

Construction Specification & Engineering Details

Including

Method of Construction

Onsite installation manual

ACOR Consultants

Re: Structural Inspections of Prefabricated Building

Plumbing Certification

Smoke Alarm Certification

Schedule of Warranties

On Site Termite Management

Waterproofing Certificate (sample)

Engineering Drawings S1 – S10

Parkwood Construction Specification

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.

Manufacture

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.

Standard Cantilever Floors System

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 coastal environments the client may elect to have the completed steel frames hot dipped galvanized.

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

Amended July 2017

Parkwood Construction Specification

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 joist 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.

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 25mm 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 75mm R2.0 Blanket 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 a 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

Amended July 2017

Parkwood Construction Specification

Wet Area Waterproofing System

Waterproofing of the bathrooms and laundry complies with the requirements of Australian Standard AS 3740-2010

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 : 2010

Note A

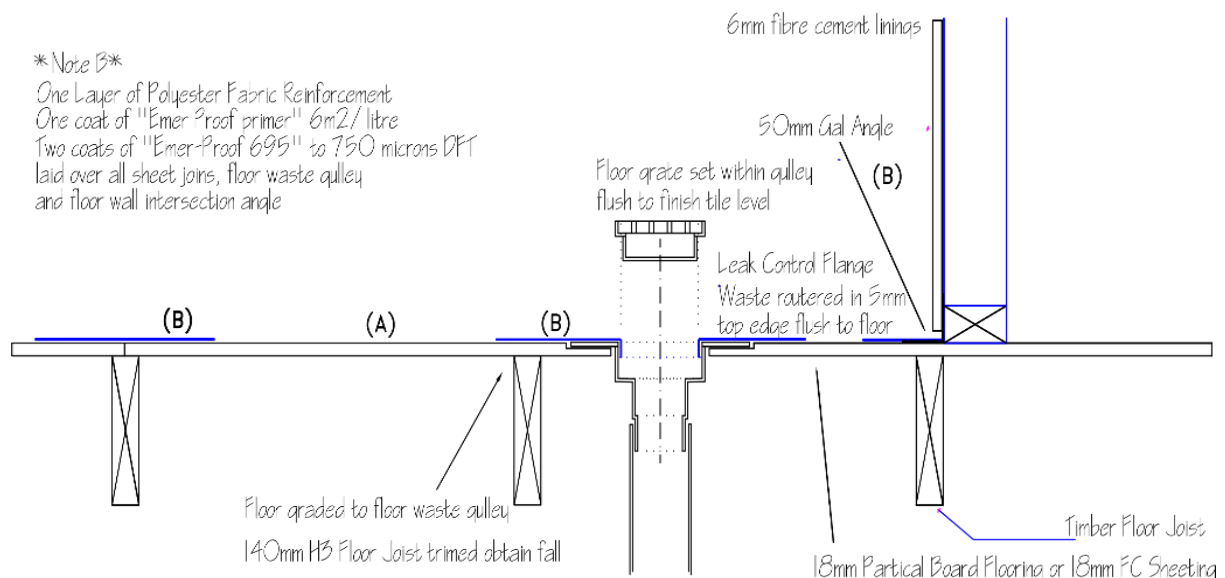
One Coat of "Emer Proof primer" 6m2/ litre
Two coats of "Emer-Proof 695", Min 750 microns DFT
Applied over all wet area flooring

Tile Adhesive

Walls - TP10 multi purpose wall & floor adhesive
Floors - Ardex X56 to showers and external areas
Other floor areas - TP650 2 part adhesive

Note B

One Layer of Polyester Fabric Reinforcement
One coat of "Emer Proof primer" 6m2/ litre
Two coats of "Emer-Proof 695" to 750 microns DFT
laid over all sheet joins, floor waste gully
and floor wall intersection angle



Parkwood Construction Specification

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.

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.

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.

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.

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.

A 250mm barge and 450mm fibre cement eave soffit are standard for most plans.

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.

Amended July 2017

Parkwood Construction Specification

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.

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.

Tiling

The entrance, kitchen, bathroom 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 on 18mm 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, 1.5m 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. 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.

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.

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.

Close-up

Parkwood Construction Specification

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.

Quality Assurance

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.

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.

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.

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.

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.

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 on line at

www.fairtrading.nsw.gov.au/building

Parkwood Construction Specification

Site installation

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.

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.

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.

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.

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.

Parkwood Construction Specification

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.

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.

Parkwood Construction Specification

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.

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.

Parkwood Construction Specification

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.

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.

Parkwood Construction Specification

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 won't 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.

On Site Termite Management

In accordance with AS 3660.1-2000 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.

Parkwood Construction Specification

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.

Plumbing

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 as a result of such leaks.

NARARA PLUMBING SERVICES

Ph: (02) 4322 3465 Fax: (02) 4325 0050

Mobile 0409 381200

31 Coolawin Circle Narara NSW 2250

19/10/15

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.

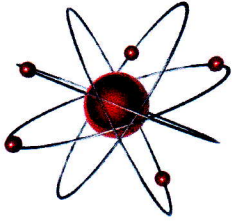
On-site Plumbers are to be aware of their responsibilities of completely flushing out the water services and checking levels in cisterns before leaving the job. It is not our responsibility to bear the cost of rewashing taps etc.

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

Narara Plumbing Pty Ltd ACN 119 176 591
ATF Narara Plumbing Trust ABN 96 446 542 537
Lic No. 185191C



Matt Gough Electrical

A.B.N 96851 149 860

A.C.N 34 600 451 223

Matt Gough Electrical
107 Seabrook Ave Bateau Bay NSW 2261
Ph: 0403461142
Email: Matt_gough@Hotmail.com

Date: 23/10/17

Chassis/ House No.: 2812

To whom it may concern

I Matt Gough certify what the smoke detectors installed have been selected, located, connected and installed to comply in accordance with:

- 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 a standby power in accordance with wiring rules AS 3000-2007.**
- 3. Installed and located in accordance to clause 3.7.2.2-Requirements for smoke alarms and 3.7.2.3 (Vol2) location of smoke alarms, the building code of Australia**

Yours sincerely

Matt Gough

WAVE S9065 LED DOWNLIGHT INSTALLATION INSTRUCTIONS



AS/NZS 60598.2.2
Abutted: may be installed in or against timber structure
Covered: may be installed under thermal insulation

General Information

* This downlight kit is tested to AS/NZS60598.2.2 standards while surrounded with timber (100 mm high) or R5 rated fibre glass insulation batts (100 mm high). The results are found to comply with the temperature rise requirements for surround parts are specified in AS/NZS 60598.2.2 as required in the new AS/NZS 3000.

Important Safety Issues

- * This product must be installed by a licensed electrician according to AS/NZS 3000.
- * Make sure the electricity is disconnected before any installation.
- * Modification of this product will void any warranty.

Insulation

Only use with thermal insulation, which has passed the flame test

1. This product is suitable for use with building insulation that can safely be continually exposed to temperatures up to 90°C and must withstand a 30s needle flame test carried out in accordance with AS/NZS 60695.11.5 with the flame applied to all surfaces of the sample.
2. Loose fill insulation as defined in AS/NZS 4246 is not permitted to abut or cover this luminaires
3. Glass fibre insulation is a suitable insulation for use abutting/covering this luminaires

How to Install

- * The down lights shall be installed at location and in conditions are described in Figure 1.
- * Disconnect the electricity on the circuit.
- * Cut out size 92 mm for the downlight.
- * Install a surface socket or hard wire the downlight.
- * Insert plug into socket.
- * Place fitting into ceiling.

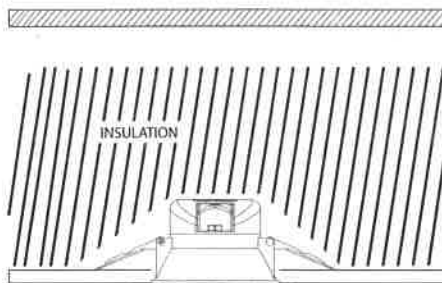


Figure 1

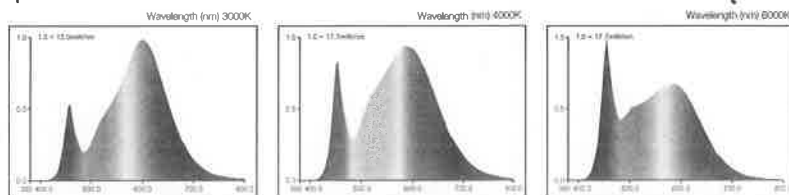
Warranty

- * This product is subject to standard warranty from SAL. Any modification of the products or NOT installing according to the installation instruction will void the warranty.

Technical Data

Model No.	Input Voltage	Power	Luminous Flux	Beam Angle	Colour Temperature	CRI (Ra)	Ta	IP	Fitting Colour	Dimensions	Cut Out Size
S9065 WW	240V	10W	800lm	90°	3000K	>80	-10~+25°C	44	White	113 x 59 mm	92 mm
S9065 CW	240V	10W	850lm	90°	4000K	>80	-10~+25°C	44	White	113 x 59 mm	92 mm
S9065 DL	240V	10W	900lm	90°	6000K	>80	-10~+25°C	44	White	113 x 59 mm	92 mm

Spectrum



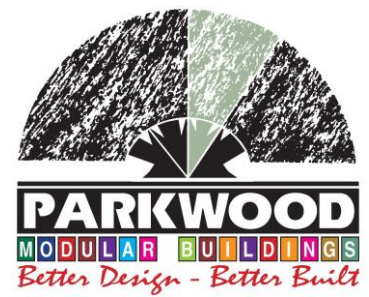
Item		Problem with	Warranty by		Length	Care notes
Structural	Framework Foundations	Failure due to excessive deflection	Parkwood		6 years	
		Minor Settlement	Contracting Distributor		3 months	May be due to settlement of foundations bases
		Major settlement	Land owner		Term of occupancy	
Roofing	Colorbond & zincalume Fixings & waterproofing	Break down of surface coating	Stramit/Stratco Parkwood		10 Years 6 years	Gutters should be maintained clean of foliage to ensure minimal water retention
	Gutters & Down pipes		Parkwood		6 years	
Cladding	All materials	Fixings & waterproofing	Parkwood		6 years	External claddings require general maintenance & cleaning All painted products require general maintenance & treatment
	Vinyl	Break down of surface	Austech		25 years	
	Weathertex Hardies	Split or twisted timber	Weathertex Australia Hardies			
External Timber	Decks & Railings by Parkwood	Split or twisted timber	Parkwood		1 year	All painted products require general maintenance & treatment All painted products require general maintenance & treatment
	Decks & Railings by site contractors	Split or twisted timber	Contracting Distributor		3 months	
Windows	Aluminium frames	Break down of surface	Bradnam's		7 years	May be due to settlement of foundations bases
		Alignment	Parkwood	Bradnam's	3 months	
		Rollers & Catches	Parkwood		3 months	
	Glass Screens	Defect in glass	Bradnam's		3 months	
		Break down of surface	Bradnam's		3 months	
		Defect in mesh	Contracting Distributor	Bradnam's	3 months	
Doors	Doors binding on frames		Parkwood	Bradnam's	3 months	May be due to settlement of foundations Check that the door is painted in accordance with manufacturers spec.
	Interior and external Cavity sliders mirror robe doors	Delamination or twist rollers frame & mirror surface	Corinthian/ Humes Corinthian Citicoast Shower Screens		5 year 3 months 3 months	
Door Hardware	Faulty locks		Gainsborough		5 year tarnish	10 year mechanical Brass ware requires routine care & maintenance
		Corrosion of surface finish	Gainsborough		3 months	
External paintwork		Acrylic	Contracting Distributor		3 years	All painted products require general maintenance & treatment
		Enamel			2 years	
		Semi Transparent Stains			1 year	
Internal paintwork		Acrylic	Contracting Distributor		3 years	
		Enamel			2 years	
		Semi Transparent Stains			1 year	

Parkwood Modular Buildings

Schedule of guarantees

Page 2 of 2

Item	Problem with	Warranty by	Length	Care notes
Plumbing	Taps & Water Service Taps vanity, shower, bath Gas Sewage Stormwater Tap washers	kitchen & Laundry mixer Parkwood Contracting Distributor Contracting Distributor Contracting Distributor	4 year 1 year 1 year 1 year 1 year nil	
Kitchen cupboards	Polished Doors Hardware & Knobs Bench tops	Parkwood Parkwood Parkwood	1 year 1 year 1 year	Will be directed to product manufacturer Placement of hot objects on surfaces will cause delamination
	Delamination	Parkwood	1 year	
Appliances	Water Heater Ovens, hot plates & rangehoods	Parkwood Parkwood	3 year 2 years	Will be directed to product manufacturer Will be directed to product manufacturer
Floor coverings	Sheet vinyl flooring Tiles Carpet Product can vary 1 - 10 years	On laying Contracting Distributor Parkwood Contracting Distributor	1 year 1 year 1 year	
Electrical	Wiring (in house) Switches & Light fittings (in house) Main supply Site crossovers Earth leakage breakers Globes & fuses	Parkwood Parkwood County council Contracting Distributor Parkwood	6 years 3 months 3 months 3 months nil	
PC Items	Bath & shower bases Vanity units Shower screen	Flaw in material Flaw in material Flaw in material Parkwood Parkwood Citicoast Shower Screens	1 year 1 year 6 year	Will be directed to product manufacturer Will be directed to product manufacturer
Curtains	Curtains Rods & rings / Tracks	Flaw in material Length or width Fitting Parkwood Contracting Distributor	3 months 3 months 3 months 3 months 3 months	



Waterproofing of Wet Areas Installation Completion Certificate

I, John McDougall of Parkwood Modular Buildings Pty Limited

hereby certify that the Waterproofing for the building has been installed in accordance with AS3660.1:2014 and in accordance with the manufacturer's instructions.

Regards,

Name of Contractor	John McDougall
Company	Parkwood Modular Buildings Pty Limited
Address	7 - 11 Kangoo Rd, Somersby NSW 2250
License Number	86240 C
Phone Number	4340 4077
Facsimile Number	4340 4088
Date	Insert date

Signature



Waterproofing Certificate

We certify that the Parkwood Home, production number :

Constructed :

Client :

Complies with the Australian Standards AS 3740.2010

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 : 2004

Note A

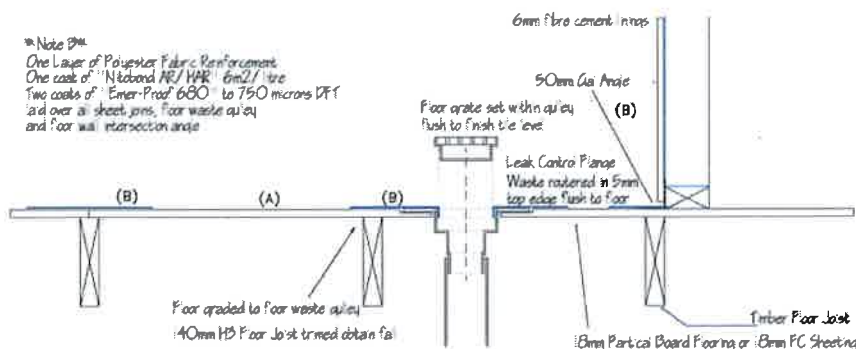
One Coat of "Nitobond AR/WR" 6m2/litre
 Two coats of "Emer-Proof 680" Min 750 microns DFT
 Applied over all wet area flooring

Tie Adhesive

Walls - TP10 multi purpose wall & floor adhesive
 Floors - Ardex X56 to showers and external areas
 Other floor areas - TP650 2 part adhesive

Note B

One Layer of Polyester Fabric Reinforcement
 One coat of "Nitobond AR/WR" 6m2/litre
 Two coats of "Emer-Proof 680" to 750 microns DFT
 Laid over all sheet joints, floor/wall joints and floor/wall intersection angle

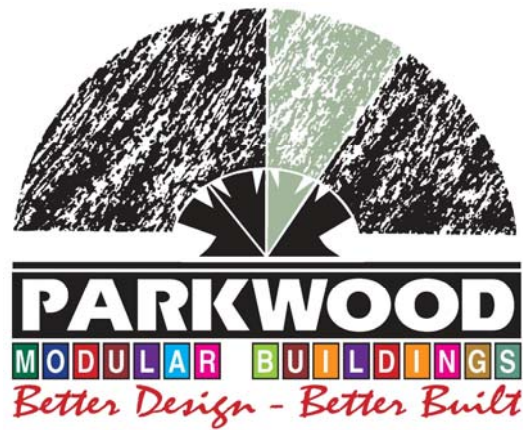


Certified by Accredited Waterproofers:

Malcolm Lyall (certification #H004)

Parkwood Modular Buildings Pty Limited

John McDougall (Build Licence 86240C)



ON SITE TERMITE MANAGEMENT

In accordance with AS 3660.1-200 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.