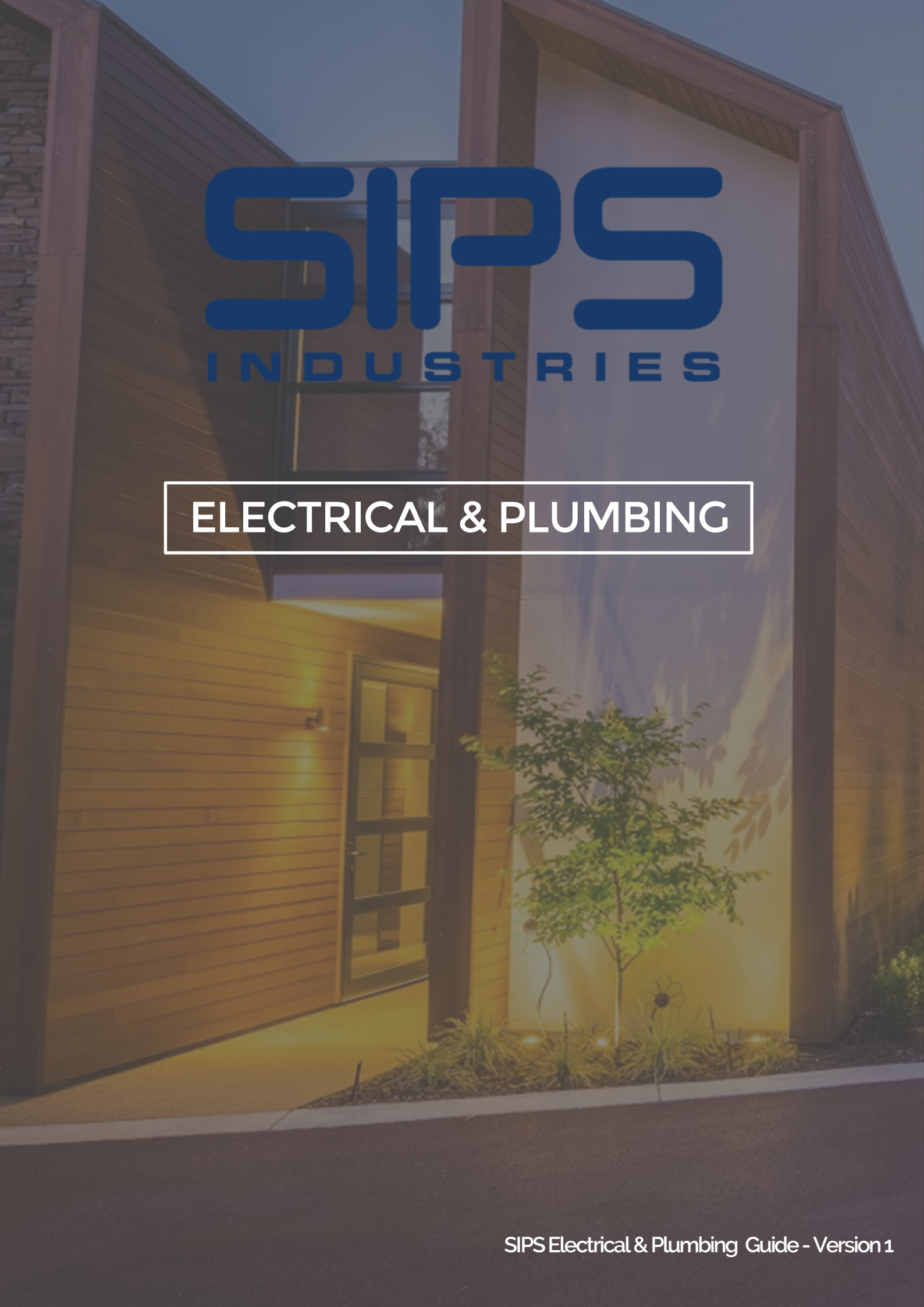
SIPS
INDUSTRIES
ELECTRICAL & PLUMBING

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SIPS INDUSTRIES – ELECTRICAL and PLUMBING GUIDE

This document is to serve to assist electricians and plumbers for running and attaching services within and to SIPs industries panels. These are suggestions and the electrician and plumbers are permitted to apply their own professional methods which are to be in accordance with the current Australian NCC.

Read before installing electrical wiring or plumbing.

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Australian Electrical and Plumbing Standards

All wiring and plumbing must be carried out in accordance with the Australian Electrical Standards and Plumbing Standards. Electrical Standard AS/NZS 3000.2:2007; also known as the Australian Wiring Rules. The cable standard for Electricians must be AS/NZS 5000.2:2006 compliant which is non migratory sheath for wiring where the cable will be in contact with the polystyrene (EPS). SIPs panels can be supplied with or without electrical chasing. The chased panels have a series of 27mm electrical chase throughout the panel to assist with the wiring installation. These chases are for electricians only and not for any other service or trade.

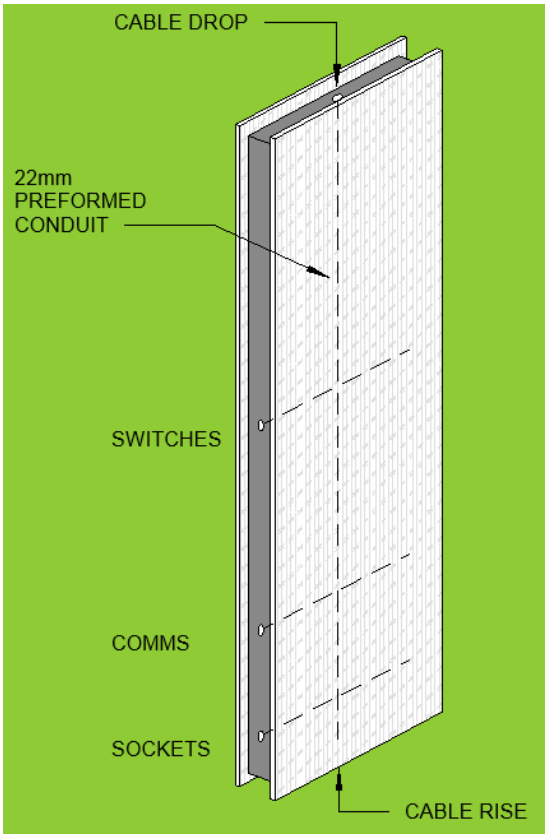
Standard cabling can be located on the outside surface of the SIPS panels, in this instance the cables must be fixed in position in accordance with AS/NZS 3000.2:2007 – Clause 3.9.4.2(a)- Concealed within 50mm from the surface of a wall, floor, ceiling or roof; and (b) …

DO NOT CUT THE FACE OF ANY PANEL. When the shell is complete the load bearing SIPs are under a constant load so cutting through the OSB skin will compromise the strength of the SIP.

DO NOT HORIZONTALLY CUT THE FACE OF ANY PANEL - CALL BEFORE YOU CUT.

Horizontal & Vertical Chasing

SIPs panels are chased as a standard horizontally with a 27mm chasing at 300mm, 450mm and 1200mm from the floor with a 27mm vertical chasing through the center of each full panel. Additional Chases are available upon request when order is confirmed.



If the electrical services are to be pulled from the sub level, the bottom plate must be drilled out before the SIPs are lifted into position to align with the vertical chasings to allow electrical services to be installed. If the cabling is to pass through the top of the SIP then the top plate should be drilled out to align with the same vertical chase. All holes which have been drilled must be cleaned of all debris so cables being pulled are unobstructed. Typically roof panels are unchased and cables are face fixed on the inner face of the SIP or cables are run on the outside of the roof SIP under the finished roof cover. If the cables are fixed on the underside of the SIP use a timber batten fixed to the inner face of the SIP which then has Gyprock fixed over.
This basic grid allows the electrician to run all the wiring with minimal cutting and drilling the panels.

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Outlets and Switches

The locations of all electrical devices need to be located and marked. The openings are cut into the OSB using a router, hole saw or jigsaw. If required keep the OSB core plugs which can be glued and foamed back into position. The wiring can now be pulled through the chases provided. If the layout calls for a specific location then this can be done on site by the electrician.

The custom chase is formed by using a "**hot ball**". This is done by locating the position of the electrical device and the opening is then cut into the OSB as described above.

Tools required; Pencil, Spirit Level, Core drilling bit (50mm approx), Electric Drill, Pliers with rubber handle, Gas Torch, Hot Ball, a sturdy item to catch the ***hot ball**** (not your hands), and something solid like a piece of wood to cover the top hole once the ball is dropped.
Using the spirit level, a pencil line is to be drawn from the proposed electrical (or plumbing) service to the service entry location presumable at the top of the wall, sometimes at the base. A core bit is used to drill into the panel approx 50mm.

Another core is drilled at the service entry locations.
Insert your catching device into the bottom hole so the hot ball is collected and does not continue down the panel, also the ball is hot, DO NOT catch it in your hands as it will burn you.

Holding the hot ball in the pliers, heat the ball until you see lines of red begin to glow, let the ball return to black and insert it into the top hole, blocking the hole up with your timber piece.

After a few seconds the ball will reappear on the catching device and the chasing will be complete.

Short custom chases can be made with a drill with an orger bit or a pointed piece of conduit used to bore the new chase.

*Hot ball – A 20-25mm spherical metal object, often a ball bearing.

Corners

Corners, should you need to feed cables horizontally, can be navigated a number of ways, the following two are the most common. The first approach involves drilling a 27mm hole in the end plates of the corner sip at the same level of the horizontal chasing, then drill a second hole around the corner and this will allow the electrician access to the corner to get his cables around the corner. The second way is to pull the cable up the vertical chase through the top plate and drop the cable back down the next vertical chase around the corner through a hole drilled in the top plate.

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Exterior Circuitry & Lighting

This is done the same way as the internal wiring, but special care must be taken when installing all external fitting ensuring they are water proofed properly and sealed to stop any air movement between the outside and the inside of the building. The sealing of any penetrations is the responsibility of the electrician. This must be done with expanding type foam.

Plumbing Considerations

A talk through the plans can identify and eliminate a host of potential problems later on during the project. For the most part the plumbing is kept out of the SIPS and rises through the foundation to specific locations such as baths, toilets and kitchens. Most of the time this plumbing is hidden behind the vanity units or kitchen counters. In multi storey designs the plumbing can run in the floor zone or through servicing ducts. The plumbing reaches these areas through a service riser which is typically located in a hidden riser shaft. Waste water pipes can be run through the outside walls to exit the building and connect into the sewer system or down vertical fire protected shafts for multi rise buildings. Small vertical chases can be made in the panels, but these should be kept to a maximum of 1200mm vertically. Plumbing can be face fixed as an alternative and then aquachek type plasterboard fixed over to finish, this is recommended for shower walls with plumbing fixtures. A vapour check must be in place for all wet rooms.
the locations of the 'hit and miss' chasing you will be cutting.
Using the drill and the core drilling bit, drill top and bottom of each chase, using your saw to join each.
Chisel out the EPS to suit your pipework and fit same as required.

Air Conditioner Considerations

SIPS building tightness and wall R-values allow air conditioning equipment to be downsized and ductwork to be minimized. Care should be taken on planning duct work by using dropped ceilings, floor joist zones and service risers to aid the installation of the air

Panels Chasing.

Although mostly face mounted, some plumbing pipes are to be chased into the panel, from above or below, the method in doing so can be pretty simple. Vertical chases are permitted up to 500mm long from above and up to 900mm long form below. You will want to recess the pipes in the SIP wall to avoid any issue when applying the waterproof plasterboard. There are options to secure the pipes to backing grounds fixed to the OSB, and also by using expanding foam which not only secures the pipe in place along the wall, but also insulates it. *Details below and image of 'hit and miss' chasing follow on the next page..*

The sealing of any penetrations is the responsibility of the plumber.

Plumbing CONTINUED

Images of 'Hit and Miss' Vertical Chasing. (below)
Tool's; Saw (jigsaw, reciprocating, circular or hand saw), pencil, Chisel, Drill, with core drilling bit.
Draw the cut out on the panel as required and the location of the pipework. Cut out the Main recess in the panel with your saw. Do not cut beyond the recess area.
The cut out panel will come away with the use of the chisel. Mark conditioner. Service holes can be cut into the SIPs however; installers should call SIPS Industries before they cut any panels to avoid any unnecessary structural failure. Homeowners that incorporate other energy efficient features with SIP construction can benefit from the energy efficiency of a SIP home with reductions in heating and cooling costs of up to 50 percent or more due to the air conditioner cooling/heating the air, as opposed to the air conditioner heating/cooling the structure.