



THE NATURAL CHOICE

## COMPANY OVERVIEW

Australian Hardboards Limited is the sole Australian manufacturer of 100% all natural thin hardboards.

Well established, our greatest strength is our ability to manufacture and supply high quality, environmentally friendly and market driven products both competitively and efficiently.

Servicing the domestic, manufacturing, flooring, signage, commercial, retail, hardware and home building industries, our innovative products and services offer numerous benefits to the specifier, installer and consumer.



## ENVIRO-FRIENDLY

Australian Hardboards products are environmentally friendly, utilising what has been previously regarded as waste material in an ecologically sustainable manner.

This waste material, consisting of sawmill residue and forest thinnings, uses only naturally occurring wood glues (lignins) to bond fibres, eliminating the need for synthetic glues and resins.

The wood fibres are rearranged and distributed at random producing high quality hardboard that offers uniform strength, superior performance, and indent resistance.

## M4 AND M6 BRACEBOARD

Hardboards are a recognised structural wall bracing material.

Their subsequent use in accordance with the National Timber Framing Code has confirmed their acceptability in structural wall bracing applications. The range of hardboard structural wall bracing systems were developed through full scale testing at James Cook University and Queensland University of Technology. The systems are suitable for use in high wind and cyclone regions including Darwin. A professional engineer certification is available from the Australian Hardboards Customer Service telephone 1300 366 681.

Usher Constructions support Australian made and environmentally friendly products wherever possible. This is our way of contributing and giving a little bit back to the community and the environment. M4 was also important to us as strength, quality and consistency in performance is central to our finished product. Mike Langton, Construction Manager - Usher Constructions

# FEATURES

M4 & M6 is an innovative bracing product produced through the culmination of extensive market research, development and industry advice. The results have included features such as:

- Nailing patterns and installation instructions stencilled onto the sheet face. This feature assists with ensuring correct installation and limits overuse of nails, saving time and money.
- M4 & M6 has a uniform density that results in the nails being more easily driven into the sheet, eliminating the need to continually adjust the tension to allow for variations in product density or thickness.
- Offers equal strength to plywood bracing.
- M4 & M6 is made with a special formulation to withstand the atmospheric conditions.
- Free from natural irregularities - no knots or splinters.
- An environmentally friendly product that is manufactured from sawmill residue and forest thinnings.

# APPLICATIONS

M4 & M6 Braceboard are designed for cavity bracing external wall frames in brick veneer construction. Shortwall is also suitable for bracing short lengths of wall where the available bracing area is reduced by window or door openings.

# PRODUCT DETAILS

PRODUCT	THICKNESS mm ±0.5mm	WIDTHS mm ±3mm	LENGTHS mm ±3mm	NUMBER OF SHEETS PER PACK
SHORTWALL	4.8mm	460	2440 2745 3050*	100
M4	4.8mm	900 1200 1350*	2440 2745 3050*	50
M6	6.4mm	460* 610* 915 1220	2440 2745 3050*	50

\* Made to order

M4 & M6 Braceboard are special Type GP hardboards, manufactured in Australia to comply with AS/NZ1859.4-2004, Hardboard. M4 & M6 Braceboard satisfy the requirements for hardboard bracing units as outlined in AS1684-1999, Timber Framed Construction Manual.

Australian Hardboards manufacturing processes are quality assured to AS/NZS ISO 9001-2000 and certified by Standards Australia - Quality Assurance Services.



M4 is splinter free and the stencilled nailing patterns mean we also save money and time on site. Mike Langton, Construction Manager - Usher Constructions



## WEATHER EXPOSURE

During normal weather conditions, M4 & M6 may be exposed to the weather and subjected to wetting and drying. As the product is supplied in a moisture-conditioned state (seasoned), it is advisable to enclose the building as soon as possible after fixing the sheets. A maximum exposure period of three months is recommended.

Both M4 & M6 Braceboard are wood panel products and some dimensional movement may occur during extended periods of extremely high or low relative humidity.

## SIMPLIFIED BRACING FOR NON-CYCLONIC AREAS

Bracing walls are set at right angles to the windward walls. In accordance with AS1684 they should be evenly distributed throughout each storey of the building and spaced not more than 9m apart.

Each overall length of external wall in each storey must contain at least two Type A or one Type B bracing units. The bracing units should be located at or as close to the wall ends.

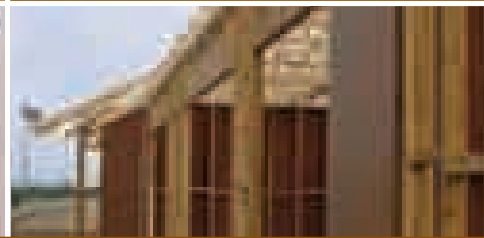
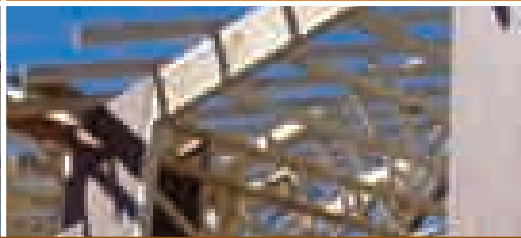
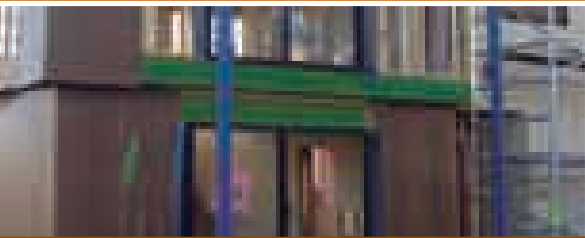
Total bracing requirements for each 'area of elevation' of the windward walls can be obtained from AS1684 Table 8.2. Ensure that the minimum bracing unit requirements for the external walls are satisfied. The additional bracing units can then be evenly distributed throughout the external and internal walls.

**One Type B bracing unit equals two Type A bracing units.**

For the number of M4 or M6 sheets, divide the bracing unit requirements by the Type A or Type B units per sheet width. Where the building elevation contains combinations of pitched roofs, gable or skillion ends, or upper or lower storeys, the 'area of elevation' of each section should be calculated separately to determine the total bracing unit requirements. See table on Page 7.

## SHORTWALL BRACING

The effectiveness of sheet bracing is reduced on sheet widths less than 900mm and where the sheets are only fixed to two studs. Shortwall bracing 460mm wide generates worthwhile values utilising coach screws or anchor rods. Bracing panels, 600mm in length, with fixings in accordance with a Type B schedule, have a racking resistance of 1kN only.

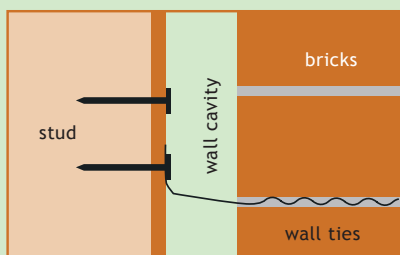


## REGULATIONS AND AUSTRALIAN STANDARDS

The Timber Framed Construction Manual, AS1684, provides parameters for the construction of conventional single and two storey timber frame buildings. Basic designs include square, rectangular, T, H or L shaped floor plan configurations with roof pitches not exceeding 35°.

Where the building design or design wind speed parameters are outside the scope of AS1684, a professional engineer should be consulted to assess the wind forces. Consult our website for information on our M4 Wind Bracing Software.

## BRICK VENEER CONSTRUCTION



M4 & M6 Braceboard are designed for use as cavity bracing in brick veneer construction. Brick wall ties must be the face-fixed type and comply with AS2699, Wall Ties for Masonry Construction. The ties

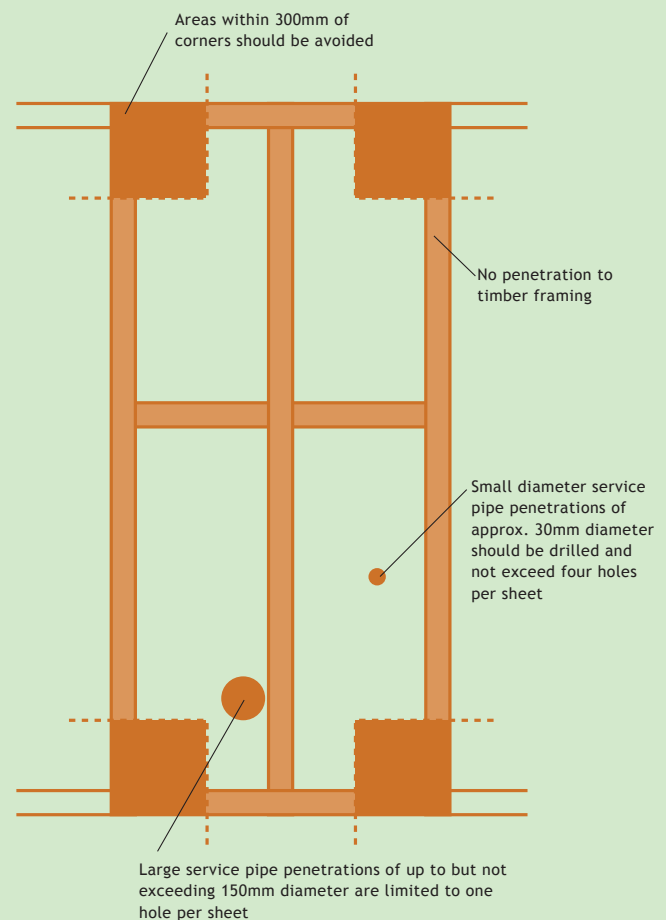
should be nailed through the M4 & M6 into the narrow face of the studs.

Wall cavities should be kept clear of obstructions and the wall ties sloped downwards, away from the frame and bracing.

When constructing boxed eaves, the inner ends of soffit bearers or sprockets should not penetrate through the structural sheet bracing. Hangers suspended from the top wall plate or rafters may support the ends.

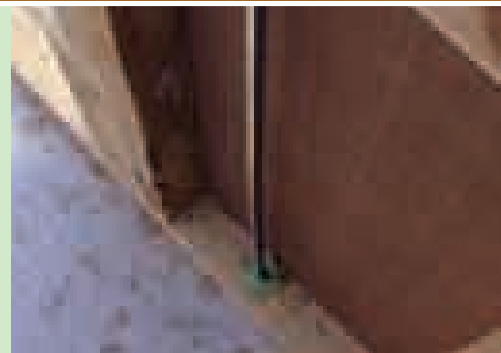
Should it be necessary to penetrate the M4 & M6 Braceboard for plumbing or electrical installations, keep the penetrations to a minimum and locate them towards the centre of the sheet. Holes should always be neatly cut and the corners rounded. Areas within 300mm of corners should be avoided. Large service pipe penetrations of up to but not exceeding 150mm diameter are limited to one hole per sheet. Small diameter service pipe penetrations of approximately 30mm diameter should be drilled and not exceed four holes per sheet. Holes should be placed as close as possible to the sheet centre.

### PENETRATION PROCEDURE FOR M4/M6 BRACEBOARD



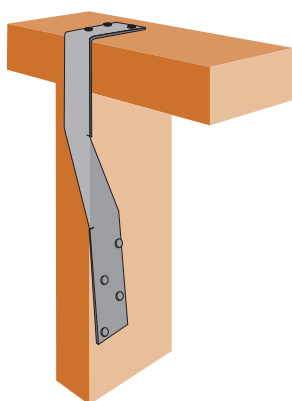
## TIMBER FRAMING

Timber wall frames should comply with government building regulations and where applicable AS1684. Framing members should be minimum F5 stress grade and joint strength group J4 (unseasoned) or JD4 (seasoned). Stud spacings should not exceed 600mm centres for 1200mm sheets and 450mm centres for 900mm sheets.



If JD5 strength group of timber is used, the racking resistance must be reduced by 16%. Fixing of the bottom plate with an appropriate structural construction must be in accordance with AS1684 for the relevant bracing system.

It is essential for the bracing walls to be securely connected to the roof and sub-floor systems. Wind forces acting on the roof must be resisted and transferred to the ceiling diaphragm and through the walls to the sub-floor. The methods of connection are detailed in AS1684, and include nail fixings, galvanised iron straps, framing anchors and bolts.

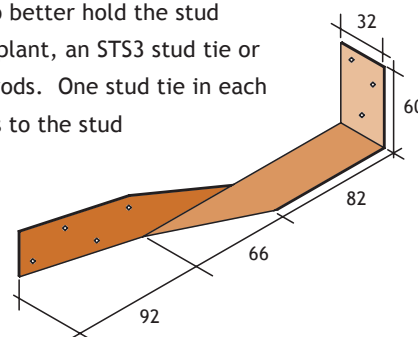


## M4 RODLESS GIVES YOU A LIMIT STATE DESIGN CAPACITY OF 7KN/M

When the racking resistance of the traditional Type B really isn't enough kilonewtons and cyclone rods are too much of a hassle, Rodless is the answer!

The new M4 rodless system gives you piece of mind and greater control. Using the M10 anchor bolt with the metal stud tie alleviates the stress of whether the rod has been successfully applied. Rodless (Type F) uses a stud tie to better hold the stud and plate together. Easily installed in a Frame & Truss plant, an STS3 stud tie or equivalent will give 7kN/m without the use of cyclone rods. One stud tie in each corner of the bracing sheet, nailed with connector nails to the stud behind the sheet will yield 7kN/m.

With the current design trends of more open planned spaces and wider window openings, the role of bracing has become even more critical. This is especially important for houses in areas that experience high winds and cyclonic conditions. (see page 9 Type F for installation instructions)



## THE BENEFITS OF TERMITE TREATED M4 AND M6

Whether it is due to environmental or ecological reasons, attack on houses by termites is increasing. In some cases householders are not even aware of termites existing until it is too late. The effects of discovering termites are emotionally, economically and structurally distressing.

Koppers Arch Wood Protection has confirmed that you can successfully treat M4 Braceboard to the H2 requirements of AS 1604.2. Most other timber bracing products have a glue barrier. However, M4 Braceboard being a composite board with no glues or artificial binders allows the LOSP treatment process to completely infuse M4's entire thickness right to the core. This means

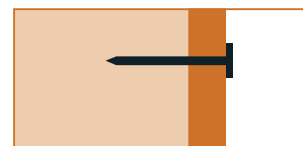
that any penetration of the sheet for services does NOT need a spray of preservative to repair the termite resistance. M4 Braceboard is then permanently protected against termites and comes with a 25-year structural guarantee that provides you and your customer complete protection - guaranteed to Resist Termites!

The LOSP treatment is very safe to handle because the active ingredient is biodegradable and does not bio-accumulate. For a modest premium, both the builder and the homeowner can have peace of mind about the structural integrity of the home with regards to the threat of termites. For more information contact your nearest LOSP provider.

## INSTALLATION

M4 & M6 Braceboard should be installed vertically with sheet ends fixed to the top and bottom plates. Support the vertical edges over studs and allow a 2mm gap between sheets and raise the sheets 2mm from the floor. Uplift force may require additional fixings at the end of the bracing panel in accordance with AS1684.

Fix sheets with 30mm x 2.8mm galvanised or corrosion resistant flat head nails or their stipulated gun driven equivalent. The fastener head should not be driven into the sheet.



Set the nail head proud of the surface.

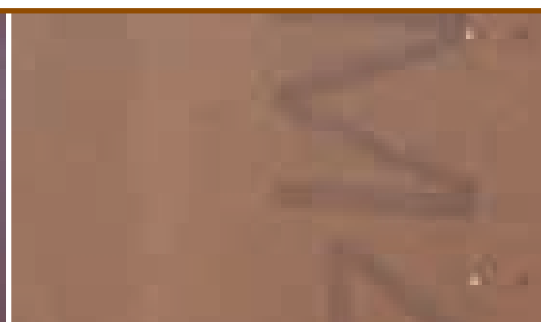
When stressing the frame under high loads, the modes of failure are typically nail pull through, failure of the joint between the studs and plates or plate splitting. By staggering the nails, the latter failure is minimised since a common crack line is not induced in the plate timbers.

**Store the sheets undercover and away from the elements.**

## M4 AND M6 BRACING SYSTEMS

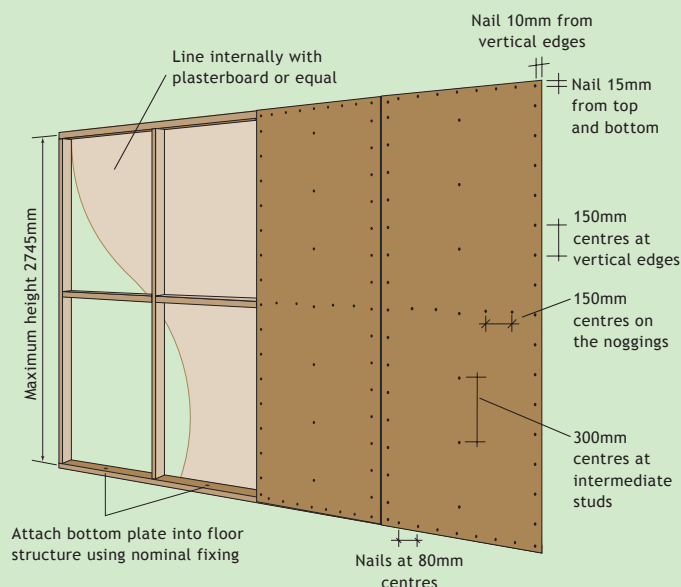
SYSTEM	LIMIT STATE CAPACITY	900mm (M4) 915mm (M6)	1200mm (M4) 1220mm (M6)	1350mm
TYPE A Bracing system with nominal bottom plate fixing	3.4kN/m	3.1kN	4.1kN	4.6kN
TYPE B Bracing system with anchor bolts	6.0kN/m	5.4kN	7.2kN	8.1kN
TYPE C Bracing system with anchor rods	9.0kN/m	8.1kN	10.8kN	12.1kN
TYPE F Bracing system with anchor bolts and stud ties	7.0kN/m	6.3kN	8.4kN	9.4kN
		460mm SHORTWALL		
TYPE D Shortwall bracing system with coach screws	3.4kN/m	1.5kN		
TYPE E Shortwall bracing system with anchor rods	6.0kN/m	2.7kN		

Note: Maximum wall height of 2745mm. Reduction factors occur above this height (see AS1684). Please note 3050mm sheets are readily available.



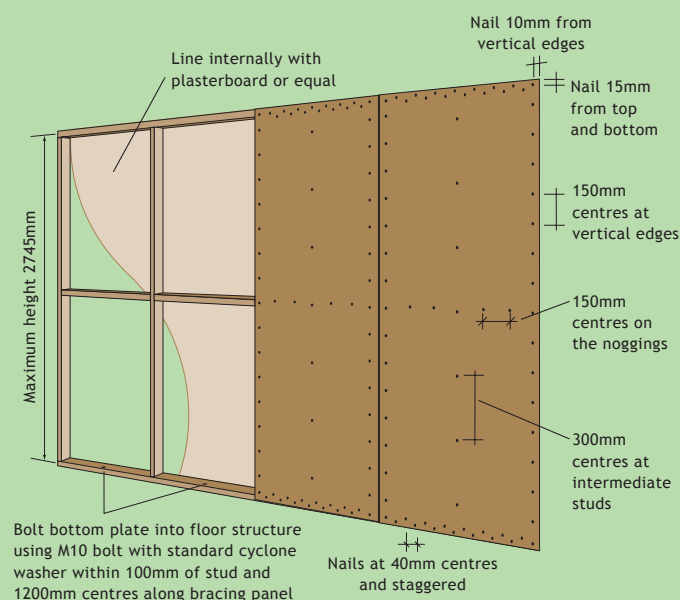
## TYPE A = 3.4kN/m

- Nail 10mm from vertical edges and 15mm from top and bottom plates.
- Nail 150mm centres at all vertical edges and 300mm centres to intermediate studs.
- Nail 150mm centres along noggings.
- Nail 80mm centres at top and bottom plates.
- Nominal fixing of the bottom plate, typically:
  - 1 x 75mm masonry nail at 1200mm maximum centres to concrete slab
  - 2 x 75mm nails at 600 maximum centres for 38mm bottom plate to joist
  - 2 x 90mm nails at 600 maximum centres for 50mm bottom plate to joist
- Line internal walls with plasterboard or Readwall.



## TYPE B = 6kN/m

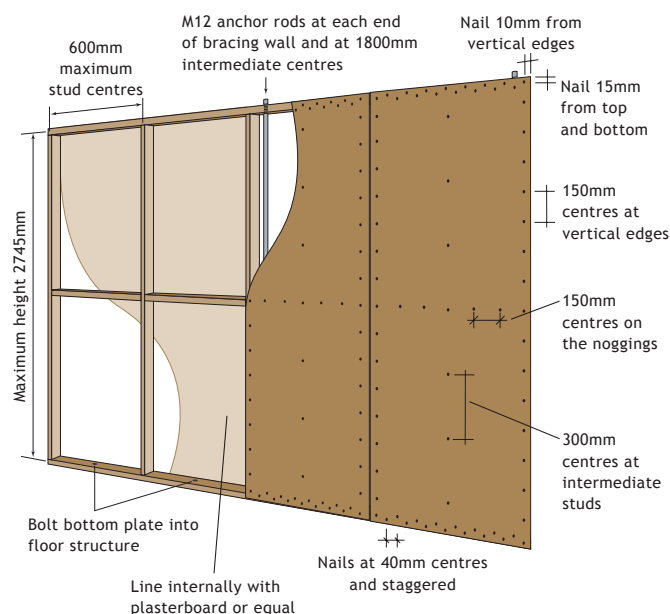
- Nail 10mm from vertical edges and 15mm from top and bottom plates.
- Nail 150mm centres at all vertical edges and 300mm centres to intermediate studs.
- Nail 150mm centres along noggings.
- Nail 40mm centres staggered at top and bottom plates.
- For bottom plate fixing use 1 x M10 bolt or 2 x #14 Type 17 screws at 1200mm maximum centres within 100mm of studs.
- Line internal walls with plasterboard or Readwall.



**TIP: Uplift force may require additional fixing at the end of the bracing panel in accordance with AS 1684**

## TYPE C = 9kN/m

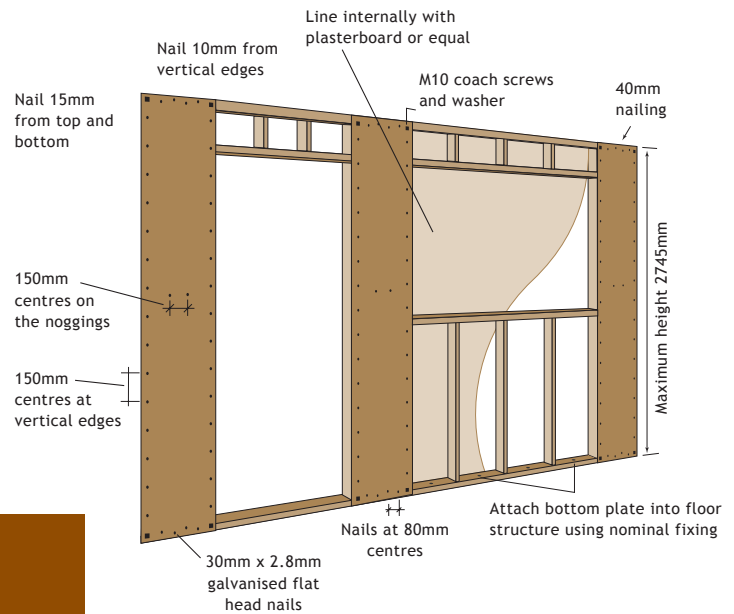
- Nail 10mm from vertical edges and 15mm from top and bottom plates.
- Nail 150mm centres at all vertical edges and 300mm centres to intermediate studs.
- Nail 150mm centres along noggings.
- Nail 40mm centres staggered at top and bottom plates.
- Fix with M12 anchor rods at each end of bracing wall and at 1800mm intermediate centres.
- Line internal walls with plasterboard or Readwall.





## TYPE D = 3.4kN/m

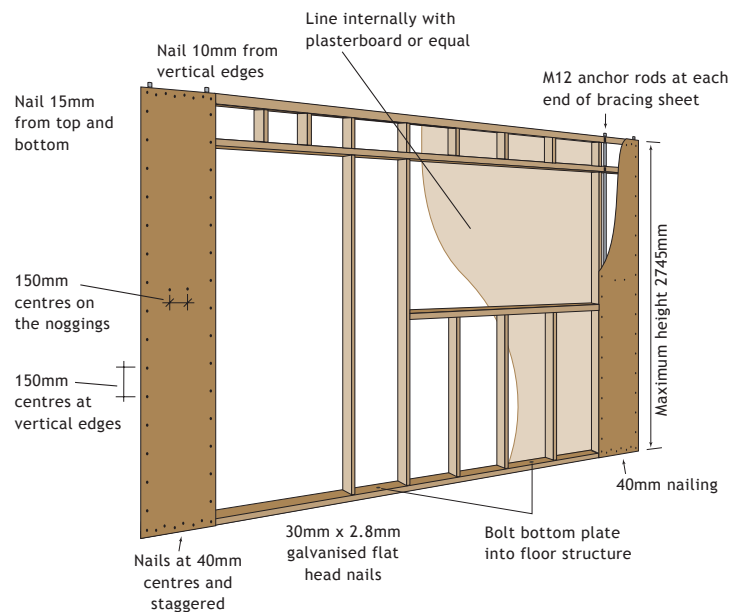
- Fix as Type A with coach screws and washers in all four corners of the sheet.
- M10 coach screws to be 50mm long with a 38mm x 38mm washer.



**TIP: Support the vertical edges over studs and allow a 2mm gap between sheets and raise the sheets to 2mm from the floor**

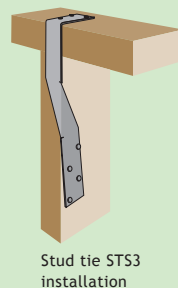
## TYPE E = 6kN/m

- Fix as Type C.

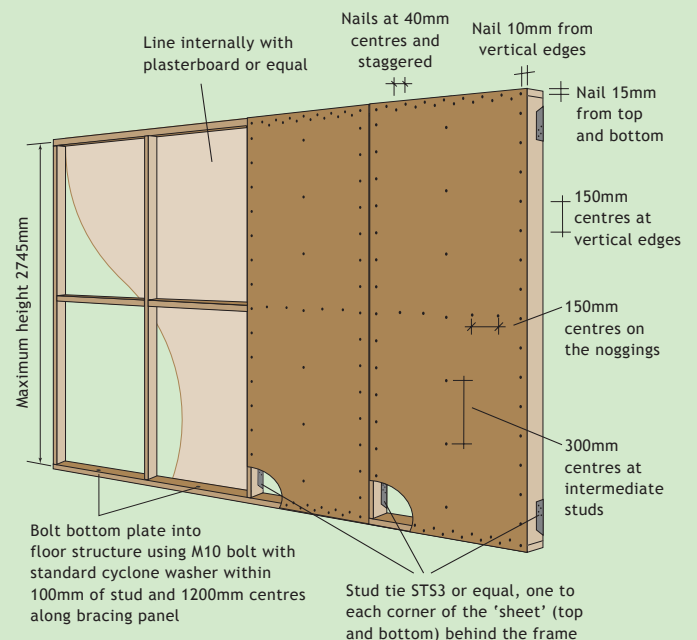


## TYPE F = 7kN/m

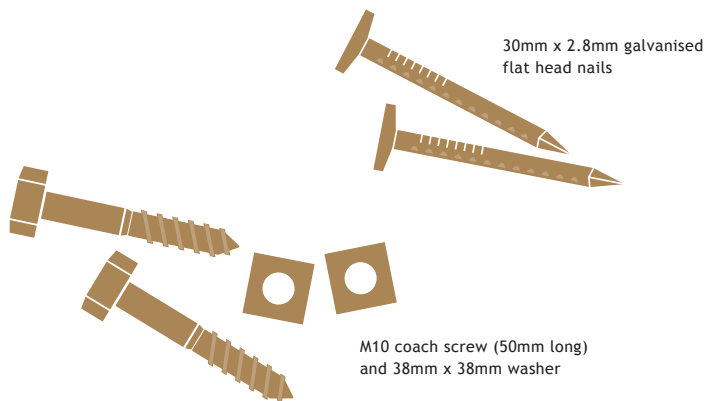
- Nail 10mm from vertical edges and 15mm from top and bottom plates.
- Nail 150mm centres at all vertical edges and 300mm centres to intermediate studs.
- Nail 150mm centres along noggings.
- Nail 40mm centres staggered at top and bottom plates.
- For bottom plate fixing use 1 x M10 bolt or 2 x #14 Type 17 screws at 1200mm maximum centres within 100mm of studs.
- Line internal walls with plasterboard or Readwall.
- Using eight connector nails, attach a STS3 or equal stud tie to each corner of the sheet at the back of the frame.



Stud tie STS3 installation



## M10 COACH SCREW AND BRACING NAIL



Note: Uplift force may require additional fixings at the ends of the bracing panel in accordance with AS 1684.



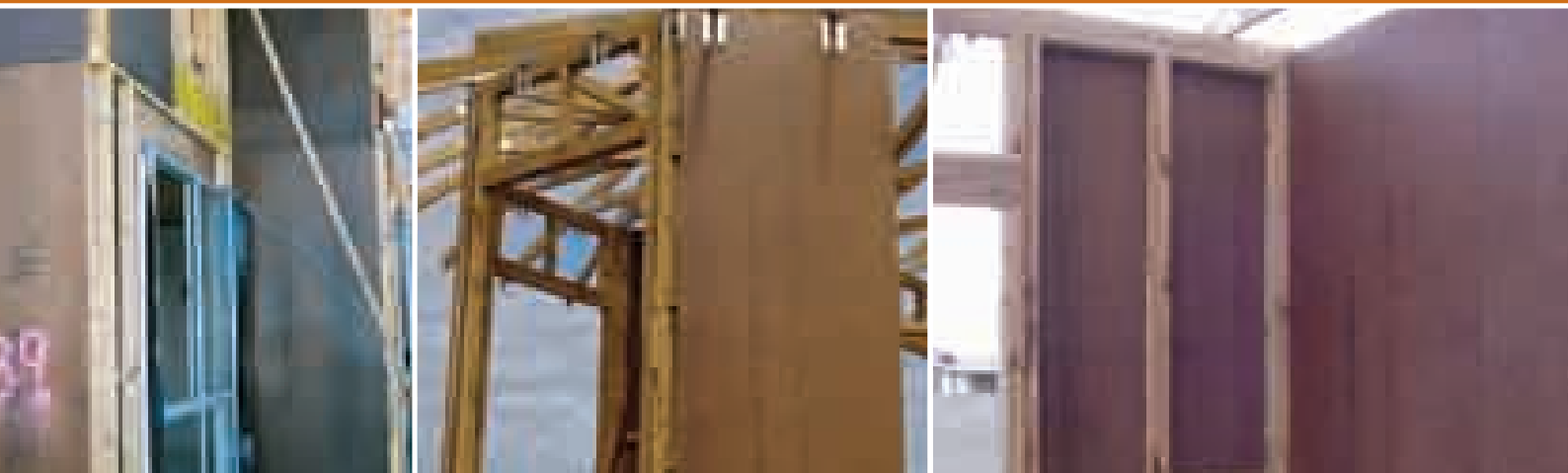
## BRACING CALCULATOR SOFTWARE

Australian Hardboards innovative 'wind bracing software' program is specially designed to improve efficiencies and reduce errors when configuring strength ratings.

The bracing software has an 'easy-read interface' and is a valuable and practical tool for architects, designers, engineers and builders as it enables users to add finished data and vector based drawings in a universal plan format straight into the most popular drawing programs used today.

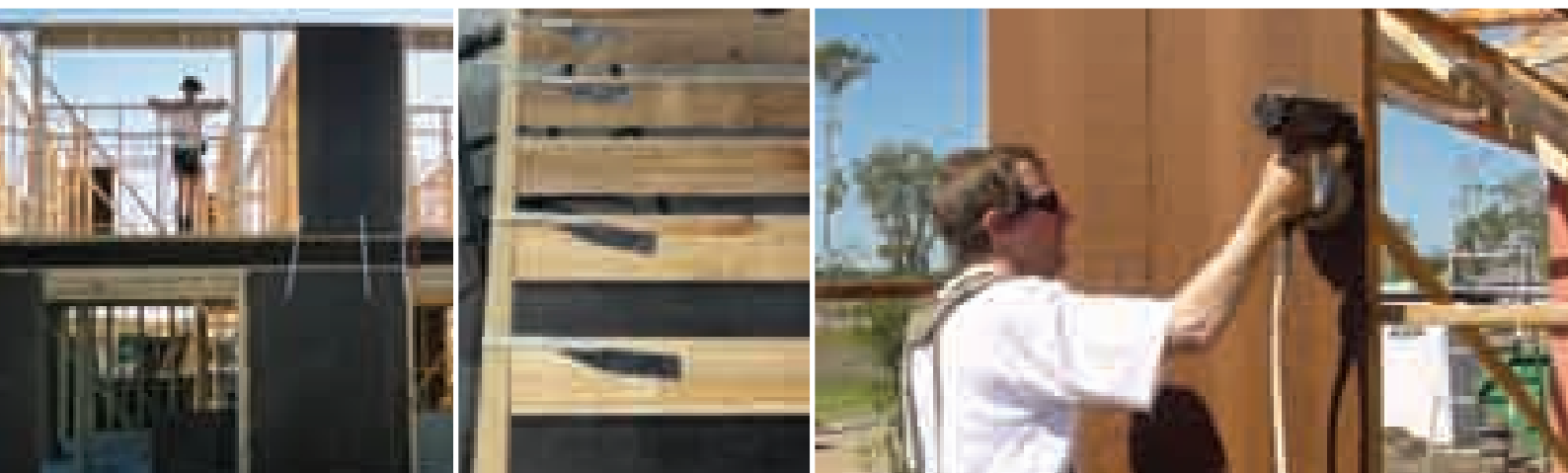
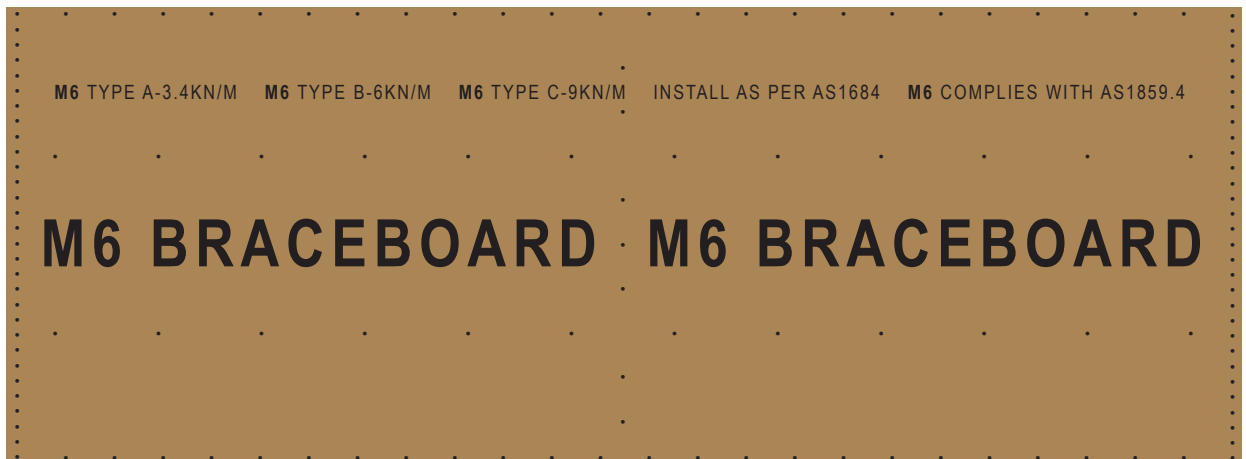
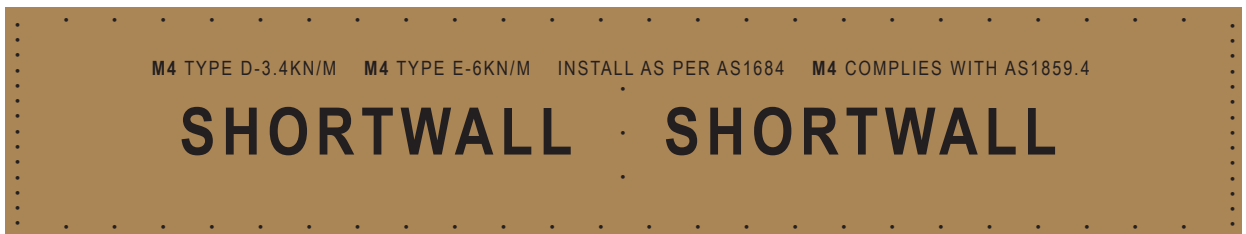
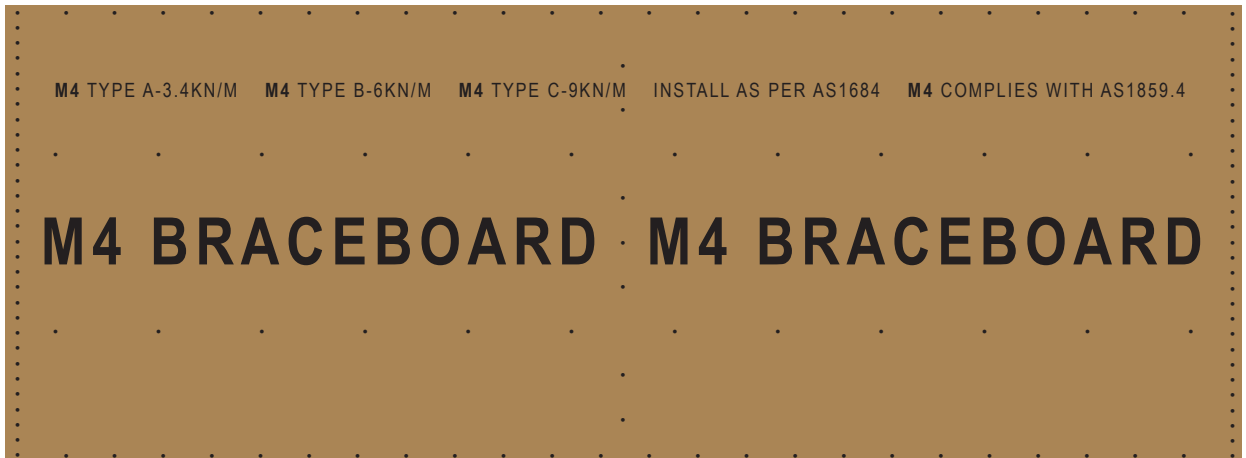
The user simply enters primary criteria relating to a given project and the bracing software provides strength ratings, bracing types, wind classifications, racking resistance and other finished data. At the end of the process the user receives a 'cut and paste' option to place the data directly into their drawing program and will even provide a vector based drawing to complete the schedule in full.

Just visit our website for your FREE download of the Wind Bracing Software on: [www.australianhardboards.com.au](http://www.australianhardboards.com.au)



## BRANDING

For ease of identification, all M4 / M6 Braceboard sheets are branded on the face surface with the nailing pattern and type specifications.



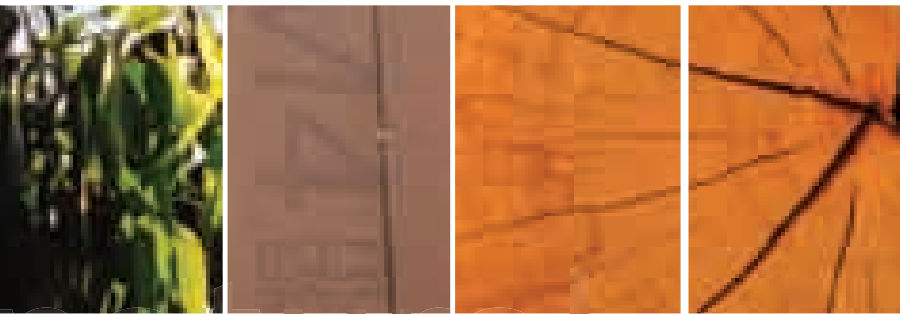
## HANDLING AND STORAGE

Store M4 & M6 Braceboard under cover out of direct sunlight on timber supports spaced at 450mm centres. When storing outside and onsite, keep packs clear of the ground. Cover packs with waterproof sheeting laid on timber battens so that air circulates freely between the cover and the sheets.

The surface treatment of M4 & M6 Braceboard can cause sheets to become slippery when handled. Please open packs with care.

## HEALTH AND SAFETY WARNING

Inhalation of dust generated from processing Braceboard may cause irritation and sensitisation by inhalation (asthma) and by skin contact (dermatitis). Repeated inhalation of wood dust increases the risk of nasal cavity cancer and of lung fibrosis (scarring). Do not breathe dust. Wear a respirator if using power tools. Call Customer Service on 1300 366 681 for a Material Safety Data Sheet.



It is our intention to maintain a sustainable, environmentally responsible business that respects the quality of the environment and uses resources efficiently.

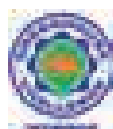
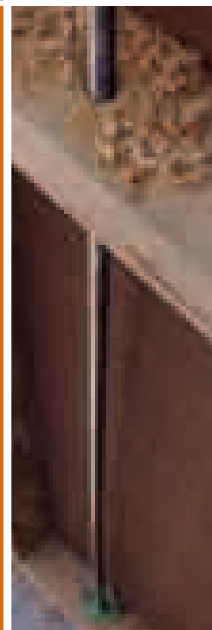


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