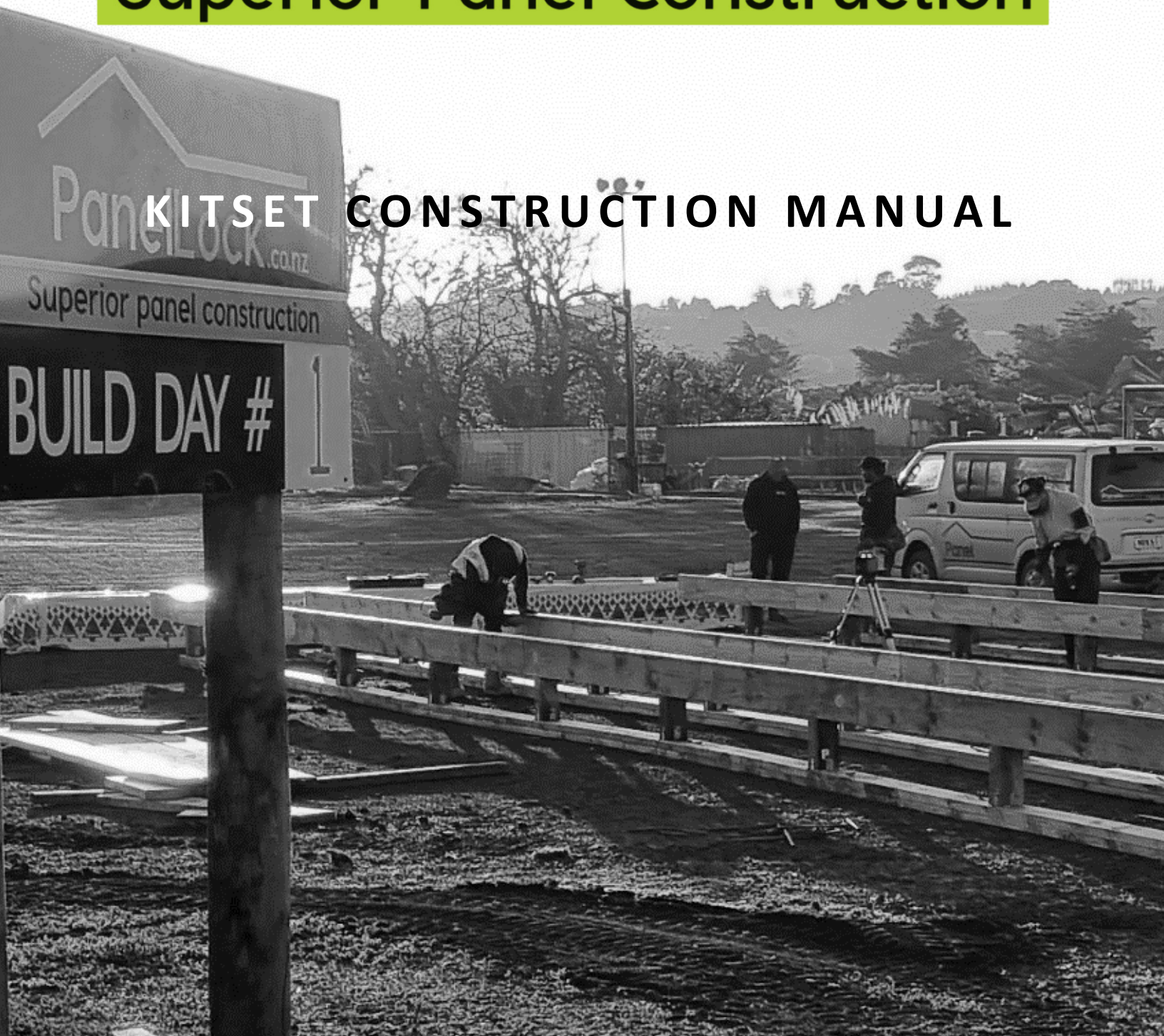
PanelLock

Superior Panel Construction

KITSET CONSTRUCTION MANUAL



ABOUT US

PanelLock has developed an innovative method in constructing quality, affordable, family homes.

This construction manual is designed to assist you in building a complete house from start to finish. Guiding you through the steps and providing you with the ability to plan on the job site as this dictates what the next steps are in the process.

PanelLock primarily focuses on low-end housing with basic designs to ensure speedy construction without compromising on quality.

We provide 36mm PanelLock Wall Panels, 18mm PanelLock Ceiling Panels, Trusses, Internal Doors and Sliders to match the 36mm Walls, H3.1 T&G Strandboard flooring, Pre-drilled Batons, and all the fixings required to screw and glue everything together.

CONTENTS

Pictured above is the PanelLock crew assembling the walls, with the kitset on the floor in the background.

Structural Panels Warranty & Maintenance Statement

10 Year Warranty

PanelLock Systems Ltd guarantees that the remanufactured panels supplied to customers have been cut in accordance with the current technical literature & appraisals at the time of manufacture to comply with the consented plans, diagrams, and details supplied; and warrants the products supplied will be free of factory workmanship defects for 10 years from the date of supply. This warranty only applies to buildings which have been designed, installed, used & maintained in accordance with the BRANZ Appraisal (481) and technical literature current at the time of construction. If any issue or defect does arise, PanelLock will work with the relevant parties to resolve the issue.

The PanelLock system uses JNL Triboard as its raw panel material, manufactured by Juken NZ Ltd. It is assessed as meeting the quality standards of ISO 9001:2000. The quality of the Triboard panels is the responsibility of Juken NZ and in the event of any fault being found with the Triboard product, PanelLock will assist as an intermediary for any warranty claims between the customer & Juken NZ Ltd.

Installation and on-site quality of the building work is the responsibility of the approved installer or LBP builder. Installation by any person or company who has not been approved by PanelLock will void this warranty.

Roofing, cladding & other systems used in the construction of the building are the responsibility of the manufacturers and/or installers of those systems.

The homeowner is responsible for the maintenance of the PanelLock System in accordance with the maintenance requirements as set out below.

Care & Maintenance

Like all homes, homes constructed using the PanelLock System require regular maintenance to meet the performance requirements
of the NZ Building Code and ensure the durability of the building. The following points are required:

- Adequate permanent ventilation to wet areas must be maintained.
- Vented windows or other forms of ventilation are recommended to all rooms to ensure adequate air circulation & prevent moisture buildup.
- Ensure internal linings, floor coverings & painted surfaces are regularly inspected & maintained to provide protection from internal moisture, particularly in wet areas.
- Ensure the exterior cladding systems (including joints, openings & perimeter junctions) are maintained to ensure adequate protection from water ingress.
- Ensure exterior claddings, window joinery & roofing is maintained in accordance with their specific manufacturer's maintenance requirements.
- Regular inspections (at least annually) must be made of the external cladding system, roofing, internal linings & finishes and any damage or deterioration repaired or restored. This includes a thorough inspection inside the roof cavity for any visible signs of water ingress or deterioration.
- Ensure PanelLock walls & ceilings are not exposed to sustained high levels of humidity, liquid water or high temperatures (max 50deg or max 35deg over prolonged periods).
- Maintain exterior ground clearances from floor level in accordance with Building Code (E2/AS1) – 150mm from permanent paved surfaces, 225mm from unprotected ground.
- Do not cut, groove or otherwise alter internal structural walls or ceiling systems without prior consent and approval of your local council authority.

PANELLOCK
SCOPE AND COMPLIANCE

The PanelLock Construction System is a structural wall and ceiling panel system used in the construction of PanelLock buildings as a substitution for conventional timber frames and linings. Ceiling panels are installed over the wall panels and supported by conventional roof framing fixed over the ceiling panels. All other aspects of the design & construction such as foundations, floors, roofs, joinery, cladding, services, and interior finishing is conventional.

BRANZ Appraised
Appraisal No. 481 [2019]

PanelLock uses Triboard for its panel products, which is a 3-layer structural panel with a robust Strandboard core & smooth MDF face providing the perfect solution for a strong, high quality and low maintenance interior surface. Wall & ceiling panels are cut to exact dimensions in the PanelLock factory, including window, doorway, and electrical cut-outs, using CNC technology to guarantee accuracy and ease of assembly once delivered to site.

PanelLock is accredited by ACTRANZ for supply of Triboard panels. Only panels which have been supplied by an accredited remanufacturer may be used as housing components.

The PanelLock system has been specifically designed using well established engineering methods and in accordance with NZS 1170 to comply with the appropriate design loadings for residential and similar type buildings. NZS 3604 and NZS 4229 can be used to specify the foundations, building platform and roof framing structure.

BRANZ Appraisal 481 demonstrates that the Triboard system comprising wall & ceiling panels and connections if designed, used, installed and maintained in accordance with this technical manual and the BRANZ appraisal will meet the following provisions of the NZ Building Code

- B1 Structure
- B2 Durability
- F2 Hazardous Building Materials

The BRANZ Appraisal is an Alternative Solution in terms of the NZ Building Code Compliance. The System as detailed in this Manual is suitable for dwellings and similar buildings within the scope outlined in clause 1.1.2 of NZS 3604, but with the following additional amendments (Fig 1.1 below):

• Single or two-story construction.

• Maximum roof pitch of 35 degrees.

• Minimum roof pitch of 3 degrees.

• Maximum wall height – as per table 5.10

• Maximum lintel spans – as per tables 6.10-6.13.

• Roof framing systems, maximum span of 12 meters.

• Snow loads shall not exceed 1 kPa on light roofs. Snow loads for heavy roofs are specific design.

• Live load on upper floor of 2-storey not to exceed 1.5 kPa.

• Decks cantilevered above first floor levels are not permissible.

• The building wind zone shall not exceed Extra High (EH) as per Section 5 of NZS 3604:2011.

• Multi tenancy or other buildings requiring a Fire Resistance Rating (FRR) of no more than 60/60/60 and acoustic rating up to STC56 to comply with Triboard Inter-tenancy Wall BRANZ Appraisal No. 593 (2008). Buildings outside this Scope must be specifically designed.

The PanelLock system has been tested and evaluated by BRANZ (under BRANZ appraisal 481) and in their opinion is expected to have a serviceable life of more than 50 years. The durability of the wall & ceiling panels is dependent on the panels and the connections remaining dry in service. It is also dependent on the panels not being exposed to sustained high humidity, liquid water, or high temperatures.

- Wall and ceiling panels must not be exposed to sustained high humidity greater than 95% RH (e.g. Sauna rooms) or to liquid water (e.g. shower enclosures)

- Panels must also be protected from sustained temperatures more than 35°C, over large areas for prolonged periods (e.g. by climate conditions or by ceiling heating installations) or if the surface temperature exceeds 50°C in localized areas for long periods (e.g. the area adjacent to a fuel burning appliance)
- Separation or protection must therefore be provided to protect panels from heat sources such as fireplaces, heating appliances, flues, and chimneys. Part 7 of the NZBC Acceptable solutions C/AS1-C/AS6 and NZBC Verification method C/VM1 provide methods of separation and protection of combustible materials from heat sources.
- There is no internal surface requirement for the PanelLock System when it is used in buildings with an SH Risk Group classification
- Panels have been tested in accordance with ISO5660 and have a Group Number of 3. When an applied finish is installed over the panels, the Group Number must be obtained from the manufacturer or supplier of the finished product or system, for the complete lining system.
- Where foam plastics form part of the system i.e. Insulation, the completed system, including any applied finish, shall achieve a Group Number of not more than 3. Foamed plastics shall comply with the flame propagation criteria as specified in AS1366 for the type of material being used.

Although Wall and ceiling panels are manufactured using melamine fortified urea formaldehyde adhesive, the vapor emissions are minimal, and panels are encapsulated by a paint coating when in service. Formaldehyde emission from the panels meets the E zero classification when tested in accordance with AS/NZS 4266.16:2004

Related Documents

• BRANZ Guidelines for the Structural Engineering Design of Houses

• NZS 1170:2002 to 2004. Structural Design Actions

• NZS 3603:1993. Timber Structures Standard.

• NZS 3604:2011. Timber Framed Buildings

• NZS 4229:1999. Concrete Masonry Buildings do not require specific engineering design.

• NZS 3602:2003. Timber and wood-based products for use in buildings.

• NZS 4218:2009. Thermal insulation - Housing and small buildings.

• BRANZ Appraisal No. 481 (2005) Triboard Construction System

• BRANZ Appraisal No. 593 (2008) Triboard Inter-tenancy Wall

PANELLOCK
SITE REQUIREMENTS

Approved Installers

To maintain a satisfactory standard of quality and as a requirement of the PanelLock Warranty, panels may only be installed under the direct supervision of a Licensed Building practitioner, who has had prior training and approval by PanelLock to install the system. Licensed Builders wanting to become approved installers of the product should apply to PanelLock ahead of starting any projects.

Site Preparation

Prior to erecting the panels, check that:

- The floor plan dimensions are correct and the panel locations have been string lined to the floor.
- The floor is level, square and true.
- The delivery truck can park in a position that allows convenient lifting of panels off the truck and onto the floor. It is well worthwhile marking the panel number on the floor in the correct position prior to commencing erection.

Site Storage

Panels must not be stored on site for longer than is necessary prior to starting or completing the job.

Weather Exposure

Because prolonged exposure to water causes the panels to expand, and this will delay internal finishing, all practical measures should be taken to keep the panels as dry as possible. Do not allow Triboard panels to sit in ponds or puddles of water. The roof should be fitted as soon as practicable and if delay is expected the panels should be covered with tarpaulins or similar to keep them dry. Sweep the floor to remove any ponded water. Ideally, panels should not be left unprotected and exposed to the weather for more than two weeks.

Roof and wall cladding should be installed as soon as practicable to provide weather protection to the wall and ceiling panels.

Assembly of Components

The assembly of panels is a simple process, but care must be exercised to put the right panels in the right place. PanelLock provides a Panel Plan that arrives in the fixings package to assist the builders during Panel Assembly. See below for an example of our PanelLock Factory Plans which shows Panel numbers on the floor plan:

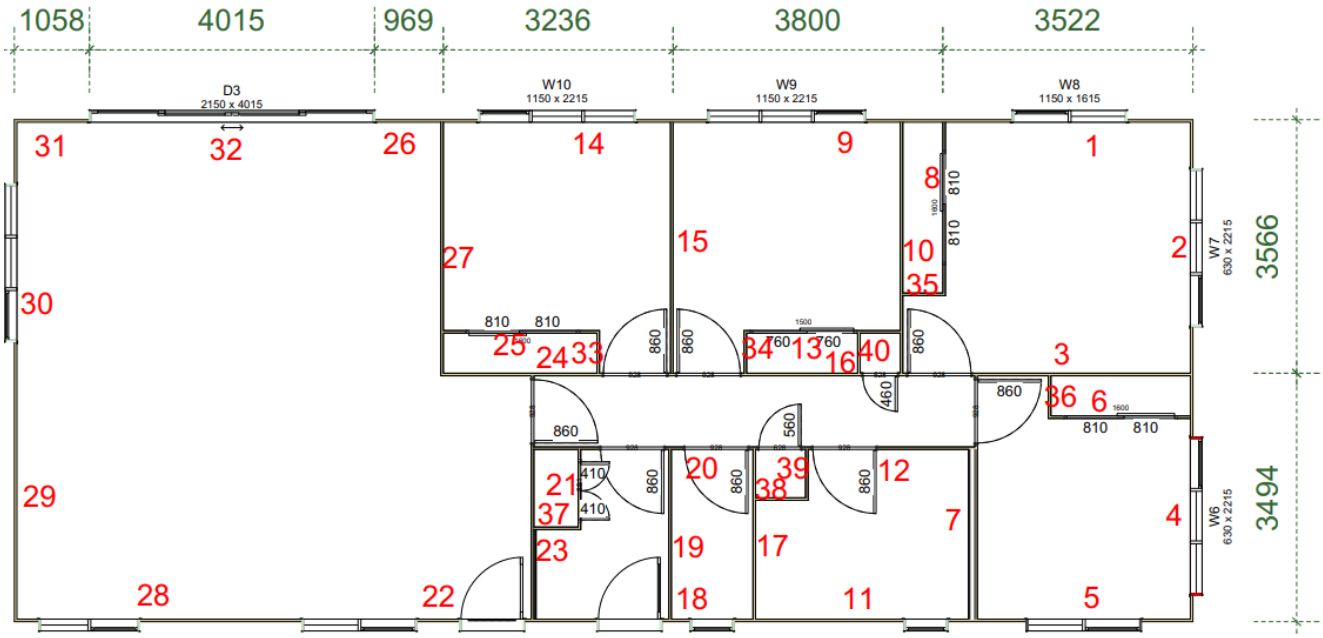


Figure 3.1 – Factory Plan displaying Panel locations.

Identification of Components

All panels are individually marked on an edge with an identifying number.

Panel Erection Sequence

It is recommended that erection starts from the "far" side of the building and that panels are assembled so that each is fixed to one already in place. PanelLock will strategically layer the Panels so that a Walls pack will have Panel #1 as the top Panel and will be the most logical Panel to erect first.

Bracing of Panels

As seen from Fig 3.1, Panels 1, 2, & 3 will be the first panels assembled; these will act as a brace to prevent the panels from falling over when they have been erected on site.

Alignment

Before the joints are fixed together, care should be taken to ensure that the **panels are plumb and that their top edges are level**. Minor adjustments to panel locations may be made prior to fixing them to the floor. Gaps 3mm or wider at joints are not acceptable and must be closed.

Joinery

Joinery may be fitted directly into the openings; the 10mm clearance used for stick framing is not required.

Ceiling Panels

Ceiling panels may be erected similarly to wall panels. Erect temporary supports in rooms where the panels are required to span more than 2.4metres.

Panel handling

Care must be taken to prevent damage to the panels during erection and to keep the panels correctly aligned and tightly butted. Personnel working on the panels during erection should ensure that they avoid marking or dirtying the finished surfaces.

Joints

Joints must be made with care to prevent cracking. Ceiling insulation must be installed prior to stopping. The moisture content of the Triboard at time of stopping must be 15% or less. Movement control joints are recommended for large ceilings.

Maintenance

Triboard panels must be kept dry during service. In bathrooms, laundries, kitchens and other similar areas, panels must be protected by water resistant linings or otherwise adequately sealed. Detailing must be such that no moisture can be trapped between the lining and the Triboard panels. Adequately detailed flashings are required at window and door openings in perimeter walls to protect the panel edges from exposure to moisture. Wall and roof cladding manufacturers maintenance requirements are not covered by this Manual.

Safe Work Practices

As when working with all wood products, appropriate health and safety precautions must be taken when working with PanelLock products, including consideration of the following:

- Full size panels can be up to 250kg, and even smaller panels and pieces can be heavy and awkward. Appropriate manual lifting and safe handling techniques must be considered and adhered to in accordance with guidelines published by WorkSafe
- It is advised to use suitable lifting machinery such as Hiab, Cranes, fork-lifts etc., using appropriately trained operators and implement adequate safety procedures and use certified lifting clamps, slings and guide-ropes to support panels during erection
- PanelLock Panels are a reconstituted wood product containing resin and wax. Although Formaldehyde emissions meet an E-zero classification, exposure to wood dust & Formaldehyde may cause irritation to the eyes, respiratory system and skin in some people.
- Wood dust may cause respiratory issues such as asthma, and / or result in dermatitis by skin contact. Wood dust is classified as a known carcinogen. Repeated inhalation of wood dust over many years may cause nasal cancer.
- Sawing, sanding and machining equipment must be fitted with dust extractors to ensure that dust levels are kept within standards laid down by WorkSafe. Adequate PPE including dust masks, eye protection and gloves must be worn when handling & working with PanelLock products.
- Offcuts, shavings and dust must be disposed of in an environmentally responsible manner that avoids the generation of dust and in accordance with the requirements of local waste authorities.
- Storage areas containing large quantities of panels must be adequately ventilated. Work areas must be well ventilated and kept clean
- Suitable PPE must be worn when handling PanelLock products including Hearing, Dust mask, Safety Glasses, Hi-Viz, Hard hat, Gloves, & Safety Boots.
- The implementation of safe work practices on site is the responsibility of the main contractor and a site-specific safety plan should be done for each project identifying suitable controls for on-site hazards. PanelLock accepts no liability for the health and safety of personnel on site.

Kitset Care & Storage

Panels will not withstand prolonged wet conditions and should be protected from rain wetting as much as possible. Packs should be kept covered with waterproof Tarpaulins until installation

Packs must be protected from direct sunlight whilst in storage

Always stack panels horizontally, supported at a maximum of 1200 mm centers, and laid on a flat, level and dry surface. DO NOT leave panels standing unsecured or leaning against other panels where they could fall causing injury or death.

To prevent moisture build up under covers ensure there is proper air circulation around the pack.

All door / window openings and exposed cut edges should be painted with an oil-based primer sealer as soon as panels are erected.

Avoid damage to the panel surfaces and edges during installation to ensure a premium finish. keep the panels clean to avoid stains and do not stand on panel surfaces

The factory applied primer coat is only intended as a protective coating. Surface sanding & filling of minor imperfections is recommended prior to painting if a fine surface finish is required.

Exposure to the weather during installation should be kept to a minimum to avoid surface damage and swelling of the board. All practical measures should be taken to keep the panels dry & a full-time building schedule must be commenced until the kitset is closed in and roofing is applied. If delays or bad weather is expected the panels should be covered with tarpaulins or similar to keep them dry.

Some raising / swelling of the outer fibres can be expected if panels are exposed to rain / high moisture levels during erection. These can be remedied by sanding back the affected areas once the building has been made watertight and allowed to dry out.

Kitset Materials Supplied from PanelLock

Panels

The following are the most common panel sizes used in the PanelLock system

1. 36mm wall panels have nominal density of 615 kg/m3, with maximum dimensions of 4000x2450mm, and weighing up to 220kg
2. 18mm ceiling panels have a nominal density 635 kg/m3, with maximum dimensions of 4000x2500, and weighing up to 110kg
3. 38mm inter-tenancy wall panels have a nominal density 695 kg/m3. with maximum dimensions of 3600x2450mm, and weighing up to 260kg
4. Panels have a reasonable degree of dimensional stability, but as common with any other wood based products, it will expand as it takes up moisture and will shrink as it gives up moisture. This expansion and shrinkage is a perfectly normal and predictable occurrence and must be considered at both the design and construction stages of a project. Failure to do so could well lead to unsightly cracking of joints in walls and/or ceilings.
5. The moisture content of panels can change with the seasons and is entirely dependent on the environment they are in.
6. Panels are factory-primed with an oil-based undercoat to help reduce water damage to the panels during the erection phase of the project. The primer is also suitable as an undercoat for top coats using oil or water based paint, or for wallpapering. The primer coat is not guaranteed to resist water damage entirely or to be free of imperfections, and some surface sanding & remediation is required prior to painting if a fine surface finish is desired.
7. Any exposed panel edges must be painted on site with an oil-based primer sealer as soon as panels are erected, to provide protection during the erection phase and during the life of the building. The paint shall be liberally applied to fully seal any exposed edges.
8. Panels may also use a 60x30x6mm HDPE packer stapled to the base of the panel at 1m crs max. to create a gap between the concrete slab and the panel. This gap must be filled with expanding foam

Flashing tape

The lower edges of any window openings also have flashing tape applied in the factory to protect against moisture during erection. This tape is not intended to replace the window flashing tape systems required to comply with E2/AS1 and cladding systems.

Flashing tape is also supplied to seal the joints of ceiling sheets from moisture ingress during installation.

Glue

We currently provide enough tubes of glue to connect the walls and ceiling panels together. Our current glue of choice is the SOUDAL Gorilla Grip 1-hour cure adhesive that has strong holding properties as well as expanding to fill any uneven surfaces.

Battens

If battens are supplied as part of the kitset, these will usually be H1.2 treated, SG8 kiln dried, 70mm x 45mm Radiata Pine with a moisture content of 18% or less.

Battens can be pre-drilled in the factory to suit correct screw pattern and pre-cut to a specified length (usually the same height as the exterior wall panel or 45mm shorter if a bottom plate is required).

Brackets & Connectors

PRYDA NPPC4 Bracket – 80x30x40mm Galv angle bracket for attaching 36mm walls to floor & attaching ceilings to roof framing

PRYDA NPPC8 Bracket – 85x30x80mm Galv Bracket for 6kn connections on exterior and bracing walls

PRYDA SBS300 Brace strap – 1mm x 300mm brace straps for 6kn connections to timber floors

PRYDA CPH190LH/RH – 190x20mm brace straps to tie trusses to Panels.

PRYDA MPMG Multigrips – 100x37x37mm Bracket for Truss Assembly suitable for high load applications such as a tie-down connector for trusses or rafters to top plates and for fixing joists to the face of bearers.

PRYDA MPFBK4590 Framing Brackets – 46x77mm for fixing joist to joist, joist to beam, truss to truss, rafter to purlin, and hangers to joist.

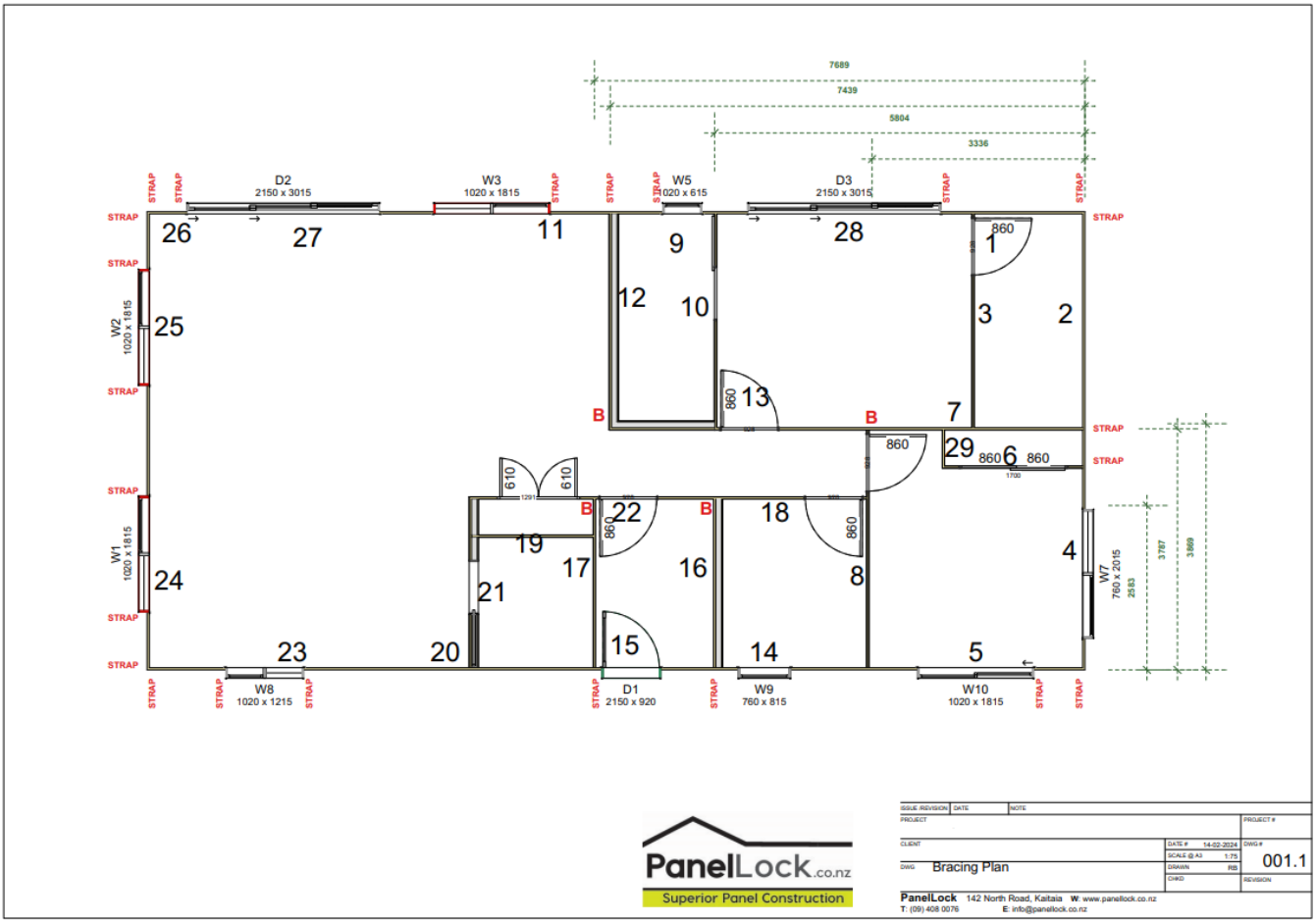
Fixings

The following fixings are supplied as part of the PanelLock Kitset Package:

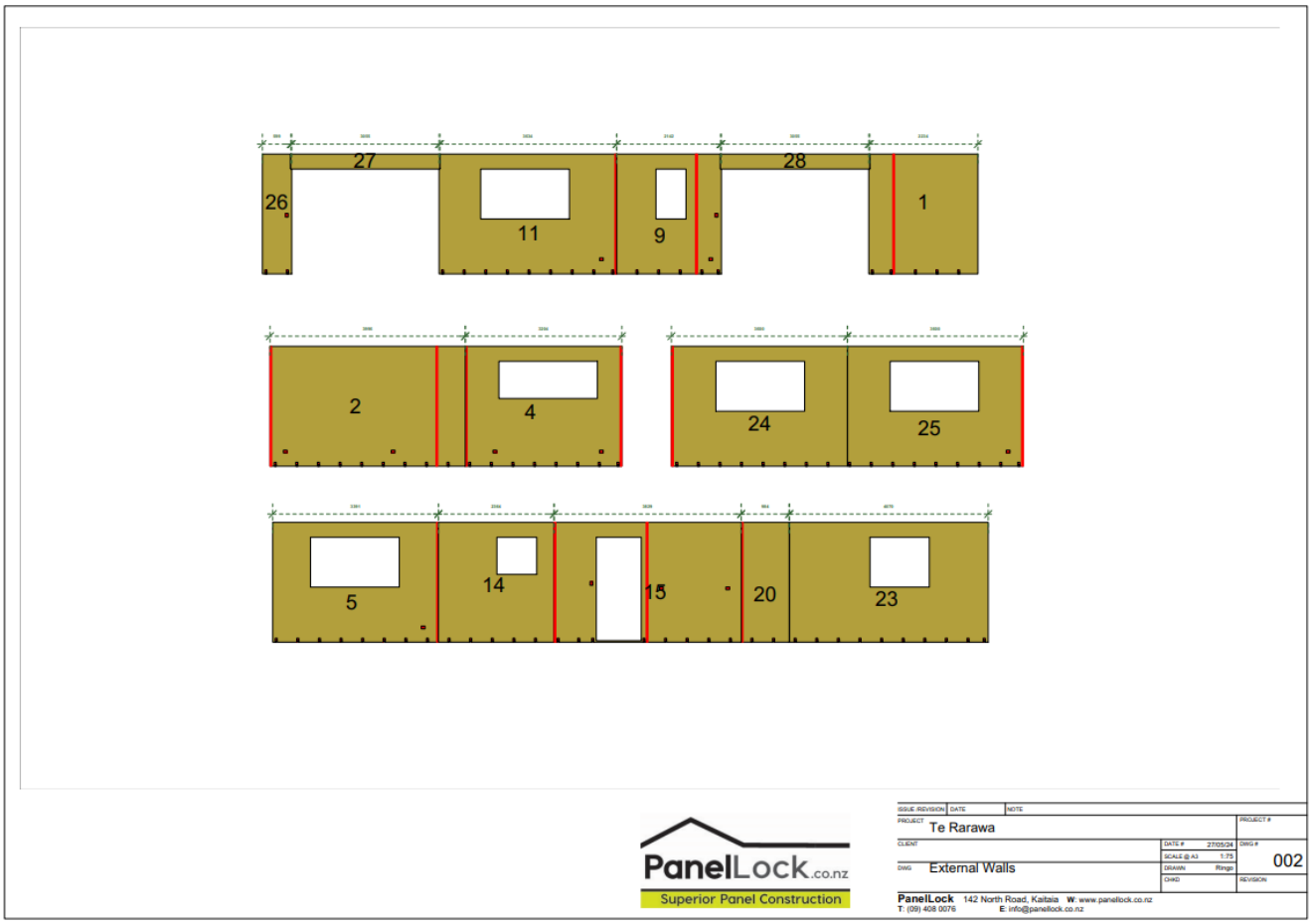
- 10G x 100 Woodscrew CSK Square YZP: Attaching external batons
- 10G x 75 Woodscrew CSK Square YZP: 36mm wall joint (mitre's & rebates) and angle screw panels to timber floor
- 10G x 65 Woodscrew CSK Square YZP: Fixing ceiling panels to top of walls & attaching 36mm external wall joiner cleats.
- 8G x 32 Woodscrew CSK Square YZP: Attaching DS03 wall brackets and DS06 bracing brackets to walls & screwing ceiling cleats over ceiling panel joins.
- 8G x 16 Woodscrew Pan Square YZP: Attaching CPC40 brackets to ceiling panels. • 30mm x 3.15mm Galvanized Product Nail: Attaching CPC40 brackets to trusses.
- M6.3 x 32 Tapper Concrete Wall Screw (blue): Attaching DS03 wall brackets to concrete floor.
- Type 17 14g x 40 Hex head Wood Screw: Attaching hold-down brackets to timber floor.
- M12 x 120 Coach Screw – Galv: Attaching DS06 bracing brackets to timber floor.
- HUS3-H 10 x 100 Concrete Screw: Attaching bracing brackets to concrete floor
- M12 x 40 x 40 x 3 Square Washer Galv: Use on all DS06 bracing bracket bolts.
- M12 tapered Washer (5 deg) Galv: Use for angle installation of DS06 bracing bracket bolts (40mm square washer still required)

Factory Plans

PanelLock provides the following plans to accompany the kitset. These are taken from an approved stamped plan from Council, and drawn up in the factory to include the Floor plan, Bracing plan, External & Internal Wall Panel Plans, Ceiling Plan.

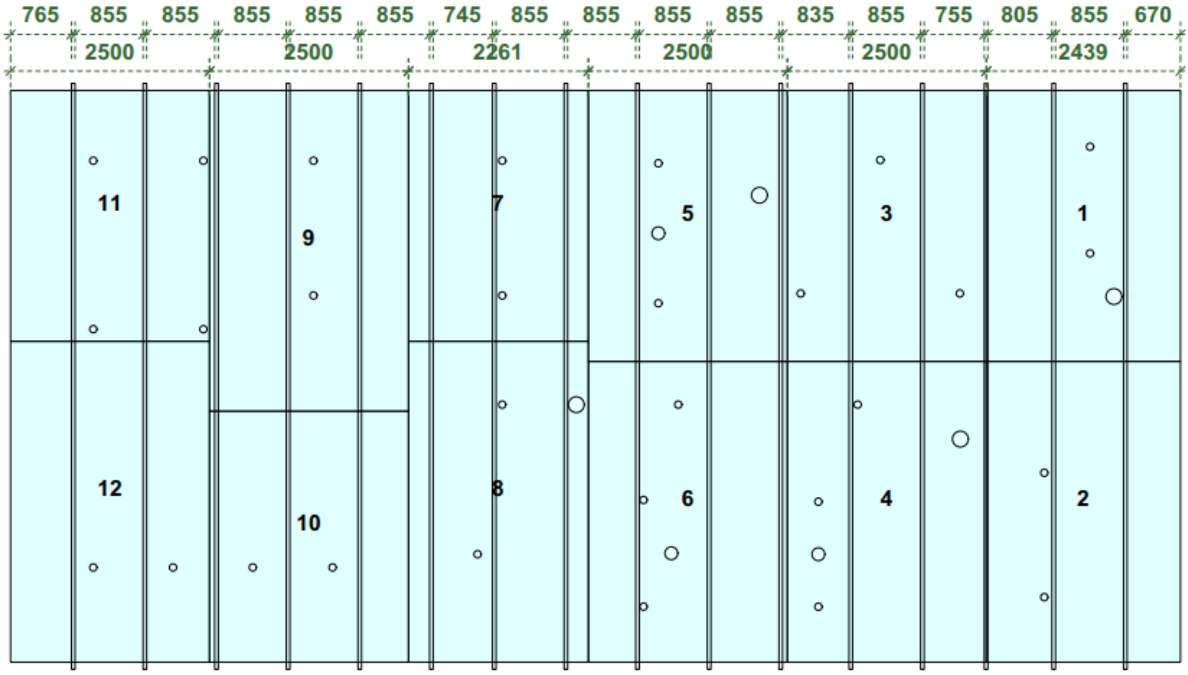


Example of Bracing Plan – Red B indicates where extra nogging needs to be placed.



Example of External Walls Plan – includes all window, door and lintel details.

Example of Internal Walls Plan – includes power points, rebates and miters.



Above - Example of Ceiling Plan

BUILD PROCESS DAY 1
SUBFLOOR

Sub Floor Assembly

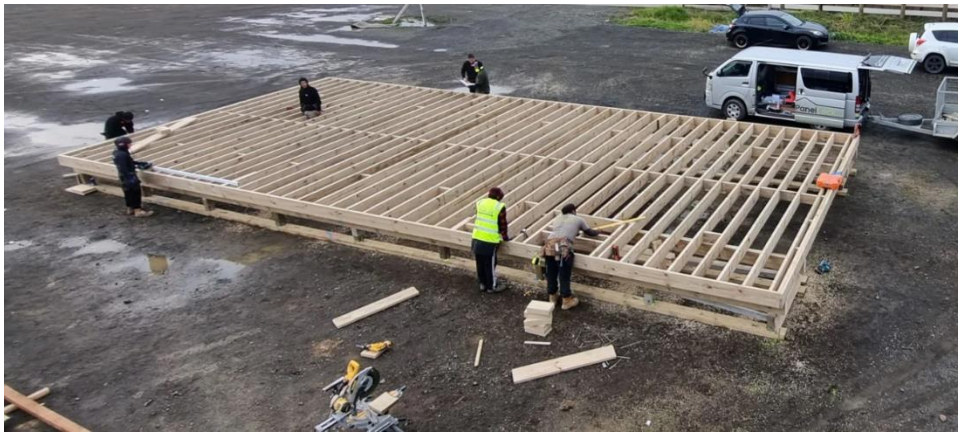
Bearers are spliced to plan to ensure they rest on piles in the correct position when transported to site.

Joists are squared and temporarily screwed to bearers using Roofing screws.

The ends of the Joists are string-lined, and trimmed to size so Boundary Joists are perfectly straight.

Take note of any accessible walk-in showers that may need modifying to the floor.

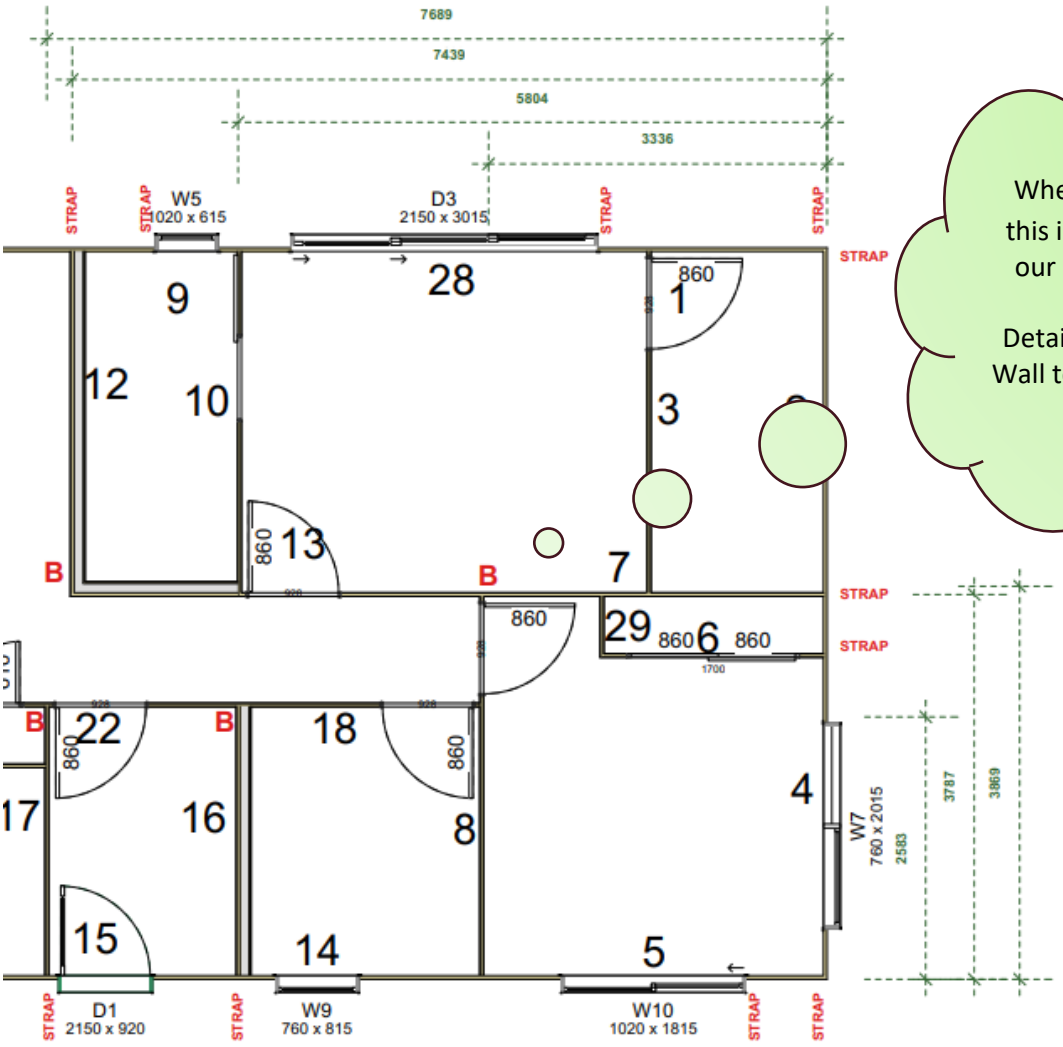
Joists are blocked out down the middle using 6x2, allows space for insulation.



Set Up for Bracing

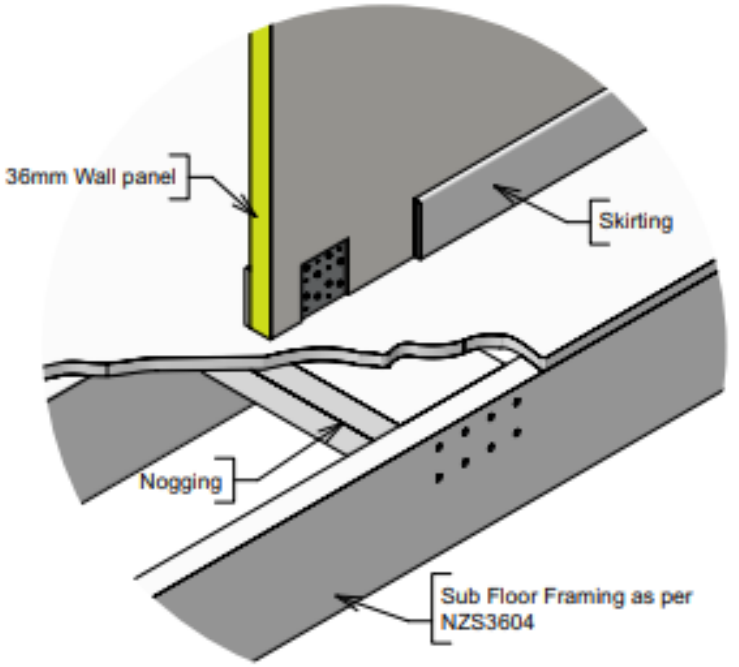
The factory plans will show where the Bracing elements need to be for our Panel System.

For an accurate Bracing plan, please enquire to E: Factory@panellock.co.nz
Especially if you do not have these on hand when assembling the Subfloor.
Pictured below is an example of our Factory Panel Plan, which is provided with the fixings package. The measurements from the floor boundary are indicated with the green text.

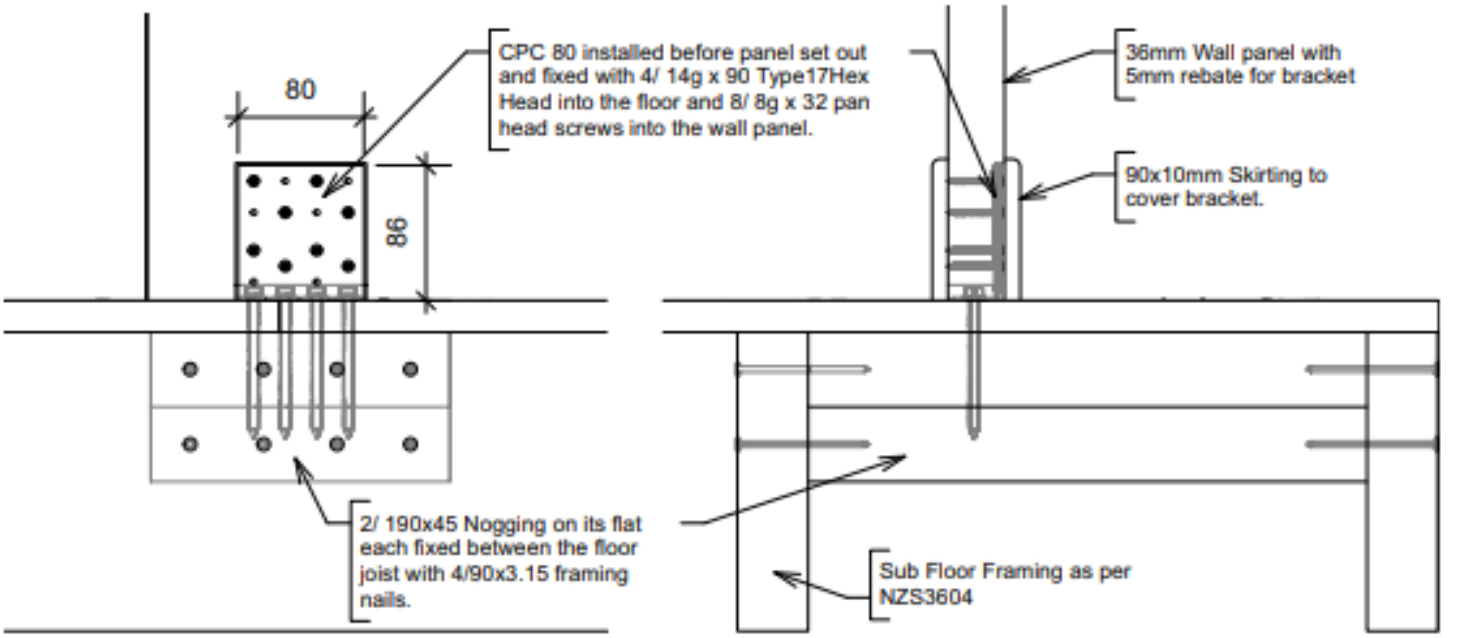


Wherever there is a **B** this indicates a need for our 6kN Floor Bracket.

Details on the PanelLock Wall to Floor Fixing on the next page.



Isometric View



Elevation

Cross Section

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TITEL: Panel Lock Construction Manual		PROJECT ID: PLCM-01
SECTION: Wall to Floor Fixing	DATE DRAWN: 18/07/2023	SHEET NO: 1
SHEET TITLE: 6kN Floor Bracket	DRAWN: Jens Marr	TOTAL SHEETS: 1
		REVISION:

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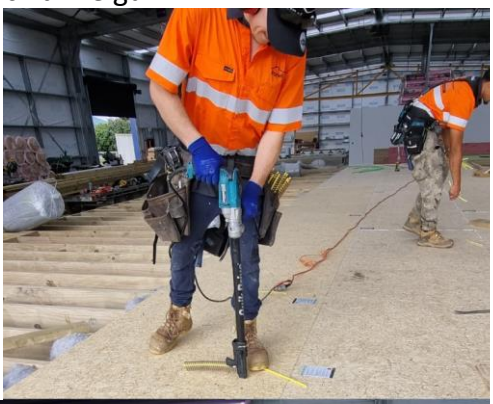
BUILD PROCESS DAY 2

UNDERFLOOR INSULATION & FLOORING

Insulation is placed in between joists and nailed or stapled to joists to hold in place.
Below the team is working along this 4 bedroom floor

Flooring is Glued & Screwed
Its best to use an expanding wood construction adhesive to eliminate squeaky floors in the finished product.
We find using the WSV Subfloor screw with the Quick Drive system is the most efficient way of securing flooring boards to the joists.
Below is the Soudal Gorilla Grip 2hr cure, WSV Subfloor screws, 3600x1200x20mm Strandfloor H3.1 T&G, and
A PanelLock team member on the Makita Quick drive gun.



BUILD PROCESS DAY 3

WALL PANELS

For the Panels to be assembled safely, it Is a requirement to ensure adequate scaffolding is around the perimeter of the floor at FFL height. This is to allow team members to safely maneuver External Wall Panels into position, and safely clamp panels together and screw in the external wall joiners.

Also ensure temporary panel supports are secured into the edge of the floor so the Panels can be positioned flush to the edge of the floor. Ensure these are placed in strategic positions (recommend sighting the factory plans for this to see where each panel lands) as you want to avoid placing these where a Panel Joiner will be required.

Panels come with a 6mm plastic packer on the bottom, this is to assist with skidding the panels around on the floor into place and keeps the panels a minimum of 6mm above the floor when construction is complete.

All Panels are Flush on the top edge to ensure they all align perfectly into place.

Good communication and teamwork make this a simple process, all walls were up on this 4 bedroom house within 5 hours.

Above the team ensures the Panels are squared off at the top.

Once all Panels have been squared off, and the dimensions are all correct, then the panels are tightly secured to the floor using bracing brackets. These ensure the Panels are securely attached to the floor, providing maximum rigidity.

CONSTRUCTION PROCESS DAY 3

CEILING PANELS

Ceiling Props are installed to carry weight of the ceiling until Trusses are secured into place. These ensure the Ceiling Panels can be put in without collapsing and creates a strong enough structure to support the team on top of the ceiling when installing the panels.

Using the Ceiling Plan provided, the team will screw the props into the walls, and secure 70x45 timber to where the ceiling joins will be. These are secured using 14Gx75mm Hex heads. This ensures that a good lap between each panel and allows the team to glue the panels together with the plastic joiners and ceiling joiners provided.

Below, the team uses a Forklift to elevate the ceiling panels to the required height.

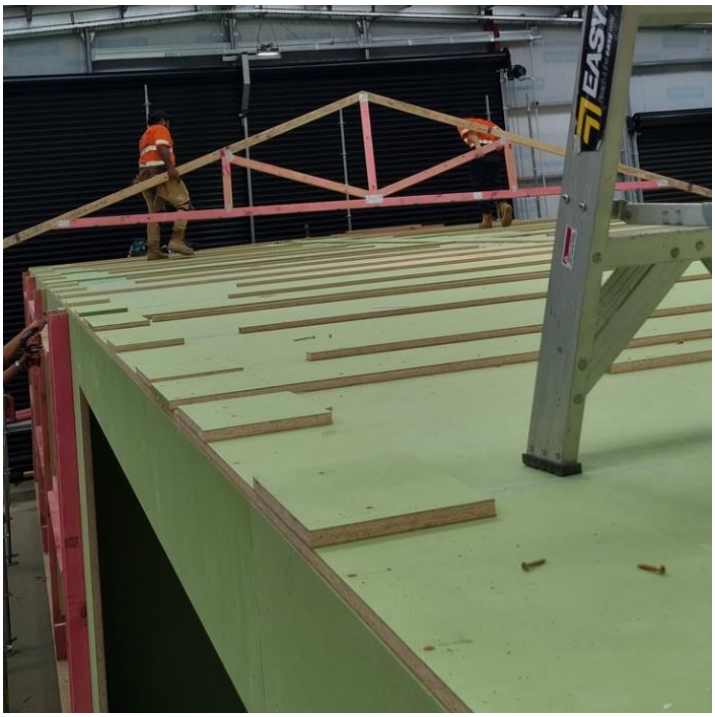
Ceiling Panels are screwed together using Ceiling Joiners, along with tongues to ensure rigidity in the ceiling panels

Above, Ceiling props hold the weight of the Ceiling Panels, and are precisely placed to support where the Panel Joins are located.

CONSTRUCTION PROCESS DAY 4

BATONS AND TRUSSES

With our Panel system, the Ceiling is propped up and supported, so the team can use the ceiling as a platform to work on top of. This allows easy handling of trusses during installation.

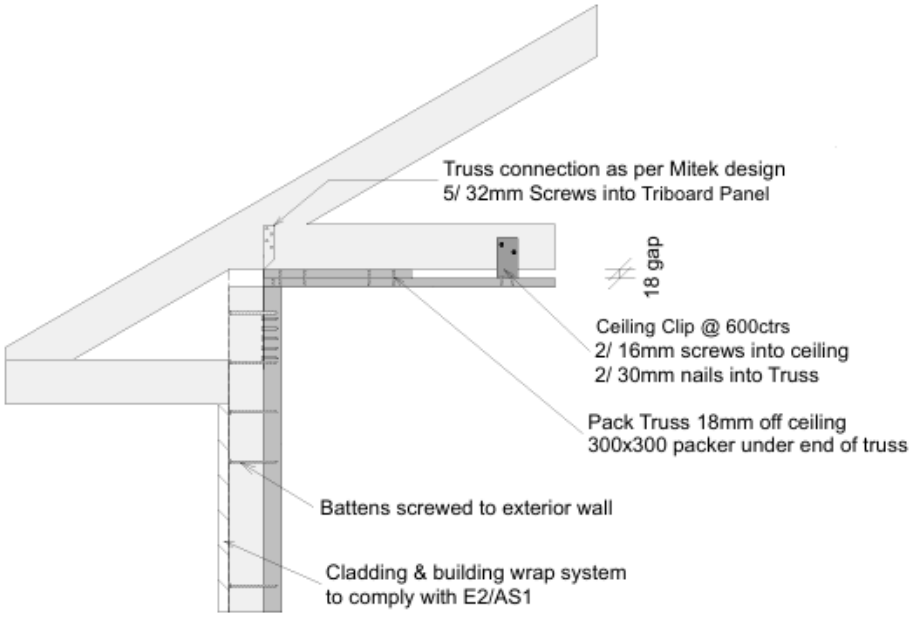


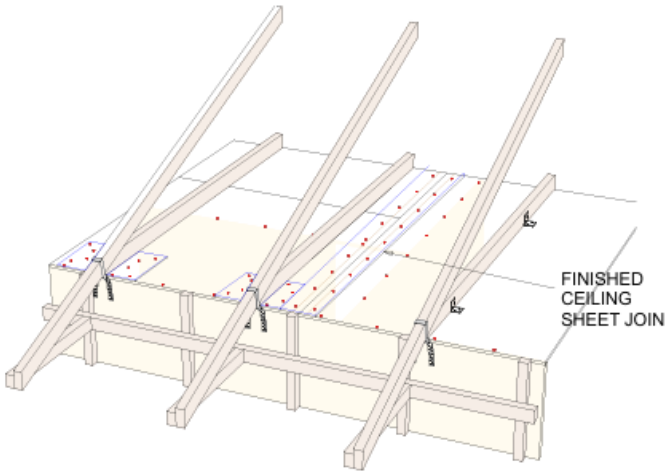
Trusses need to be supported on a 300x300mm packer, we use ceiling offcuts as our Packer. This supports the Truss on the edge of the building envelope. Trusses are secured to the edge of the building using the Pryda CPH190LH/RH brackets and screwed to the ceiling using the PRYDA NPPC4 bracket at 450 alternating centers with 8gx16mm panhead screws.

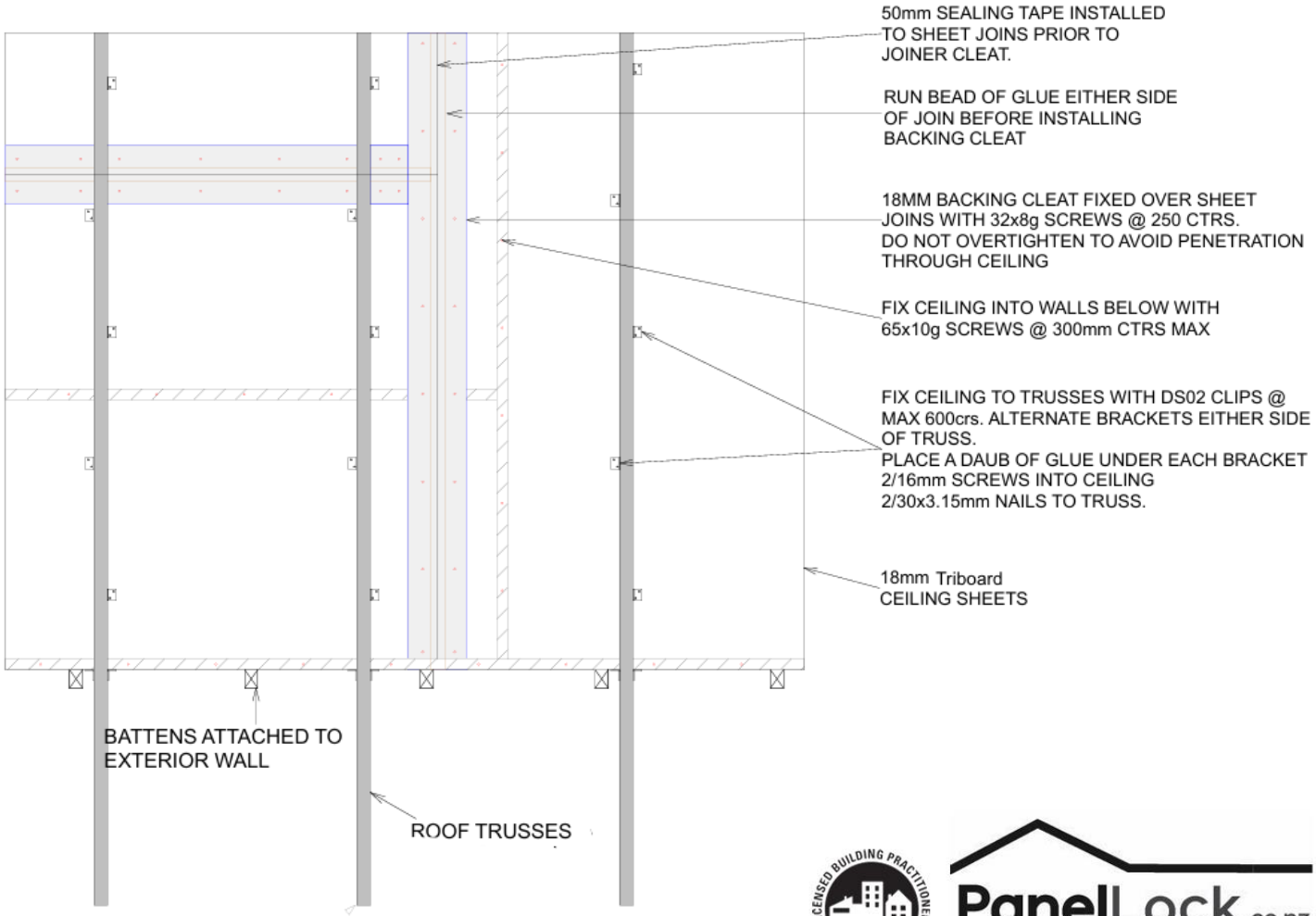
Truss Details on next page

PANELLOCK TRUSS DETAILS

Note: 18mm Ceiling packers will be supplied with the kitset.







LICENSED BUILDING PRACTITIONER BP133067 BUILDING CONFIDENCE

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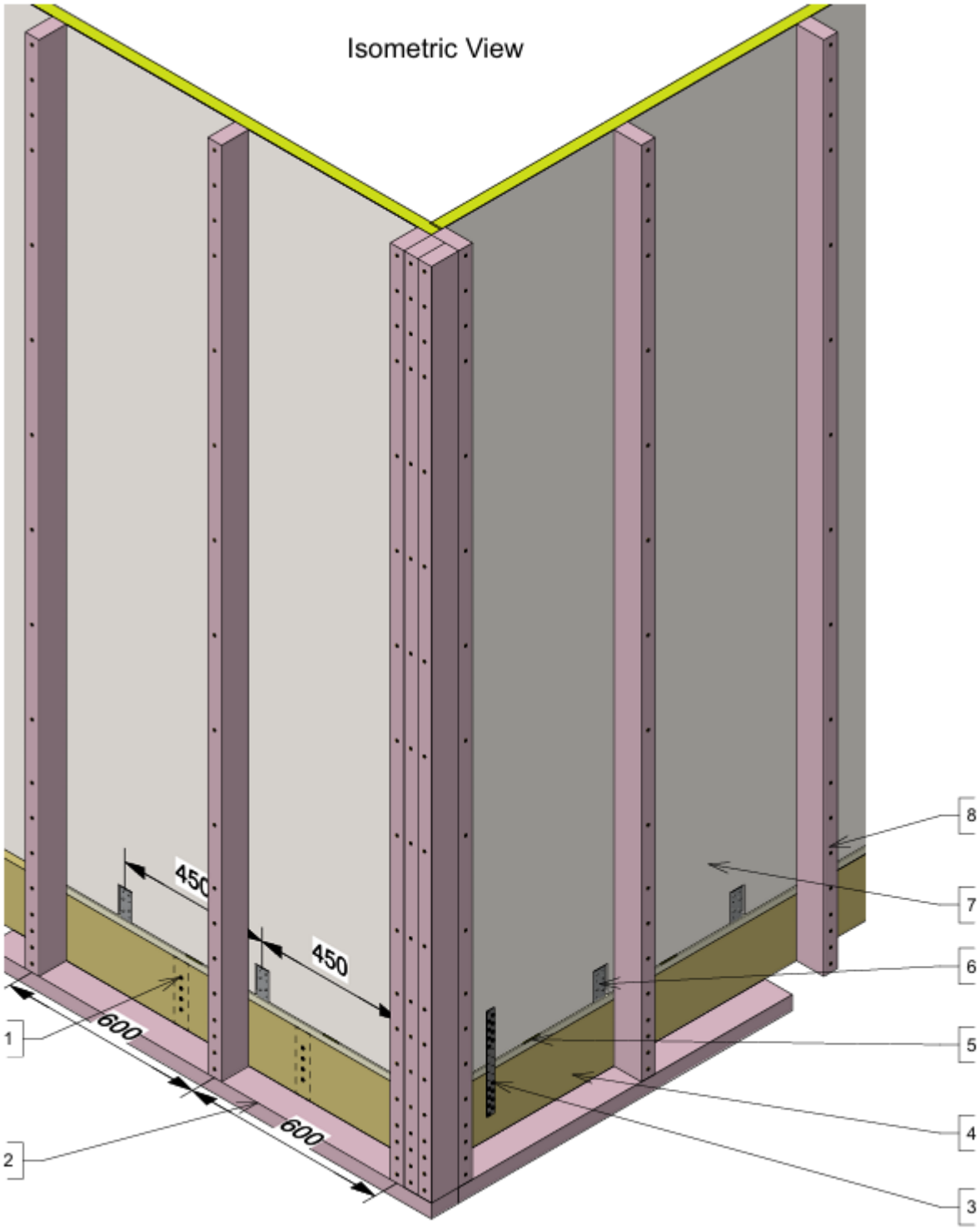
BATTON DETAILS



Notes

1. Connect cantilevered joists to boundary joist with 100 x 4.0mm Nails:8m Light weight roof = 3 Nails10m Light weight roof = 4 Nails
   12m Light weight roof = 5 Nails Additional Multigrip connection required for heavy weight roof
2. Continuous cavity closure batten.
3. 6kN 300 Strap Brace @ bracingline end and either side of doorways. Fixed to Triboard Panel and boundary joist with 8/30x3.15 Nails each end. For 12kN use two Strap Braces.
4. Sub Floor Framing as per NZS3604
5. 5mm Wall Packer @ 450 ctr.
6. Pryda Purlin Cleats NPPC4 @ 450 ctr. installed before panel set out and fixed with 2/ 14g x 35 Type17Hex Head into the floor and 4/ 8g x 32 pan head screws into the wall panel.
7. 36mm Wall panel with 5mm rebate for Purlin Cleats.
8. 90x45 SG8 Wall Battens fixed with 4/ 100x10g Screws into boundary joist (min 20mm apart). Batten to Triboard wall panel with 100x10g screws @ 270crs and 4/100x10g screws @ 100crs at each end.

TRIBOARD BATTEN FIXING INFO

Ref: Triboard Manual 2011 Section 8 – Walls

8.5.3 Wall Battens

The battens shall be as specified in Section 2.3.5 and shall have a moisture content not exceeding 18% at the time of fixing. Battens shall be of a size and spacing to comply with Table 8.2. Battens shall be used on the exterior face of all panels used as external walls, at all edges of all openings and at building corners in the building facade as shown in Figure 8.1.

Double Battens with twice the nailing as shown in Figure 8.1 are required at the following locations:-

- On the sides of openings which are both 2400 mm or more wide and 600 mm from a stiffening panel. (A stiffening panel is a panel at 90º to the panel under consideration)
- On lintel and sill edges of windows more than 2000 mm wide in Wind Zone High or Very High.
- Besides lower floor windows 1000 mm or more wide.
- On at least one edge of exterior corners.

Battens shall be fixed to the panel and adjacent structure as illustrated in Figure 8.1 and figure 8.1(A) using either hot dipped galvanised nails or screws of size given in Table 8.1. The minimum spacing for nails and screws is shown in Figure 8.1 for timber battens and in Figure 8.1(A) for Superstrand battens. Where required the nails shall be angled to prevent dimpling of the inside surface. At the top and bottom of each panel the batten shall be fastened to the panel with two screws or four nails at 100 mm centres.

Lower floor battens shall be fastened to the joist or blocking below as illustrated in Figure 8.1 using either:

- Three nails or two screws of diameter shown in Table 8.1. The batten shall overlap the joist by a minimum of 150 mm; or
- A 300 mm long G300 Z275 steel strap brace fixed with eight 30 mm x 3.15 mm diameter nails as illustrated in Figure 8.4(B).

For two storey construction the battens shall extend to overlap the above floor panel by a minimum of 400 mm and shall be fixed to the top panel with four nails or three screws. Alternatively the battens in adjacent floors may be butted and a splicing batten extending a minimum of 400 mm overlap of both top and bottom panels is fixed to each with four nails or screws.

Table 8.1 Fasteners to fix battens

Batten size	Nail fixing	Screw fixing
70 x 45 MSG 8	100mm x 4mm	100mm x 10 gauge
64 x 45 Superstrand	Not recommended	90mm x 10 gauge

Table 8.2 – Batten sizes and spacing for panels used as loadbearing walls

		Batten sizes for maximum wall height of					
		2.4m		2.7m		3.0m	
Wind zone	Loaded dimension of wall (m)	At maximum batten spacing (mm) of		At maximum batten spacing (mm) of		At maximum batten spacing (mm) of	
		400	600	400	600	400	600
Extra high	3	OK	SD	SD	SD	SD	SD
	4.5	OK	SD	SD	SD	SD	SD
	6	OK	SD	SD	SD	SD	SD
Very high	3	OK	OK	OK	SD	SD	SD
	4.5	OK	OK	OK	SD	SD	SD
	6	OK	OK	OK	SD	SD	SD
High	3	OK	OK	OK	OK	OK	SD
	4.5	OK	OK	OK	OK	OK	SD
	6	OK	OK	OK	OK	OK	SD
Medium or low	3	OK	OK	OK	OK	OK	OK
	4.5	OK	OK	OK	OK	OK	OK
	6	OK	OK	OK	OK	OK	OK

Notes
Loaded dimension as defined in NZS 3604
Wind zones as per NZS 3604:2011
OK = 70 x 45 timber or 64 x 45 Superstrand battens can be used
SD = specific design required

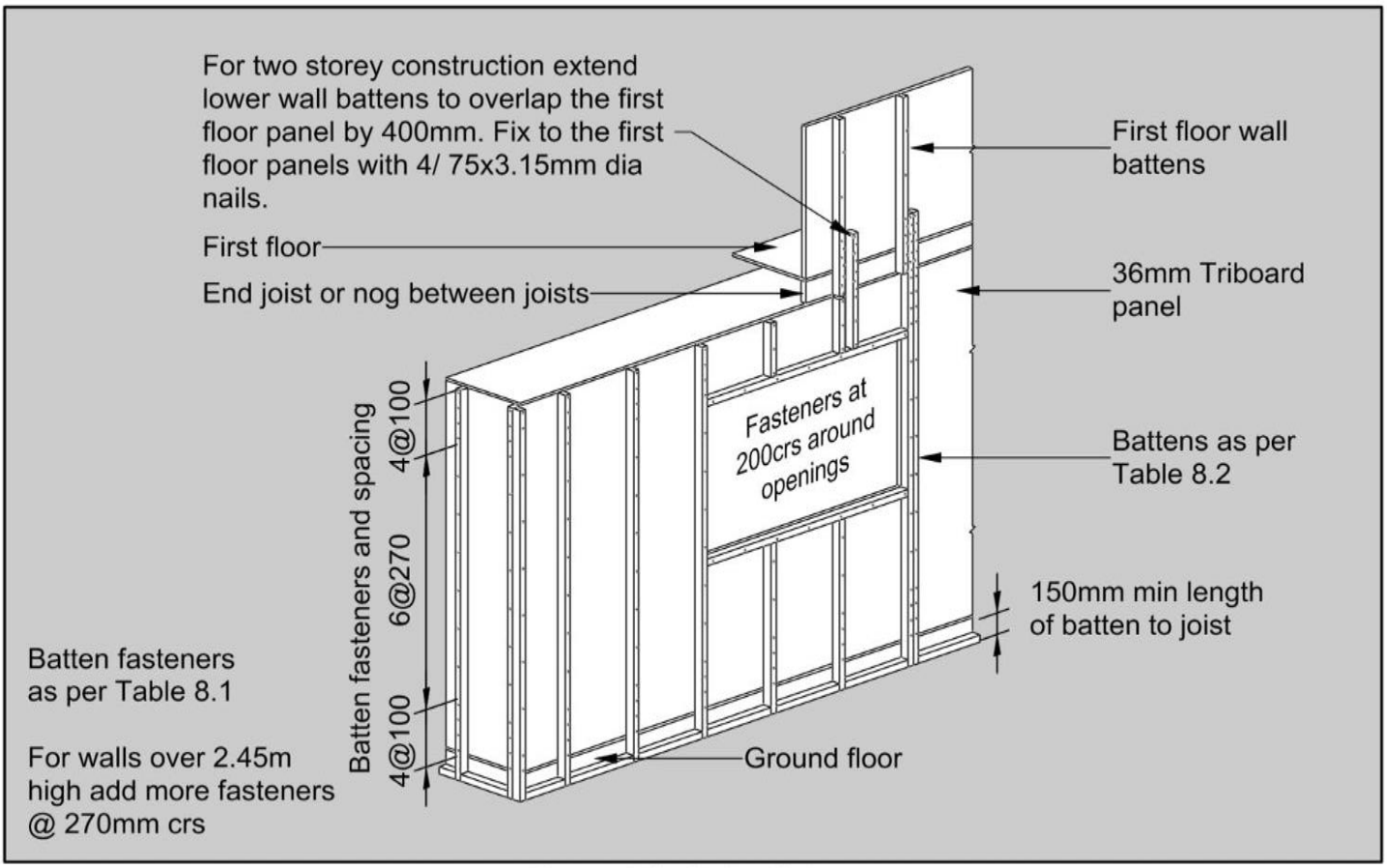


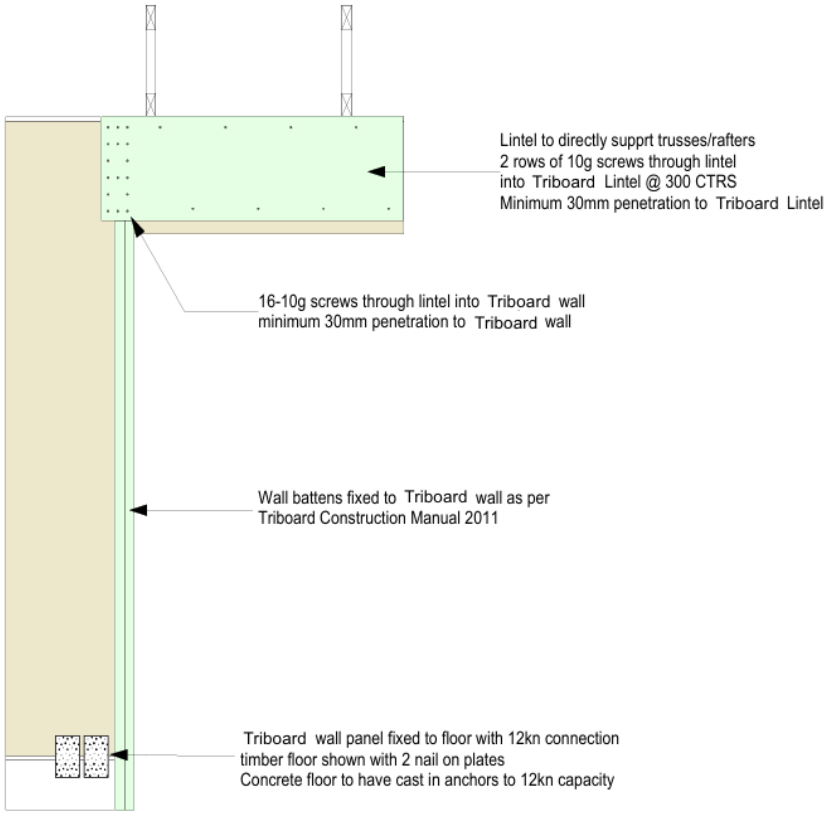
Figure 8.1 - Batten fixings

CONSTRUCTION PROCESS DAY 5

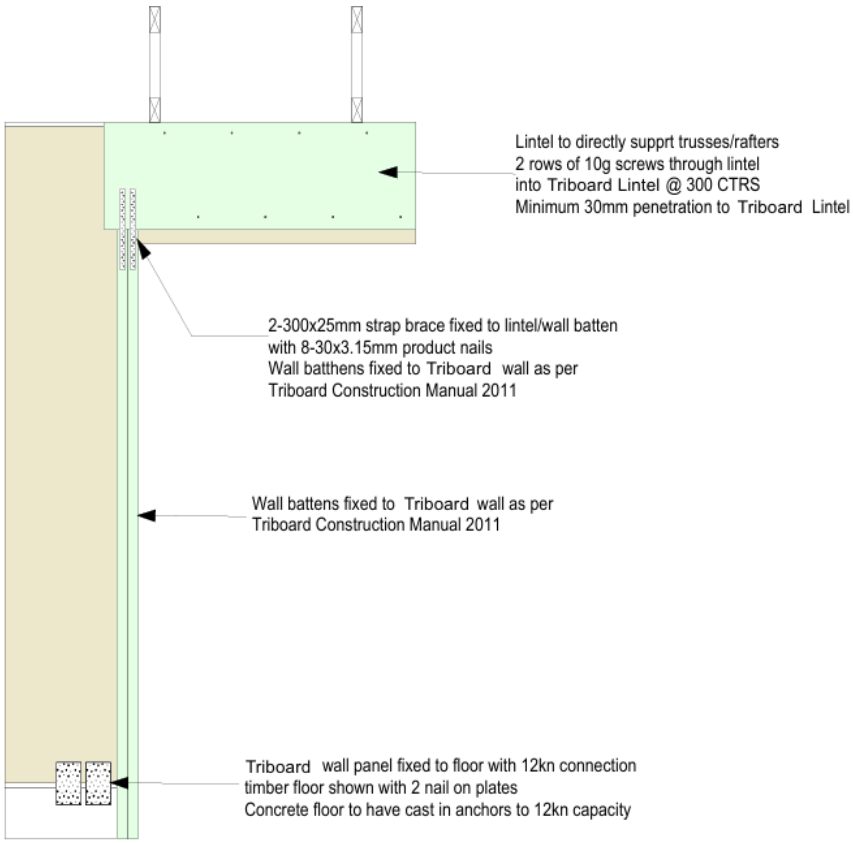
LINTELS & PURLINS

Conventional Truss assembly as per NZ building standards NZS3604.
Lintels as per Stamped Plans.
Day 5 is when Electrician and Plumbers need to be booked to complete a Pre-wire and Pre-Plumb.

TRIBOARD LINTEL HOLD DOWN

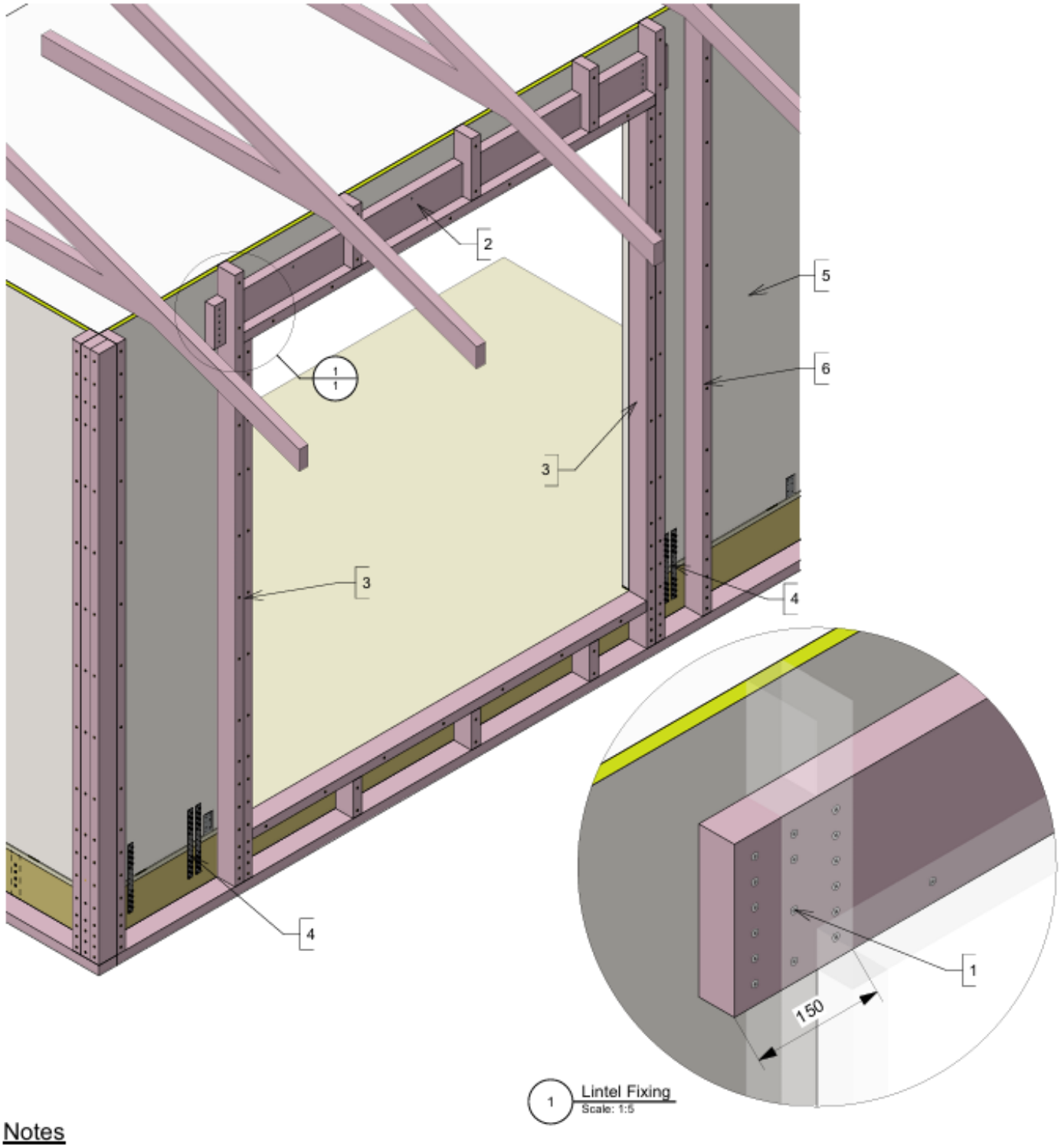


TYPE A
12kN LINTEL CONNECTION



TYPE B
12kN LINTEL CONNECTION

Isometric View



Notes

1. Single Triboard or SG8 Timber Lintel. Fixed to wall panel with 16/10g screws, min. 30mm penetration into Triboard wall panel.
2. Single Triboard or SG8 Timber Lintel directly support trusses/rafters. Fixed to wall panel with two rows of 10g screws @ 300ctrs, min. 30mm penetration into Triboard wall panel.
3. 2/ Wall battens fixed to Triboard panel as per Triboard Construction Manual
4. 12kN fixing: 2/6kN 300 Strap Brace @ either side of doorways. Fixed to Triboard Panel and boundary joist with 8/30x3.15 Nails each end.
5. 36mm Triboard Wall panel
6. 90x45 SG8 Wall Battens fixed with 4/ 100x10g Screws into boundary joist (min 20mm apart). Batten to Triboard wall panel with 100x10g screws @ 270crs and 4/100x10g screws @ 100crs at each end.

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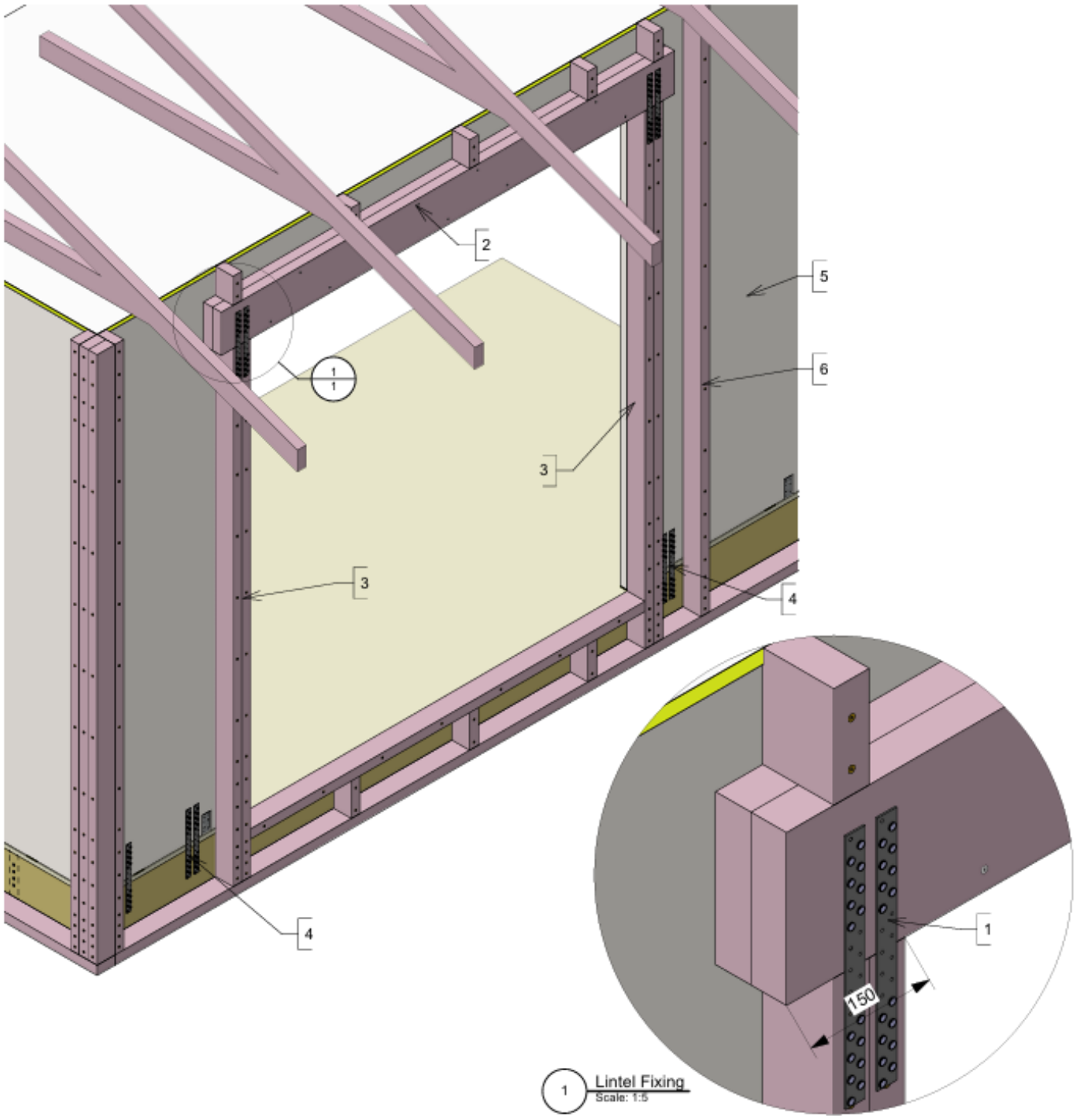
TITEL: Panel Lock Construction Manual		PROJECT ID: PLCM-04
SECTION: Single Story Lintel Fixing	DATE DRAWN: 18/07/2023	SHEET NO: 1
SHEET TITLE: Single Triboard/SG8 Timber Lintel	DRAWN: Jens Marr	TOTAL SHEETS: 1
		REVISION:

PanelLock 142 North Road-SH1, Kaitaia **W**: www.panellock.co.nz
PO Box 96 Kaitaia New Zealand **T**: (09) 408 7921 **M**: 027 3585 363 **E**: luke@panellock.co.nz

Isometric View



Notes

1. 12kN fixing: 2/6kN 300 Strap Brace @ either side of doorways.
2. Double Triboard or SG8 Timber Lintel directly support trusses/rafters. Fixed to wall panel with two rows of 10g screws @ 300ctrs, min. 30mm penetration into Triboard wall panel.
3. 2/ Wall battens fixed to Triboard panel as per Triboard Construction Manual
4. 12kN fixing: 2/6kN 300 Strap Brace @ either side of doorways. Fixed to Triboard Panel and boundary joist with 8/30x3.15 Nails each end.
5. 36mm Triboard Wall panel
6. 90x45 SG8 Wall Battens fixed with 4/ 100x10g Screws into boundary joist (min 20mm apart). Batten to Triboard wall panel with 100x10g screws @ 270crs and 4/100x10g screws @ 100crs at each end.

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TITEL: Panel Lock Construction Manual		PROJECT ID: PLCM-05
SECTION: Single Story Lintel Fixing	DATE DRAWN: 18/07/2023	SHEET NO: 1
SHEET TITLE: Double Triboard/SG8 Timber Lintel	DRAWN: Jens Marr	TOTAL SHEETS: 1
		REVISION:

PanelLock 142 North Road-SH1, Kaitaia **W**: www.panellock.co.nz
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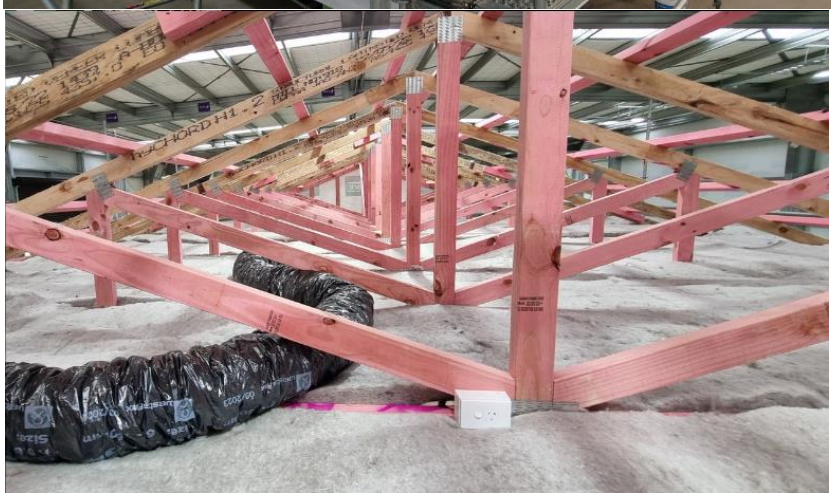
CONSTRUCTION PROCESS DAY 6

SOFFIT DROPPERS & FASCIA

Soffit droppers are to lower the Fascia to the top edge of the joinery. This eliminates the need for flashings on the sides of the house. PanelLock uses a 190x45 H3.2 Fascia to provide rigidity and eliminate fascia ever rotting in the future.

CONSTRUCTION PROCESS DAY 6

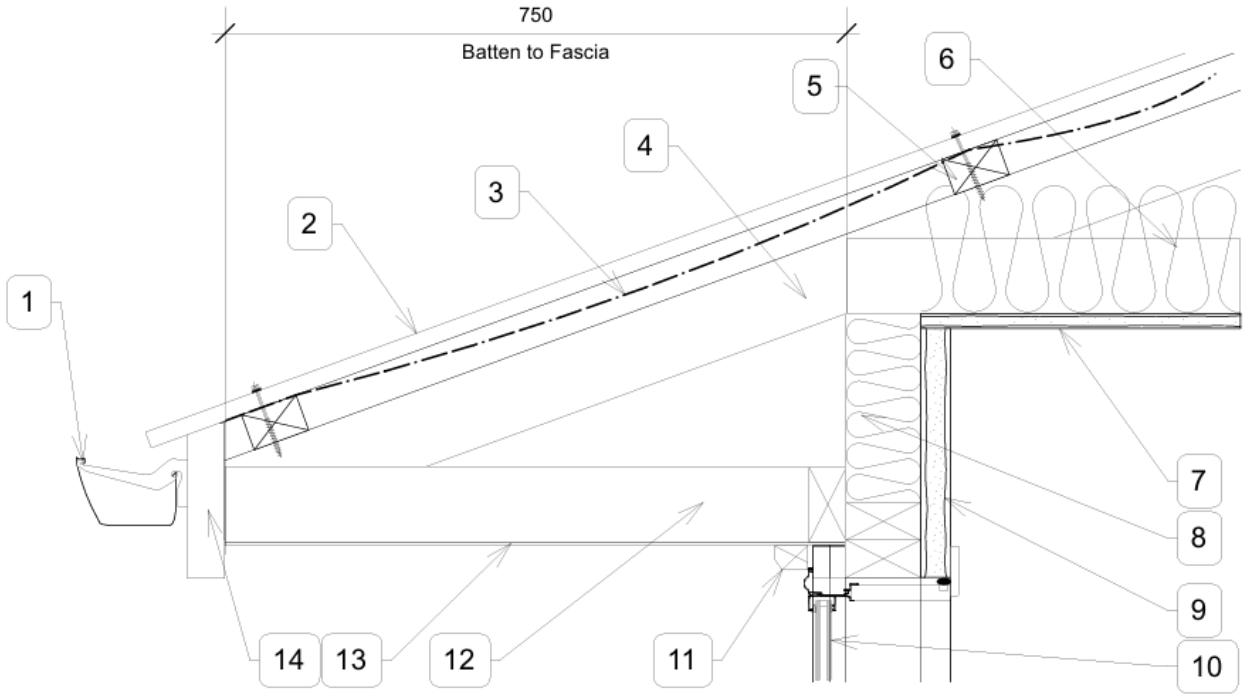
INSULATION AND WRAP



CONSTRUCTION PROCESS DAY 8

RIBBON BOARD, SOFFIT FRAMING, PAINTED FASCIA

ROOF DETAILS - EAVES



1. MARLEY FL2® eave gutter to be installed as specified by the manufacturer and to comply with E2/AS1
2. Metalcraft Corrugate roofing in COLORSTEEL® ENDURA® to be installed as specified by the manufacturer.
3. Thermakraft Covertek 401 roofing underlay to be installed as specified by the manufacturer and comply with E2/AS1.
4. Timber trusses, refer to manufacturer for connection details and design
5. Roof purlins SG8 H1.2 70x45 @ 900 ctr. max fixed with 1 / 10g self-drilling screw, 80 mm long ref. NZS3604 Table 10.10 for VH wind zone
6. R6.4 Double Layer(2xR3.2)Mammoth Polyester Ceiling Blanket to be installed as specified by the manufacturer.
7. 18mm Triboard flat ceiling panel to be installed as specified by the manufacturer
8. 90 x 45 SG8 H1.2
9. 36mm Triboard wall panel to be installed as specified by the manufacturer
10. Aluminium joinery with double glazing to meet the performance requirements of Building Code clause H1.
11. Soffit scotia
12. 90 x 45 H1.2 eaves bearers @ 600 ctrs max.
13. 4.75 Hardi soffit lining to be installed as specified by the manufacturer
14. 190x45 H3.2 Timber Fascia

ROOFING IRON, CAVITY BATTONS & PAINTED EAVES

Wrap, strap & Cavity is in accordance with NZS 3604

CONSTRUCTION PROCESS DAY 9

CLADDING

Any Cladding system that uses a cavity can be used. However we prefer to use Paliside Cladding. This allows us to complete cladding in 1 day, remove the requirement for prep and paint, and allows us to move the house outside of our factory to be finished off once windows are in and the house is closed off.

CONSTRUCTION PROCESS DAY 10

WINDOWS & GUTTERS

Day 10 is basically that final stretch on construction. This is the day everything comes together for the build, with only the finishing to be done internally.

CONSTRUCTION PROCESS DAY 10

TRIMS AND FLASHINGS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