Laminex® Alfresco Compact Laminates

Laminex® Alfresco Compact Laminate is an exterior grade decorative panel manufactured under high pressure and temperature. The panels are strong, self supporting and durable. The distinctive black core eliminates the need for edge treatment and serves as a striking design feature.

Laminex Alfresco Compact Laminate is an exterior grade compact laminate available in both 6 and 13 mm thickness. Laminex Alfresco Compact Laminate in 6mm thickness is suitable for vertical use while 13 mm laminate is suitable for vertical and horizontal uses. Laminex Alfresco Compact Laminate is suitable for a wide range of outdoor applications such as furniture, table tops, decorative panelling and outdoor kitchen cabinetry. Laminex Alfresco Compact Laminate is not recommended for use as façade cladding for buildings or balustrades, railings or swimming pool surrounds.

PRODUCT CHARACTERISTICS

Finish	Carbide
Fire Resistance	Standard Grade
Colours	9
Thickness	6, 13 mm
Decorated	Double Sided
Core	Black
Panel Dimension	3050 x 1300 mm
Impact Resistance	13mm
Staining Resistance Rating	Group 3
Applications:	Outdoor kitchen cabinetry including doors and bench tops, outdoor furniture, outdoor table tops, decorative panels, framed door inserts (6mm)

PROPERTIES

Laminex Alfresco Compact Laminate is a decorative panel made for outdoor use. The decorative surfaces use a UV resistant coating which is integrated into the laminate while the black core is comprised of cellulose fibre and phenolic resin. As with most surfaces exposed to outdoor conditions, some change in colour and appearance of the surfaces of Laminex Alfresco Compact Laminate will occur after prolonged exposure. The visual appearance of the exposed black core may be refreshed as necessary by burnishing. Laminex Alfresco Compact Laminate is a non-structural product and must be used accordingly. Laminex Alfresco Compact Laminate must not be used as a fireplace surround as it is a combustible material. Laminex Alfresco Compact Laminate adheres to the following standards (as below):

Property or attribute	Unit	Requirement	Standard/Test
General properties			**CGS/EDS***
Specific gravity (minimum)	kg/m³	1350	EN ISO 1183-1
Weight 13mm thickness	kg/m²	18.5	
Weight 6mm thickness	kg/m²	8.5	
Dimensional tolerances			**EN 438-4**
Length	mm	± 5	
Width	mm	± 5	
Thickness 13mm	mm	± 0.60	
Thickness 6mm	mm	± 0.40	
Flatness 13mm	mm/m	≤ 3.0	
Flatness 6mm	mm/m	≤ 5.0	
Physical properties			
Modulus of elasticity	MPa	≥ 9000	EN ISO 178
Tensile strength	MPa	≥ 60	EN ISO 527-2
Flexural strength	MPa	≥ 80	EN ISO 178
Wear resistance	Cycles initial	150	EN 438-2:10
	Cycles wear value	350	
Immersion in boiling water	%	2.0 max	EN 438-2:12
Steam resistance	Rating Gloss/Other	3/4	EN 438-2:14
Dry heat at 180°C	Rating Gloss/Other	3/4	EN 438-2:16
Stability at elevated temperature MD	%	0.3 max	EN 438-2:17
Stability at elevated temperature CD	%	0.6 max	EN 438-2:17
Impact resistance 6mm	mm	1400	EN 438-2:21
Impact resistance 13mm	mm	1800	EN 438-2:21
Crazing resistance	Rating	4	EN 438-2:24
Scratch resistance	Smooth/Textured	IN/2N	EN 438-2:25
Staining resistance	Rating Group 1 & 2	5	EN 438-2:26
Staining resistance	Rating Group 3	4	EN 438-2:26
Light fastness (xenon arc)	Grey scale	4 to 5	EN 438-2:27
Cigarette burn resistance	Rating	3 min	EN 438-2:30
Wet heat resistance at 100°C	Rating Gloss/Other	3/4	EN 12721:1997
Other properties			
Formaldehyde level (minimum)	mg/h/m²	≤ 3.5	EN717-2
Fire properties (typical values)			
Fire hazard indices		**6, 13mm**	**AS/NZS 1530.3**
Ignitability	index	11, 9	
Spread of flame	index	9, 9	
Heat Evolved	index	7, 6	
Smoke Developed	index	4, 4	
Cone Calorimeter			**AS/NZS 3837**
Group number		3	
Average specific extinction area - 13mm	m²/kg	97.4	
Average specific extinction area – 6mm	m²/kg	61.9	
Average heat release rate – 13mm	Kw/m²	104	
Average heat release rate – 6mm	Kw/m²	107	

*CGS: compact grade, general purpose, non-flame retardant. EDS: exterior grade, severe use, non-flame retardant.

Weather resistance properties **EN438-6**

Weather resistance requirements are specified in the table below.
Weather resistance is the behaviour of Exterior-grade laminates in relation to degradation of the surface, colour fading and reduction of mechanical properties, due to exposure to sunlight, rain, frost, etc.

Property	Test Method (EN438-2 Clause No.)	Property or Attribute	Unit (Max. or Min.)	Laminate Grade
				EDS and EDF
Resistance to Climatic Shock	19	Appearance Flexural strength index Ds Flexural modulus index Ds	Rating (min) (min) (min)	4 0.95 0.95
Resistance to UV Light	28	Contrast Appearance	Grey scale rating (not worse than) Rating (min)	3 (after 1500 hours exposure) 4 (after 1500 hours exposure)
Resistance to artificial weathering (including light fastness)	29	Contrast Appearance	Grey scale rating (not worse than) Rating (min)	3 (after 650 MJ/m² radiant exposure) 4 (after 650 MJ/m² radiant exposure)

Rating 3 Hairline surface cracks and/or erosion of surface
Rating 4 Change of gloss only

Staining agents & groups **EN438-4**

Staining agents and test conditions table below.

Staining Agent	Test Conditions	Contact Time
Group 1 ***Acetone** Other organic solvents Toothpaste Hand cream Urine Alcoholic beverages Natural fruit and vegetable juices Lemonade and fruit juices Meats and sausages Animal and vegetable fats and oils Water Yeast suspension in water Salt (NaCl) solutions Mustard Lyes, soap solutions Cleaning solution consiting of: • 23% dodecylbenzene sulfonate • 10% alkyl aryl polyglycol ether • 67% water Commercial disinfectants Stain or paint removers based on organic solvents Citric Acid (10% solution)	Apply staining agent at ambient temperature	16 hours
Group 2 ***Coffee** (120g of coffee per litre of water) Black (9g of tea per litre of water) Milk (all types)	Apply staining agent at approximately 80°C	16 hours
Wine vinegar Alkaline-based cleaning agents (to 10% concentration with water) Hydrogen peroxide (3% solution) Ammonia (10% solution of commercial concentrate) Nail varnish Nail varnish remover Lipstick Water colours Laundry marking links Ball point inks	Apply staining agent at ambient temperature	16 hours
Group 3[1] ***Sodium hydroxide** (25% solution) ***Hydrogen peroxide** (30% solution) Concentrated vinegar (30% acetic acid) Bleaching agents and sanitary cleaners containing them Hydrochloric acid based cleaning agents (≤ 3% HCl) Acid-based metal cleaners Mercurochrome (2,7-diabromo-4-hydroxymercurifluoresein, disodium salt) ***Shoe polish** Hair colouring and bleaching agents Iodine Boric acid Lacquers and adhesives (except fast curing materials) Amidosulfonic acid descaling agents (< 10% solution)	Apply staining agent at ambient temperature	10 minutes

1) Some commercial cleaning agents contain acids and alkalis in concentrations stronger than those shown in Group 3 and can cause surface marking or damage. Any spillage of such materials must be washed off immediately.
Rating 5 Is equivalent to No visible change.
Rating 4 is equivalent to Slight change of gloss and or colour, only visible at certain viewing angles.

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WHEN SPECIFYING

Materials shall be Laminex Alfresco Compact Laminate of nominal thickness of .....mm, as supplied by The Laminex Group. Colour shall be .....

SITE WORK NOTES

Fabrication

Laminex Alfresco Compact Laminates can be cut, drilled and machined with standard woodworking equipment fitted with tungsten carbide edges.
Select brackets, hinges screws and fastening equipment etc. to suit the external environment of the installation. Higher corrosive atmospheres such as salty and chlorine environments may be more corrosive than inland dryer climates. (Note: chlorine can damage the surface of Alfresco; take care when installing near swimming pools.)

Surface mounted objects should be secured using self-tapping screws, thread cutting screws or threaded brass inserts in pre-drilled holes.

Compact laminate is a very hard material, use high quality screws and predrill pilot hole 0.5mm smaller than screw gauge as a guide, or follow as recommended by screw manufacturer, caution not to over tighten to avoid snapping screw.

Screw location

Screws should be carefully positioned to prevent splintering and breakout – no closer than 20mm to an edge.
If screwing into an edge it is not recommended to place it closer than 75mm from end of a panel. (In general screws into the edges should be avoided) Refer to the Compact laminate fabrication guide for additional details.

Through fixing is recommended for 6mm thick panels.

Metal brackets are recommended for securing the panels together. Metal fittings may corrode over time so weather resistant fittings should be used depending on the extent of outdoor exposure and the visibility of the fittings.

Glued joins and use of sealants are not recommended for exterior applications.

Mitring of edges should be avoided as they are vulnerable to damage. A chamfered edge or crescent shaped edge will avoid edge chipping or flaking.

Standard tools for hardwood can be used for machining or processing such as sawing, drilling and routing. Neither the surface nor the sawn edges need to be protected or sealed. Panels will present a distinctive black edge.

Ensure that pooling of water on the surfaces of Laminex Alfresco Compact Laminate cannot occur and allow sufficient ventilation and drainage in enclosed spaces such as cabinets.

When installing Laminex Alfresco Compact Laminate in the vicinity of gas burners, barbecues or electric hot plates, ensure that minimum clearances are maintained between the appliance and Laminex Alfresco Compact Laminate. Installations around gas burners or barbecues must be made in accordance with AS/NZS 5601.1:2010, 'Gas Installations – clearance around a gas cooking appliance and a combustible surface'.

Free-standing/built-in barbecue installations

Follow the barbecue manufacturer's guidelines for installations near combustible surfaces. Also ensure adequate clearance between the base of the barbecue and Laminex Alfresco Compact Laminate.

Regulations currently state all clearance must be sufficient so the surface of combustible material is not exposed to 65 degrees centigrade above ambient temperature.

Also to note there is a clearance requirement of 1000mm from any combustible material above the height of the plates and/or grids.

CUTTING DOORS OR PANELS

Laminex Alfresco Compact Laminate is a wood based product and its movement is influenced by humidity absorption. Similarly to other laminates, compact laminates will expand more in the width than in the length due to the orientation of the cellulose fibres in the paper-based core.

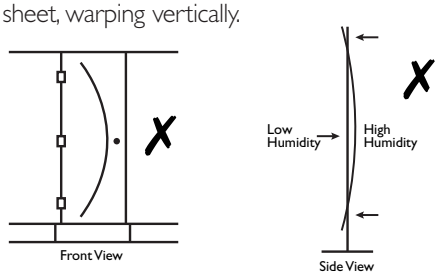
To minimise warping of doors and panels it is recommended that panels must be cut with the long edge parallel to the length of the sheet. Warping occurs when both sides of a door or panel are not exposed to the same humidity level.

The longer a sheet is, the larger the impact of warping will be. Ensure as far as possible that ambient conditions are the same on each side of a panel as it is important both sides gain and loose moisture at the same rate. Where panels are mounted on a wall or enclosed in a cabinet for example, ensure adequate ventilation to ensure temperature and humidity at the back of the panel is essentially the same as the front.
Fixing centres should be sufficiently close to prevent excessive freedom of movement. Cubical doors for example greater than 1500mm high should have 3 hinges.

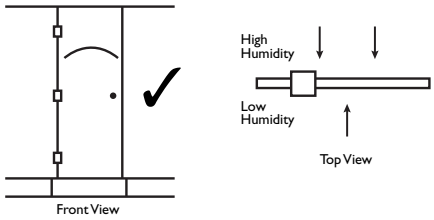
Note: An exception is when Laminex Alfresco Compact Laminate is used for sash doors. The panels have to be cut out of the width of the basic sheets instead of the length. If a sash door is cut out of the length of a sheet the horizontal bow will interfere with the sliding action of the door. It is preferable to have a vertical bow for this application and cutting out of the width of the basic sheet is recommended.

If black core is scorched due to dull blades or jamming when cutting, the edge can be restored by taking a fine cut or sanding back to restore the black edge.

Incorrect: Door cut out of width of a sheet, warping vertically.



Correct: Door cut out of length of a sheet, warping horizontally.



Maintaining clean fresh looking black core edges

The black core is a visual feature of Laminex Alfresco Compact Laminate. This can be enhanced after machining and maintained by use of wet and dry sand paper. To prepare and smooth the edge use extra fine (400grit) then burnish smooth using Ultra fine 2000grit lubricated with linseed or tung oil.

When complete wipe on linseed or tung oil to maintain surface.

To maintain edges over time clean down and apply oil.

Caution when preparing the edge do not damage the decorative surface.

PROCESSING

Sawing

It is strongly recommended that all sawing operations for Laminex Compact to be done with stationery circular saw to achieve optimum finishing effect and always use some trial panels to test first before actual operation. Always make sure that the decorative surface facing upwards to prevent damage chipping edges on the surface.

A carbide or diamond tipped saw blade should be used to saw the panels

The height setting of the saw blade should be approximately 30-40mm above the decorative surface. The image below illustrates the correct setting of the saw blade so as to avoid chipping saw edges.

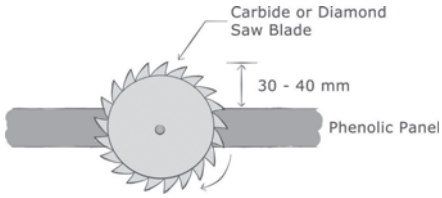
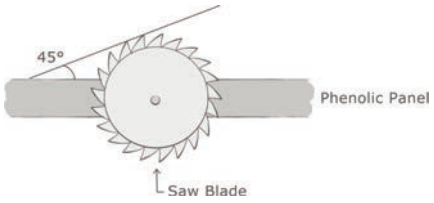


Illustration of Height Setting for Saw Blade

Entry rake angle of about 45° will give the panels nice and straight sawn edges as shown below.



Entry Rake Angle of the Saw Blade

The saw blade must always be sharp and if necessary, remove it to sharpen or change to a new one before continuing the sawing operation.

All sharp sawn edges should be removed with fine sand paper or router to achieve good and smooth finishing effect.

Routering

Routering of edges require hard metal or diamond cutter at slow speed to achieve good finishing without burn marks on the phenolic core surface.

This operation can be done with either a CNC machine or manual operated routering cutter. Depending on the type of router shapes, the cutter bits below can achieve the desired effect.

Types of Router Bits for Different Types of Edge Finishing

Edge Finishing	Type of Bit
Bevelling	Straight and Slanted
Rounded	Hollow or Round
Groove	Diamond Groove

For CNC operation, please follow the machine manufacturer instructions. For manual operated routering, the table below shows essential information for the operation.

Manual Operated Routering Operation

Bit Diameter (mm)	No. of Revolutions (rev/min)	Speed (m/s)	Feeding Speed (m/min)
20	18000	20	5
25	24000	30	

Recommended Sawing Operation for Laminex Compact

Saw Blade Diameter (mm)	No. of Saw Teeth	No. of Revolutions for Saw Machine (rev/min)	Blade Thickness (mm)	Height Setting (mm)	Feeding Speed (m/min)
300	72	6000	3.5	30	7-22
400	96	4000	4.8	40	

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DRILLING

The most suitable drills used on compact laminates are those designed for plastic sheet materials. These drills have a point angle of 60° - 80° instead of the normal 120° for drilling metal.

To avoid breakout on the reverse side, the feed speed of the drill head and the pressure applied should be gradually reduced approaching the point of breakthrough. Working on a firm underlay, such as plywood or chipboard, will also reduce the risk of breakout.

For blind boring into the face, the depth of the hole should be such that at least 2mm of material remains between the bottom of the hole and the other side of the sheet.

TCT lip & Sur drills will produce clean flat bottom holes, with less risk of point penetration on the reverse side. This will allow maximum depth of material for fixing.

Compact sheets less than 10mm thick are not considered suitable for blind fixing.

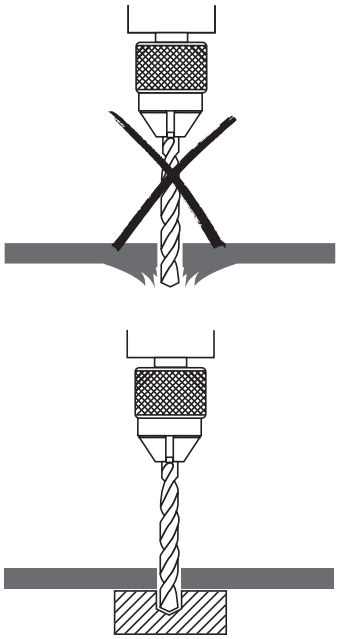
When drilling parallel to the surface (edge drilling) at least 3mm of material must remain on either side of the hole.

Threaded holes using engineers taps, selt-tapping screws or threaded brass inserts may also be used.

HSS drill, top angle 60°-80°. Panels should be drilled with support sheets.

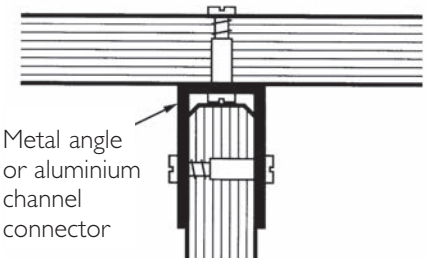
Section	5mm	8mm	10mm
Number of Revolutions	3,000	2,000	1,500
Start	60-120 mm/min	40-80 mm/min	30-60 mm/min

Large holes, e.g. for suspension and locking equipment, are to be drilled with combination drills without a centering point.

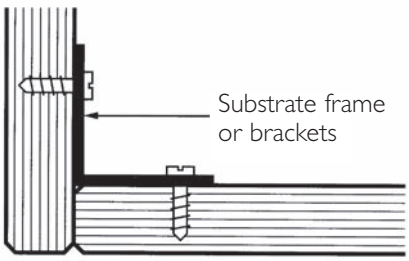


INTERSECTIONS

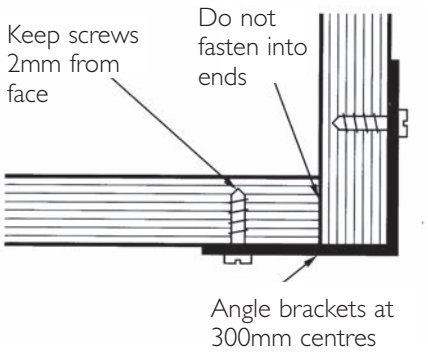
T-Intersection



External Corner

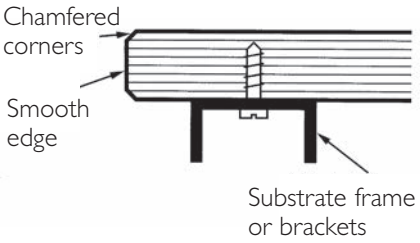


Internal Corner

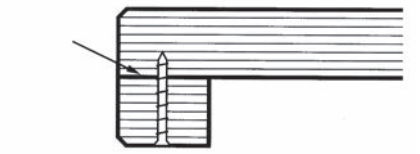


EDGES & NOSINGS

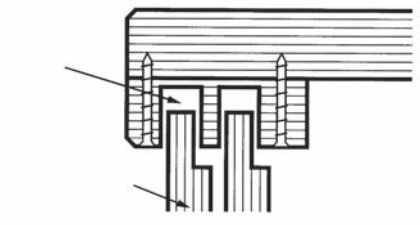
Standard Edge



Built-Up Edge



Edge with Sliding Doors



SPLASHBACKS

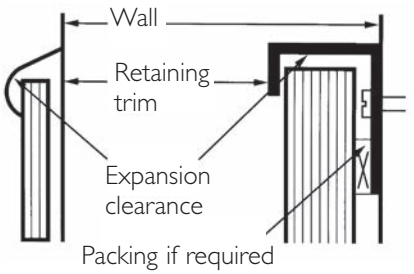
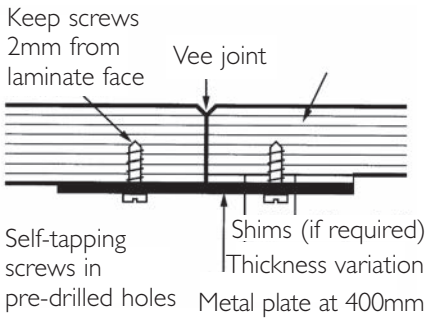
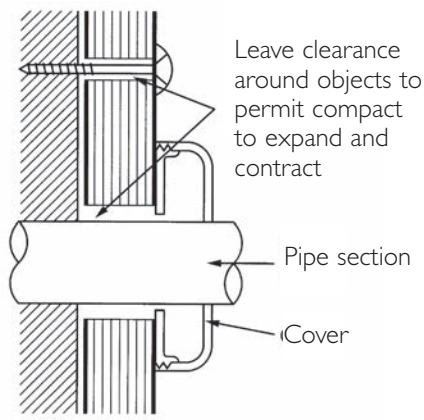


Diagram as example mounting. This product is not a flame proof splashback material.

JOINTS



Pass-through Objects



CARE & CLEANING

The non-porous surface is easy to clean. For general cleaning, household cleaners, water or soap are highly recommended. Do not use abrasive or polishing materials. Both the decorative surface and homogenous core of Laminex Alfresco Compact Laminates are impervious and resistant to most commonly used cleaning agents and disinfectants. The surfaces of Laminex Alfresco Compact Laminate furniture can be easily cleaned with a dry or damp cloth and, if necessary, a mild household cleaner. Wipe damp surfaces with an absorbent cloth. High pressure water cleaning or steam cleaning of panels is not recommended.

Removing Severe Soiling

Severely dirty surfaces or areas where normal soiling* has built up over a long period of time are easy to clean with hot water and an interior detergent- or soap-based cleaning agent, applied with a sponge or soft nylon brush. Apply the diluted cleaning agent to the surface and leave it to soak for a while. Then rinse off with clean water and dry with an absorbent cloth.

*dust, dirt, coffee, tea, fruit juice, food residues, grease, soap residues, lime scale, water-soluble paints and adhesives.

Removing Special Staining

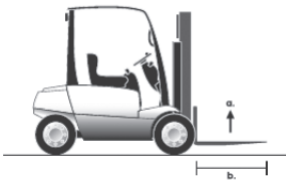
Solvent-based varnishes and adhesives (nail varnish, rubber stamp ink, and aerosol paint) should be removed with organic solvents such as acetone, white spirit, turpentine or petroleum. Remove wax from candles or crayons immediately with water and a mild household cleaning agent. Dried wax stains may first have to be scraped off with a wooden or plastic spatula and the remainder removed with an organic solvent. Two part paint or adhesive, synthetic resin and the like should be removed immediately with water or an organic solvent. Once these products have set, they cannot be removed without damaging the surface. Lime scale can be removed with acidic cleaning agents containing approximately 10% acetic acid or citric acid.

The manufacturer's instructions must be strictly followed. Rinse surfaces and edges very thoroughly! Paint, varnish, ink, shoe polish, lipstick, tar and other soluble (but strong stains) can be removed with organic solvents such as acetone, white spirit, turpentine or petroleum spirit.

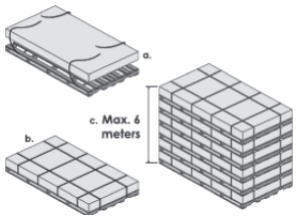
Rub silicone off dry or use silicone remover. Both the decorative surface and core of Laminex Alfresco Compact Laminates are highly resistant to most commonly-used disinfectants.

Long term use of chlorine bleach cleaners, acidic or alkaline cleaners can cause colour and appearance changes to the surface.

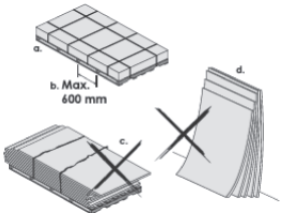
STORAGE & HANDLING CONDITIONS



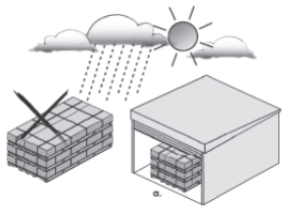
1. Compact is heavy. Ensure you use the right forklift length for the laminate stacking height and sheet size. Don't overload the forklift.



2. During storage the sheets must be parallel to the ground and aligned with each other on bearers that are evenly spaced on a flat surface. Maximum space between bearers is 600mm. Protect the sheet corners.



3. Do not stand the sheets against a wall vertically. Make sure there are no cavities between the sheets.



4. Store in a dry, sheltered area. Do not leave the sheets inside the pallet in the rain or direct sunlight.

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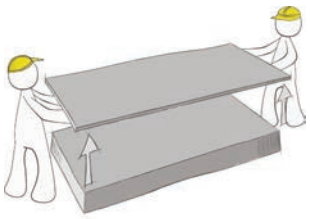
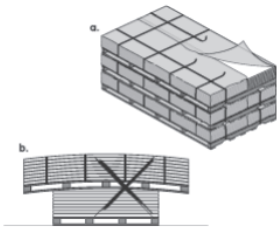


5. Sheets must be carried by at least 2 people, or if using a forklift or suction lift, move sheets gently to avoid damage.



6. Protect laminates with a moisture impermeable cover. Do not stack bundles of different size on top of each other. If laminates are removed from the pallet for storage, it's recommended that the plastic film is removed to ensure even moisture absorption on both sides of the panel.