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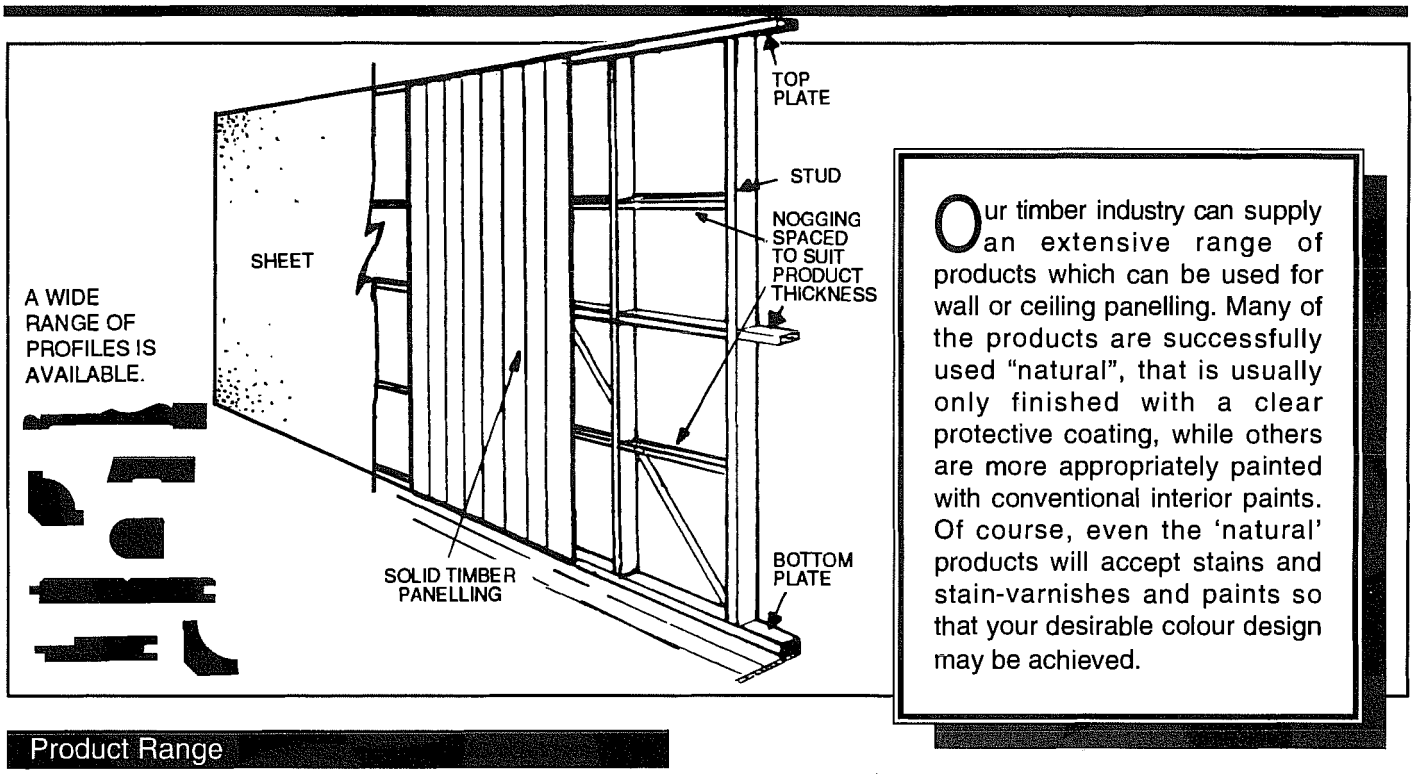
Timber and Building Materials Association (NSW) Limited 2/94

# Panelling
# Timber Products




Our timber industry can supply an extensive range of products which can be used for wall or ceiling panelling. Many of the products are successfully used "natural", that is usually only finished with a clear protective coating, while others are more appropriately painted with conventional interior paints. Of course, even the 'natural' products will accept stains and stain-varnishes and paints so that your desirable colour design may be achieved.

## Product Range

Broadly, the timber panelling products can be grouped as solid (natural) timber panelling or sheet (or panel) manufactured products. Not surprisingly even within these two broad groupings you will find considerable variation in the product range.

### Solid timber panelling

Solid timber panelling, a "natural" product, is available in a number of profiles (shaped sections) in thicknesses of from, say, 9 to 19 mm depending on species and supplier, and in cover widths of from 65 mm to over 140 mm.

While "vee-joint" "shiplap/channel" and "regency" could be widely available you may find your specialist supplier or wood moulding or joinery shop could provide a much wider range.

### Sheet or panel products

Again, a wide range of wood based manufactured products are suitable for internal wall or ceiling panelling. Generally, readily available sheet wall panels would include fancy veneer faced plywood and particleboard, and pre-primed masonite, although suppliers could offer a wide range of products based on these simple materials.

MDF, an abbreviation for "medium density fibreboard", is a relatively new product but it, too is available in large sheets, with or without decorative surface treatment (veneers, artificial or real, and melamine type laminates).

**DISCUSS WITH YOUR TABMA MERCHANT** the wide range of decorative wall and ceiling panelling products. Examine the products and ask for advice on availability, pricing, special fixings and fixing techniques.

Sheet (panel) producers also have product information available on request. Contact the local agent, regional distributor or the manufacturer if the information is not readily available from your TABMA merchant.

## Moisture Content

An essential procedure with all wood based wall and ceiling panelling, whether solid (natural) timber or the manufactured sheet products, is to "condition" the product to the average atmospheric conditions within the room in which it is to be installed.

For this reason, it is good practice to aquire the wood based panelling well ahead of time and condition it by stacking it flat within the room to be panelled (or similar area), for several weeks, allow a free flow of air around each piece/panel. This practice is particularly appropriate for hot dry areas such as our inland, and in air conditioned areas. In the latter case, it is good practice, to delay installation of panelling until the air-conditioning unit has provided a stable condition. Newly installed concrete slab floors may also create risk of delayed shrinkage and the moisture susceptible products such as porous surfaced timber panelling products should not be installed until conditions within that room are at equilibrium with the surroundings (i.e. the slab floor is dry!).

Solid (natural) timber panelling is usually finished on the visible surface with clear finish/stain/paint and it is good practice before installation to pre-cut the boards or sheets to size or shape, smooth or sand visible areas as necessary, apply colour stain if required and then apply one coat of the clear finish all round (front and back) as a primer/sealer. The primed products would be allowed to dry then fixed in place in the planned position, nails punched and holes filled and then final finishing coats applied.

For other sheet/panel products where the surfaces are porous (e.g. standard plywoods, hardboards and particleboards) there is merit in stacking and in part sealing the unexposed (back) surface to provide additional control of moisture uptake, if desired.

## Some Product Considerations

Where wide fluctuations and long duration fluctuations in atmospheric humidity are expected (e.g. wet and dry seasons or the like), by choosing narrow board profiles and with careful and timely installation and detailing, many of the visible effects of expansion and shrinkage can be minimised. In similar conditions of use, it is essential that sheet/panel products should be installed as recommended by the manufacturer particularly as regards expansion gaps between sheets, pre-conditioning, frequency or spacing of nailing, and/or recommendations for adhesive fixing

## Fixing - General

No matter which of the wide range of wood based panelling products selected, all would normally be fixed to some backing framework. This 'framework' could be the actual house frame itself (studs, nogging and plates) or to battens or furring which provides spaced fixing points at a nominated spacing depending on the product used.

Alternatively, as is also usual for brick/masonry/concrete walls, horizontal battens or furring strips may be fixed at appropriate spacing after ensuring these provide a flat straight (and vertical) backing "framework".

## General Support Spacing

Most merchants stock will include 12 mm thick (finished) solid timber panelling, 6 mm fancy faced/veneered plywood all of which can be adequately fixed to conventional wall frames with stud spacing of 450 or 600 mm with intermediate nogging; or to ceiling battens or directly to rafters at similar spacing (450/600 mm). Some solid timber panelling machined from high density (heavy) timbers, and panelling of say, 19 mm thickness would provide an acceptable "feel" if supported at larger spacings (600-900-1200mm)

Consult your TABMA merchant for advice about support spacing for these selected products.

Those sheet products such as hardboard, particleboard and MDF which are usually supplied for wall panelling again can be adequately supported by conventional wall frames or batten spacing at 450 - 600. However, the manufacturers of these sheet products make available specific instruction sheets which should be consulted even if "standard" products are being used but must be referred to if you seek to reduce cost or choose products thicker (or thinner) than "standard" products carried by many merchants.

Usually, 50 x 25, 75 x 25, DAR battens are satisfactory over conventional stud spacing of 450 - 600 mm, or at similar fixing distances on masonry walls.

Battens or similar support should also be provided under butt joins of sheet materials and under such joins with solid timber panelling where used. (Some plywoods have tongue & grooved edges on long sides which makes for adequate (unsupported) joining of sheets along those sides).

**The first real step in fixing panelling** of whatever type, is to prepare or fix this 'framework' of extra nogging and/or battens/furring strips, ensuring that adequate framing is provided around window frames, door frames, at floor/wall, at ceiling/wall and around special fittings - lights, ductwork switches, ventilators etc.

You should pay particular attention to internal and external corners and Figure 3 shows some of the alternative detailing you could consider.

## Fixing - fasteners

Most solid natural timber panelling and sheet panels are fixed in place by nails - conventional hand driven or gun-nail - which may be left visible (e.g. copper nails), hidden, (secret nailed) or punched and puttied. In some installations the material is supported, for example, from nails along the top edges but held against wall frame or battens by a recommended building adhesive - which system provides virtually a nail- less appearance.

Adhesive fixing alone is not recommended for ceiling panelling.

Proprietary thin wallboard metal clips are another alternative for specific solid timber profiled panelling. Clips are nailed into place, panelling grooves mated with the clip as illustrated in Figure 2. This system also provides a nail- free appearance.

Face nailing is conventional, quick, normally adaptable.A single nail is often adequate for narrow boards, two nails for

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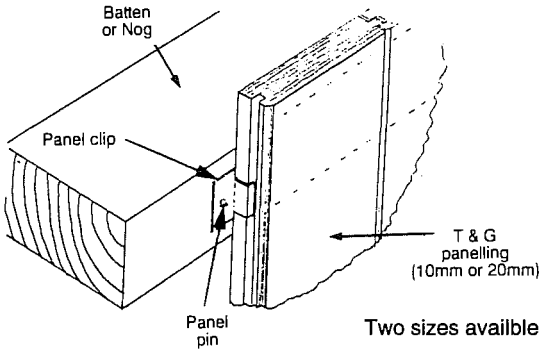


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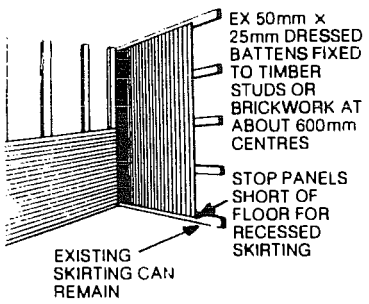
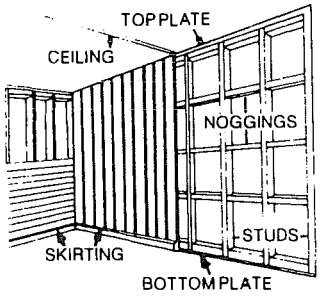
**INSTALLATION ON EXISTING WALLS**

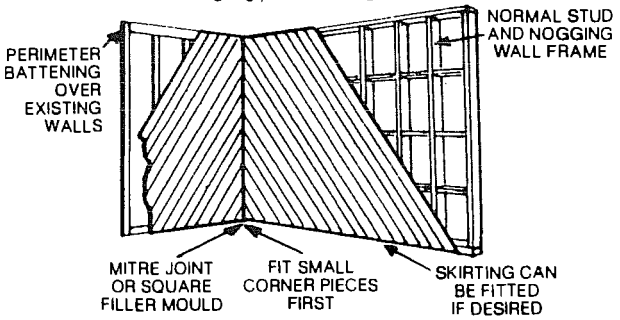



**INSTALLATION ON TIMBER FRAMING**




**INSTALLATION OF DIAGONAL PANELLING**

NOTE: Diagonal pattern can also be adapted to a zig-zag pattern on long walls.



boards over 100 mm wide.

Face nailing of sheet products is often used for convenience but often adhesive fixing is preferred for sheet (wall) panelling (N.B. Use adhesives recommended specifically for the sheet product).

Secret nailing is applicable to several of the profiled solid timber products but it is difficult to achieve good stable fixing with this method if the boards are over 100 mm wide, due to the risk of cupping. A secret nailing effect may be possible in some profiled/grooved solid timber and sheet products if the nails can be obscured within the grooves.

Screw fixing is not often used to fix wall panelling of any type unless it is to provide a removable access to services located say within the wall cavity, or perhaps to screw fix directly to steel framing or the like. Usually surface screw heads are visually unappealing but difficult to conceal satisfactorily. However, you may consider a screw plug (matching timber) system is acceptable.

Gun-nailing using air driven nailing guns is fast, labour saving but suitable nails, nail head, pressure adjustment are essential. Secret nailing is impossible without a special design gun head. Low cost small plastic 'nails', coloured to match the timber/panelling colour are available.

## Fixing - Adhesive

Wallboard adhesives are available but should be used to the adhesive manufacturers recommendations only. Some sheet panel manufacturers provide specific brand recommendations and these should be followed.

Generally, adhesive fixing is suitable for light weight products - sheet products, thin low density natural timber such as plantation pine - but for solid timber and some plywood there is a risk that the adhesive and resins or oils in the natural timber are incompatible and the adhesive will not 'take'. If you wish to obtain a nail-less adhesive fixed panelling wall, always

Seek advice from manufacturer of the panel product, and/or manufacturer of the adhesive (per brochures, leaflets, can/tube instructions.

Work cleanly - remove loose splinters, grit, dirt, grease, dust from the products, provide smooth flat surface for adhesive bonding.

Set out the whole work prior to starting to fix - sawn lengths, trial positioning etc.

Remember, if you use contact adhesives - be practised, accurate and be quick.

## Ordering and Coverage

Solid (natural) timber panelling is available in many sizes, profiles and consequently, each type of plank will provide a somewhat different "cover". Additionally, you may have a few odd corners, or shapes, special fittings and so on to allow for.

For a straight-forward project, measure up the wall area, verify the coverage per "plank" with your supplier, calculate minimum need, then add say 10% for wastage on horizontal and vertical 'plank' and about 15% if you propose diagonal fixing. You may also decide to use set lengths (e.g. all lengths equal to the floor to ceiling height) or random lengths (which usually means butt joining along the panel lengths).

If in doubt, and to verify your calculation, CONSULT YOUR TABMA TIMBER MERCHANT about the product(s) available and what quantity you will need.For sheet products such as plywoods, hardboard, particleboard and MDF based products your TABMA Merchant or producers brochures will advise on the sizes (length x breadth x thickness) of the sheet products preferred for wall panelling and availability from stock or to special order.

Typically, sheet products are available in a reasonably handleable size of about 1200 or 1350 mm wide and about 1800, 2100, 2400 or 2700 mm long, depending on producer and product.

It is essential that you verify the dimensions of your chosen material with your TABMA Merchant BEFORE you commence planning and framing up (e.g. batten placement) for the job.

## — Helpful Hints —

***1.*** Check the walls and features on or around which the timber panelling is to be installed for (a) squareness, particularly in the corners where walls join; (b) for plumb (i.e. vertical using a spirit level or plumb bob); and (c) for flatness using straight edge or string line.

***2.*** Decide how any deficiencies are to be overcome - e.g. vary thickness of battens; packing pieces; filler boards; to straighten studs; replaster, etc. so as to give a firm, flat framework on which boards care to be fixed.

***3.***To fix most 12 mm **vertical** panelling, battens for timber framed construction should be nailed to studs, or nogging fitted at about 600 mm spacing for best results. But for most 12 mm **horizontal** panelling (on framed walls) battens are not necessary as the panelling can be fixed directly to the studs. For brick or masonry walls battens spaced at about 600 mm may be fixed to walls and are required for both vertical and horizontal panelling.

***4.*** For vertical panelling, begin at a corner and plumb the first board before fixing it with the tongue away from the corner. For horizontal panelling start at the base of the wall and fix the first board with the tongue along the upper edge.

***5.*** For angled (45 degrees/60 degrees) panels on a fully battened wall you need to fit additional battens or blocking pieces between end of battens on walls or on top edges of wall, or preferably, use perimeter battens as sketched.

***6.*** To ensure a clean cut on the exposed surface of the boards always **hand** saw with the finished face upward but with a hand held **power** saw with the face downward. Minimum on-site cutting is required with set lengths or with end matched panelling.

***7.*** Some solid timber panelling profiles can be secretly nailed through the tongue but you may find (experiment!) that with dry, heavy timbers that each nail hole should be pre-drilled. Small head nails (brads) are obviously desirable.

***8.*** When face-nailing panelling the nail heads should be hammered to just above the surface of the timber and then driven below the surface with a correctly sized nail punch. Nail holes may be filled with recommended wood filler/putty to suit the final finish required. You may prefer to feature the nail by using, for example, copper nails or other non-corroding flat head nails driven flush with surface.

***9.*** Investigate the range of pre-moulded corner mouldings - quarter-round, scotia, cornice, etc. available from your TABMA Merchant before deciding how to finish off corners etc.

***10.*** For a practical on-site finish, seek out clear finishes or stains or paints which give a hard wearing easily cleaned surface and apply the selected finish according to the instruction of the coating manufacturer.

***11.*** For pre-finished products, often with a strippable protective coating applied, retain the protection as long as possible, only stripping it off as the final task.

## Joints and Joining

Simple wall panelling poses few problems but you must pre-plan how you will treat joins at corners of the walls and between wall and ceiling. Generally, the join between wall and floor is covered by a skirting board while joins around window frames and door frames and the like, are covered by architrave moulding, hence accurate cutting to fit is not always necessary at those points.

Illustrated in Figure (3) are situations where panelling joins ceiling and floors and at corners.

End joins i.e. where boards join in length within a run of panel is usually by simple, accurately cut, butt-joints. However, in some special products an 'end-matched" joint is available which may also provide a "feature" of the joint.

While solid timber panelling with interlocking long side joins (e.g. vee-joint TABMA profiles 301, 302, 321, 322) or shiplap (TABMA profiles 34, 38) provide sufficient support for end joins to be made anywhere along the run, it makes for a better finish if the butt joins receive a backing support (which also seals against dust/draft and prevents shrinkage gaps) from studs, nogging, furring strips or battens. Such joins are best organised during planning of the layout. It is usual to stagger such joins over the whole wall (i.e. an irregular pattern) but occasionally this is varied to provide a decorative effect.

All sheet panel products are available with four square edges but some plywood manufacturers produce a 12 mm plywood with square edges on short ends and tonguing, grooving on long edges

With square edged material, butt joins on both long and short sides must be supported by studs, noggins or battens. With tongued and grooved jointing extra backing support is usually not needed but the short sides, (square edged) must have full backing support for butt joints.

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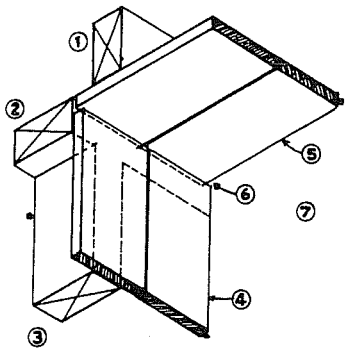
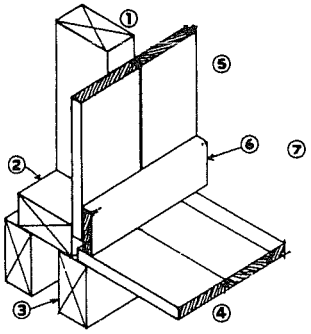
### FIXING — GENERAL

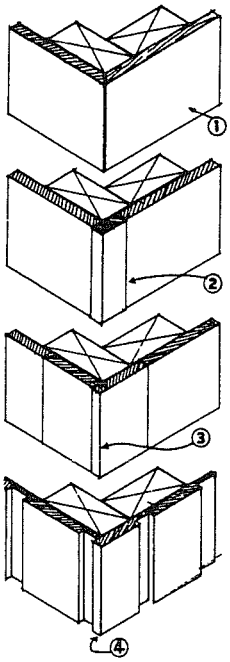
Lining boards are usually fixed to nogging or battens, also referred to as grounds or furring, at 450 mm to 900 mm centres according to the finished thickness and stiffness of the lining. Where fixing is to masonry the battens are normally plugged to the wall at required intervals and directions. Battens are usually of 50 mm x 25 mm material. Larger batten sizes may be necessary if the wall is uneven, or the corners are to be coved, or where recessed lighting, etc., is to be accommodated.



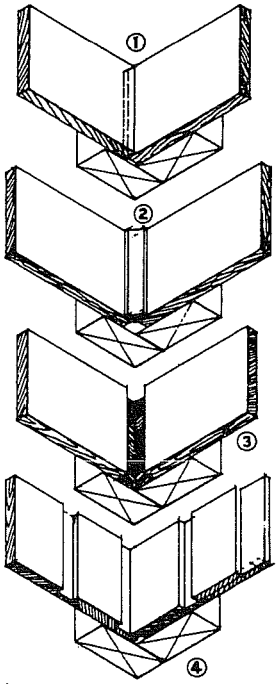
**Joint between ceiling and wall lining.**
1. Ceiling Joist.
2. Wallplate.
3. Studs.
4. Wall Lining.
5. Ceiling Lining.
6. Wall Lining cut level below ceiling, ceiling lining oversails wall lining, with gap 6mm to 12mm between.
7. See also details for Plywood for similar joints with cover moulds.



**Joint between wall lining and floor.**
1. Studs.
2. Bottom Plate.
3. Floor Joists.
4. Flooring.
5. Wall Lining.
6. Skirting.
7. See also details for similar joints in Plywood Construction.



**External corner.**
1. Lining mitred at corner.
2. Corner finished with a stop mould.
3. Lining boards grooved and rebated together.
4. Butt joint between related lining boards repeating pattern.



**Internal corner.**
1. Lining of one wall extends past Lining of other wall.
2. Cover mould to joint.
3. Recessed joint, wall framing painted for contrast.
4. Lining of one wall butted into other.



This brochure was prepared with the assistance and co-operation of the Timber Development Association NSW Ltd.

For further information see www.timber.net.au



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