Construction Specification

&

Engineering Details

April 2024

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1. Introduction

This manual contains instructions that are required for the proper installation of the Parkwood Home. Many of the words and terms used within the text are those commonly used in the industry to describe the condition of the home or its components when they are properly assembled, and the home is ready for occupancy. Such words or terms include, but are not limited to, "Level" "Plumb", "Flush", “Align", "Straight", and "Slope" are used in the text for simplicity, but the use of such terms should not be taken to indicate that reasonable trade tolerances are unacceptable.

The testing of the various utility systems and connection of these systems must be accomplished by an experienced installer. The laws may require that the installer to possess a license. This manual is provided with additional information to ensure that the procedures appropriate to this home are followed.

Each home has been designed to be moved by a special equipped truck/tractor. In the event it is moved, supported or lifted with equipment other than that specifically designed for this purpose, damage may result, and warranty rights may be affected.

2. Manufacture

2.01 General

Each home has been designed to meet the applicable construction and safety standards in effect at the time the home was manufactured.

The specification is intended to give an overview of the production process and list the relevant materials used as well as some of the methods of construction.

2.02 Chassis

The chassis (floor bearers) is constructed on a jig using two 200 UB 18 I-Beam. Cross members are four by 100x50x4mm RHS and one 40x40x2 SHS. Joist fixing cleats (75x75x4mm steel cleats) are welded to the top of each beam at 450mm centres. On homes exceeding 13.0m length Parkwood may elect to use 250 UB 25.7 in place of the 200 UB 18.2 steel chassis beams. An optional PFC perimeter chassis may also be used on certain designs. The chassis is constructed using 230 PFC members around the perimeter of each section. Joist cleats (150x130x6mm) are welded to the inner web of each beam at 450mm centres.

The completed frame is painted with 1 coat of Metal shield-HB ZP primer 595 N65 graphite and 1 coat of Metal Shield QD Enamel N65 Graphite GR. In exposed costal environments the client may elect to have the completed steel frames hot dipped galvanized.

2.03 Flooring

Floor joists and rim joist are minimum 140 x 35 H3 treated pine. The floor frame is constructed at 450mm centres on top of the completed chassis frame and checked for square. The joists are connected to the chassis using the joist fixing cleats by a 10mm zinc coach bolt through each joist. The floor frames are bolted together to ensure correct alignment. Floor waste positions are determined, and floor joist are tapered to allow the flooring to be dished about the drain.
Optional steel floor joists are minimum 182-14 zincalume cold formed C sections. The floor frame is constructed at 450mm centres bolted to each side of the chassis frame and checked for square and straightness. The joists are connected to the chassis using 2 x 12mm zinc purlin bolts each side. The floor frames are bolted together to ensure correct alignment. Floor waste positions are determined. A 50mm step-down occurs in the wet areas to facilitate appropriate falls to floor waste. For larger width floors the floor joist dimensions will be increased accordingly.

18mm T&G structural particleboard sheeting is fitted over timber floor joists using a 6mm bead of PVA adhesive and fastened with 75x3.05mm framing nail at max. 150mm centres at edges and 300mm in the field. Use galvanised nail where applicable. Flooring adjacent to the floor waste is pulled down to the tapered floor joist using 10# x 65mm galvanised particleboard screws at 100mm centres.
When specifying metal joists, the dry areas are sheeted with 18mm T&G structural particleboard sheeting fitted over floor joists using a 6mm bead of contact adhesive and fastened with 8# x 35 wingtek countersinking screws at max. 150mm centres at edges and in the field. Wet areas such as the bathroom, laundry and WC are floored using 18mm fibre cement T&G flooring and fastened with 8# x 35 gal wingtek screws.

Wet areas such as the bathroom, laundry and WC are fully waterproofed using Parbury Emer-Clad System 11 waterproofing. (See details below).

When specified the floor cavity may be insulated. In these cases, the underside of the floor is lined with 6mm fibre cement sheeting and the specified quantity of insulation is then laid on the fibre cement sheeting between the floor joists.

2.04 Walls Frames

All interior walls are built off-line, on tables or in jigs. Internal framing members are H2 70x35 (nominal) min. M10 LSOP softwood. Studs are placed at max. 400mm centres for load bearing and 600mm centres for non-load bearing walls. The main internal walls are braced with #22 x 25m punched strap running diagonally in two directions. All bracing is fully tensioned using approved strap tensioners.

Exterior walls are framed using H2 90 x 35mm M10 LSOP softwood. Studs are framed at max. 400mm centres. Top and bottom plates are 90 x 35mm min. M10 LSOP softwood. Window heads are 2 x 140 x 45 M10 LSOP. All external walls are fully braced with 4mm Hardwood Ply Sheeting and nailed to engineers details.

Houses constructed using the Cantilever Floors System have their wall framing secured using 14-10 x 75mm bugle head screws at 600 centres and 75mm coil nails at 300mm centres. Additionally, all studs of all exterior walls are to be secured to the rim joist of the floor system using 50 x 300 x .3 straps attached with 6 38x2.2mm coil nail (3 each side).

Houses constructed using the Perimeter PFC chassis system have their wall framing secured using 14-10 x 75mm bugle head screws at 600 centres and 75mm coil nails at 300mm centres. Additionally, all exterior walls are to be secured to the floor frame using Screw type 17 Bugle batten 14-10x75 with 50 x 3mm square washers, drilled through and screwed to the PFC at 1.0m centres.

External wall frames are insulated using 90mm R2.0 batts fibreglass insulation and a layer of light weight foil wrap.

The house frames are braced in accordance with Structural Drawing S5.

Walls are lined with 10mm plasterboard. The sheeting is fixed to the studs with an approved stud adhesive and screwed with drywall bugle collated 6x25 at 150mm on-centre around the edges and 300mm on-centre intermediate. All walls adjacent to sinks, vanity units, laundry tubs and showers are clad with 6mm villa board. Optional 9mm and 13mm impact resistant linings are available for commercial applications if required.

Support noggins for all bathroom fittings, pantry and linen and robe shelves are secured into position and the timber frame is checked out to provide proper installation of bath and shower recess. These areas are flashed and acrylic membrane applied to ensure protection in all wet areas

2.05 Wet Area Waterproofing System

Waterproofing of the bathrooms and laundry complies with the requirements of Australian Standard AS 3740-2010 as required by Clause 152 of the Local Government Act (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) 2021.

A qualified tradesman trained to apply the waterproofing membrane to AS 3740 certifies the compliance of each home during construction.

Wet Area Waterproofing System:

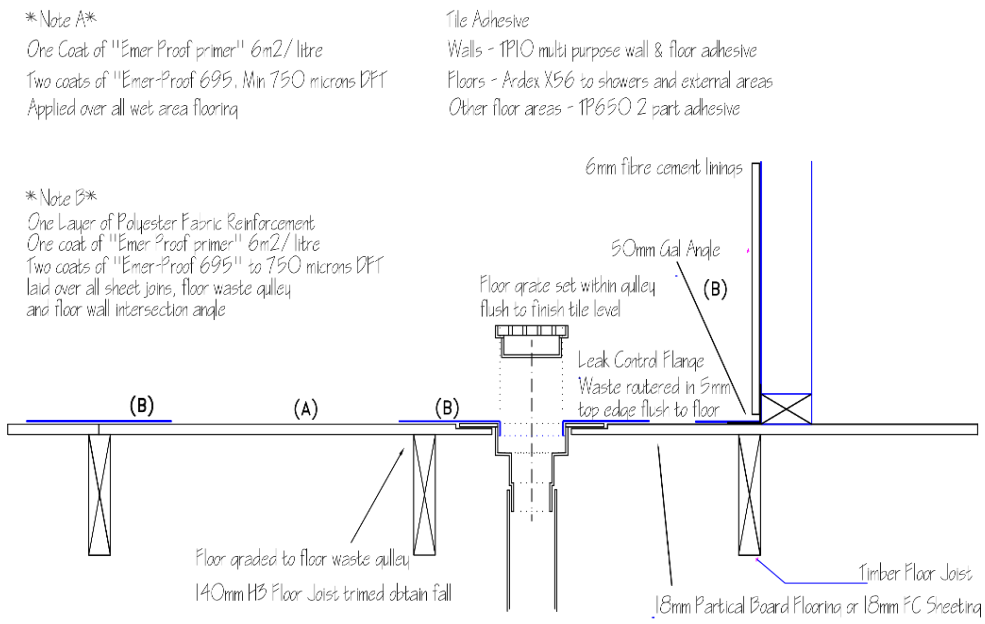
Wet area floor 18 mm all-purpose particle boards or 19mm fibre cement sheet
A polyurethane membrane and ceramic tile
1 coat of “Emer Proof Primer” single compound polymer emulsion
2 coats of “Emer-Proof undertile fibre enhanced Polyurithane membrane
100mm floor waste with safety tray
Ceramic tiles laid using Ardex X56
Flexible grout by Davco neutral additive 4 in 1

Wet area walls 6mm fibre cement sheeting
Membranes extent from floor up min 150mm
1 coat of “Emer-Clad” acrylic primer
2 coats of “Emer-Clad” to 350 microns DFT
Ceramic tiles laid using TP10 wall tile adhesive
Internal corners Bathroom 8S white silicon

Shower enclosure 2100mm high laminated shower screen with pivot or sliding doors
An acrylic shower tray and or bath may be included in the design

Wet Area Water Proofing Detail

Constructed in accordance with AS3740:2021



2.06 Joinery

All cabinets are constructed out of selected 16mm melamine. Cabinet modules are installed and secured and bench tops. Bench tops are fabricated using 13 and 18mm particleboard covered with selected laminate.

2.07 Plumbing

(The onsite plumbing is not included as part of Parkwood's scope of works.)

The installation of all plumbing work is performed by a licensed plumber and complies with the requirements of the NSW & ACT Water & Sewerage Authorities. Tap ware, hot and cold-water lines and PC items are fitted and pressure tested while at Parkwood. All water pipes are Pex Plus Crimp in accordance with A.S. / NZ. 2642. Waste drainage lines are fitted to fittings and penetrate through the floor for latter connection by the site plumber to the sewer installation once the home is installed. Kitchen sinks are generally 1 & ½ bowl stainless steel with a flick mixer tap. The laundry is generally provided with a stainless steel laundry tub with built in drain for washing machine waste. The standard water heater is an external electric or gas unit fitted once on site by the site plumber. Shower bases and bathtubs are acrylic, recessed into the wall to allow for flashing and tile finishes or tiled over stainless steel sheet turned up 150mm at wall intersections. Plumbing and Drainage provided in accordance with the Plumbing and Drainage Act 2011 as required by Clause 153 of the Local Government Act (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) 2021.

2.08 Electrical

(The onsite electrical is not included as part of Parkwood's scope of works.)

All installation is performed by a licensed electrician and complies with all A.S. 3000 wiring rules. All homes are provided with a circuit breaker type switchboard either mounted in a standard meter box on the outside of the home or within an approved waterproof box within the home. Conduit is provided for connection of service wires to the meter box through the floor. No meters are provided within the board as these are supplied by the supply authority.

Automatic fire detection and alarm system provided in accordance with Part 3.5.2 of the National Construction Code Series - Building Code of Australia. (Vol 2) as required by Clause 155 of the Local Government Act (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) 2021.

2.09 Windows

Aluminium windows are installed according to the floor plan, sizes as shown (height/width mm). Windows to the bathroom, laundry and WC areas are usually provided with obscure glazing. Fly screens are supplied loose, to be fitted by the installer once on site. All aluminium frames are manufactured and installed in accordance with AS 2047 & 2048. Glazing Materials to be provided in accordance with AS1288-2021 and AS/NZS 2208-1996 as required by Clause 150 of the Local Government Act (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) 2021.

2.10 Roof frame

The ridge beam is fabricated in accordance with engineer's specifications and drawings (see attached structural drawings). The beam is fitted and supported on internal load bearing walls (later to be supported by site installed mating piers.

All roof trusses are constructed off-line and assembled over the installed wall frame at 600mm centres Trusses are secured, in accordance with engineer's specifications, to the ridge beam and external load-bearing wall. Each truss is fixed using 75mm bugle screws and then strapped to the

ridge beam and wall top plate with 30 x 300 x .3 gal straps attached with 6 38x2.2mm coil nail (3 each side). The roof is checked for square, and diagonal braced back to the wall structure. Roofing battens are fixed over trusses and strapped to each truss. The Ply beam may be substituted with a structural PFC section in some roof designs. All timber members to be in accordance with AS 1684-.2-2010

A 150mm barge and 450mm fibre cement eave soffit is standard for most plans.

2.11 Insulation and Roofing

Blanket Vapour Check insulation (55mm R1.5 fibreglass insulation with foil to the underside) is applied and lapped over the battens and held in place with gang nail foil fasteners to prevent sag. Building blanket 130mm - R3.0 insulation is applied over the ceiling linings. A cavity is maintained between the two layers of insulation. The total R Value is 5.2. Soffit linings are 450mm wide 4.5mm fibre cement. The soffit lining is painted with white exterior grade acrylic paint and secured on the gutter side with 50mm colorbond angle and the wall side by the cladding trim. Sheets are joined using a PVC “H” section joiner. Colorbond guttering is fitted to the bottom batten using 8#x45mm galvanised screws and internal concealed brackets at 1200mm centres. The roof sheeting is laid over the insulation and fixed in accordance the manufacturers requirements. A custom-orb roofing profile in a colorbond finish is standard. A metal barge capping is installed over the colorbond metal fascia. All ridge capping used at section joins are supplied with the house and fitted on site by the installer.

10mm ceiling plasterboard sheet is fastened to the underside of the trussed roof frame. The sheeting is fixed to the trusses with an approved stud adhesive and 6 x 30mm dry wall screws at 150mm on-centre around the edges and 300mm on-centre intermediate.

2.12 Siding & Exterior Trim

Parkwood offers a choice of exterior claddings both sheet and planked weather board. Exterior sidings are supplied either pre finished (vinyl & colorbond), blue board, primed hardboard or fibre cement. Claddings requiring painting are often completed on site using selected exterior grade acrylic paints.

2.13 Tiling

The bathrooms and laundry are usually tiled in selected ceramic tiles. Once the acrylic membrane in the wet areas has been completed and inspected by the production manager, the tiling will commence. Tiled floors are either laid using a 2 part rubberized adhesive on18mm particleboard sheet flooring or a graded sand cement bed for fibre cement sheeting. Cement grout is applied using an additive to increase flexibility. If tile areas extend over the centre line the tiler will set out from the centre line. A flexible jointing compound will be used to grout this joint.

Wall tiles are generally laid 2.0m high to bathroom walls, 1.2m high adjacent the washing machine and laundry tub 1.2m high to WC walls and 600mm to kitchen bench tops. A skirting tile is standard on other laundry walls. Wall tiles are grouted however the grouting of corners and around bathroom fittings is left until the home is installed on site. This work should be completed by the site detailer.

2.14 Carpentry Fix Out

Interior and exterior timber doors are installed once the home is joined top and bottom. The front door is either Merbau or hardboard glass entry 2040 x 820 x 40mm and the rear door ready-coat 2040 x 770 x 40mm. The. Interior passage doors are ready-coat hardboard 2040 x 720 x 35mm. Robes and linen doors are passage doors sized to suite the opening. Pine Half – Splayed 66x18mm architrave's and skirting’s are fitted as necessary at all joints, corners, window and door openings. Shelving is generally 16mm x 400mm deep, edged melamine. All sections of the home remain married together to ensure proper alignment of all walls and doors.

2.15 Final Finish

The entire home is cleaned inside and out. All work and materials are given one final check for accuracy and completeness. All warranties, manuals, keys and other items required by the homeowner are collected and placed in the kitchen drawer unit. The compliance plates are stamped and permanently attached to the home.

3. Close-up

All materials necessary for the proper installation of the home on site (screens, architraves, exterior trims and flashing, bolts etc.) are loaded and secured for transport. The open side of the home is wrapped in plastic and made weatherproof for transport.

4. Quality Assurance

4.01 Electrical – A megger test and function test are performed by the licensed electrician on each home section to insure the proper operation of all electrical wiring and fittings. A "ready for test" is completed for the home and a copy is sent with the home. The site electrician will complete a similar document for the onsite work, and both will be submitted to the energy authority at time of completion.

4.02 Plumbing – The hot and cold-water system is pressure tested in the factory prior to the unit leaving. A certificate is then signed by the licensed plumber confirming that the work has been carried out in accordance with the applicable code.

4.03 Structural – The design engineers ACOR Appleyard maintain a programme of quality assurance inspections at the factory. A copy of a letter confirming these monthly inspections is included in this manual.

4.04 Parkwood – the Production Manager of the factory makes the final inspection of the home. The Production Manager is responsible for ensuring that proper inspections are made by each supervisor in his area of responsibility and that the finished product is built to all applicable standards, codes and specifications, and all work is complete and performed in an acceptable manner. A comprehensive checklist is used to ensure a consistent and thorough quality control inspection is achieved. The supervisor shall note all material shortages and incomplete work.

4.05 The Client – Prior to shipment the client will be expected to inspect their home to ensure the proper interpretation of the production order and the general standard of workmanship achieved by the factory.

4.06 The Department of Fair Trading has produced a **Guide to Standards & Tolerance.** This guide will be used by Parkwood when considering standards appropriate for materials and workmanship involved in the construction of all residential homes, cabins, school buildings and commercial structures. A copy of this guide is available from any office of the Department of Fair Trading or online at

www.fairtrading.nsw.gov.au/building

5. Site installation

5.01 Foundation System

This manual depicts the most widely used methods of supporting the Parkwood home. Other methods, which provide equal support to the home at the same locations shown, may be acceptable provided they do not stress the structure in a different manner or cause greater distortion to the structure during set-up. Also, other products and/or materials equal to or better than those shown may be used. Homes manufactured by Parkwood are designed to be supported by individual supports or piers and anchored with a number of tie downs appropriate for local conditions. These are collectively referred to as the Support and Anchoring Systems. The foundation system must resist vertical loads from the weight of the home, plus temporary extra roof loading and it must resist side loads imposed on the home by wind blowing against the walls.

5.02 Foundation Soils

It is important that due consideration be given to the ground conditions of the site prior to the installation of the home. The foundation system is based on a minimum ground bearing pressure of 150kpa. Further all designs are based on the assumption of even bearing conditions across the block, correctly consolidated stable ground materials that are not influenced adversely by any watercourse. Should any of these conditions be found lacking the site should be inspected by a suitably qualified engineer to advise on the adequacy of the standard foundation system with respect to the particular site.

5.03 Piers

The piers used must be strong enough to transmit the vertical load, which includes the weight of the home, its furnishings and temporary roof loading to the foundation surface below. Recommended types of piers and footing sizes are described in engineering drawings attached. Check with local building authorities for any requirements for set-up of the home due to local ground conditions.

5.04 Tie-Downs

The foundation system must also resist the lifting, sliding and overturning force resulting from side winds. A method frequently used is to install ground anchors and tie down straps in addition to the piers. Each tie down strap must have an ultimate load capacity of 1.0 tonne. Acceptable anchors can be fabricated from concrete, steel rod, cable or other similar material. Installed ground anchors should be capable of resisting a tensile load of 1.25 tonne min. per anchor. Although local sheltered conditions may permit installation of the home without tie downs, the tie downs as described are the minimum necessary if the home is to withstand its design wind load without dislocation. This home is designed for a foundation system, which supports the chassis frame rails. These are the main beams that run the length of the home. A recommended frame tie down procedure is described in attached Structural Drawing.

5.05 Positioning and Set-Up (using a crane)

Parkwood recommends the use of a suitably rated mobile crane with ticketed driver and dogman to assist with all installations of our homes.
The equipment involved in the transportation of our homes is very heavy and care must be taken during the whole process to observe relevant OH&S guidelines. At no time should work be carried out under the structure unless it is structurally stable. Reference should be made to Parkwood's OH&S guidelines. Experienced, licensed contractors must carry out all installations.

Determine the appropriate foundation system for local site and wind exposure conditions. Establish the exact position of the home and construct piers in accordance in with the engineering drawings. Parkwood recommend the use of steel or concrete piers on top of bored and insitu concrete filled foundations to a depth as noted in our structural drawings that are deemed suitable for the soil conditions of the site.

It is advisable to obtain from the Parkwood production manager “As built” floor frame measurements for the actual building, as set out tolerance is fine and minor variations do occur with the floor frame and the onsite piers.

Before the home sections are installed check the finished level of each pier. Where necessary use shims pack each pier cap to ensure a level platform.

Foundations should be constructed level and laterally bracing to provide a stable landing platform during construction. Where necessary tie each section down to the foundations as you go, and if possible, install the heaviest section first.

Some structures rely on bracing walls on adjoining sections. When removing transport bracing, remove only what is required until the home is in place and secured to established sections. On multiple sectioned structured it is important to secure each new section to the established sections before proceeding to the next. If you are unsure, please contact the Parkwood production office as to the best sequence of installation.

Suitable lifting and spreader beams should be provided by the crane company. The crane and all lifting slings and beams are to be appropriately rated for this work. At all stages of lifting, the work must be under the control of the crane driver and his dogman.

Home sections should be kept as close to ground as is practical and secured using a suitable guide rope. Once the first section is landed, secure the chassis frame to the piers. A 50mm gap will be required when landing the next section to allow the removal of lifting slings. Before the lifting beams have been removed (leaving say 10% load on the crane) and secured the new section to the established section using a chain winch on each end. Once the section is secured and the lifting equipment removed use the chain winches to pull the new sections to the established section.

100UC14 tie beams are used to lock the modules together on cantilever chassis structures. They span between the two chassis and sit on the outer flanges of each chassis and bolt through the webs of the chassis beam. The tie beams are noted on the foundation drawing and located to support point loads and the central floor rim joist. The tie beams are slightly shorter than the distance between the two chassis and the tie-beam bolts will pull the two modules together as they are progressively tightened. A central screw jack on the tie beam is then adjusted to support the pair of rim-joist and align the floor on the module join. The tie beam may be replaced by 16mm tie rods where the floor cantilever is quite short and on perimeter chassis floor systems.

Sheet metal ant caps are not required due to the use of the continuous steel sub frame as the visual inspection point for termite management.

5.06 Positioning and Set-Up (with out a crane)

This Installation method should only be carried out by contractors that have established a Safe Work Method approved by WorkCover.

Considering the heavy loads involved appropriate tools and lifting equipment must be used.

Determine the appropriate foundation system for local site and wind exposure conditions. Establish the exact position in which the home is to be installed and the location of each pier and tie down for the length of home. The sections should be positioned with the first in near to its final position and the second in line with the first but 1200mm apart so as to enable all work to be carried out without the need to climb under. Start with the first section of the home and install any installation components that might be difficult to place after the section of the home is in position. An example would be ground anchors if they were to be installed at an angle.

Move the first section of the home into the desired position. During levelling, care must be taken to avoid distorting the home. Excessive and/or non-uniform jacking during the levelling will cause the home to be racked and twisted. This may result in damage to the home.

Ensure that jack heads are positioned centrally on the beam section and use reinforcing plates to avoid damage to the beam and adequately distribute the concentrated load to the frame members.

After completion of the levelling and set-up procedures on the first section the floor must be level and walls must be plumb. All doors and windows must operate freely without binding. Proceed as follows for position and levelling the next section of the home.

5.07 Setting and Levelling

Remove the waterproof plastic and all shipping braces from the open sides of the first two sections. This may be turned up back over the roof in case of a sudden down pour of rain and only removed when the ridge capping is to be placed. All screws and plywood cleats used to hold the plastic in place are to be retained and as latter described used to tie the ridge beam and floor centre joins together.

Before moving the second section into position, it may be helpful to level the ground where the inside wheels (next to the marriage line) will rest to help in sliding the structures together.

Determine the general location of piers and tie downs for the length of the next section of the home, using the Pier Plan and Drawings. Construct the inner piers for the next half. Check for alignment and level of each pier.

Make sure that all obstacles such as nails, staples etc. are not protruding before the two halves are placed together as this may prevent a tight fit.

Jack up the second section so as to clear the piers by 50mm and position slides and side rollers under the frame. Axles and wheels should be left on until the unit is together as it provides a further degree of safety. At all times care must be taken to ensure that all supports are firm, stable and well founded. Keeping the unit as low as possible and using a hand winch attached to both sections at each end, move the second section of the home into position over the newly constructed piers to within 50mm of the first section.

The following recommended procedure might be used for aligning the two sections.

Draw the two floors together using hand winches. With the two sections together, but with no fasteners installed, check the alignment of the end walls, interior walls, roof and floor. Determine if the walls and/or the roof of either section must move backward or forward with respect to the floor. Any correction required can be accomplished during the levelling of the second section.

Position the second to bring the floor seams flush keeping the roof slightly apart and the end walls aligned at the floor. Care must be taken not to damage any protruding plasterboard lining walls on the centre-line.

100UC14 tie beams are used to lock the modules together on cantilever chassis structures. They span between the two chassis and sit on the outer flanges of each chassis and bolt through the webs of the chassis beam. The tie beams are noted on the foundation drawing and located to support point loads and the central floor rim joist. The tie beams are slightly shorter than the distance between the two chassis and the tie-beam bolts will pull the two modules together as they are progressively tightened. A central screw jack on the tie beam is then adjusted to support the pair of rim-joist and align the floor on the module join. The tie beam may be replaced by 16mm tie rods where the floor cantilever is quite short and on perimeter chassis floor systems.

Close the gap in the ceiling by raising the outside frame beam using two hydraulic jacks placed ahead of and behind the wheels.

If the top must be moved forward. With the frame support beams evenly supported, carefully raise the outside rear corner of the second section (and lower the outside front corner) with the hydraulic jacks. The roof should shift forward until the end walls come even at the top. When the walls and ceiling strips are even, raise the outside support frame beam evenly to close the gap.

If the top must be moved back. With the frame support beams evenly supported, carefully raise the outside rear corner of the second section (and lower the outside rear corner) with the hydraulic jacks. The roof should shift back until the end-walls come even at the top. When the walls and ceiling strips are even, raise the outside frame support beam evenly at the front and rear to close the gap.

5.08 Alternate Alignment Procedure

Position the second so that the floors are together with the ceiling joints even at the top. Close the gap between the roofs by raising the outside frame support beam.

With the ceiling positioned and the ridge beam halves snug, fasten the top of the ridge beam together,

With the roof securely fastened, attach a winch along the centre line to each section. Shift the floor and lower end of the walls into alignment by tightening the winch.

When the floors and walls are even, secure the floors together by fixing 90mm x 14# type 17 screws through the centre line rim joist at 450mm centres. This will hold the floors in position when the winch is released.

When the two sections are in place, aligned and levelled, complete the fastening of the ridge beams together by fixing 12mm structural ply cleats to the top of ridge beam using 50mm x 14# type 17 screws at 600mm centres to each side of the beam. Gaps between ridge beams, 35mm wide maximum, which do not extend the full length of the home, may be closed up by filling with plywood strips. The lag screws and plywood cover shall be increased in width to ensure that they engage both top chords of the ridge beams.

It is important to have the ceiling or central beams below each roof section flush at the seam before the roof is totally fastened. One man should work inside to raise the low side, as required, by jacking under

a wood post or section of steel pipe with a wood or metal pad at the top. Place the base of the jack across the floor seam to distribute the load to both sections. Jack against the ceiling only in areas to be covered later with a trim moulding.

After the ridge beams have been secured together the roof ridge cap should be installed using #12x65 high grip type 17 roofing screws and neo washers through the capping on every second rib to the roof batten below. Cut and fit a plastic Tee moulding to the module joins of the barge soffit & fit colour bond covers to barge cap.

Additional mating beam supports should be placed under each roof column point load in accordance with the foundation drawings.

Fasten the frames together below the floor and fasten the end-walls together with #14x90mm type 17 screws installed at an angle at 600mm on centre, staggered.

Connect tie down chains to ground anchors. A recommended frame tie down procedure is included in the attached structural drawings. Observe proper tensioning procedures to avoid disturbing the level of the home or damaging the home or foundation. Tie down chains must be tensioned alternately on opposite sides to avoid disturbing the set-up of the home.

Completing Set-Up - Parkwood supplies loose a number of cover strips that should now be installed in internal corners and flush straight joints through the centre-line of the home. (This is to aid in allowing the home to settle marginally without risking cracking of plasterboard butt joints at these most critical stress points.) All mouldings must be installed by the carpenter prior to the plasterer starting and it will be necessary to provide adequate space at the top of the mouldings to allow for the fitting of the plaster board cornice. Ensure all trims are close fitting and where necessary apply suitable acrylic gap filler before painting.

After the home installation has been completed carefully inspect the caulking on exterior walls, roof vents or seams, windows, and doorframes. Check all caulked areas and re-seal any area showing evidence of movement. Do not overlook voids or cracks in hidden areas, such as eaves or openings, which may be subject to wind-blown rain. Replace or tighten any loose screws as required. Remove all shipping blocks and clips from appliances, windows and doors. Install fixtures, shelves or other loose items packaged or attached for shipping. Clean all floors and windows.

Immediately after the installation of the home, all windows, doors, kitchen and bathroom vanity drawers and doors should be checked for correct alignment and margins. Alignment of these items can be altered as a result of the transport process. It may be necessary to adjust doors by minor packing of the piers or by removing the architraves to reset the door jambs. Sliding wardrobe doors are secured to the floor during transport to site. These should be installed on the tracks, taking care to install doors in the correct order and adjusted via the adjustment screws at the base of the doors when required to align against openings. Kitchen and vanity door hinges have a fine tune adjustment.

Windows generally will not require adjusting however they should be checked. Glass sliding doors may require adjusting and can easily be done via the adjustment screws at the base of the door.

5.09 On Site Termite Management

In accordance with AS 3660.1-2014, as required by Clause 149 of the Local Government Act (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) 2021, the structural frame and sub-floor of your Parkwood Homes relies on a physical barrier.

Regular visually inspections for termite infestation should be carried out.

A physical barrier with a minimum clearance of 150mm on sloping sites and a general minimum clearance between floor joist and ground of 400mm must be maintained.

Attachments to buildings such as down pipes & service pipes and conduits shall provide a nominal 25mm gap to allow clear and uninterrupted visual inspection across the inspection zone.

Structures such as steps, hot water systems, air conditioners or similar shall be separated from the building by a gap of at least 25mm to allow clear and uninterrupted visual inspection across the inspection zone.

The sub floor area shall be graded and drained to prevent ponding of water under the building.

All exterior paving and other ground surfaces abutting external walls shall be 75mm lower than timber floor elements and the areas grader to prevent water ponding against the perimeter of the building.

The under floor area should be dry, well ventilated and kept clear. The area should not be used for the storage of building materials or timber.

5.10 Plumbing (Onsite)

When commissioning the plumbing the main water line should be flushed prior to connection to the building. There is a risk that grit, and pipe partials may be captured in end of line fittings. These particles would be trapped and clog fittings, including shower heads & WC cisterns and restrict water flow or damage tap washers. The tap filters should be removed, and water pipes flushed for several minutes to allow air and foreign matter to pass. The filters should then be reinstalled.

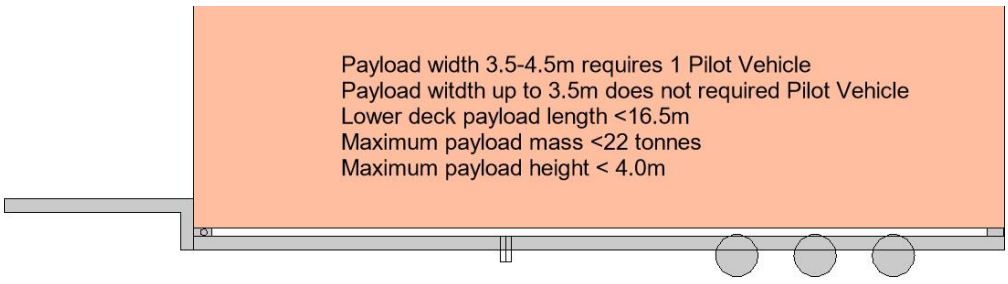
The plumber must check the operation of the toilets and basin traps. Traps and WC outlets that penetrate through floors can be disturbed during the transportation and installation of the home. Further during the connection of the site stack to the plumbing fittings, pipework may be disturbed resulting in a poor seal on screw joins.

It is the responsibility of the commissioning plumber to charge all traps and check for leaks. Parkwood Modular Buildings can take no responsibility for consequential damage to building elements because of such leaks.

5.11 Transportation by Road to Site

The transportability of Parkwood's volumetric designs is a fundamental consideration when developing a modular plan layout. These transport loads are usually more significant than the design load for the installed home. Splitting modules on grid lines requires a structural design of each transportable section that must be capable of withstanding both the material dead loads and the dynamic wind and vibration forces exerted on the structure without damage to the cladding, windows, internal linings & finishes. Transport sections may be further stiffened by adding temporary supports and cross bracing.
Our construction methodology is to spread and share the loads across the structure. Securely welded connections from the chassis beams connect each floor joist. Then using the floor diaphragm as a rigid platform, attach the wall frames to the floor's rim-joist with all wall frames ply braced and strapped top & bottom over top plates to roof trusses. The metal roofing adds a second structural diaphragm for additional bracing to prevent twisting.
Parkwood use four hydraulic lifters to elevate the completed home section. Reusable transport axles and hitch are fitted to the chassis and the module is loaded onto the extendable low loader. The chassis is usually supported and secured to the trailer at the point of inflection in the chassis. (Two points each side around 25% in from the ends). The aim is to reduce the bending of the module by using the end cantilevers to lift the centre and further by not transferring trailer deflections and vibrations back into the load.
Restrictions of oversize and/or over mass load-carrying vehicles apply in Australia, and this falls under the auspices of the National Heavy Vehicle Regulator (NHVR). The NHVR has made available detailed guidelines for the transport of oversize/over mass cargo. The transport is controlled by a permit system managed by the NSW Police Force. The intended route, time and number of company and police escorts is determined by this permit. All loads are expected to travel complying with road traffic speeds, using escorts appropriate for the route and time travelled. To minimize the effect on other road users, no multi convoy travel is permitted. The transport driver, while complying with the conditions of the permit is responsible for the safe passage of the load to site. Marine Cargo and suitable Public Liability Insurances are required to cover the transport activity.

Once the home section arrives at the site, the load could be lifted directly by crane or, using ramps, the temporary axles and hitch, the home section is rolled off the trailer onto the site. Traffic Management may be required to assist the driver unload and deliver the module to site. A Council Permit may be required for working adjacent the road verge on busy roads.



Typical module size constraints when using drop extendable trailer

5.12 Compliance with Local Government (Manufactured Homes Estate, Caravan Park, Camping Ground and Moveable Dwellings) Regulation 2021

All Construction to be in compliance with the Local Government Act, in particular:

Clause 142 Structural Soundness
The design of the relocatable home and associated structure will be certified by a practising structural engineer.

Clause 143 Design Gust Wind Speed
The design of the relocatable home and associated structure will be designed in accordance with all relevant sections of AS/NZS 1170 and using a design gust speed of at least 41 metres per second.

Clauses 144 to 148
All designs requirements of the pertaining to these clauses will be complied with and incorporated into the individual design of the project.

Clause 149 Termite Shields
Refer to 5.09 Onsite Termite Management – Page 14

Clause 150 Glazing
Refer to 2.09 Windows – Page 6

Clause 151 External Waterproofing
The roof, external walls, door and window frames will be constructed to prevent rain or damp penetrating the inner parts of the home.

Clause 152 Internal Waterproofing
Refer to 2.05 Wet Area Waterproofing System – Page 5

Clause 153 Plumbing and Drainage
Refer to 2.07 Plumbing – Page 6.

Clause 154 Electrical Wiring
Refer to 2.08 Electrical – Page 6.

Clause 155 Fire and Smoke Alarms
Refer to 2.08 Electrical – Page 6.

Clause 156 Footings
The relocatable or associated structure must be installed on footings if required by the engineers' certificate for the home or structure. The footings must be in compliance with the engineers drawings and certificate and all subfloor clearances are to accommodate adequate cross flow ventilation. Termite shields (chassis) are to be installed a least 200mm above ground level or less if specified in the approval.

Clause 157 Installation to comply with Specifications.
The relocatable home or associated structure will be installed on a dwelling site in accordance with the specifications set out in the engineers' certificate for the home or structure.

Clause 158 Compliance Plate
The compliance plate will be attached to an accessible part of the structure and contain all information as specified in the clause. See example below.

Clause 159 Notice of Completion on Installation
Written notice to council of the installation of the relocatable home or associated structure will be provided to council within 7 days after tis completion. The completion notice will provide all information as specified in the clause.

PARKWOOD BUSHFIRE ATTACK LEVEL (BAL) MATRIX

3/3/2021

ALL CONSTRUCTION SHOULD BE IN ACCORDANCE WITH AS3959:2018 AND PLANNING FOR BUSHFIRE PROTECTION 2019

	BAL – LOW	BAL – 12.5	BAL – 19	BAL – 29	BAL – 40	BAL – FZ (FLAME ZONE)
SUBFLOOR SUPPORTS	NO SPECIAL CONSTRUCTION REQUIREMENTS	NO SPECIAL CONSTRUCTION REQUIREMENTS	NO SPECIAL CONSTRUCTION REQUIREMENTS	ENCLOSED BY EXTERNAL WALL OR BY STEEL, BRONZE OR ALUMINIUM MESH, NON-COMBUSTIBLE SUPPORTS WHERE THE SUBFLOOR IS UNENCLOSED OR NATURALLY FIRE-RESISTANT TIMBER	IF ENCLOSED BY EXTERNAL WALL REFER BELOW "EXTERNAL WALLS" SECTION IN TABLE OR NON-COMBUSTABLE SUBFLOOR SUPPORTS OR TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2	SUBFLOOR SUPPORTS – ENCLOSED BY EXTERNAL WALL OR NON-COMBUSTABLE WITH AN FRL OF 30/-/- OR BE TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2
FLOORS	NO SPECIAL CONSTRUCTION REQUIREMENTS	NO SPECIAL CONSTRUCTION REQUIREMENTS	NO SPECIAL CONSTRUCTION REQUIREMENTS	CONCRETE SLAB ON GROUND OR ENCLOSURE OR FLOORING LESS THAN 400MM ABOVE GROUND LEVEL TO BE NON-COMBUSTABLE, NATURALLY FIRE RESISITANT TIMBER OR PROTECTED ON THE UNDERSIDE WITH SARKING OR MINERAL WOOL INSULATION	CONCRETE SLAB ON GROUND OR ENCLOSURE BY EXTERNAL WALL OR PROTECTION OF UNDERSIDE WITH NON-COMBUSTABLE MATERIAL SUCH AS FIBRE CEMENT SHEET OR BE NON-COMBUSTABLE OR BE TESTED FOR BUSHFIRE RESISTANCE TO AS 150.8.2	CONCRETE SALB ON GROUND OR ENCLOSURE BY EXTERNAL WALL OR AN FRL OF 30/30/30 OR PROTECTION OF UNDERSIDE WITH 30 MINUTE INCIPENT SPREAD OF FIRE SYSTEM OR BE TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2
EXTERNAL WALL	NO SPECIAL CONSTRUCTION REQUIREMENTS	EXTERNAL WALLS- PART LESS THAN 400MM ABOVE GROUND OR DECKS ETC TO BE OF NON-COMBUSTABLE MATERIAL. 6MM FIBRE CEMENT CLAD OR BUSHFIRE RESISTANT/NATURALLY FIRE-RESISTANT TIMBERS ALL JOINTSTO BE LESS THEN 3MM & VENTS TO BE SCREENED.	EXTERNAL WALLS- PART LESS THAN 400MM ABOVE GROUND OR DECKS ETC TO BE OF NON-COMBUSTABLE MATERIAL. 6MM FIBRE CEMENT CLAD OR BUSHFIRE RESISTANT/NATURALLY FIRE-RESISTANT TIMBERS ALL JOINTSTO BE LESS THEN 3MM & VENTS TO BE SCREENED.	NON-COMBUSTABLE MATERIAL (MASONRY BRICK VENEER, MUD BRICK, AERATED CONCRETE, CONCRETE) TIMBER FRAMED, STEEL FRAMED WALLS SARKED ON THE OUTSIDE & CLAD WITH 6MM FIBRE CEMENT SHEETING OR STELL SHEETINGOR BUSHFIRE RESISTANT TIMBER ALL JOINTS TO BE LESS THAN 3MM & VENTS TO BE SCREENED	NON-COMBUSTABLE MATERIAL (MASONRY BRICK VENEER, MUD BRICK, AERATED CONCRETE, CONCRETE) TIMBER FRAMED, STEEL FRAMED WALLS SARKED ON THE OUTSIDE & CLAD WITH 9MM FIBRE CEMENT SHEETING OR STELL SHEETING TO BE TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2	NON-COMBUSTABLE MATERIAL (MASONRY BRICK VENEER, MUD BRICK, AERATED CONCRETE, CONCRETE) WITH A MINIMUM THICKNESS OF 90MM OR AN FRL OF -/30/30 WHEN TESTED FROM OUTSIDE OR BE TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2
EXTERNAL WINDOWS	NO SPECIAL CONSTRUCTION REQUIREMENTS	4MM GRADE A SAFETY GLASS OR GLASS BLOCKS WITHIN 400MM OF GROUND, DECK ETC WITH OPENABLE PORTION METAL SCREENED WITH FRAME OF METAL OR REINFORCED PVC-U OR BUSHFIRE RESISTING TIMBER.	5MM TOUGHENED GLASS OR 400MM OF GROUND OR DECKS ETC WITH OPENABLE PORTION METAL SCREENED WITH FRAME OF METAL OR METAL REINDFORCED PVC-U OR BUSHFIRE RESISTING TIMBER ABOVE 400MM ANNEALED GLASS CAN BE USED WITH ALL GLASS SCREENED.	5MM TOUGHENED GLASS, WITH OPENABLE PORTION SCREENED AND FRAME OF METAL OR METAL REINFORCED PVC-U OR BUSHFIRE RESISTANT TIMBER AND PROTION WITHIN 400mm OF GROUND, DECK ETC SCREENED.	6MM TOUGHENED GLASS, FIXED AND OPENABLE PORTION SCREENED WITH STEEL OR BRONZE MESH.	PROTECTED BY BUSHFIRE SHUTTER OR FRL OF -/30/- AND OPENABLE PORTION SCREENED WITH STEEL OR BRONZE MESH OR BE TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2
EXTERNAL DOORS	NO SPECIAL CONSTRUCTION REQUIREMENTS	AS FOR BAL-29, EXCEPT THAT DOOR FRAMING CAN BE NATURALLY FIRE RESISTANT ((HIGH DENSITY) TIMBER.	SCREENED WITH STEEL, BRONZE OR ALUMINIUM MESH OR NON-COMBUSTIBLE OR 35MM SOLID TIMBER FOR 400MM ABOVE THRESHOLD, METAL OR BUSHFIRE RESISTING TIMBER FRAMED FOR 400MM ABOVE GROUND/DECKING ETC, TIGHT FITTING WITH WEATHER STRIPS AT BASE.	SCREENED WITH STEEL, BRONZE OR ALUMINIUM MESH OR NON-COMBUSTIBLE OR 35MM SOLID TIMBER FOR 400MM ABOVE THRESHOLD, METAL OR BUSHFIRE RESISTING TIMBER FRAMED TIGHT FITTING WITH WEATHER STRIPS AT BASE	NON-COMBUSTABLE OR 35MM SOLID TIMBER, SCREENED WITH STEEL OR BRONZE MESH, METAL FRAMED, TIGHT FITTING WITH WEATHER STRIPS AT BASE.	PROTECTED BY BUSHFIRE SHUTTER OR TIGHT-FITTING WITH WEATHER STRIPS AT BASE AND AN FRL OF -/30/-
ROOFS	NO SPECIAL CONSTRUCTION REQUIREMENTS	NON-COMBUSTABLE COVERING. ROOF/WALL JUNCTION SEALED. OPENINGS FITTED WITH NON-COMBUSTABLE EMBER GUARDS. ROOF TO BE FULLY SARKED	NON-COMBUSTABLE COVERING. ROOF/WALL JUNCTION SEALED. OPENINGS FITTED WITH NON-COMBUSTABLE EMBER GUARDS. ROOF TO BE FULLY SARKED NON-CONBUSTABLE	NON-COMBUSTABLE COVERING. ROOF/WALL JUNCTION SEALED. OPENINGS FITTED WITH NON-COMBUSTABLE EMBER GUARDS. ROOF TO BE FULLY SARKED	NON-COMBUSTABLE COVERING. ROOF/WALL JUNCTION SEALED. OPENINGS FITTED WITH NON-COMBUSTABLE EMBER GUARDS. ROOF TO BE FULLY SARKED AND NO ROOF MOUNTED EVAPORATIVE COOLERS	ROOF WITH FRL OF 30/30/30 OR TESTED FOR BUSHFIRE RESISTANCE TO AS 1530.8.2. ROOF/WALL JUNCTION SEALED OPENINGS FITTED WITH NON-COMBUSTABLE EMBER GUARDS. ROOF TO BE FULLY SARKED AND NO ROOF MOUNTED EVAPORATIVE COOLERS.
VERANDAHS, DECKS ETC	AS THAT OF BAL 29	AS THAT OF BAL 29	AS THAT OF BAL 29	ENCLOSED SUBFLOOR SPACE OR NON-COMBUSTABLE OR BUSHFIRE RESISTANT TIMBER SUPPORTS, DECKING TO BE NON-COMBUSTABLE OR BUSHFIRE RESISTANT TIMBER.	ENCLOSED SUBFLOOR SPACE OR NON-COMBUSTABLE SUPPORTS. DECKING TO BE NON-COMBUSTABLE.	EN ENCLOSED SUBFLOOR SPACE OR NON-COMBUSTABLE SUPPORTS. DECKING TO HAVE NO GAPS AND BE NON-COMBUSTABLE.

NARARA PLUMBING SERVICES

Ph: (02) 4322 3465 Fax: (02) 4325 0050
Mobile 0409 381200
31 Coolawin Circle Narara NSW 2250

Parkwood Modular Buildings
Lot 6 Kangoo Road
SOMERSBY NSW 2250

Re: Warranty work to Parkwood Relocatable Buildings
Installation of Plumbing Works

All units have the plumbing water tested to 2000Kpa in the factory for any leaks at the rough-in stage and then are pressure tested by water on completion to 600Kpa before leaving the workshop.

On-site Plumbers are to be aware of their responsibilities of completely flushing out the water services and checking levels in cisterns before leaving the job. It is not our responsibility to bear the cost of rewashing taps etc.

Also we have had problems with under floor stack work not being supported properly and pulling waste pipe droppers out of the end of basin/sink etc. wastes. It is your responsibility to install onsite works in a tradesman like manner.

Yours Faithfully

Gavin Singh
Managing Director

MGough Electrical Pty Ltd

ABN: 34 600 451 223 ACN: 600 451 223

107 SEABROOK AVE, BATEAU BAY NSW 2261

PH: 0403 461 142

EMAIL: MATT_GOUGH@HOTMAIL.COM

Date: _____

Chassis/ House No: _____

To Whom It May Concern

I, Matt Gough certify that the smoke detectors/exit signs installed have been selected, located, connected, and installed to comply in accordance with the following: -

1 Installed and tested in accordance with AS 3786-2014 Smoke Alarms

2 Has been connected to the consumer mains power, interconnected where more than one alarm is installed and have standby power in accordance with wiring rules AS 3000-2018

3 Installed and located in accordance to ABCB Housing Provisions Part 9.5 for smoke alarms – Requirements for smoke alarms and evacuation lighting.

4 All exit signs are installed in accordance with Clause E 4.5 to E 4.8 of the BCA and Clause AS 2293.1-2018

Yours Sincerely

MATTHEW GOUGH

NOVAMULTI SERIES

Interior Tri-CCT LED Recessed Downlights

Product Features:

- Input voltage: 220-240V AC 50/60Hz
- Nominal Current: 140mA
- Colour changeable (3000K, 4000K, 5000K) via switch incorporated within fitting
- Dimmable inbuilt LED driver included
- PBT + Aluminium alloy
- LED chips: SMD 2835 LED
- Flex & plug: 1100mm
- Dimmable with most trailing edge dimmers
- Suitable for 2 way switching
- Ambient Temperature: -20 to 40°C
- Suitable for use with 3 wire motion or microwave sensors
- NOVAMULTI: IPART approved (January 2018)
- Warranty: 3 year replacement (max.8hrs per day)

30,000hr Lifetime | 90° Beam Angle | IP44 Rated | DIMMABLE | 3YEAR Replacement Warranty

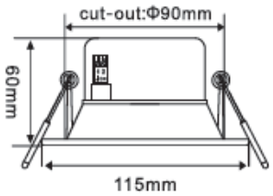
IC-F ABUTTED & COVERED | IC-4

3000K | 4000K | 5000K

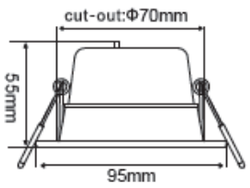
3 CCT in one fitting
CCT switch on the fitting

Tested & Recommended Dimmers:

Brand	Part No.	PCS per Dimmer
CLA - Trailing Edge	VELA, LYNX	NOVAMULTI: 2-9PCS NOVAMULTI2: 2-11PCS
Diginet - Ledsmart	MMDM/PB, MMDM/RT	
Clipsal - Universal	32ELEDM, 32E450UDM	
HPM - Trailing Edge	CAT400T	



NOVAMULTI



NOVAMULTI2

3000K | 4000K | 5000K

Part No.	Kelvin	Lumens	LED Chips	Watt	CRI	Power Factor	Diam	Depth	Cut Out	Weight	Box	Carton QTY
NOVAMULTI	3000/ 4000/ 5000K	700/ 900/ 800lm	36pcs 2835	9W	82	0.9	Ø115mm	60mm	Ø90mm	0.25kg	13x12x8cm	1/40
NOVAMULTI2	3000/ 4000/ 5000K	480/ 600/ 480lm	12pcs 2835	7W	82	0.8	Ø95mm	55mm	Ø70mm	0.2kg	11x11x7cm	1/40

UPDATED ON 18.12.2018

Item	Problem with		Warranty by		Length	Care notes
Structural	Framework	Failure due to excessive deflection	Parkwood		6 years	
	Foundations	Minor Settlement	Contracting Distributor		3 months	May be due to settlement of foundations bases
		Major settlement	Land owner		Term of occupancy	
Roofing	Colorbond & zincalume	Break down of surface coating	Lysaght		Up to 36 Years	Under conditions of installation & maintenance
	Fixings & waterproofing		Parkwood		6 years	
	Gutters & Down pipes		Lysaght		6 years	Gutters should be maintained clean of foliage to ensure minimal water retention
Cladding	All materials	Fixings & waterproofing	Parkwood		6 years	
	Vinyl	Break down of surface	Austech		50 years	External claddings require general maintenance & cleaning
	Weathertex	Split or twisted timber	Weathertex Australia		25 years	All painted products require general maintenance & treatment
	Hardies		Hardies		10-25 years	
External Timber	Decks & Railings by Parkwood	Split or twisted timber	Parkwood		1 year	All painted products require general maintenance & treatment
	Decks & Railings by site contractors	Split or twisted timber	Contracting Distributor		3 months	All painted products require general maintenance & treatment
Windows	Aluminium frames	Break down of surface	Bradnams		6 years	Depending on care and maintenance
		Alignment	Parkwood		12 months	May be due to settlement of foundations bases
		Rollers & Catches	Parkwood	Bradnams	12 months	
	Glass	Defect in glass	Bradnams		3 months	
	Screens	Break down of surface	Bradnams		3 months	depend on care & maintenance
		Defect in mesh	Contracting Distributor	Bradnams	3 months	should be flagged within 2 weeks of installation
		Tightness of fit	Parkwood	Bradnams	3 months	depend on how screen was installed
Doors	Doors binding on frames		Contracting Distributor		3 months	May be due to settlement of foundations
	Interior and external	Delamination or twist	Corinthian/ Humes		3 to 5 year	Check that the door is painted in accordance with manufacturers spec.
	Cavity sliders	rollers	Corinthian		3 months	
	mirror robe doors	frame & mirror surface	Citicoast Shower Screens		3 months	
Door Hardware	Faulty locks		Gainsborough		5 year tarnish	10 year mechanical
		Corrosion of surface finish	Lockwood- internal		3 months	Brass ware requires routine care & maintenance
			Lanes - Electronic lock	Hudsons	1 to7 years	Electrical - 1 yr, Mechanical 7yrs
External paintwork		Acrylic	Contracting Distributor		3 years	All painted products require general maintenance & treatment
		Enamel			2 years	
		Semi Transparent Stains			1 year	

136 Zillmere Rd,
Boondall QLD 4034
phone: +61 7 3131 3777
fax: +61 7 3131 3838
website: www.bradnams.com.au

Bradnam's windows & doors

To whom it may concern,

This letter is written to provide awareness of how the typical Australian Designed Aluminium Sliding Windows provide weathering performance.
Sliding windows, like all fenestration products manufactured in Australia, are required to comply with the Australian Standard AS2047 Windows and External Glazed Doors in Buildings. This standard outlines the performance criteria a window must achieve to be compliant. When it comes to the water resistance of a sliding window or door, this is determined by a category given to the site. This site category relates to a number of conditions such as locality, topography, protection etc. For residential dwellings, a water resistance rating is specified in Pascals, and is typically between 150 & 300 Pascals.
This water resistance rating relates to the windows ability to pass the test criteria for a predetermined volume of water, whilst a constant static wind pressure is applied simultaneously. These water ratings are set to simulate typical weather events experienced in the area, however weather events are unpredictable and can often go well beyond the nominated rating.

A typical window sill resists wind and water by the physics principal of Pressure Head. As the water is forced through the sliding seals via wind pressure, it is collected internally within the sill itself. The sill, based on its rated performance, is designed to hold this static head of water up to its rating and subsequently release it, through a baffling function, which opens and closes based upon the realised water level, and the applied wind pressure which is happening concurrently.

Water visible in the sill from the inside is NORMAL. It only becomes an issue when the water flows over the top of the inside leg of the sill into the home. As mentioned above, this can happen if the weather event exceeds that predicted by the Australian standard requirement rating.

Any further questions, please do not hesitate to make contact with myself at the below mentioned.

Best Regards

DAVE JONES

Research & Development and Technical Services Manager

Bradnams Windows & Doors

07 31313811

0407673307

Waterproofing Certificate

We certify that the Parkwood Home, production number :

Constructed :

Client :

Complies with the Australian Standards AS 3740-2021

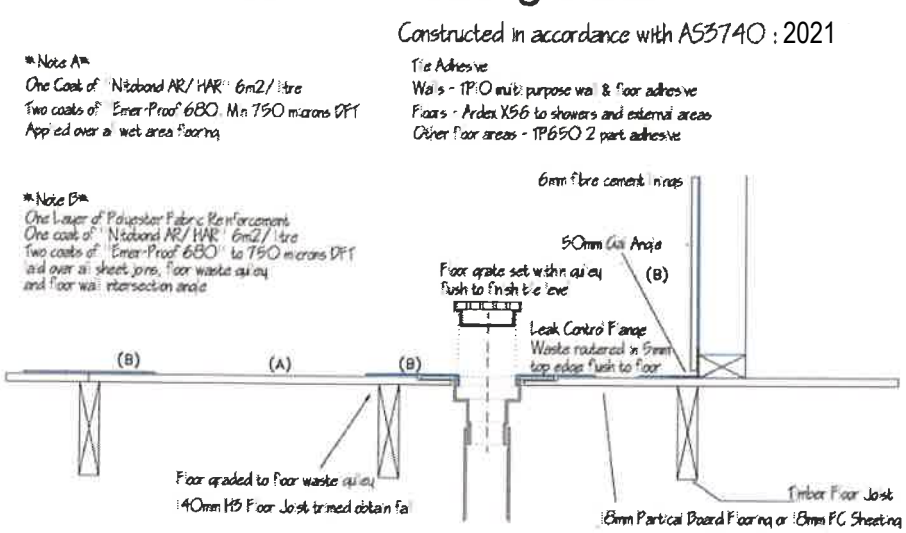
Wet Area Waterproofing System:

Wet area floor	18 mm all-purpose particle boards or 18mm fibre cement sheet A polyurethane membrane and ceramic tile 1 coat of "Nitobond " single compound polymer emulsion 2 coats of "Emer-Proof - 680" to 750 microns DFT 100mm floor waste with safety tray Ceramic tiles laid using Ardex X56 Flexible grout by Davco neutral additive 4 in 1
Wet area walls	6mm fibre cement sheeting Membranes extent from floor up min 150mm 1 coat of "Emer-Clad" acrylic primer 2 coats of "Emer-Clad" to 350 microns DFT Ceramic tiles laid using TP10 wall tile adhesive Internal corners Bathroom 8S white silicon
Shower enclosure	2100mm high laminated shower screen with pivot or sliding doors

An acrylic shower tray and or bath may be included in the design

Wet Area Water Proofing Detail

Constructed in accordance with AS3740 : 2021



Certified by Accredited Waterproofer: Malcolm Lyall (certification #H004)

Parkwood Modular Buildings Pty Limited John McDougall (Build Licence 86240C)

ON SITE TERMITE MANAGEMENT

In accordance with AS 3660.1:2014 the structural frame and sub-floor of your Parkwood Home relies on a physical barrier. Regular visual inspections for termite infestation should be carried out.

A physical barrier with a minimum clearance of 150mm on sloping sites and a general minimum clearance between floor joist and ground of 400mm must be maintained.

Attachments to buildings such as down pipes & service pipes and conduits shall provide a nominal gap to allow clear and uninterrupted visual inspection across the inspection zone.

Structures such as steps, hot water systems, air conditioners or similar shall be separate from the building by a gap of at least 25mm to allow clear and uninterrupted visual inspection across the inspection zone.

The sub floor area shall be graded and drained to prevent ponding of water under the building.

All exterior paving and other ground surfaces abutting external walls shall be 75mm lower than timber floor elements and the areas graded to prevent water ponding against the perimeter of the building.

The under floor area should be dry, well ventilated and kept clear. The area should not be used for the storage of building materials or timber.

Ref: NA230831

26 March 2024

Parkwood Modular Buildings Pty Ltd
Lot 6 Kangoo Road
SOMERSBY NSW 2250

Attn: Mr John McDougall

Dear John

Re Structural Inspection of Prefabrication Buildings
March 2024

We confirm that ACOR consultants Pty Ltd attended the fabrication premises on the 1st March 2024 for the purpose on inspecting the structural elements of pre-fabricated housing and buildings at various stages during construction.

At the time of our inspection, relevant structural elements were assessed and were found to comply with the structural design specifications and with the requirements of the Building Code of Australia.

Should you have any further queries don't hesitate to contact the undersigned.

Yours faithfully
ACOR Consultants Pty Ltd

sfieck

Syhra Fieck
Project Engineer - Structural
BE(Hons1) MIEAust

CONSULTANTS

Unit 10, Level 1
No. 1 Maitland Place
Baulkham Hills
NSW 2153

T 02 9634 6311
F 02 9438 5398

www.acor.com.au

PO Box 7660
Baulkham Hills
NSW 2153

ENGINEERS
MANAGERS
INFRASTRUCTURE PLANNERS
DEVELOPMENT CONSULTANTS

A. GENERAL

A.1 THIS SET OF DRAWINGS IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS.

A.2 ALL SET OUT DIMENSIONS ARE TO BE OBTAINED FROM THE ARCHITECTURAL DRAWINGS UNLESS SPECIFIC DIMENSIONS ARE GIVEN ON THE ENGINEERING DRAWINGS.

A.3 THESE DRAWINGS SHOULD NOT BE SCALED.

A.4 ALL MATERIALS AND WORKMANSHIP ARE TO BE OF THE HIGHEST STANDARD AND IN ACCORDANCE WITH ANY RELEVANT S.A.I. GLOBAL CODES RELATING TO THEIR APPLICATION. CERTIFICATES TO THIS EFFECT FROM A N.A.T.A. APPROVED TESTING LABORATORY SHALL BE FURNISHED ON REQUEST.

A.5 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART OF THE STRUCTURE SHALL BE OVER STRESSED.

A.6 THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING SUPERIMPOSED LIVE LOADINGS:
INTERNAL: 1.5 kPa
GARAGE: 3.0 kPa
BALCONY: 2.0 kPa

B. SITE CLASSIFICATION

B.1 A SITE CLASSIFICATION SHALL BE CARRIED OUT PURSUANT TO CLAUSE 2.1.1 OF AS2870-1996.
BY: EITHER LOCAL COUNCIL, QUALIFIED ENGINEER OR GEOTECHNICAL ENGINEER

B.2 THE DESIGN IS BASED ON EITHER SITE CLASSIFICATIONS, A, S, M OR H. IN ACCORDANCE WITH THE TABLES ON THE DRAWINGS

B.3 THE FOOTING SYSTEM SPECIFIED ON THESE DRAWINGS WILL MEET THE PERFORMANCE REQUIREMENTS SET OUT IN CLAUSE 1.3 OF AS2870-1996 (RESIDENTIAL SLABS AND FOOTINGS CODE). THE FOOTING SYSTEM IS INTENDED TO ACHIEVE ACCEPTABLE PROBABILITIES OF SERVICEABILITY AND SAFETY OF THE BUILDING DURING ITS DESIGN LIFE.

B.4 APPENDIX B OF AS2870-1996 PROVIDES INFORMATION AND GUIDANCE ON THE MAINTENANCE OF FOUNDATION & SITE CONDITIONS. SUBJECT TO ADOPTION OF THESE RECOMMENDATIONS THE BUILDING MAY EXPERIENCE MINOR DAMAGE BUT OF A SEVERITY NOT EXCEEDING THE LEVELS DEFINED IN APPENDIX C OF AS2870-1996.

B.5 IT IS THE OWNERS RESPONSIBILITY TO ENSURE THE SITE IS PROPERLY MAINTAINED.

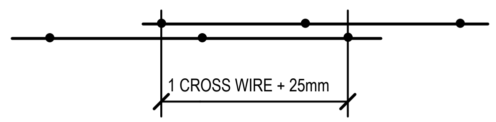
B.6 THE FOOTING DETAILS SHOWN ARE FOR THE SITE CLASSIFICATION STIPULATED. WHILST EVERY CARE HAS BEEN TAKEN TO VERIFY THAT THE INFORMATION SHOWN IS CORRECT, ACOR CONSULTANTS PTY LTD TAKES NO RESPONSIBILITY FOR VARIATIONS WHICH MAY OCCUR DUE TO VARIATIONS IN SITE CONDITIONS.

D. STEEL FIXER

D.1 ALL REINFORCING BAR AND FABRIC SHALL BE DESIGNATED AS SHOWN IN THE FOLLOWING TABLE AND SHALL COMPLY WITH THE APPROPRIATE CODES AS NOTED BELOW:

SYMBOL	TYPE
R	STRUCTURAL GRADE ROUND BARS TO AS4671-2001 (230MPa)
S	STRUCTURAL GRADE DEFORMED BARS TO AS4671-2001 (230MPa)
N	TEMPCORE DEFORMED BARS TO AS4671-2001 (500MPa)
RL/SL	FABRIC TO AS4671-2001 (500MPa)
TM	TRENCH MESH TO AS4671-2001 (500MPa)
NOTE:	THE NUMBER FOLLOWING THE SYMBOL IS THE BAR DIAMETER IN MILLIMETRES.

D.2 MINIMUM LAP TO FABRIC TO BE AS SHOWN IN THE DIAGRAM BELOW:



D.3 TRENCH MESH SHALL BE SPLICED WHERE NECESSARY BY A LAP OF 500mm. ALL CROSS WIRES TO TRENCH MESH SHALL BE CUT FLUSH WITH OUTER MAIN WIRES.

D.4 SPLICES IN REINFORCEMENT SHALL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF TABLE 13.1.2.2.A OF AS3600-1994 OR IN ACCORDANCE WITH THE FOLLOWING TABLE:

BAR SIZE	N12	N16	N20	N24	N28	N32
SPLICE LENGTH	400	600	800	1200	1350	1650

D.5 REINFORCEMENT SHALL BE SUPPORTED AT 800mm MAXIMUM CENTRES TO MAINTAIN THE NOMINATED POSITION AND COVER UNLESS REDUCED SPACING IS SPECIFIED.

D.6 BAR CHAIRS SHOULD BE PLACED SUCH THAT REINFORCEMENT IS ALWAYS POSITIONED WITH SPECIFIED COVER.

D.7 WELDING OF REINFORCEMENT OTHER THAN TACK WELDING FOR PURPOSE OF MAINTAINING BARS IN CORRECT POSITION IS NOT PERMITTED UNLESS SPECIFICALLY NOMINATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.

E. CONCRETE

E.1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

CONCRETE QUALITY:

ELEMENT	SLUMP	MAX. SIZE AGG.	CEMENT TYPE	AS3600 F'c	ADMIXTURE	MIN. CEMENT CONTENT PER M^3
PIERS	80	20	GP/GB	20MPa	NIL	250 Kg
SLAB	80	20	GP/GB	20MPa	NIL	250 Kg

E.2 DESIGN COVER TO THE REINFORCEMENT SHALL BE 40mm TO UNPROTECTED GROUND, 40mm TO EXTERNAL EXPOSURE; 30mm TO THE MEMBRANE IN CONTACT WITH THE GROUND AND 20mm TO THE INTERNAL SURFACE. THE SLAB FABRIC SHALL BE PLACED TOWARDS THE TOP OF THE SLAB WITHIN THE ZONE DEFINED BY THESE LIMITS.

E.3 ALL CONCRETE CONSTRUCTION TO BE COMPACTED WITH A MECHANICAL VIBRATOR.

E.4 THE CONCRETE SLAB SHALL BE CURED USING AN APPROVED COMMERCIAL CURING COMPOUND AND IN ACCORDANCE WITH CLAUSE 19.1.5 OF AS3600-1994. CURING OF THE CONCRETE SHALL START IMMEDIATELY AFTER FINISHING.

S. RESIDENTIAL STRUCTURAL STEEL WORK

S.1 ALL STRUCTURAL STEEL WORK SHALL COMPLY WITH AS 1111, AS 1112, AS 1163, AS 1554, AS 4100, AND THE A.C.S.E. STRUCTURAL STEEL FABRICATION AND ERECTION SPECIFICATIONS WHERE DEEMED APPROPRIATE BY THE CONTRACT DOCUMENTS.

S.2 ABBREVIATIONS USED ARE AS FOLLOWS:

UB - UNIVERSAL BEAM
UC - UNIVERSAL COLUMN
PFC - PARALLEL FLANGE CHANNEL
EA - ROLLED STEEL EQUAL ANGLE
UA - ROLLED STEEL UNEQUAL ANGLE
RHS - RECTANGULAR HOLLOW SECTION
SHS - SQUARE HOLLOW SECTION
B.W. - BUTT WELD
F.W. - FILLET WELD

S.3 THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION IS THE BUILDER'S RESPONSIBILITY. ADEQUATE TEMPORARY BRACING SHALL BE PROVIDED WHERE NECESSARY AND AS DIRECTED BY THE SUPERVISING ENGINEERING.

S.4 ALL SHOP CONNECTIONS SHALL BE FULLY WELDED UNLESS NOTED OTHERWISE.

S.5 BOLT DESIGNATION:

4.6/S COMMERCIAL BOLTS OF GRADE 4.6 TO AS1111 SNUG TIGHTENED.

8.8/S HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 SNUG TIGHTENED.

S.6 UNLESS NOTED OTHERWISE ALL BOLTS SHALL BE M16 GRADE 8.8/S. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANISED.

S.7 UNLESS NOTED OTHERWISE ALL WELDS SHALL BE 6mm CONTINUOUS FILLET TYPE GP. BUTT WELDS, WHERE SPECIFIED, SHALL BE COMPLETE PENETRATION BUTT WELDS TO AS 1554. USE E4121.02.07 ELECTRODES FOR ALL WELDING UNLESS NOTED OTHERWISE.

S.8 UNLESS NOTED OTHERWISE ALL GUSSET AND CONNECTION PLATES TO BE 10mm.

S.9 THE BUILDER SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING STEEL TO STEEL AND TIMBER TO STEEL WHETHER OR NOT DETAILED ON THE DRAWINGS.

S.10 ALL COLUMNS AND BEAMS SHOWN ON THE DRAWINGS FOR TIMBER FRAMED BUILDINGS SHALL BE LATERALLY RESTRAINED BY THE BUILDING FRAME AT EACH SUPPORT LOCATION THROUGH POSITIVE SCREW FIXING OF WALL STUDS TO THE COLUMNS AND EITHER JOISTS OR NOGGINGS TO THE BEAMS.

S.11 ALL COLUMNS AND BEAMS SHOWN ON THE DRAWINGS FOR FULL BRICK BUILDINGS SHALL BE LATERALLY RESTRAINED BY THE BRICKWORK AT EACH SUPPORT THROUGH POSITIVE FIXING OF WALL TIES TO THE COLUMNS AND EITHER JOISTS OR NOGGINGS TO THE BEAMS. NO ADDITIONAL RESTRAINT IS REQUIRED WHERE A BEAM DIRECTLY SUPPORTS A CONCRETE FLOOR SLAB.

S.12 SURFACE TREATMENT AND COATINGS SHALL BE AS SPECIFIED WITHIN THE TABLE BELOW:

ELEMENT	SURFACE CLEANING TO AS 1627 PART 4	COATINGS
ALL EXTERNAL STEELWORK	SUITABLE FOR GALVANISING	HOT DIPPED GALVANISED OR IN ACCORDANCE WITH AS2312
ALL INTERNAL STEELWORK	CLASS 1	R.O.Z.P. - 1 COAT

S.13 REFERENCE SHOULD BE MADE TO AS 2312 FOR GUIDANCE ON APPROPRIATE COATING SYSTEMS FOR ALL EXTERNAL APPLICATIONS. COATING OF EXTERNAL LINTELS SHALL BE IN ACCORDANCE WITH BCA96 CLAUSES 3.3.3.4 AND 3.4.4 OR AS3700 CLAUSE 3.4.3.
THE BUILDER MUST CLARIFY HIS CONTRACTUAL OBLIGATIONS IN THIS REGARD.

S.14 CONCRETE ENCASED STEEL WORK SHALL BE WRAPPED WITH 10 S.W.G. WIRE AT 100mm PITCH AND SHALL HAVE A MINIMUM CONCRETE COVER OF 150mm UNLESS NOTED OTHERWISE.

C. FOOTINGS

C.1 GENERAL
ALL PIERING IS TO CONFIRM TO THE FOLLOWING TABLES FOR SINGLE & TWO STORY BUILDINGS AND NOTES C2 & C3. WHERE CONDITIONS DIFFER TO WHAT IS DETAILED, THE STRUCTURAL ENGINEER IS TO BE NOTIFIED TO PROVIDE INSTRUCTIONS

C.2 PIER DEPTHS NOMINATED ARE MINIMUM REQUIREMENTS ONLY AND SHOULD BE INCREASED IF REQUIRED.

C.3 MINIMUM 3 PIERS PER EACH CHASSIS BEAM UNLESS APPROVED BY ENGINEER IN WRITING.

4m OVERALL WIDTH

BEARING STRATA	STANDARD CHASSIS
ALL PIERS	ALL PIERS
100KPa (SAND)	Ø450 AT 2.6m Ø600 AT 4m
150KPa (NATURAL CLAY/MATERIAL)	Ø450 AT 3.6m Ø600 AT 4m
250KPa (STIFF CLAY)	Ø450 AT 4m
400KPa+ (SHALE/ROCK)	Ø450 AT 4m

5m OVERALL WIDTH

BEARING STRATA	STANDARD CHASSIS
ALL PIERS	ALL PIERS
100KPa (SAND)	Ø450 AT 1.9m Ø600 AT 3.4m
150KPa (NATURAL CLAY/MATERIAL)	Ø450 AT 3m Ø600 AT 4m
250KPa (STIFF CLAY)	Ø450 AT 4m
400KPa+ (SHALE/ROCK)	Ø450 AT 4m

MIN PIER DEPTH (REFER TO S03)

DESCRIPTION	SITE CLASS	MIN PIER DEPTH 'D'
ROCK	A	400 OR LEVELLING PAD
STABLE	S	400
MODERATE REACTIVE	M	600
HIGHLY REACTIVE	H	1000 AT 2400 MINIMUM CTS.

FOR CONSTRUCTION

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Issue	Description	Date	Drawn	Approved
2	REISSUED FOR CONSTRUCTION	30.04.19	BD	AH
1	ISSUED FOR CONSTRUCTION	11.07.17	AT	AH

0.5 0 1cm at full size 5cm 10cm

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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL DETAILS - NOTES SHEET
STANDARD CHASSIS

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	N.T.S	AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S01	2

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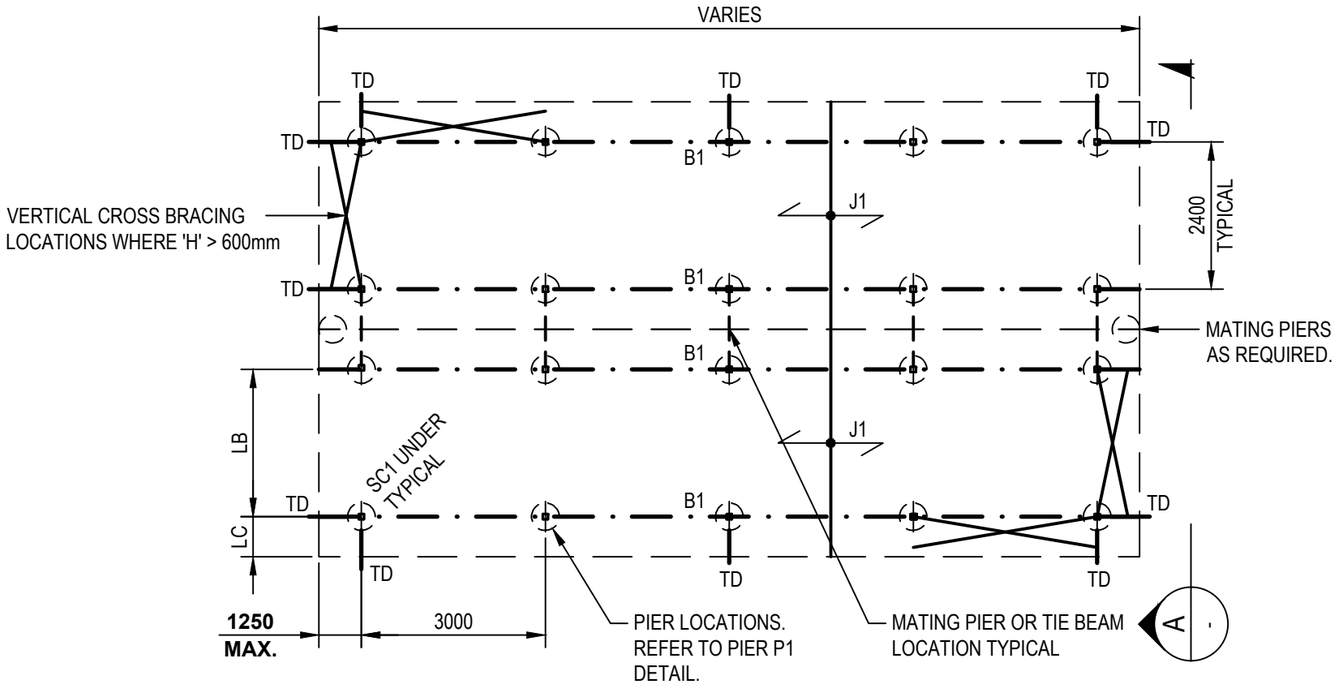


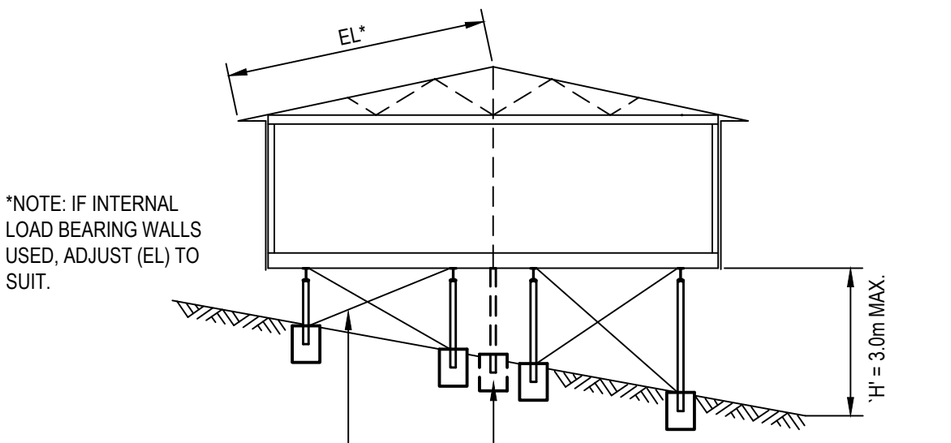
PIER LOCATION AND CHASSIS PLAN

TD - REFER TO TIEDOWN TYPICAL DETAILS

MEMBER SCHEDULE			
MARK	SIZE		REMARKS
B1	200UB18 OR 230 PFC		BEARER
MARK	HEIGHT 'H'	SIZE	CROSS BRACING
SC1	450 MIN.-600mm	90x90x2.0 DURAGAL SHS	N/A
SC1	601-2400mm	90x90x2.0 DURAGAL SHS	MINIMUM OF 150mm² STEEL CROSS SECTIONAL AREA
SC1	2400 - 3000	90x90x2.0 DURAGAL SHS	MINIMUM OF 300mm² STEEL CROSS SECTIONAL AREA

NOTE:
MAX CANTILEVER = BACKSPAN/2 OR 1.3M WHICH IS LESS

MAX CANTILEVER WHEN SUPPORTING BI FOLD OR SLIDING DOORS
= BACKSPAN/3 OR 1.0M WHICHEVER IS LESS



ELEVATION A -

FLOOR JOIST SCHEDULE (J1)			
SIZE	BACK SPAN (LB)	MAX. CANTILEVER (LC)	EFFECTIVE ROOF (EL)
190 x 45 MGP10 AT 450 CTS.	2400 CONTINUOUS	1200 1000 800	2400 3600 4800
190 x 35 MGP10 AT 450 CTS.	2400 CONTINUOUS	1100 800 600	1500 3600 4800
140 x 35 MGP10 AT 450 CTS.	2400 CONTINUOUS	800 600	1500 2400
STEEL C-SECTION IN ACCORDANCE WITH MANUFACTUERS SPECIFICATIONS			

REFER TO "UNDER-EAVE EXTENSIONS" DIAGRAMS.
NOTE: ROOFING MATERIAL IS SHEET METAL
ONLY (TOTAL ROOF = 40kg/m²)

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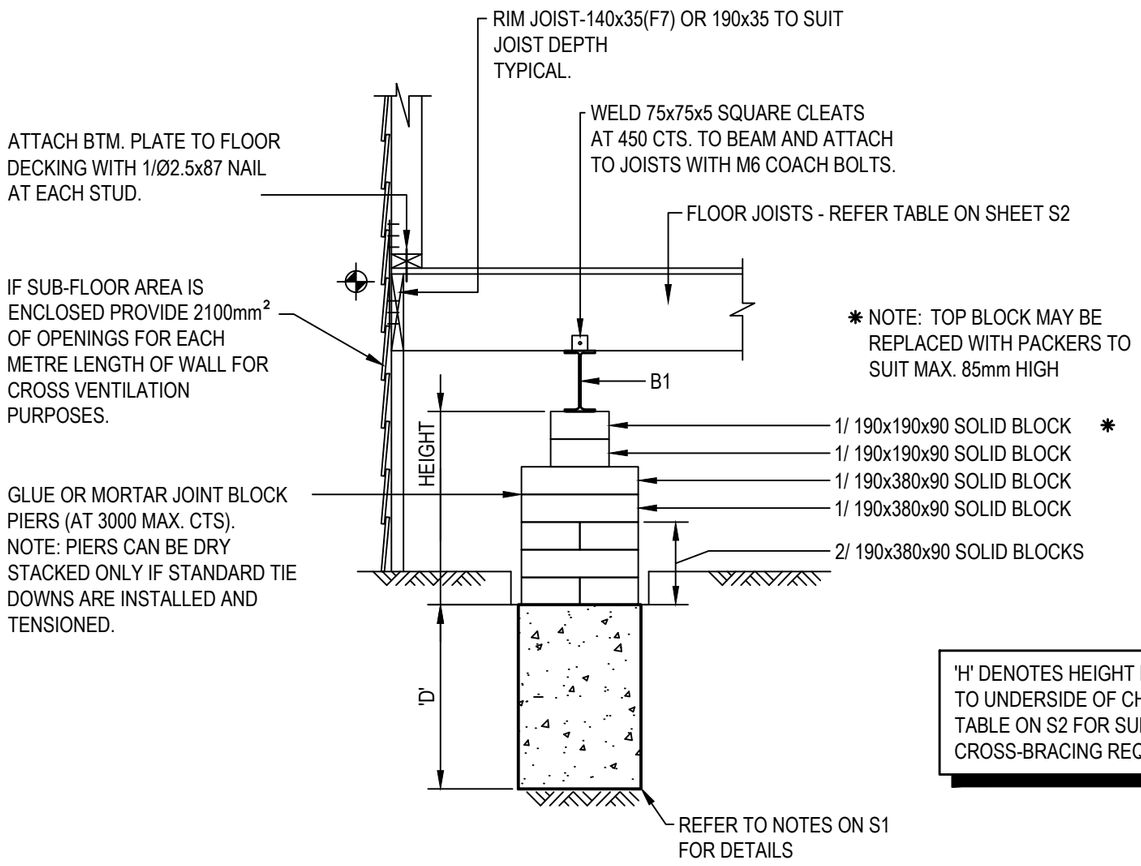
Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL SUB-FLOOR PLAN AND DETAILS
SHEET 1

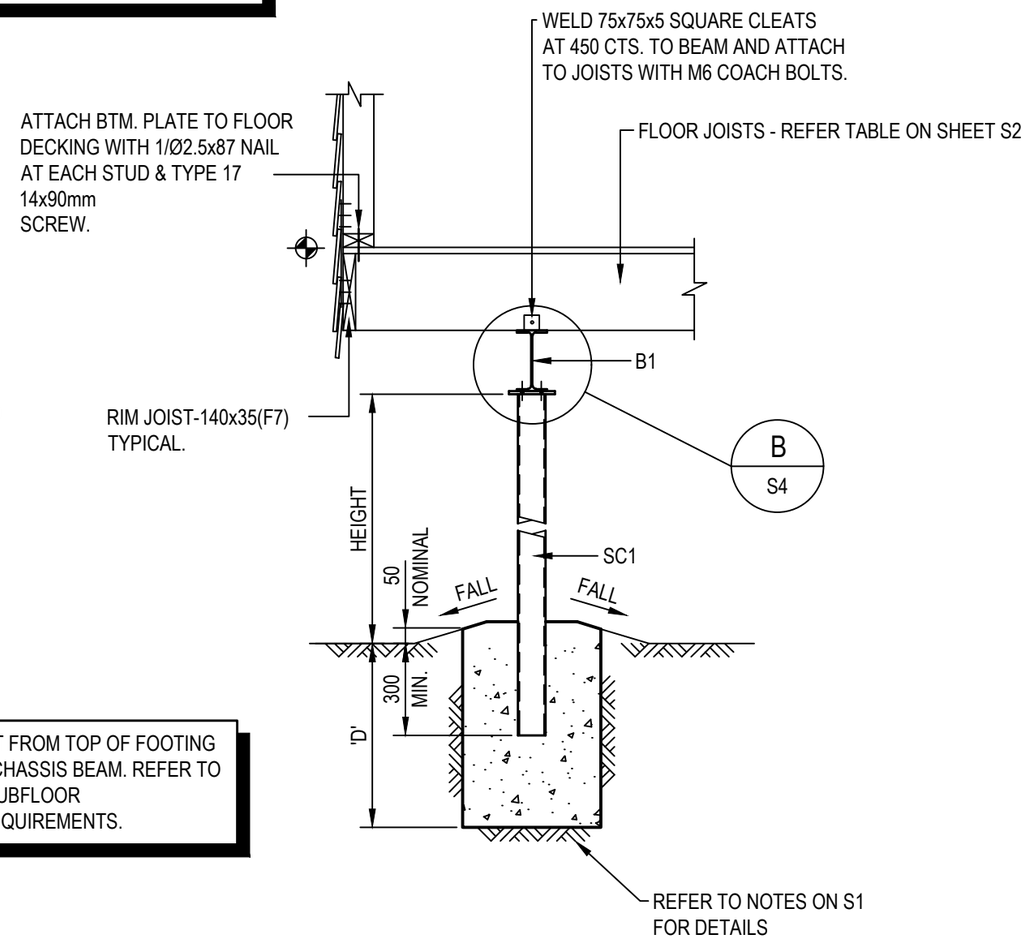
Drawn	Date	Scale	A3	Q.A. Check	Date
AT	APRIL '17	N.T.S		AH	Q.A. DATE
Designed	Project No.			Dwg. No.	Issue
AH	WS170089			S02	2

TYPICAL GALVANISED STEEL STRAP, USE 6 STAPLES OR 3/Ø2.5x87 NAILS AT EACH SIDE OF JOINT. STEEL STRAP REQUIRED AT EVERY STUD AND AT BOTH STUDS AT EACH END OF OPENINGS.



* NOTE: TOP BLOCK MAY BE REPLACED WITH PACKERS TO SUIT MAX. 85mm HIGH

'H' DENOTES HEIGHT FROM TOP OF FOOTING TO UNDERSIDE OF CHASSIS BEAM. REFER TO TABLE ON S2 FOR SUBFLOOR CROSS-BRACING REQUIREMENTS.



PIER P1 DETAIL WHERE HEIGHT < OR = 600mm

PAD FOOTING DETAIL

NOTE: WHERE BEDROCK ENCOUNTERED PROVIDE 50mm THICK LEVELING PAD

WHERE HEIGHT TO CHASIS BEAM IS 1000 FOR LESS THAN 25% OF ALL PIERS ON SITE, PIER HEIGHTS MAY BE INCREASED USING 2/190x390x90 BLOCKS. AN ADDITIONAL TIE DOWN SHOULD BE INSTALLED WHERE THIS OCCURS ON AN EXTERNAL ROW OF PIERS.

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1	ISSUED FOR CONSTRUCTION	11.07.17	AT	AH

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Drawing Title: STRUCTURAL SERVICES
TYPICAL SUB-FLOOR PLAN AND DETAILS
SHEET 2

Drawn	Date	Scale	A3	Q.A. Check	Date
AT	APRIL '17	20		AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S03	2

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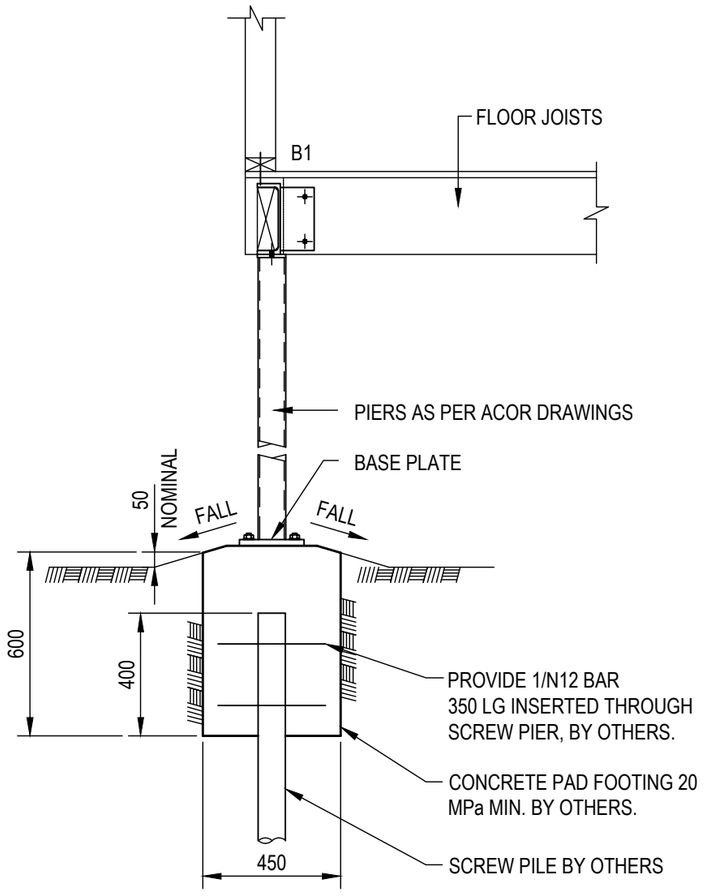

TYPICAL SCREW PIER DETAIL FOR PIER WITH PAD FOOTING

SCREW PILE LOADING SCHEDULE (SAFE WORKING LOADS)

DEAD LOAD	LIVE LOAD
20 kN	20 kN

NOTE:
CONTRACTER TO DESIGN PIERS FOR MAXIMUM 150 ECCENTRIC LOAD.

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Issue	Description	Date	Drawn	Approved
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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL DETAILS
SCREW PIER WITH PAD FOOTING

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	20	AH	Q.A. DATE
Designed	Project No.		Dwg. No.	Issue
AH	WS170089		S03.02	2

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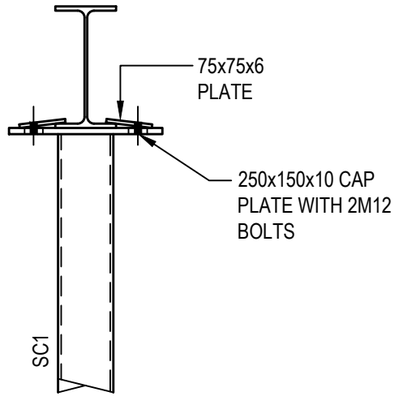
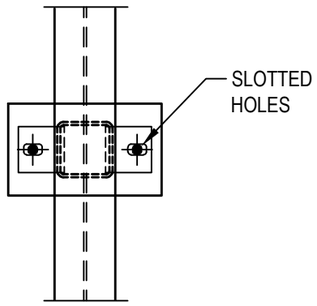
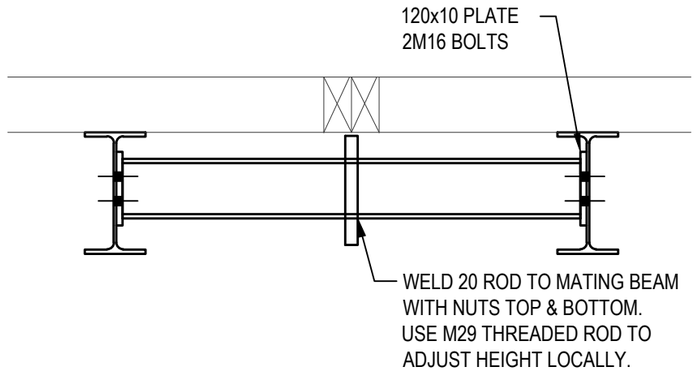
Apr 30, 2019 - 12:44pm



DETAIL B / S3



PLAN



MATING BEAM DETAIL

100UC FOR 200 CHASSIS
150UC FOR 250 CHASSIS

FOR CONSTRUCTION

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Issue	Description	Date	Drawn	Approved
2	REISSUED FOR CONSTRUCTION	30.04.19	BD	AH
1	ISSUED FOR CONSTRUCTION	11.07.17	AT	AH

0 1cm at full size 2cm 3cm 4cm 5cm

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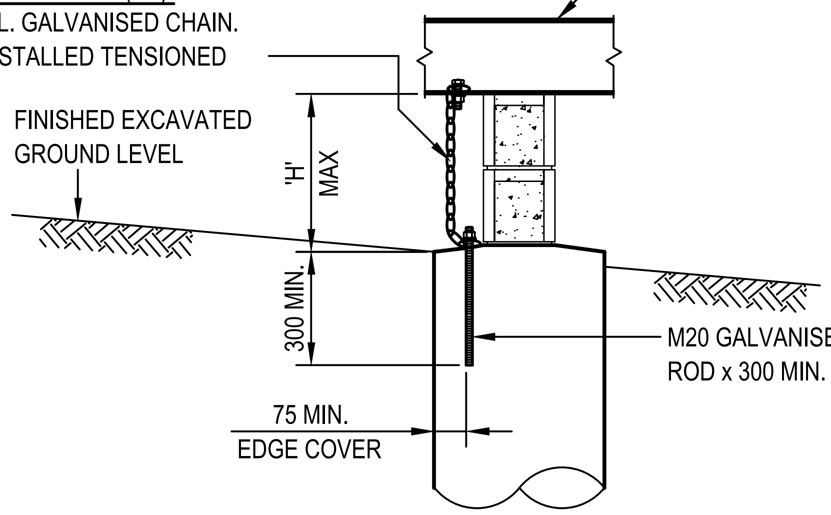
Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL SUB-FLOOR PLAN AND DETAILS
SHEET 3

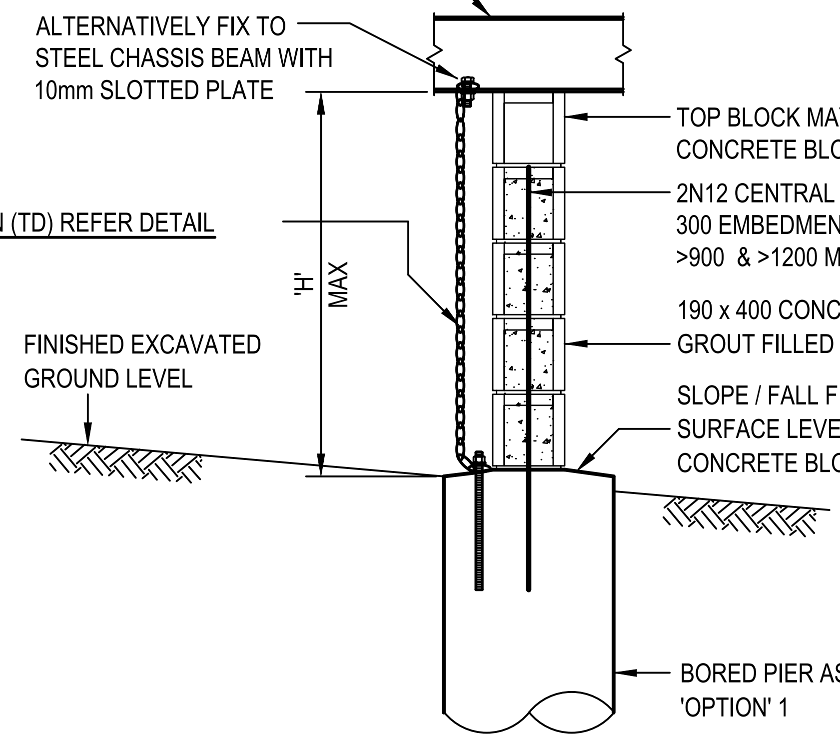
Drawn	Date	Scale	A3	Q.A. Check	Date
AT	APRIL '17	10		AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S04	2



ANCHOR DETAIL

FOR 190 x 400 GROUT FILLED CONCRETE BLOCKS 'H' = 400 MAX.
FOR 400 x 400 SOLID CONCRETE BLOCKS 'H' = 900 MAX.



ALTERNATE PIER DETAIL

FOR 190 x 400 GROUT FILLED CONCRETE BLOCKS 'H' = 400 MAX.
FOR 400 x 400 SOLID CONCRETE BLOCKS 'H' = 900 MAX.
FOR 190 x 400 REINFORCED CORE FILLED CONCRETE BLOCKS 'H' = 1200 MAX.

ANCHOR DETAILS

This drawing has been assigned an electronic code that signifies the drawing has been checked and approved by:

Issue	Description	Date	Drawn	Approved
2	REISSUED FOR CONSTRUCTION	30.04.19	BD	AH
1	ISSUED FOR CONSTRUCTION	11.07.17	AT	AH

0.5 0 1cm at full size 5cm 10cm

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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL SUB-FLOOR ANCHOR DETAILS
SHEET 1

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	1:20	AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S05	2

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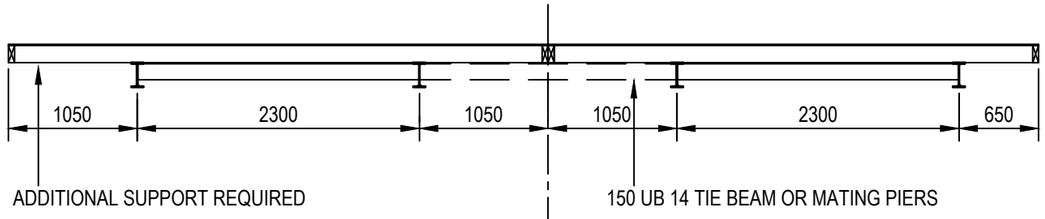
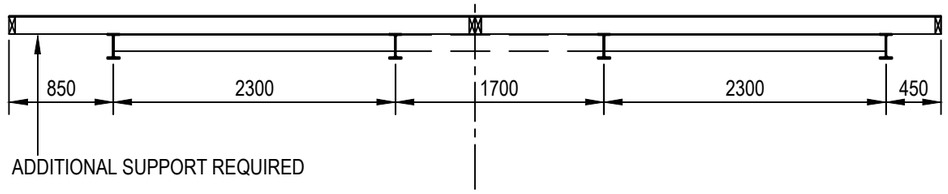
(2@4.0m)



7200
(2@3.6m)



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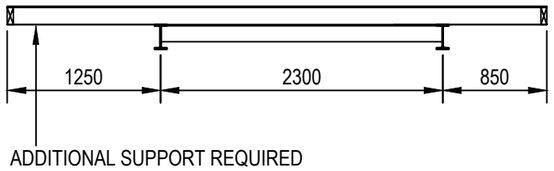
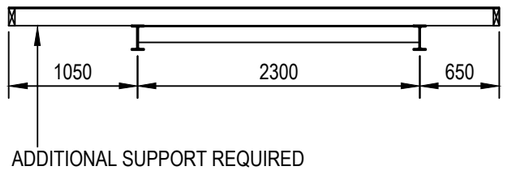
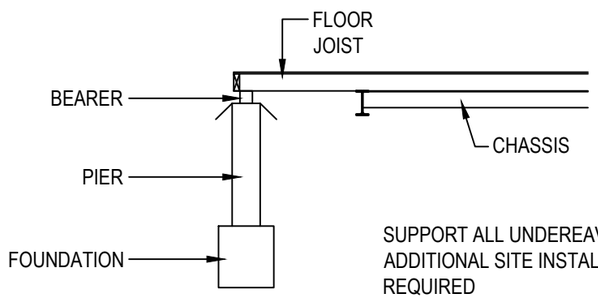


3600



UNDER-EAVE EXTENSIONS

REFER TO SHEET S2 FOR JOIST SCHEDULE



SUPPORT ALL UNDEREAVE EXTENSIONS WITH AN ADDITIONAL SITE INSTALLED BEAM AND PIERS AS REQUIRED

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Issue	Description	Date	Drawn	Approved
2	REISSUED FOR CONSTRUCTION	30.04.19	BD	AH
1	ISSUED FOR CONSTRUCTION	11.07.17	AT	AH

0 1cm at full size 10cm 20cm

North

PARKWOOD MODULAR BUILDINGS Better Design - Better Built

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FOR CONSTRUCTION

Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL DETAILS - UNDER-EAVE EXTENSIONS

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	1:50	AH	Q.A. DATE
Designed	Project No.		Dwg. No.	Issue
AH	WS170089		S06	2

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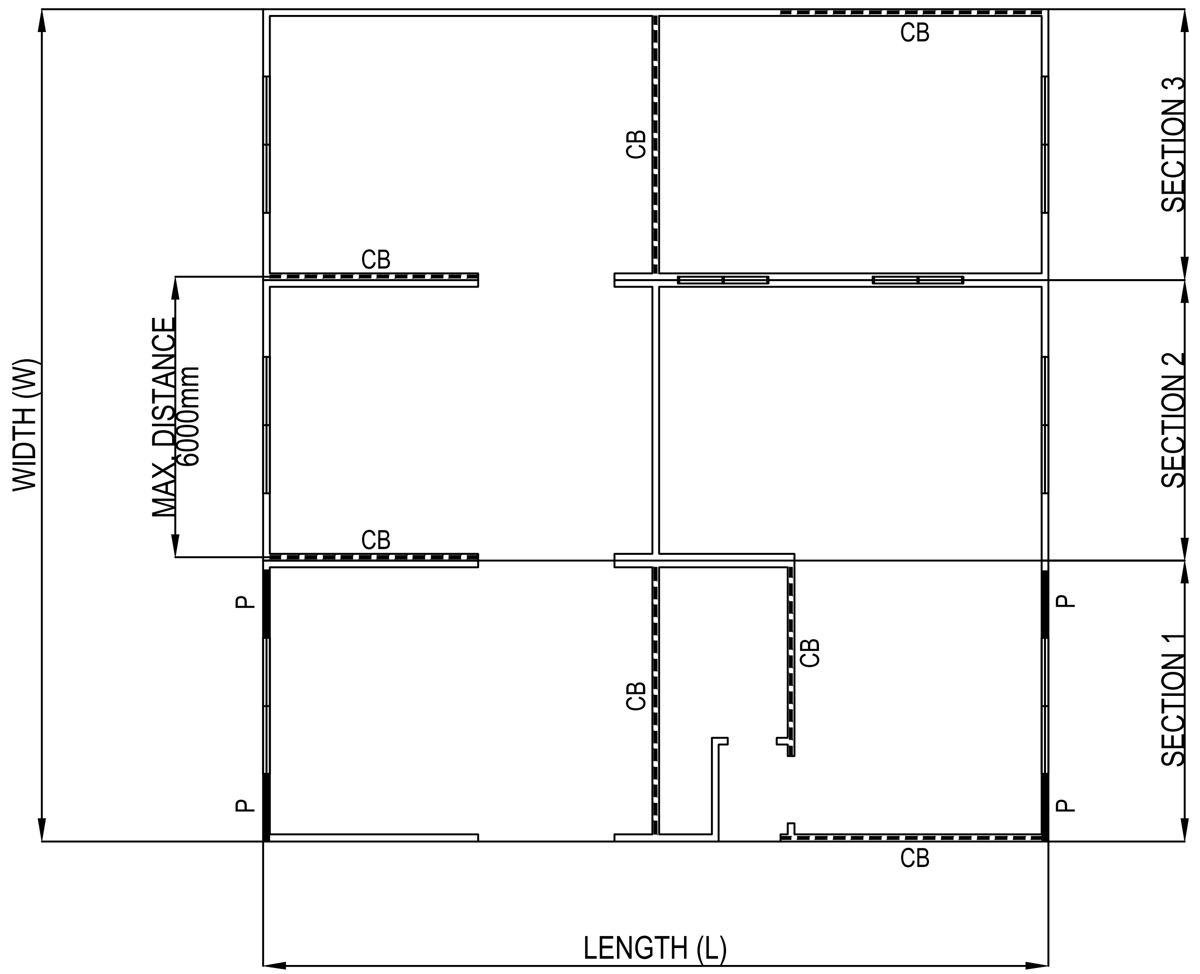


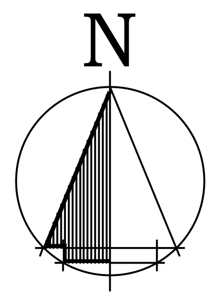
FLOOR PLAN:

- FLOOR JOISTS TO BE TREATED PINE OR SIMILAR. DO NOT IN ANY WAY UNDERMINE, ENDANGER OR DESTABILISE ANY ADJACENT STRUCTURES (OR PARTS THEREOF)
- ENGINEER TO BE CONTACTED PRIOR TO ANY PROPPING, BRACING OR UNDERPINNING AS MAY BE REQUIRED.
- ALL FOOTINGS MUST BEAR FULLY ON FIRM NATURAL STRATA OF THE SAME TYPE HAVING AN ALLOWABLE BEARING CAPACITY OF 150kPa MINIMUM.

WIND CLASSIFICATION N3 IN ULTIMATE STRESS
SINGLE STOREY STANDARD HOUSE LENGTH L (m) WITH Max 15° ROOF PITCH

NUMBER OF TYPE B BRACING (6 kN PER BRACING)

HOUSE WIDTH W (m)		4	8	10	12	16	18
4	N.S.	2	4	4	5	7	8
	W.E.	2	2	2	2	2	2
8	N.S.	2	4	4	5	7	8
	W.E.	4	4	4	4	4	4
12	N.S.	2	4	4	5	7	8
	W.E.	5	5	5	5	5	5



BRACING LEGEND:

P DENOTES PLYWOOD TYPE B BRACING. REFER TO BRACING DETAILS IN DRWG No. S8

CB LONG SIDE AND INTERNAL CROSS BRACING. REFER TO BRACING DETAILS IN DRWG No. S8

- MAXIMUM DISTANCE BETWEEN BRACING WALLS SHALL BE 6000.
- REFER TO TABLE ABOVE FOR BRACING REQUIREMENTS.

STRUCTURAL NOTES:

- TIMBER ROOF BATTENS TO BE FIXED TO RAFTERS WITH ONE BUILDEX No.14-10x75mm TYPE 17 SCREW OR, 2/87xØ2.5 NAILS AT EACH RAFTER
- ROOF SHEETING TO BE FIXED AS PER MANUFACTURERS' INSTRUCTIONS TO RESIST WIND PRESSURES OF 1.60kPa
- WINDOW, DOOR FRAMES AND GLAZING TO BE DESIGNED TO RESIST WIND PRESSURES OF 1.17kPa.
- IF ROOF PITCH IS LESS THAN 15° THEN ABOVE TABLE IS ADEQUATE. IF GREATER THAN 15° SEEK ADDITIONAL BRACING REQUIREMENTS FROM ENGINEER

FOR CONSTRUCTION

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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES TYPICAL DETAILS - BRACING PLAN

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	1:100	AH	Q.A. DATE

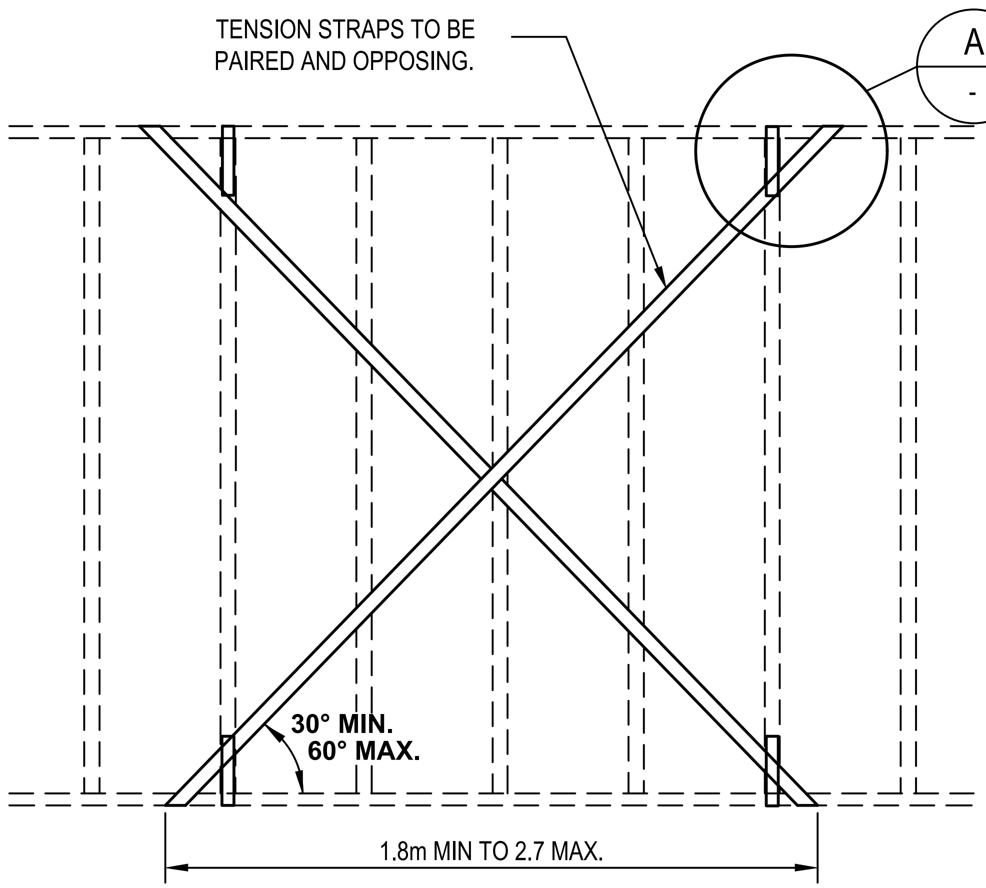
Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S07	2

TYPE B - STRAP BRACING (SB) SPECIFICS

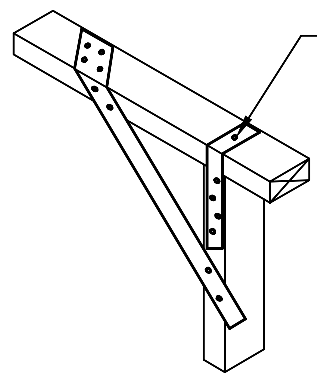
TYPE OF DIAGONAL BRACE	MATERIAL & SIZE	NAILING REQUIREMENTS		SPECIAL REQUIREMENTS
		TO EACH STUD	TO EACH PLATE	
TENSION STRAP	GALVANIZED FLAT METAL TENSION STRAP NOM SIZE 30 x 0.8mm & MIN. SECTION OF 24mm^2	2/30 x 3.15mmØ GALV. FLATHEAD NAILS.	4/30 x 2.8mm Ø GALV. FLATHEAD NAILS.	STRAPS MUST BE PROPERLY TENSIONED AND STRAP MUST RETURN OVER TOP PLATE & UNDER BOTTOM PLATE. THE STUD NEAREST TO EACH END OF EACH DIAGONAL STRAP SHALL BE FIXED TO THE PLATES WITH STRAPS OR FRAMING ANCHORS 4/30 x 2.8mmØ NAILS AT EACH END.

NOTE

REFER TO PLATE FIXING TABLE FOR TOP AND BOTTOM PLATE FIXING DETAILS.



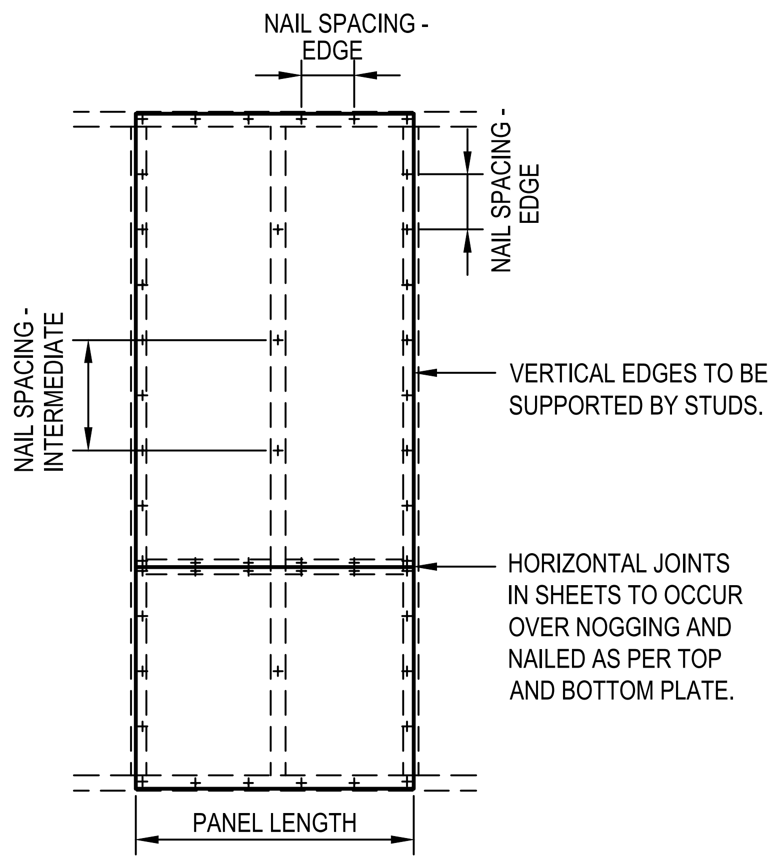
TYPE B TENSION STRAP



DETAIL A
-

TYPE B - SHEET BRACING (PB) SPECIFICS

PRODUCT	AUSTRALIAN STANDARD	TYPE/ GRADE	MINIMUM THICKNESS (mm) FOR STUD SPACING (mm).		PANEL LENGTH (mm)	NAIL SIZE (mm)	NAIL SPACING (mm)		SPECIAL REQUIREMENTS
			450	600			EDGE	INTERMEDIATE	
PLYWOOD	AS 2269	F8 F11 F14 F27	7 6 4 4	9 7 6 4.5	900 / 1200	30x2.8mm Ø GALV.	50 TO PLATES AND 150 TO EDGE STUDS	300	NO NOGGING REQ'D EXCEPT AT SHEET ENDS. NAILS SHALL BE 7mm FROM ALL EDGES.
HARDBOARD (MASONITE)	AS 2458	G.P.	6.4	6.4	900 / 1200	30x2.8mm Ø GALV.	50 TO PLATES AND 150 TO EDGE STUDS	300	NAILS TO BE 10mm FROM VERTICAL EDGES AND 20mm FROM HORIZONTAL EDGES. NO NOGGING REQ'D EXCEPT AT SHEET ENDS.



TYPE B - SHEET BRACING NOTES

1. PANEL LENGTHS GREATER THAN THOSE LISTED ABOVE CAN BE CONSIDERED AS A NUMBER OF BRACING UNITS DIRECTLY PROPORTIONED TO THEIR INSTALLED LENGTH, I.E. A 1200mm PANEL OF PLYWOOD EQUALS 1200/900 = 1.33 BRACING UNITS.
2. NAILS SHOULD BE DRIVEN JUST BELOW THE SURFACE OF THE SHEET USING THE HAMMER FACE ONLY.
NAILS MUST NOT BE PUNCHED.
3. PB* INDICATES - FULL AVAILABLE LENGTH.
4. REFER TO PLATE FIXING TABLE FOR TOP AND BOTTOM PLATE FIXING DETAILS.

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0.5 0 1cm at full size 5cm 10cm

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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES TYPICAL BRACING DETAILS SHEET 1

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	N.T.S	AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S08	2

Apr 30, 2019 - 12:55pm

PLATE FIXING TABLE

BRACING TYPE	PLATE	FIXING DETAILS
TYPE A	BOTTOM PLATE TO JOISTS	2/75mm NAILS AT 600mm CENTRES ALONG JOIST FOR PLATES TO 38mm THICK AND 2/90mm NAILS AT 600mm CENTRES ALONG JOIST FOR PLATE TO 50mm THICK.
	BOTTOM PLATE TO SLAB	1/75mm MASONRY NAIL AT MAXIMUM 1200mm CENTRES FOR 38mm THICK PLATES. 1/90mm MASONRY NAIL AT MAXIMUM 1200mm CENTRES FOR 50mm THICK PLATES.
TYPE B	BOTTOM PLATE TO JOISTS	1/M10 BOLT OR 1/30 x 0.8 GALVANISED METAL STRAP AT MAXIMUM 1200mm CENTRES ALONG JOIST OR TO EVERY SECOND JOIST. STRAP TO HAVE 3/30 x 2.8mm DIA. NAILS EACH END.
	BOTTOM PLATE TO SLAB	1/M10 BOLT OR CAST IN GALVANISED METAL BOTTOM PLATE CONNECTOR AT EACH END OR BRACING UNIT AND AT 1200mm MAXIMUM CENTRES.
ALL TYPE A or B	TOP PLATE TO CEILING OR ROOF FRAMING	JOISTS, BATTENS OR RAFTERS SHALL BE FIXED TO TOP PLATES WITH 2/75mm NAILS AT EACH CROSSING AT MAXIMUM OF 1200mm CENTRES ALONG THE TOP PLATE. TRUSSES CAN BE FIXED TO TOP PLATE USING BLOCKING OR PROPRIETARY CONNECTORS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

GENERAL NOTES:

1. FIXING SHOULD COMMENCE AS CLOSE AS POSSIBLE TO THE ENDS OF EACH BRACING UNIT.
2. WALL TOP PLATES MUST BE DESIGNED TO PROVIDE LATERAL LOAD TRANSFER WHILE ALLOWING TRUSS TO SETTLE UNDER DEAD LOAD.

SUB FLOOR BRACING:

ALL BRACING SHALL BE FIXED TO THE FLOOR OR FOOTING BELOW AND THE FLOOR ABOVE TO ENABLE THE TRANSFER OF THE FULL DESIGN STRENGTH OF THE BRACING SYSTEM.
BRACING IN THE SUB-FLOOR SHALL BE EVENLY DISTRIBUTED. THE MAXIMUM DISTANCE BETWEEN BRACING SETS, STUMPS, PIERS, WALLS OR POSTS, ETC. UNDER A PLATFORM STRIP OR SHEET TIMBER FLOOR SYSTEM SHALL BE 1400mm PROVIDED THE MINIMUM WIDTH OF THE FLOOR IS 6000mm.

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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES
TYPICAL BRACING DETAILS
SHEET 2

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	N.T.S	AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S09	2

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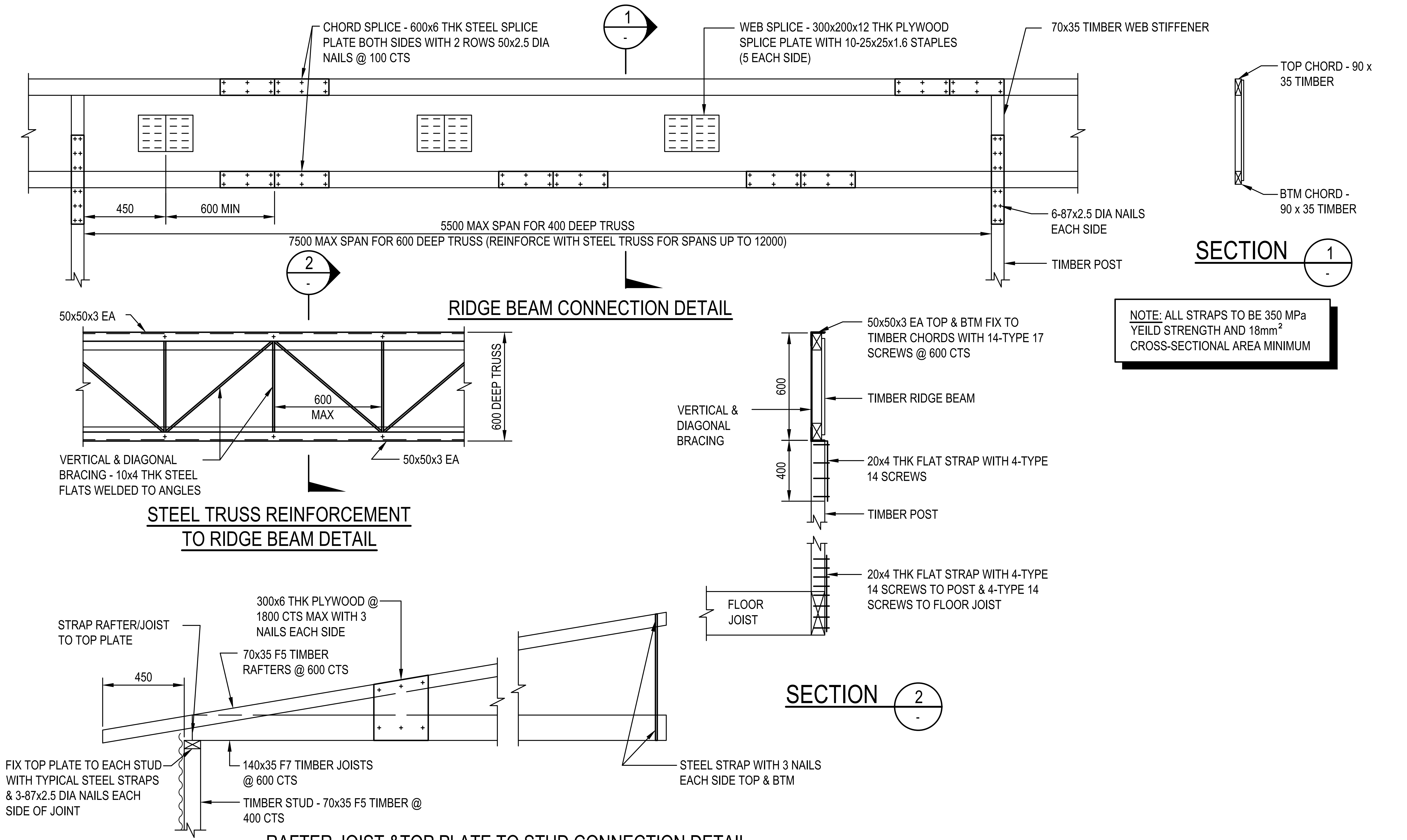
Apr 30, 2019 - 12:56pm



RIDGE BEAM CONNECTION DETAIL

SECTION 1 -

NOTE: ALL STRAPS TO BE 350 MPa YEILD STRENGTH AND 18mm² CROSS-SECTIONAL AREA MINIMUM

STEEL TRUSS REINFORCEMENT TO RIDGE BEAM DETAIL

SECTION 2 -

RAFTER JOIST &TOP PLATE TO STUD CONNECTION DETAIL

FOR CONSTRUCTION

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Project: PARKWOOD MODULAR BUILDINGS

Drawing Title: STRUCTURAL SERVICES TYPICAL ROOF DETAILS SHEET 1

Drawn	Date	Scale A3	Q.A. Check	Date
AT	APRIL '17	N.T.S	AH	Q.A. DATE

Designed	Project No.	Dwg. No.	Issue
AH	WS170089	S10	2

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