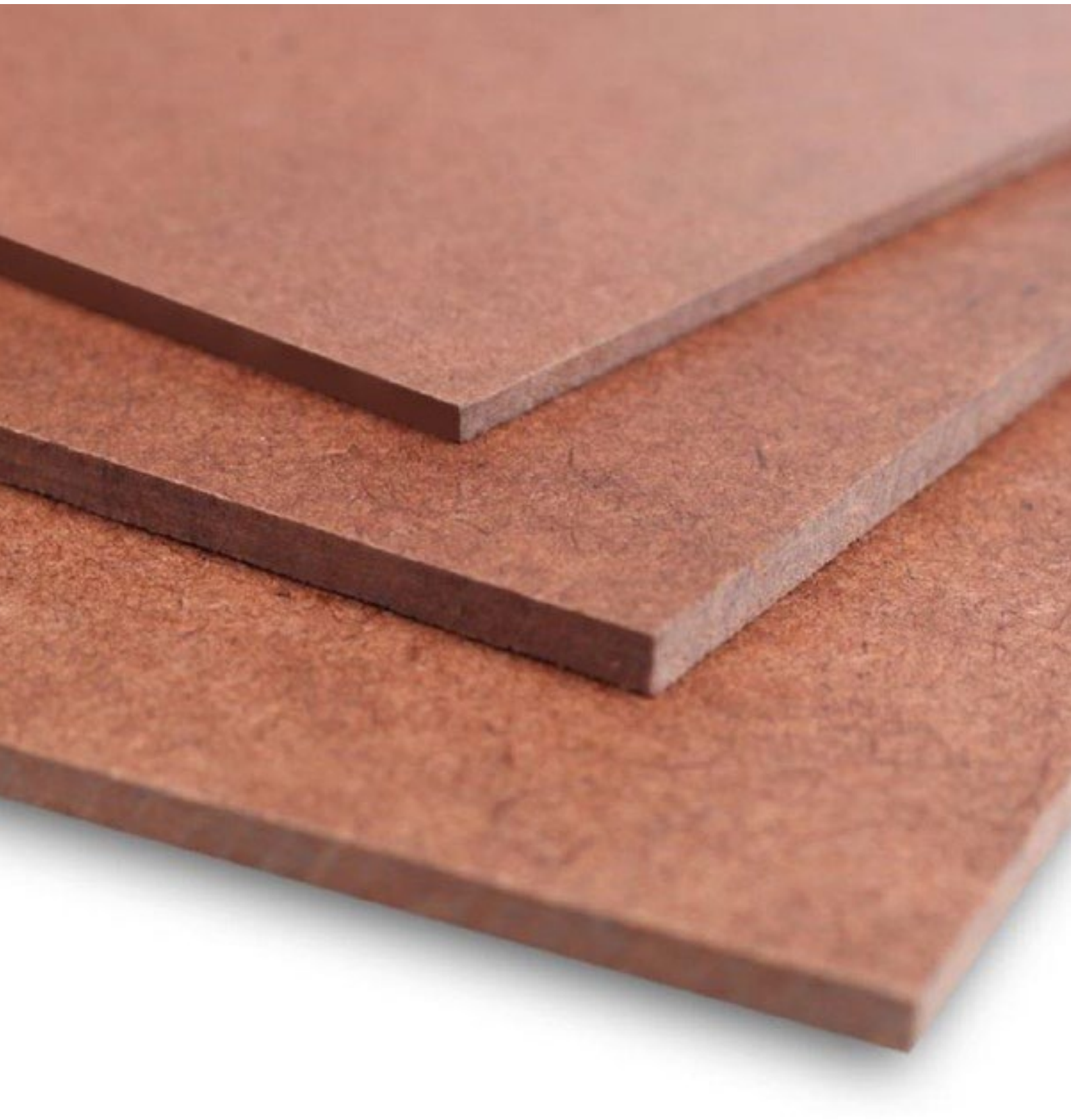
Trade Essentials®

HARDBOARD

Technical Manual



Laminex™ NEW ZEALAND

Edition 2.0 05.21

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1 General product description

1.1 Trade Essentials® Hardboard material

Trade Essentials® Hardboard is a wood fibre building panel. The fine, densely bonded, wood fibre structure of Hardboard ensures excellent machining and working properties using normal woodworking equipment or hand tools.

In addition, the smooth face surface provides an ideal base for paint finishing with most industrial and domestic coatings.

1.2 Trade Essentials® Hardboard types

1.2.1 Standard Hardboard Panel

Standard Hardboard is a wood fibre building panel, which complies with the requirements for Standard Hardboard.

The back surface is characterised by a fine, wire screen texture. It is available in a range of accurately dimensioned sheet sizes and in thicknesses of 3.2mm and 4.8mm.

Uses:
It is intended for dry area, interior use. Typical applications include:

- Building: as interior wall and ceiling linings.
- Door and partition surfacings.
- Furniture and Joinery: in flush or fancy doors, backs for furniture, cupboards, vanity tables and mirrors. Chair and pouffe bases, shelves, drawer bottoms and divan bases.
- Display: straight or shaped display bases for screen printing, lettering, shop fitting and notice boards.
- Automotive: door trims, sun visors, spare wheel covers, boot floors and linings.
- Packaging: butter and cheese boxes, fruit cases, crates, pallet surfacings and protection pieces for machined engineering products.

1.2.2 Tempered Hardboard Panel

Tempered Hardboard is a wood fibre building panel, which complies with the requirements for Tempered Hardboard.

The back surface is characterised by a fine, wire screen texture. It is available in a range of accurately dimensioned sheet sizes and in thicknesses of 4.5mm and 6.4mm.

Uses:

Tempered Hardboard has a wide range of applications including:

- Interior lining of timber or metal – framed walls and ceilings in workshops, garages, wet areas (bathrooms, laundries) and in industrial or commercial premises.
- Cabinet construction, industrial shelving and work bench surfacing, shopfitting.
- Door skins for surfacing flush panel doors, for use in moisture areas and semi-protected exterior locations.
- Surfacing of concrete formboards and formwork for landscaping.
- Floor surfacing, particularly in the restoration of old buildings, dance/ stage and theatre floors
- Seat backings and interior side and floor panels for transport and industrial vehicles.

1.3 Make sure your information is up to date

When specifying or installing Laminex New Zealand™ product, ensure you have the current technical manual. If you are not sure you do, or you need more information, visit laminex.co.nz or call Laminex New Zealand™ on **0800 303 606**.

*Laminex New Zealand™ reserves the right to change the specification.

2 Material properties

2.1 Standard Hardboard

Standard Hardboard, also called high-density fiberboard (HDF), is a type of fiberboard, which is an engineered wood product. It is used in furniture and in the construction industry

2.1.1 Standard Hardboard panel dimension

Table 1

Thickness (mm)	Size (mm)
3.2	2440 x 1220
4.8	2440 x 1220

Thickness	Width	Length
+/- 5mm	+/- 3mm	+/- 3mm

Squareness: Maximum variation between diagonals is 0.2%

2.1.2 Standard Hardboard fire properties

The Group Number Classifications are generated from tests carried out and data reduced in accordance with the test procedure described in ISO 5660 2002 – Reaction to Fire test – Part 1: Heat Release and Part 2: Smoke Production Rate, for the purposes of determination of the Group Classification in accordance with the New Zealand Building Code Verification Method C/VM2.

Appendix A

Group Number Classification: 3

2.2 Tempered Hardboard

2.2.1 Tempered Hardboard panel dimension

Table 2

Thickness (mm)	Size (mm)
4.5	2400 x 900
4.5	2400 x 1200
4.5	2700 x 1200
6.4	2440 x 1220

Thickness	Width	Length
+/- 0.5mm	+/- 3mm	+/- 3mm

Squareness: Maximum variation between diagonals is 0.2%

2.2.2 Tempered Hardboard fire properties

The Group Number Classifications are generated from tests carried out and data reduced in accordance with the test procedure described in ISO 5660 2002 – Reaction to Fire test – Part 1: Heat Release and Part 2: Smoke Production Rate, for the purposes of determination of the Group Classification in accordance with the New Zealand Building Code Verification

Method C/VM2. Appendix A

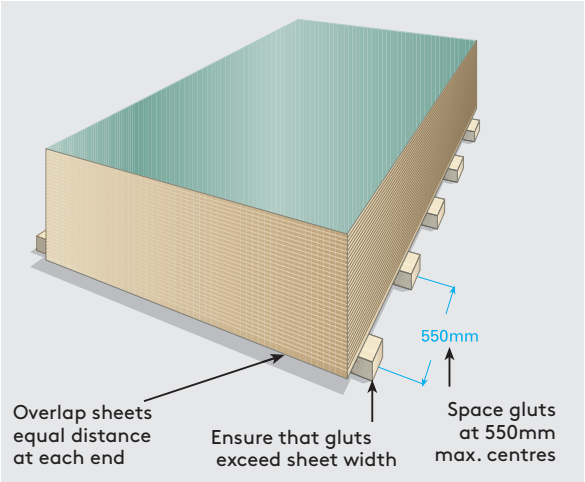
Group Number Classification: 3

3 Durability

3.1 Handling and storage

- Hardboard Panels must be stored in dry conditions and handled in accordance with this document.
- Keep sheets flat by stacking on evenly spaced bearers (gluts) which extend across the full sheet width (refer to Figure 1)
- When stacking high, line gluts vertically one above the other
- Care of the sheet face is essential to protect the decorative surface
- To avoid damage to the surface, lift rather than drag the sheets off the stack
- Leave protective film on panels intact, until ready for use (see page 14, 6.4.6)

Figure 1. Storing Hardboard panels



- **Precondition panels.**
  Fillet stack panels and leave for at least 48 hours in the room where they will be installed.

4 Design

4.1 Standard Hardboard design considerations

For best results the Standard Hardboard product should be moisture conditioned and especially where:

- Sheets larger than 1830mm x 1220mm are being used.
- Sheets are to be rigidly fixed.
- Close fabricating tolerances are required.

Apply water to the back of the sheets with a sprinkler or fine hose and brush into the surface with a stiff broom. (See table for approximate water quantities). Stack the sheets flat, back to back, for at least 24 hours before fixing.

Table 3

Approximate litres of water per 10m² of board	
Thickness	Litres
3.2mm	2.3
4.8mm	2.7

4.2 Tempered Hardboard design considerations

For best practice, the Tempered Hardboard should be conditioned by wetting the back of the board with water for at least 48 hours before fixing. Apply the water with a sprinkler or fine spray and brush into the surface with a stiff broom. Stack the sheets flat, back to back for the required period.

Table 4

Approximate litres of water per 10m² of board	
Thickness	Litres
4.5mm	2.7
6.4mm	3.2

4.2.1 Tempered Hardboard moisture areas

4.5mm or 6.4mm Tempered Hardboard may be used for the internal lining bathrooms and laundries. Primer seal the sheet edges and the sheet perimeter of the board over a width of about 100mm from the edge.

The surface of the board should be coated with a recognised quality paint. Ask your paint supplier for recommendations on the best type of paint for your application. Set the sheet edges in caulking compound in aluminium or suitable PVC mouldings. Do not use Tempered Hardboard in shower recesses unless fully sealed front, back and sides.

4.2.2 Tempered Hardboard damp buildings

Do not fix Tempered Hardboard to walls that are permanently or intermittently showing signs of dampness. The cause of moisture must be corrected and the walls allowed to dry before installing.

5 Installation

5.1 Cutting & machining

The Standard Hardboard product is easy to work and machine with normal woodworking tools and equipment. Cut sheets with a fine tooth circular or table saw.

Edges may be trimmed with a smoothing plane, power plane or sandpaper. Where holes are required clean cutter bits or twist drills are satisfactory. Woodworking shapers, spindle moulders and high speed routers may be used to shape or mould the edges. Tungsten carbide tipped cutters are preferred for long production runs.

6 Fixing and jointing

6.1 Standard Hardboard fixing procedures

6.1.1 Interior linings

4.8mm and 6.4mm Standard Hardboard is recommended for the interior lining of timber or metal framed buildings. 3.2mm Standard Hardboard requires a solid backing such as timber lining boards, plasterboard or cement render. The backing should be firmly attached, dry, clean and reasonably flat to allow direct adhesive bonding.

6.1.2 Framing

Best results are obtained where timber frames are accurately gauged to width and framed up without deviation. Provide nogging or trimmers as required and ensure support is provided for all sheet edges. Space framing members in accordance with the following table.

Table 5

Thickness (mm)	Thickness (mm)	
	Wall studs/Battens	Ceiling joists/Battens
4.5	450	300

Note: Space supports at 305mm, 406mm or 610mm centres to suit 1220mm sheet widths.

6.1.3 Joint treatment

Sheet edges may be bevelled to form a "V" joint. Alternatively use timber, aluminium or PVC mouldings. Allow a 2mm gap between sheets and minimum 6mm clearance where sheets meet adjoining walls, floors or ceilings.

6.1.4 Nailing

Minimum 25mm x 1.6mm plated panel pins and/or gun fired brads of the same gauge and length are generally satisfactory for fixing the Standard Hardboard product to timber frames. Keep nails 10mm from sheet edges.

Table 6

Maximum fasterner spacing				
Walls			Ceilings	
Thickness (mm)	Edges (mm)	Body of board (mm)	Edges (mm)	Body of board (mm)
4.5	150	300	150	300
6.4	150	300	150	300

When nailing, work across the sheets or nail from the centre working outwards towards the edges. Never nail around the edges while the centre of the board remains free. Nails may be set flush with the board surface or punched and stopped, depending on the quality of the required application.

6.1.5 Adhesive fixing

Refer to Laminex recommended adhesives, wallboard or construction adhesives are generally suitable for fixing the Standard Hardboard to timber or metal wall frames or existing walls. Surfaces to be bonded must be clean and dry. Always refer to manufacturer's technical literature for details on minimum and maximum working temperatures and environments and use adhesives in accordance with the manufacturer's recommendations.

Apply sufficient adhesive to fix one sheet to framing members, in continuous beads about 5mm in diameter and at 450mm maximum centres for 4.8mm thickness board. Locate sheet in its correct position as soon as the adhesive has been applied and press the sheet firmly against the frame or wall. Provide some support to the panel while adhesive cures.

Some types of adhesives, such as solvent and water based adhesives, will need to "flash off" before final fitting of sheet, for installation using these adhesives follow details below:

After pressing sheet firmly against framing remove sheet and allow the adhesive to become touch dry. Carefully reposition the sheet against the frame then hammer over the adhesive areas using a felt faced block and hammer. Do not allow any excess adhesive to harden. Remove any excess adhesive with a soft cloth dampened with mineral turps, kerosene or water depending on the adhesive type. Fix subsequent sheets to the sequence described. Provide some support to the panel while adhesive cures.

Note: When fixing 3.2mm Standard Hardboard product to solid backing, space adhesive beads at 300mm maximum centres.

Recommended adhesives:
- Gorilla MS Sealant
- Gorilla 240FC MS
- Sika 123 MS Sealant

6.2 Tempered Hardboard fixing procedures

6.2.1 Interior linings

4.5mm and 6.4mm Tempered Hardboard is recommended for the interior lining of timber or metal framed buildings.

6.2.2 Framing

Best results are obtained where timber frames are accurately gauged to width and framed up without deviation. Provide nogging or trimmers as required and ensure support is provided for all sheet edges. Space framing members in accordance with the following table.

Table 7

Thickness (mm)	Maximum spacing (mm)	
	Wall studs/Battens	Ceiling joists/Battens
4.5	450	300

Note: Space supports at 305mm, 406mm or 610mm centres to suit 1220mm sheet widths.

6.2.3 Joint treatment

Sheet edges may be bevelled to form a "V" joint. Alternatively use timber, aluminium or PVC mouldings. Allow a 2mm gap between sheets and minimum 6mm clearance where sheets meet adjoining walls, floors or ceilings.

6.2.4 Nailing

Minimum 25mm x 1.6mm cadmium plated panel pins are generally satisfactory for fixing the Tempered Hardboard product to timber frames, although 30mm panel pins are preferred when fixing to ceiling frames. Keep nails 10mm from sheet edges.

Table 8

Maximum fasterner spacing				
	Walls		Ceilings	
Thickness (mm)	Edges (mm)	Body of board (mm)	Edges (mm)	Body of board (mm)
4.5	150	300	150	300
6.4	150	300	150	300

When nailing, work across the sheets or nail from the centre working outwards towards the edges. Never nail around the edges while the centre of the board remains free. Nails may be set flush with the board surface or punched and stopped, depending on the quality of the required application.

6.2.5 Adhesive fixing

Refer to Laminex recommended adhesives, wallboard or construction adhesives are generally suitable for fixing the Standard Hardboard to timber or metal wall frames or existing walls. Surfaces to be bonded must be clean and dry. Always refer to manufacturer's technical literature for details on minimum and maximum working temperatures and environments and use adhesives in accordance with the manufacturer's recommendations.

Apply sufficient adhesive to fix one sheet to framing members, in continuous beads about 5mm in diameter and at 450mm maximum centres for 4.8mm thickness board. Locate sheet in its correct position as soon as the adhesive has been applied and press the sheet firmly against the frame or wall. Provide some support to the panel while adhesive cures.

Some types of adhesives, such as solvent and water based adhesives, will need to "flash off" before final fitting of sheet, for installation using these adhesives follow details below:

After pressing sheet firmly against framing remove sheet and allow the adhesive to become touch dry. Carefully reposition the sheet against the frame then hammer over the adhesive areas using a felt faced block and hammer. Do not allow any excess adhesive to harden. Remove any excess adhesive with a soft cloth dampened with mineral turps, kerosene or water depending on the adhesive type. Fix subsequent sheets to the sequence described. Provide some support to the panel while adhesive cures.

Note: When fixing 3.2mm Standard Hardboard product to solid backing, space adhesive beads at 300mm maximum centres.

Recommended adhesives:

- Gorilla MS Sealant
- Gorilla 240FC MS
- Sika 123 MS Sealant

7 Finishing

7.1 Standard Hardboard painting

The Standard Hardboard product requires coating with a primer sealer before final painting. After priming stop up holes with a proprietary filler and lightly sand the surface. Paint finishes should be selected and applied in accordance with the paint manufacturer's instructions.

Paint coatings may be applied to the Standard Hardboard product by brush, roller or spray depending on the paint type. Seal the Standard Hardboard product linings with a wallboard sealer. Then apply two coats flat, low gloss or semi glass acrylic paint. Alternatively, use one coat alkyd undercoat and one or two alkyd finish coats after sealing.

7.2 Tempered Hardboard painting

Tempered Hardboard requires coating with a primer sealer before final painting. After priming stop up holes with a proprietary filler and lightly sand the surface. Paint finishes should be selected and applied in accordance with the paint manufacturer's instructions.

Paint coatings may be applied to Tempered Hardboard by brush, roller or spray depending on the paint type. Apply two coats flat, low gloss or semi glass acrylic paint. Alternatively, use one coat alkyd undercoat and one or two alkyd finish coats after sealing.

7.3 Tempered Hardboard floor surfacing

6.4mm Tempered Hardboard provides a low cost means of resurfacing timber floor boards or concrete floors, particularly in the restoration of old buildings. It may be used as a base beneath loose lay floor coverings, such as carpet or for coating with floor surface finishes.

The preferred sheet dimensions for floor surfacing applications are 1830mm x 1220mm.

1. Do not use as a floor surfacing in wet areas or where excess fat, oil or grease is likely.
2. Tempered Hardboard is not intended as an underlay beneath resilient sheet (vinyl) and tile floor coverings.

Disclaimer for dance / stage floors where stiletto shoes could leave small indentations

7.4 Timber floors

7.4.1 General

Ensure that the sub-floor timbers and floorboards are structurally adequate and replace any loose or broken boards. For best results any surface irregularities should be sanded level.

Check that Hardboard sheets are square and edges parallel before conditioning and installation.

7.4.2 Ventilation

The sub floor ventilation requirements of NZBC E2 and/or NZS 3604 must be regarded as minimum to provide a clear cross flow of air beneath the flooring timbers.

7.4.3 Layout

After conditioning (see Preparation), arrange the sheets on the floor in an ashlar pattern, smooth side up and with the long edges at right angles to the floorboard run. Edge trimming may be necessary and the sheet edges should be lightly bevelled using a smoothing plane or coarse sandpaper.

Do not locate sheet joins over floorboard joins. Allow a 1.5mm gap at the joins and a minimum 10mm clearance at the room perimeter and around fixtures or columns

7.4.4 Fixing

Screwing sheets to the floor will allow for individual sheets to be removed/replaced if required.

Screw spacings should be at leased 150mm centres around the perimeter and 10mm in from the edge.

Screw holes need to be pre-drilled and countersunk. NB: The hole diameter should have a slight clearance for the shank of the screw.

Self-embedding screws are not recommended, as they tend to raise the surface of the hardboard. Allow a 1.5mm gap at all joins and at least 10mm clearance around the perimeter of the areas to be covered. Commence fixing each sheet from the centre and work out to the edges.

7.5 Concrete floors

7.5.1 General

Concrete surfaces must be reasonably flat, dry and clean of any dust, oil, grease or fatty substances. Where the concrete slab is on the ground, ensure that it has been placed over a moisture proof membrane and that moisture will not permeate up through the slab to adversely affect the Tempered Hardboard product surfacing.

7.5.2 Layout

After conditioning (see Preparation), lay the sheets on the floor in an ashlar pattern smooth side up. Trim, bevel and allow clearance for the sheets as for timber floors. (Refer Timber Floors, Layout).

7.5.3 Fixing

Fix one sheet at a time using a wallboard or construction adhesive suitable for bonding wood to concrete. Always follow the adhesive manufacturer's instruction.

Allow a 1.5mm gap between sheets and 10mm clearance at room perimeters and around fixtures columns.

8 Health and safety

8.1 Health and safety precautions

Health and safety precautions must be taken when working with wood products. The following information is intended as a guide to help keep you safe.

8.2 Wood dust

- Exposure to wood dust and/or to formaldehyde may cause irritation to the eyes, respiratory system and skin, and may cause sensitisation resulting in asthma, and by skin contact resulting in dermatitis.
- Wood dust is classified as a known carcinogen. Repeated inhalation of wood dust over many years may cause nasal cancer.
- Formaldehyde is classified as a known carcinogen.
- Storage areas containing large quantities of Hardboard must be adequately ventilated.
- Work areas must be well ventilated and kept clean. Sawing, sanding and machining equipment must be fitted with dust extractors to ensure that dust levels are kept within standards laid down by Worksafe Australia, Occupational Health and Safety New Zealand, or the specific country of use. If not, a dust mask conforming with AS/NZS 1715 and AS/NZS 1716 and eye protection conforming with AS/NZS 1337 must be worn.
- Offcuts, shavings and dust must be disposed of in a manner which avoids the generation of dust and in accordance with the requirements of local waste authorities.
- In end use applications all product surfaces exposed to occupied space must be sealed.
- For further information and safety data information, please phone Laminex New Zealand™ customer services department.

8.3 Formaldehyde

- The formaldehyde content of Hardboard comply with the limits specified by the World Health Organization for low formaldehyde emitting products and meets the requirements for E1 product as detailed in AS/NZS 1859.1 : 2004 – Reconstituted wood based panels – Specifications.
- When tested to AS/NZS 4266.16, the formaldehyde emission level is ≤ 1.5 milligrams per litre.
- Once Hardboard products are installed, emission levels can be further controlled by room ventilation together with covering or coating the surface and edges.

8.4 Warranty

Laminex New Zealand™ will not be liable to any persons if the conditions as to storage, handling and installation and maintenance of Hardboard as outlined within the Hardboard Manual are not complied with. It is the obligation of the installer of the Hardboard to convey this information to the relevant owner/occupant.

If you have any questions, or in the unlikely event of a problem with Hardboard, please contact Laminex New Zealand™ Customer Services. For more information visit laminex.co.nz or call **0800 303 606.**

9 Disclaimer

Laminex New Zealand™ will not be liable to any person if the instructions as to storage, use and installation of Trade Essentials® Hardboard as outlined in this brochure are not complied with.

Any proprietary products referred to in this brochure must be used in accordance with the relevant manufacturer's instructions. Laminex New Zealand™ accepts no liability for these proprietary products.

All Acts, Codes and Standards referred to in this brochure are the current editions at the date of brochure publication.

9.1 Technical support

As not all product use options can be described in this brochure, additional end use and specifying information is available. The information contained in this brochure must not be reproduced or published in whole or in part without the prior consent of Laminex New Zealand™. Laminex New Zealand™ reserves the right to revise without notice any information contained in this brochure.

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