

Installation

Applications

Carter Holt Harvey Customwood has literally hundreds of interior applications in the cabinet-making, shop fitting, furniture and building industries. Carter Holt Harvey Customwood, because of its ease of use, is ideally suited for the tradesman and the home handy person.

In fact, Carter Holt Harvey Customwood works best in applications where the product requires machining or painting, such as in the following applications:

- Solid and hollow-core doors and jambs
- Lounge, dining, occasional, bathroom, bedroom, kitchen and office furniture
- Wardrobes and wall units
- TV and hi-fi cabinets
- Furniture and building moulds
- Picture mounts and frames
- All types of decorative overlays
- Staircases
- Toys
- Games
- Tables
- Trophies
- Shop fittings
- Partitioning
- Packaging
- Pianos
- Pattern making
- Wall, floor and ceiling linings
- Cupboard backing
- Drawer carcasses and bottoms
- Automotive componentry

Decorative Overlaying

Excellent surface smoothness and close thickness tolerance make Carter Holt Harvey Customwood an ideal substrate for the application of natural timber veneers, D.A.P., vinyl, paper and heat-transfer foils and melamine-impregnated papers. Additional sanding prior to laminating is not normally required as Carter Holt Harvey Customwood's factory-sanded surface in most cases will provide good adhesion properties without show-through defects.

Installation Requirements

Screwing

Carter Holt Harvey Customwood's high internal bond strength gives superior screw-retention characteristics over many other types of panel board products. A notable point when fixing screws is to secure firmly without overtightening. Overtightening significantly reduces the screw holding power through crushing the board's structure. To obtain best results the following recommendations should be observed.

Type of Screws

Traditional tapered-thread wood screws are not recommended and when used on edges can result in splitting or delamination. Parallel shank screws, threaded the entire length, are desirable. Particleboard or twinfast screws are recommended.

When using parallel-threaded screws, the drilling of pilot holes is essential. The diameter of pilot holes should be approximately 90% of the screw core diameter. Pilot holes should be drilled approximately 2mm beyond the expected depth of screw penetration.

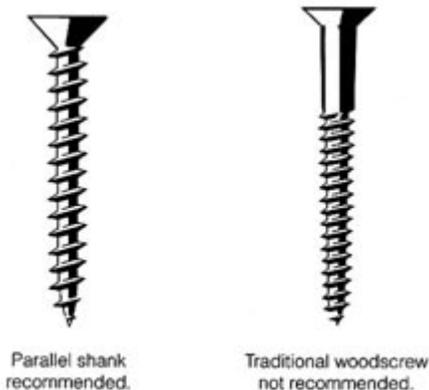
Screw Gauges

Recommended screw gauges for fixing woodlogic Customwood are provided in the following chart.

Screw Gauge	4	6	8	10
Pilot Hole Diameter (mm)	2	2.5	3.0	3.2

Screw positioning

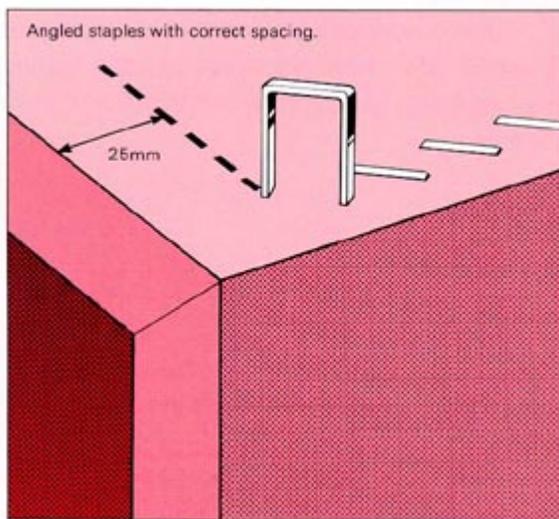
The positioning of screws, whether into faces or edges, obviously depends on screw size and board thickness. To prevent splitting, the placement of screws into edges should not be closer than 25mm to the corner of the board.



Stapling

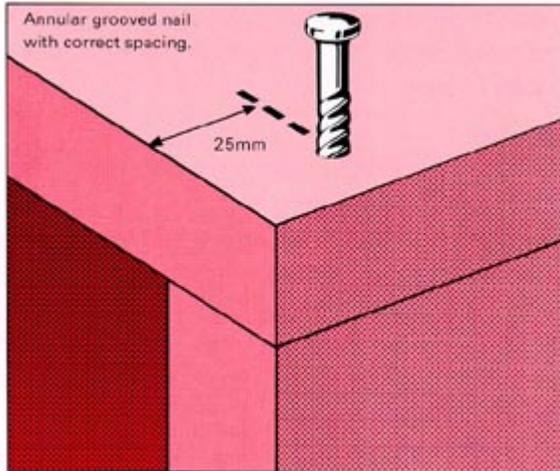
Carter Holt Harvey Customwood has good staple-holding power. Holding power can be significantly increased, particularly on edges, by inserting staples at an angle to the edge of the board. Staples with resin coating are recommended for greatly improved holding power and are available from most manufacturers.

In general terms, staple length should not be more than twice the thickness of the board and should be inserted at least 25mm from corners. Holding power is reduced when staples are inserted too deep; air pressure should therefore be regulated so that the bridge is driven just below the surface.



Nailing

The use of helical spiral or annular grooved nails inserted at a slight angle provides increased holding power. Nails should not be longer than 50mm in length and 2mm in diameter. As with stapling, nails should be inserted just below the board surface and at least 25mm from corners. The risk of edge split is lessened by spacing as far apart as practical. The use of nail-fixing methods for edges is not recommended in boards of less than 12mm in thickness.



Adhesives

As Carter Holt Harvey Customwood is manufactured from natural wood fibres, most woodworking adhesives are suitable for use with Carter Holt Harvey Customwood. The selection of specific adhesives depends on the surface and porosity of other materials being bonded to it, the type of joining required, finishing and method of application.

Normal woodworking procedures in ensuring joints are cleanly machined and free of dust obviously apply, and to prevent glue starvation, parts should not be clamped too tightly.

Users should refer to adhesive manufacturer's specifications, instructions and recommendations to determine the most appropriate adhesive for their requirements.

Bending

Carter Holt Harvey Customwood can be bent into simple curves along a single axis or into a series of curves with the axes parallel to one another. In typical building and joinery applications the board is clamped or fastened at one end, then bent or secured around a frame or form. The approximate bending radii for dry bending under normal climatic conditions are as follows:

Thickness (mm)	3.0	4.0	4.8	6.0	7.5
Approximate bending Radius (mm)	300	400	500	630	900

press mould to achieve the required thickness.



Surface Finishing

Carter Holt Harvey Customwood's major advantage is the ease of finishing both face and moulded edges without the need for elaborate filling or the application of other edging materials. These characteristics are derived from the substantially uniform density gradient across its thickness, the absence of core voids and its excellent surface finish.

Surface Preparation

The surfaces to be finished should be free from dust or sanding marks. An additional light sanding with 320 grit will be beneficial for applications where a high level of smoothness is required without the necessity of using additional coats of paint.

Sealing

Stop all nail holes with a solvent-based wood filler and lightly sand. To prevent excessive absorption of resins and solvents from paint or lacquer finishes, seal the Carter Holt Harvey Customwood surfaces with a solvent-borne sealer. Solvent-borne wood primers or undercoats may also be used depending on the type of finish coating and the quality of finish required.

Sealers should be applied soon after sanding to prevent raising of the fibres, especially in areas of high relative humidity.

The paint system should be selected and applied in accordance with the paint manufacturer's recommendations. Useful information on the painting of medium density fibreboard is contained in Australian Standard AS2311-1992, 'The Painting of Buildings'.

Paint Finishing

Following sealing, Carter Holt Harvey Customwood may be paint-finished with solvent-borne or latex paint. To improve uniformity of the paint finish it is advisable to apply an undercoat prior to the finish coats. Two coats of finish paint are recommended. The

coatings may be applied by brush, roller or spray.

Carter Holt Harvey Customwood may also be coated with wood stain and finished with clear varnish or lacquer. Always follow the paint manufacturer's instructions.

Product Range & Physical Properties

Carter Holt Harvey Customwood is produced in a large range of sizes. Check with your Carter Holt Harvey Customwood distributor or woodlogic's regional office for availability and special conditions that apply.

Nominal Sheet Sizes		
3mm, 4mm, 4.75mm & 6mm woodlogic Customwood - Thin		
3600 x 1220	2440 x 1220	2135 x 1220
2440 x 1530	2440 x 915	1830 x 1220
7.5mm woodlogic Customwood		
3600 x 1200	2400 x 1800	2100 x 1200
3600 x 600	2400 x 1200	1800 x 1200
2700 x 1200	2400 x 900	
9mm Carter Holt Harvey Customwood		
3600 x 1800	2400 x 1800	2100 x 900
3600 x 1200	2400 x 1200	1800 x 1200
3600 x 600	2400 x 900	
2700 x 1200	2100 x 1200	
12mm, 16mm, 18mm, 25mm & 32mm woodlogic Customwood		
3600 x 1800	2700 x 900	2100 x 1200
3600 x 1200	2400 x 1800	2100 x 900
3600 x 600	2400 x 1200	1800 x 1200
2700 x 1200	2400 x 900	1800 x 900

Thickness (mm)	Weight (kg per m ²)	Thickness (mm)	Weight (kg per m ²)
3	2.50	12	9.40
4	3.34	16	12.80
6	5.02	18	14.20
7.5	5.96	25	19.35
9	7.15	32	24.89

Physical Properties

The following information is based on data from production and research centres. It is intended as a guide to the properties of Carter Holt Harvey Customwood MDF.

Property	Unit	Typical Values	
		Carter Holt Harvey Customwood 9-32mm	Carter Holt Harvey Customwood MR 9-18mm
Density	kg/m ³	730	730
Modulus of Rupture	MPa	40	40
Modulus of Elasticity	MPa	3000	3300
Internal Bond Strength	kPa	800	900
Internal Bond Strength (After Wet Cycling)	kPa	N/A	400
Surface Soundness	N	2200	2500
Screw Holding			
-Face	N	1000	1000
-Edge	N	800	800
Moisture Content (ex factory)	%	8	8
Surface Water Absorption	g/m ²	90	50
Thickness Swell (24 hours)	%	8	3.5
Thickness Swell (After Wet Cycling)	%	N/A	4
Hygro-expansivity (Change in face dimensions over 35% to 85% relative humidity)	%	0.25	0.25

Dimensional Tolerances

Length and Width	(Thickness \geq 7.5mm)	+ 50mm - 0mm
	(Thickness < 7.5mm)	3mm
Thickness		0.15mm
Squareness (i.e maximum difference between diagonals)		3mm
Edge Straightness (i.e Maximum deviation)		1.5mm/m

from line)		
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Note: The length and width tolerances for thickness $\geq 7.5\text{mm}$ apply to nominal sheet sizes and include overtrim.

Fire Indices

The following early fire hazard indices for Carter Holt Harvey Customwood were obtained from tests in accordance with Australian Standard 1530.3.

Customwood has been tested to AS/NZS 3837-1998 using an Oxygen Consumption Calorimeter (Cone Calorimeter) and meets the BCA Group Classification 3. The following results were obtained
Heat Release Rate: 160.8 kW/m² Average Specific Extinction Area 32.4 m²/kg

	Carter Holt Harvey Customwood Standard	Carter Holt Harvey Customwood Standard	Carter Holt Harvey Customwood MR
Thickness (mm)	16	3	16
Ignitability Index, (0-20)	14	15	14
Spread Of Flame Index, (0-10)	8	8	7
Heat Evolved Index, (0-10)	7	9	4
Smoke Developed Index, (0-10)	3	5	3

Bending

Carter Holt Harvey Customwood can be bent into simple curves along a single axis or into a series of curves with the axes parallel to one another. In typical building and joinery applications the board is clamped or fastened at one end, then bent or secured around a frame or form. The approximate bending radii for dry bending under normal climatic conditions is as follows:

Thickness (mm)	3.0	4.0	4.8	6.0	7.5
Approximate bending Radius (mm)	300	400	500	630	900

Carter Holt Harvey Customwood may be bent to smaller radii than those given, however, substantial forces are required to make and restrain the tighter bends. As thin boards bend more readily than thick boards, an alternative is to laminate several thin boards in a press mould to achieve the required thickness.

Cutting & Machining

The machinability of Carter Holt Harvey Customwood lends itself to many design possibilities. Faces and edges of the panel may be profiled and in turn stained or painted to either complement or contrast the surface. Square-edge banded finishes may also be used.

Machinability is a major feature of Carter Holt Harvey Customwood, as it cuts, drills and routs cleanly without splintering or chipping. Furthermore, woodlogic Customwood requires minimal filling or sanding of machined surfaces or edges prior to finishing.

Conventional hand and power tools may be used; however, for high-quality volume production, the use of tungsten-carbide tipped cutters is recommended. Where possible, avoid sharp corners or narrow sections in machined profiles to ensure a uniform paint or lacquer coverage and to reduce the likelihood of damage under impact.

DOWEL JOINTING

An efficient and economical method of jointing Carter Holt Harvey Customwood is the dowel joint. While different joints including dovetails can be used, care must be taken during assembly. Dowel joints, however, are easily machined with simple equipment and have high strength and versatility advantages.

Machining

Dowel holes should be machined approximately 0.2mm oversize so that their surfaces are free from loose fibres. Tungsten carbide tipped drills are recommended as they have a longer life between sharpenings compared with steel bits. Drilling speeds should be as low as practicable with feed-in and withdrawal rates as high as possible to avoid polishing the hole and reducing glue bond between the board and the dowel. Remove all dust prior to assembly.

Dowel Selection

High strength dowels with multiple longitudinal groove patterns are recommended to ensure uniform adhesive spread within the joint. Dowels should be cleanly machined within 0.2mm of the nominal diameter to prevent edge split when assembled.

Adhesives

Urea formaldehydes or polyvinyl acetate adhesives and their derivatives with good gap filling properties are recommended.

Apply adhesives to the dowel holes and spread over the surface of dowels to ensure proper coverage.

LIPPING & EDGE JOINTING

Joining techniques for Carter Holt Harvey Customwood are similar to those used for solid wood and other wood based panel products.

The following recommendations will ensure satisfactory results:

1. edges must be accurately machined, parallel to each other and perpendicular to the boards surface.
2. use a high solids content adhesive with gap filling and good machining qualities. Glue lines should accept stains, paints and lacquers.
3. mating pieces should be accurately located and held under pressure whilst adhesive sets.
4. adhesive bonded joints should be allowed to condition for at least 48 hours before finishing to avoid the appearance of sunken joints which may later become noticeable particularly when using high gloss finishes.

When using tongue and groove, slip tongue and dowel joints these further recommendations apply:

5. when attaching lippings, the tongue should be machined on the main piece of board.
6. machined grooves should be limited to about one-third the board thickness and to a depth of about half the thickness.
7. dowels or tongues should fit firmly but easily as tight-fitting joints may result in splitting or delamination.

SAWING

Carter Holt Harvey Customwood can be easily sawn with hand saws or conventional machinery. Its completely homogeneous nature and uniform resin distribution will give clean sharp cuts provided cutters are well maintained and correctly used.

It is fair to state that the resin binders used in manufacture make it more abrasive on cutter teeth than some woods. For high quality volume production therefore, the use of tungsten carbide tipped cutters is recommended. Major manufacturers are currently researching both diamond and ceramic cutters and it would seem likely that these alternative materials will soon be available.

Specialist tool suppliers are generally happy to provide detailed guidance for your particular requirements, however, the following general recommendations will under most circumstances ensure smooth, sharp cuts with minimum breakout or fibre raise and without significant reduction in tool life:

1. for high quality and large volumes use tungsten tipped blades.
2. in comparison with normal wood-working saws, blades should have higher hook angles and clearance angles.

3. blades must be well maintained and sharpened or replaced at first sign of visible deterioration in the sharpness of the cut edge.
4. use correct feed speeds; at too low a feed rate the saw crushes and abrades the material rather than cutting it and seriously reduces saw life.
5. ensure board is firmly clamped while sawing and that the blade is free from vibration.
6. to prevent chipping out of laminated board place faced side upwards for bench saws and downwards for portable saws. The use of a scribe blade correctly positioned will further prevent chip-out.

Typical Tooth Geometry for Tungsten Carbide Tipped Saws	
Chip load per tooth	0.15 - 0.25mm
Radial Clearance	1° - 2°
Side Clearance	3° - 4°
Tip to Body	1mm
OD Clearance	20° - 22°
Hook Angle	150

Typical Sawing Feed Speeds		
Saw Speed 3600rpm.		
<i>Diameter (mm)/Teeth per saw.</i>	250/60	350/80
Rim Speed meters/second	47	66
Feed Speed meters/second	32	43

V-GROOVING AND MITRE FOLDING

A further option available to manufactures of furniture and cabinet componentry in addition to traditional jointing methods is V-grooving and mitre folding. This method has particular design advantages in minimising assembly costs and maximising visual appearance through the seeming absence of the joint. Patterned or woodgrain foils, veneers or laminates can be perfectly matched around the joint by using this technique.

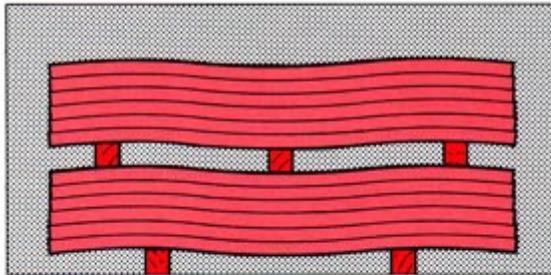
Using sharp tooling the board is machined in at 90° pattern completely through the board but not damaging the decorative finish. This effect creates a hinge which can then be folded and fixed with an appropriate adhesive to form a 90° joint.

Timber veneers and brittle laminates which would not withstand bending through 90° can also be sucessfully jointed in a similar manner, by applying an adhesive tape to the faced side along the line of the joint and overlapping the edges.

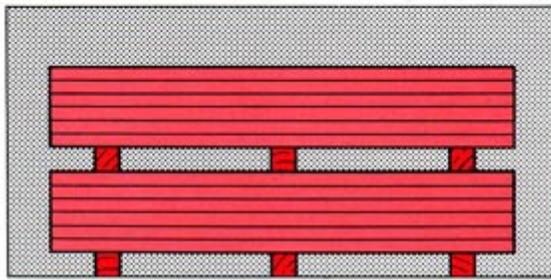
By applying the adhesive tape fully along the line of the joint, the tape then acts as the hinge. The V-groove is then cut completely

through the veneer or laminate to the back of the tape and after assembly the tape removed to leave an almost perfect joint.

Storage & Handling



Unsatisfactory Support.



Ideal Support.

Customwood storage recommendation

The controlled conditions under which Carter Holt Harvey Customwood is manufactured ensure a balanced construction with uniform fibre distribution throughout the thickness of the board. Correct storage is essential to ensure that the product's inherent flatness is retained.

Recommendations for

correct storage:

- Keep board away from direct sunlight, heat and excessive humidity or moisture.
- Preferably, store boards horizontally, clear of a dry, level floor using full width bearers, each of the same height, positioned at 800mm centres and not more than 300mm from each end. For boards less than 12mm thick, space bearers at 400mm maximum centres.
- Align successive pack bearers directly above those below.
- Stack boards with flush sides in order to minimise damage to corners and edges.

Health & Safety

The normal health and safety precautions should be taken when working with wood panel products. Machine tools should be fitted with dust extractors and work areas kept clean.

If dust levels exceed Worksafe Australia standards the wearing of a dust mask (AS/NZS 1715 and AS/NZS 1716) and safety glasses (AS/NZS 1337) is recommended. Storage and work areas should

be adequately ventilated.

For more information please telephone 1300 658 828 (toll free) for your copy of the Carter Holt Harvey Customwood Medium Density Fibreboard (MDF) Material Safety Data Sheet.