



RECYCLED COMPOSITE TIMBER

# CleverDeck<sup>®</sup>

## Original and Eco-Pro

### Composite Decking Installation Guidelines



Composite decking has unique characteristics and requires specific fixing requirements that differ from timber.

**We STRONGLY RECOMMEND that these guidelines are read thoroughly before commencing the design and construction of a deck using CleverDeck Xtreme composite decking.**

Regulations regarding the deck installation may vary from council to council and it is the responsibility of the property owner to make sure that any permits and specific building are adhered to.

# STORAGE

CleverDeck Original composite decking must be stored flat and dry and off the ground. Standard 5.4 metre long packs of CleverDeck Original decking require a minimum of seven gluts (supports) under the pack for proper storage.

Take care when handling CleverDeck Original decking as the boards are finished and ready to use and rough handling might cause visible scratches and marks on the deck boards.

# SAFETY & TOOLS

As with any building project you should ensure that the correct tools and proper protective equipment are being used. It is the responsibility of the user to follow safe practices when using any tools during the installation process. Remember that CleverDeck Original composite decking is heavier than most traditional timbers and should be lifted and carried with care.

CleverDeck Original composite decking can be drilled, cut, fastened or routed with normal woodworking tools.

In order to maintain clean cutting of the deck boards Futurewood recommends using a minimum 20 tooth carbide tipped saw blade. All other cutting tools should be carbide tipped and kept sharp.

# FOUNDATION, SUBSTRUCTURE & COVERAGE

(Refer diagram A on page 3)

CleverDeck Original composite decking cannot be used as a component of the foundation or substructure.

When constructing the substructure care must be taken to ensure that the joists are level, straight and square as CleverDeck Original composite decking will conform to the level and orientation of the joists.

An appropriate allowance for fall per metre of deck must be made when constructing the deck substructure. The deck should fall away from the structure. There must be enough fall on the boards so that any water that falls on the deck can run-off. If the fall is insufficient to allow run-off then water puddling will most likely occur and water puddling will cause water staining particularly when the boards are new.

Boards fixed across the deck at angles other than 90 degrees to the joists require closer joist spacing. Check the fixings specifications table on page 12 to make sure that you have the correct spacing between the joists. As a rule, the closer the joists the better the deck.

Futurewood recommends the use of a good quality self-adhesive joist protection tape to protect the timber joists under your deck boards. The joist tape will ensure that the top of the joists remain dry and it stops any water/moisture from sitting between the bottom of the deck board and the joist improving the overall quality of your deck installation and reducing the risk of your joists rotting prematurely.

The 138mm wide CleverDeck Original composite decking board combined with the Futurewood Combo Deck Clip provides a cover of 143mm or 7 boards per lineal metre.

Additional joists will be required where breaker boards are used in the deck design. Read through the section below referring to breaker boards and determine your deck design before you calculate how many joists will be required for the deck.

The decking boards can overhang the sub frame by up to 50mm in length. The decking boards can overhang the subframe by 10mm in width or a combination of the subframe and fascia board by 10mm in width if the fascia board is level with the joists. Consideration should be given to the overall deck size and the number of boards required to cover the deck.

You can start from the inner or outer edge of the deck depending on whether you are using full boards or whether you need to cut the board which is normally against a wall of an existing structure. The deck boards will be installed across the deck and the last board (finishing board) may need to be trimmed in order to fit in the space against the house or structure. Due to normal manufacturing tolerances and the potential for a slight difference in spacing between deck boards we do not recommend trying to pre-determine the width of the final board (the outer board must finish flush or no more than 10mm in width past the joist or fascia board). Any cut outs around protrusions such as a verandah posts or balustrades need to be fully supported.

Butt joints should only occur over a double joist. (Only recommended for boards up to 3 metres long)

CleverDeck Original composite decking **should not** be attached directly to any solid surface or watertight flooring system, such as concrete, brick or tiled patios, waterproof membranes or roofing. If fixing over concrete the decking board can be fixed directly to a batten that is in contact with the concrete. A minimum 25mm batten is required. When fixing over concrete it is critical that no water is allowed to pool under the deck. Good drainage under the deck is essential and the joists should ideally run in the direction of the fall of the concrete. If the joists need to run across the fall of the concrete then they should be raised or checked out accordingly so that water will not pool behind them.

Ventilation is a necessary requirement under and around your CleverDeck Original decking boards. The Futurewood Combo Deck Clips provide a 5.5mm gap between each CleverDeck Original composite decking board, 300mm clearance is an ideal distance between the boards and the surface beneath the deck however the minimum ground clearance required is 100mm). Do not completely seal off deck ends to allow some air-flow under the deck, any water must be able to drain away freely.

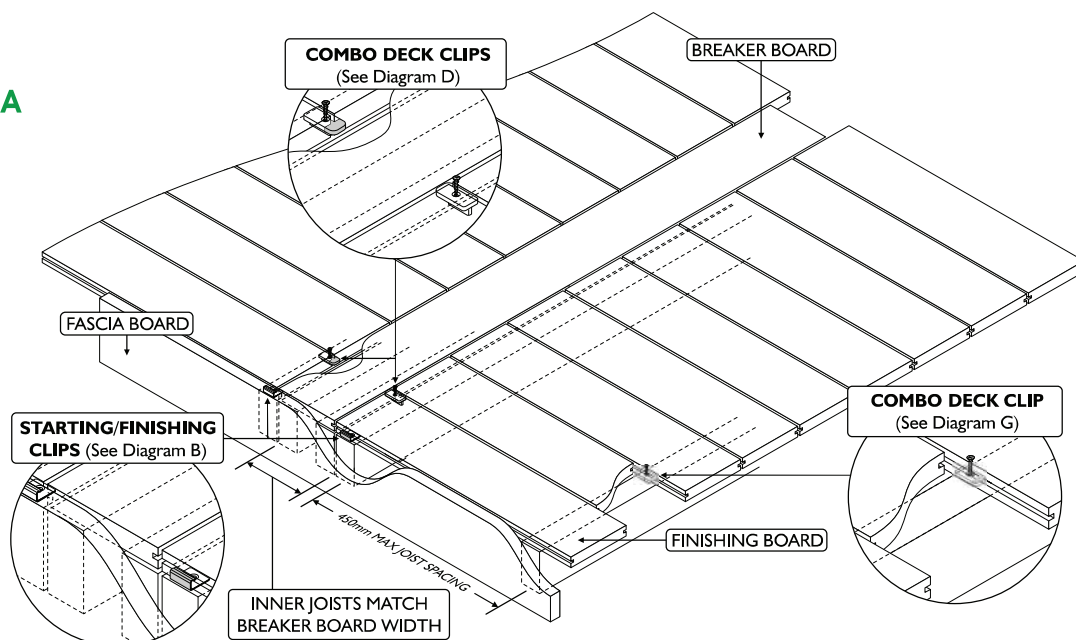
The area under the deck should be dry and clear of vegetation. Drainage will be required if the ground below the deck typically holds water.

## ADJUSTABLE PEDESTAL & ALUMINIUM JOIST SUBFRAME SYSTEM

Futurewood has designed a subframe grid system consisting of an aluminium joist and adjustable pedestals. When installed with joists at 450mm centres and pedestals positioned under the joists at 450mm centres creating a 450mm grid system, the substructure has been designed and tested for a safe working load of 2KN/m<sup>2</sup> (uniformly distributed load) or an applied load located anywhere on the span of the joist of 1.4 KN. You have the choice of standard, 18mm-30mm and 30mm-60mm adjustable pedestals (other heights available by request) that can be used in conjunction with the Futurewood 25mm Ultralow Aluminium Joist System. The pedestal and joist system can be used together on concrete or tiled patios/balconies where there is insufficient height to have traditional stump, bearer and joist subframes. The pedestal and aluminium joist subframe should be installed on a solid surface such as a concrete or tiled patio, alfresco or a standalone paved area. If you wish to install over bare earth, the earth needs to be compacted, well drained and a geo-membrane needs to be laid over the earth. Appropriate concrete pavers can then be positioned in a 450mm grid pattern for the pedestals to be placed on.

Failure to correctly install your CleverDeck Original composite decking may void your warranty.

DIAGRAM A



## COLOUR & ORIENTATION

The natural fibres used in the manufacture of CleverDeck Original composite decking allow some colour variation between boards and will enable the overall colour to lighten, creating a weathered colour effect over time. Allow 8-12 weeks of full exposure to sunlight for most of the colour weathering to occur.

The grain of CleverDeck Original composite decking will reflect light differently depending on the orientation of the boards. To ensure the same look across the deck it is necessary to run all deck boards in the same grain direction.

## STARTING, FINISHING & FASCIA BOARDS (Refer diagram B below)

The first board laid on your deck is referred to as the starting board and will normally be installed with one “free” edge typically gapped against the side of a wall/structure or at the outside edge of the deck.

As the starting board can only be fixed with the Futurewood Combo deck clip on the back edge of the board you need to use the Futurewood Starting/Finishing (S/F) clip to secure the outer edge of the starting board. The S/F clip should be positioned close to the outer edge of the deck joists at 900mm intervals (every 2nd joist) so that the fascia board can be fitted flush against the ends of the joists/subframe. Fix the S/F clips to the joists then push the starting board in to the clip at a slight angle (about 30 degrees) so that the clip engages fully in the groove.

If the outer edge of the deck is going to be visible and you do not want to see the S/F clip or the groove on the edge of the first board then you can use one of the deck boards as a fascia board and remove the groove with a saw or use a square edged EnviroSlat board and position this level with the height of the deck boards to hide the S/F clip and the groove in the outer edge of the starting deck board (as shown in diagram B).

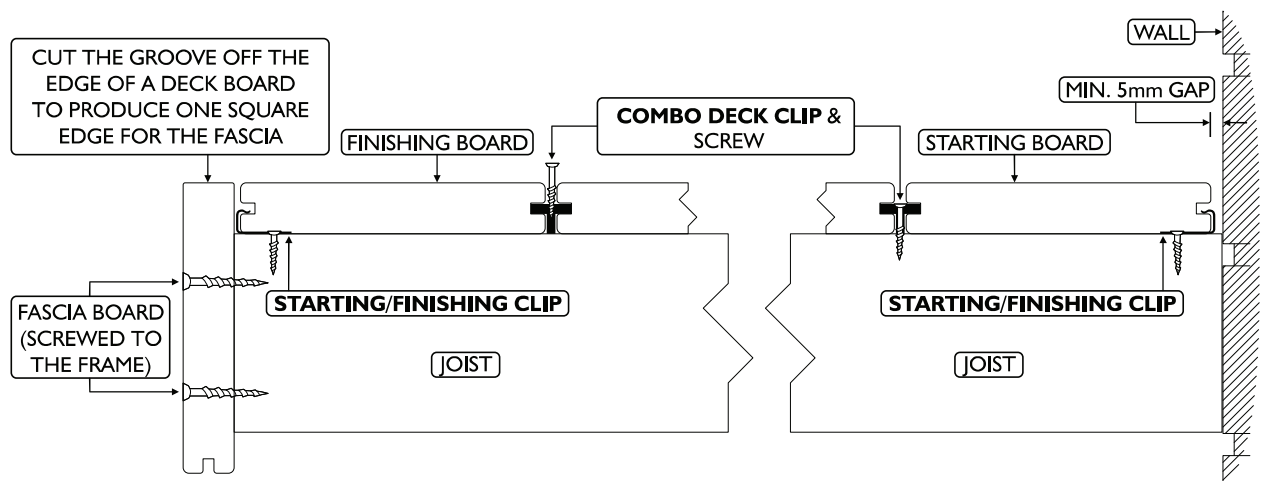
Before screwing down the combo deck clips on the back edge of your starting board make sure that you place your next (second) deck board over the deck clips so that both edges of the deck clip are concealed (inside the groove on the back edge of the starting board and the front edge of the second board).

The finishing or last board should be treated in the same way as the starting board. The width of the finishing board can be reduced as required by sawing so that it can fit in between the adjacent structure and the 2nd last board or if you have a free standing deck so that it does not overhang the joists or fascia board by more than 10mm. Grooves can be cut in to the board edge at 900mm intervals (every 2nd joist) using a router or biscuit cutter to allow starting or finishing clips to be used on the cut board edge. CleverDeck Original composite decking boards make ideal fascia boards. If the cut section of the finishing board is less than 100mm in width we recommend using noggins between each joist to fully support the cut width board along its length.

When using CleverDeck Original composite decking boards as fascia boards they should be screwed (pre-drill and pre-countersink all screws) at a maximum of 900mm centres to an appropriate frame fixed to the sub frame.

When using the CleverDeck Original composite decking board as a fascia board the groove can be removed as required.

### DIAGRAM B



## BREAKER BOARDS & “BORDER OR PICTURE FRAME BOARDS” (Refer diagram C and D on pages 5 & 6)

A breaker board is a regular deck board that is positioned in your deck design at 90 degrees to the main deck boards to provide the necessary gap for expansion and contraction between the ends of deck boards (refer to the table on page 12 for correct gapping).

Wherever a breaker board is positioned it must be supported by a minimum of 2 - 90mm x 45mm joists and the ends of the boards butting up to either side of the breaker board need to finish on a full joist meaning that 4 standard 45mm wide joists are required to adequately support a breaker board. If multiple breaker boards are being used a ladder joist or noggins between joists can be used to fully support all the breaker boards at a maximum of 450mm centres.

A picture frame board or border will need 2 joists to support it and 1 joist to support the deck boards that run up to the picture frame board. Due to the expansion and contraction of the boards, a picture frame or border should not exceed 3 metres in length if it is to be butt joined.

Because CleverDeck Original composite decking comes in standard 5.4 metre long lengths the preferred method of installation is to use a breaker board rather than having randomly spaced butt joins spread across the deck. Depending on your overall deck size/shape you may need to allow for the inclusion of one or more breaker boards in the design of your deck. The incorporation of the breaker board can greatly enhance the character and appearance of your deck as well as allowing you to use potential off cuts (helping to minimise overall board wastage). Additional joists will be required in your sub floor construction to fully support the breaker boards wherever they are being used.

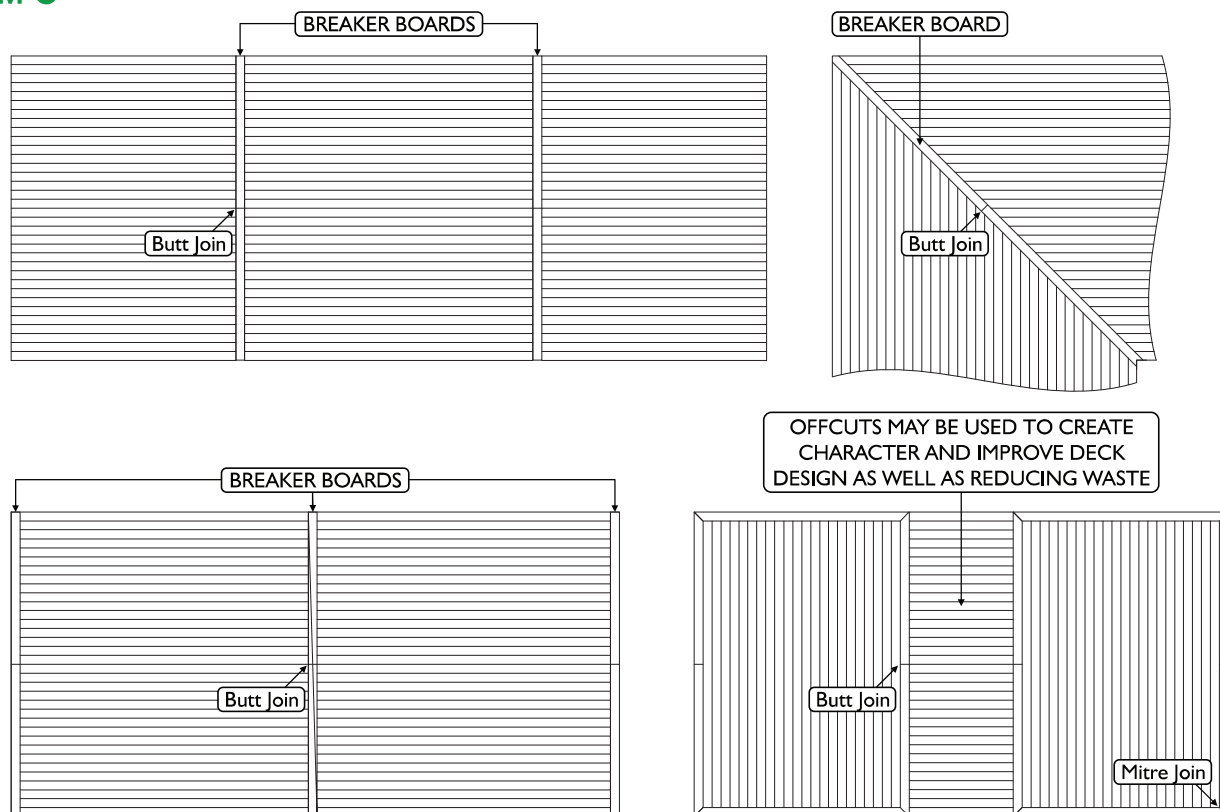
Running long boards with a butt join may result in a gap of more than 10mm once the boards have cooled and contracted. If staggered butt joins are to be used, we recommend that you contact Futurewood to discuss your specific fixing options.

Breaker boards should be fixed using the Combo deck clip. Combo deck clips are positioned at the end of the deck boards where they meet the edge of the breaker board.

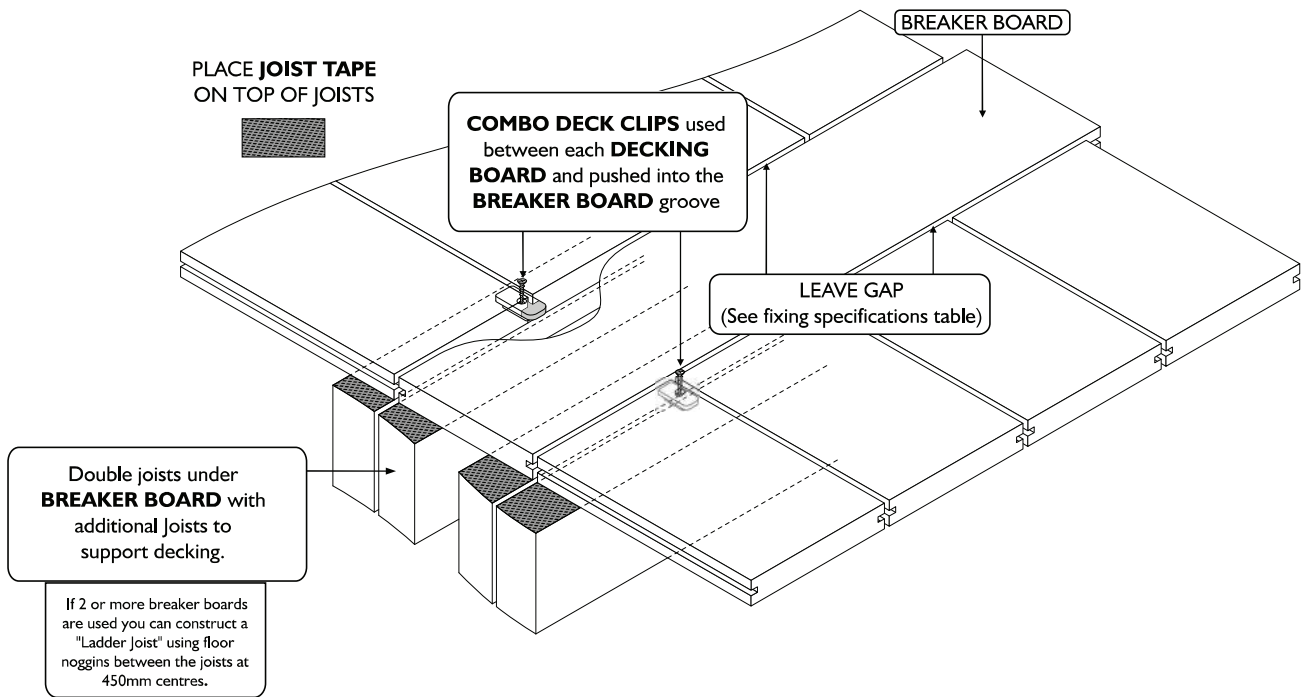
The breaker boards should be left loose and placed in between the regular deck boards then the breaker board can be evenly spaced between either side of the regular deck boards and the combo deck clips can be pushed against the breaker board so that the nose of the clip engages in the groove of the breaker board before driving home the screws.

We recommend that any breaker boards, whether they are butted together or are a single board, do not exceed 3 metres in length (e.g. a 5.4 metre board would be cut in half producing 2 x 2.7 metre boards). The butt joins between these boards should be gapped according to the table on page 12. This will help to minimise the potential for an excessive gap developing at the butt join between the breaker boards or for a single longer breaker board to expand beyond the side of the deck.

## DIAGRAM C



## DIAGRAM D



## STAIRS (Refer diagram E and F on page 7)

CleverDeck Original composite decking boards can be used as stair treads and for stair risers.

When using CleverDeck Original composite decking boards for stair treads they must be supported at a maximum of 300mm centres by a stair stringer or other structural support. A typical stair tread or riser will normally require more than one CleverDeck Original 138mm wide composite decking board to make up the minimum required stair tread width or riser height. The final total stair tread width or riser height might require one or more of the CleverDeck Original composite decking boards to be cut to reduce the overall width or height of that board. The solid CleverDeck Original composite decking boards can be easily cut along their width and the cut edge sanded or finished as required.

There are several different ways that stairs can be built, with or without risers and with stair treads overhanging or flush. CleverDeck Original composite decking boards can be used in all examples, but the fixing methods vary and using concealed fixing is not possible for all installation methods.

In some cases, CleverDeck Original composite decking boards will need to be fixed as stair treads or risers by screwing through the face of the board. Note: all holes must be pre-drilled and pre-countersunk to ensure a neat finish and not risk damaging the boards.

When 2 full width boards are being used for the stair tread combo deck clips can be used between the boards and starting/finishing clips can be used at the back edge of the stair tread if they are hidden at the back/underside of the stairs or if the riser comes down against the back of the stair tread or on top of it. The front edge of the front board can be fixed with starting/finishing clips if the stair riser is finishing flush with the stair tread on the outside of the deck board.

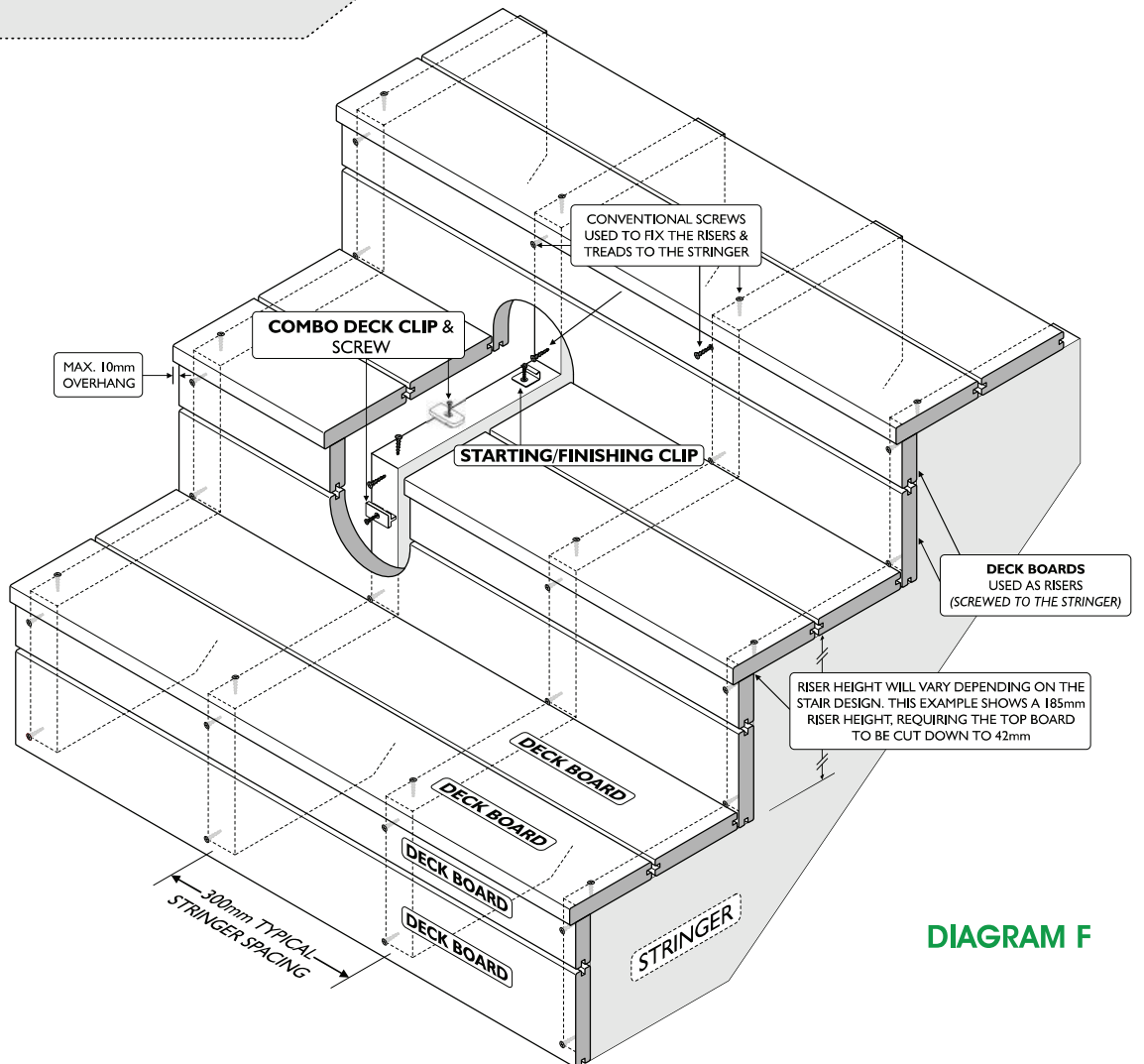
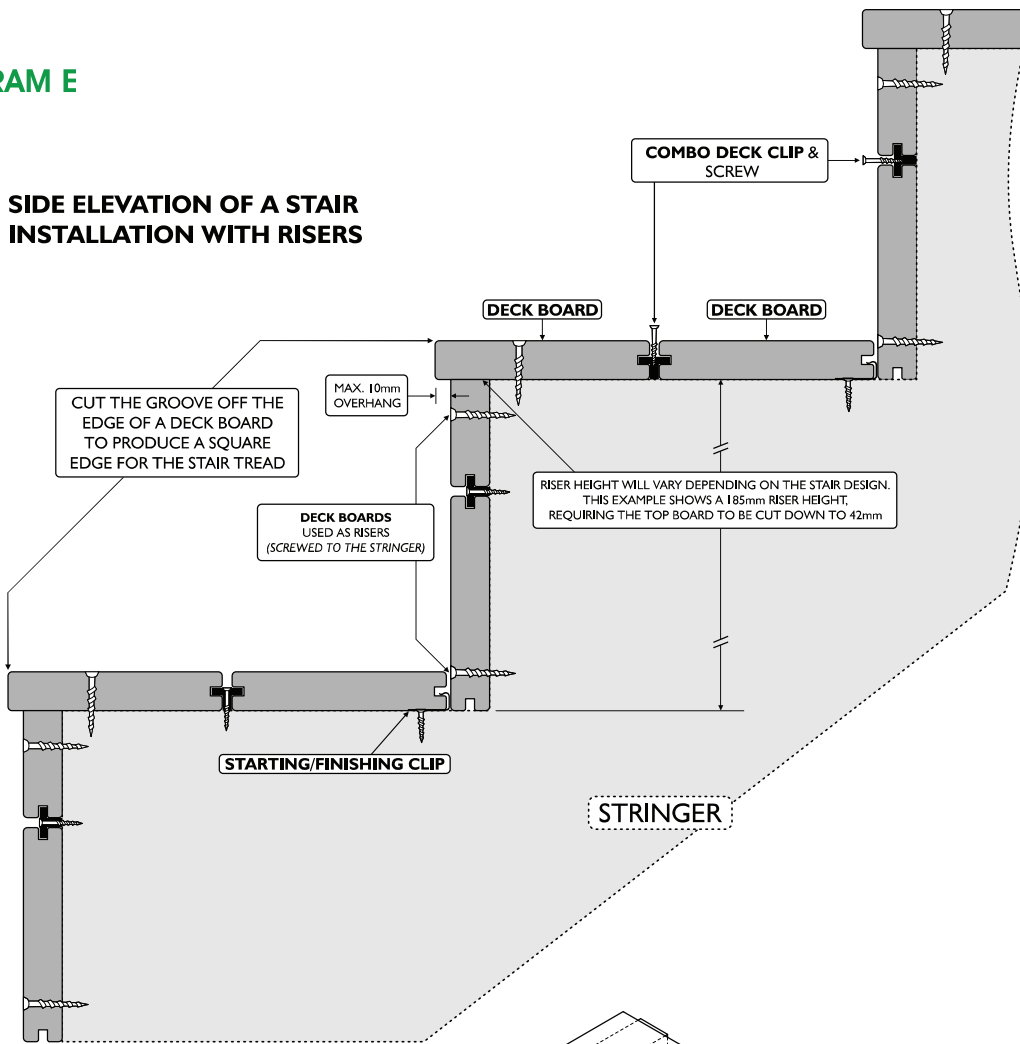
If the front stair tread has an exposed edge and is mounted over the top of, but flush with the riser, the grooved edge can be cut off and the solid edge routed or sanded to produce a square edge. For this type of installation, the front edge of the front stair tread will need to be screwed to the stringers.

If the front stair tread has an exposed edge and is overhanging the riser (the maximum overhang is 10mm) the grooved edge can be cut off and the solid edge routed or sanded to produce a rounded edge. For this type of installation, the front edge of the front stair tread will need to be screwed to the stringers.

If stair risers are included in the stair design, it might be possible to use a concealed fix starting/finishing clip on one edge, but it is most likely that face fixing the riser by screwing through a pre-drilled and pre-countersunk hole will be necessary to fully fix the riser.

**DIAGRAM E**

**SIDE ELEVATION OF A STAIR INSTALLATION WITH RISERS**



**DIAGRAM F**



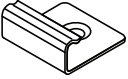

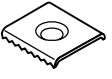
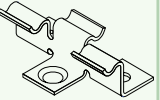
## Futurewood Deck Clip System (Refer diagram G on page 9)

The Futurewood Deck Clip System has been specifically designed for fixing CleverDeck Original boards and provides the added value and appearance of a concealed fix while saving time and money on the installation of the deck. It is highly recommended to use Futurewood Deck Clips & screws when installing CleverDeck Original composite decking.

Futurewood Combo Deck Clips and Locking Clips are supplied with blackened stainless-steel screws for fixing to either timber or metal joists. These screws have specially made, smaller screw heads to fit between the decking boards and are made with a T15 drive. T15 drives are supplied with these clips/screws. Starting/Finishing clips come with stainless-steel screws for timber joists or stainless-steel pop rivets for fixing to metal joists and BAL clips are supplied without screws.

Make sure that you specify the correct clips based on the table below;

Note: Screws for self drilling into metal are designed to cut through soft/mild hardness metal to a maximum thickness of 1.6 mm. Harder/thicker metals will need to be pre-drilled.

| Part Number  | Quantity per pack/box | Type   | Screws for Joist Type | Coverage based on 450mm joists |
|--|-----------------------|--|-----------------------|--------------------------------|
| <br>M-100     | 100                   | Combo deck clips<br>c/w 410 S/S screw + 2 -T15 drivers     | Metal                 | 6 square metres                |
| <br>T-100    | 100                   | Combo deck clips<br>c/w 316 S/S screw + 2 -T15 drivers     | Timber                | 6 square metres                |
| <br>SFM-20  | 20                    | 304 S/S starting/finishing clips<br>c/w 304 S/S pop rivet  | Metal                 | 3 x 5.4 metre deck boards      |
| <br>SFT-20  | 20                    | 304 S/S starting/finishing clips<br>c/w 304 S/S screw      | Timber                | 3 x 5.4 metre deck boards      |
| <br>LM-20   | 20                    | 316 S/S locking clips<br>c/w 410 S/S screw + 1 -T15 driver | Metal                 | 20 boards regardless of length |
| <br>LT-20   | 20                    | 316 S/S locking clips<br>c/w 316 S/S screw + 1 -T15 driver | Timber                | 20 boards regardless of length |
| <br>BAL-100 | 100                   | 304 S/S BAL 2mm gap deck clips - no screw                  | Metal/Timber          | 5.5 square metres              |

Futurewood Combo Deck Clips should be used at each joist regardless of joist spacing.

Locking Clips are used to stop the individual deck boards from creeping in one direction or the other even though they are fixed with the Combo deck clips. The locking clip will help to prevent the board from creeping or "walking" along the deck. This creeping or "walking" can occur due to the continual expansion and contraction of CleverDeck Original boards with changing temperatures.

One locking clip should be used in place of the Combo deck clip on either side of every board, at the joist that is closest to the centre of each board, regardless of board length.

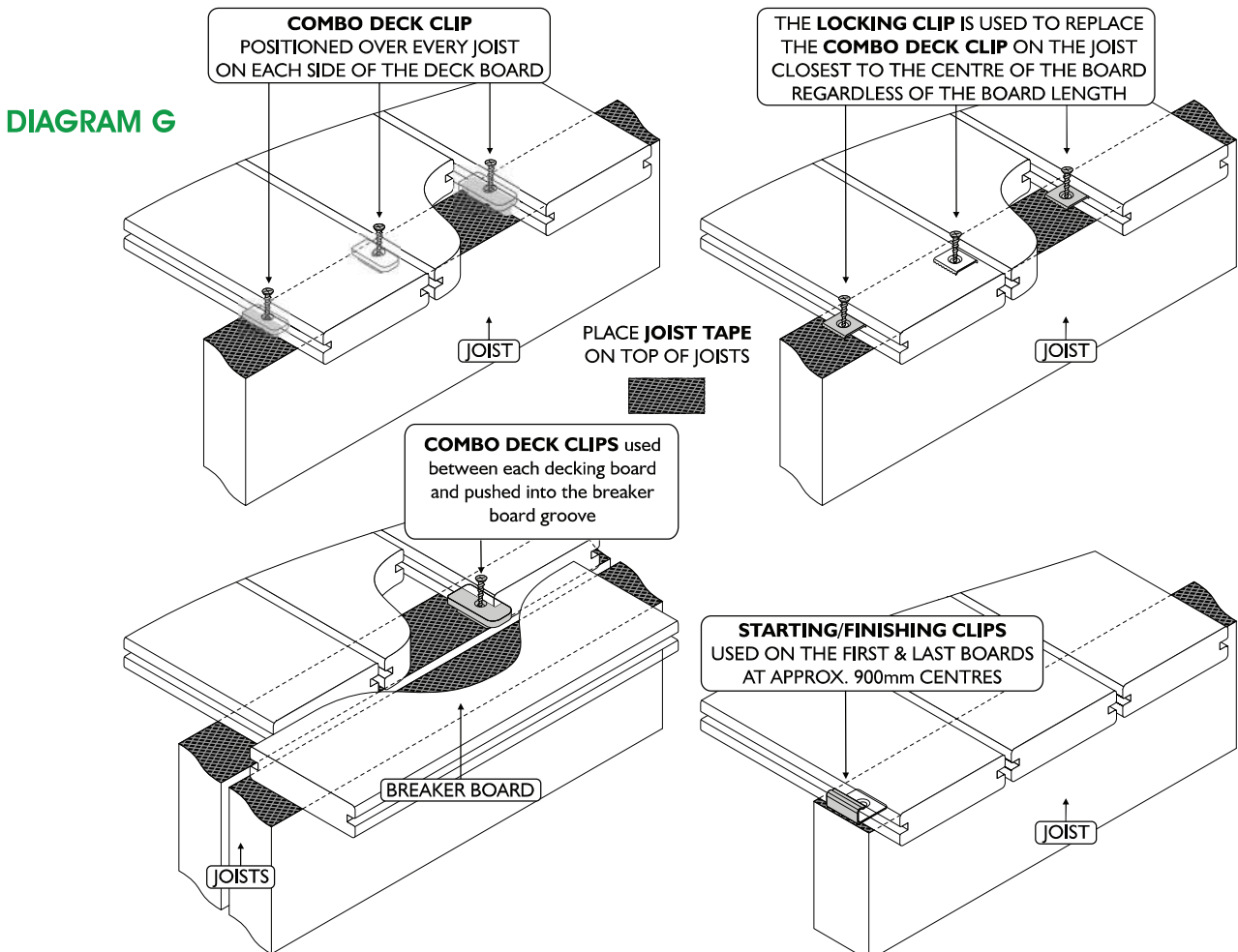
**Note:** The locking clip will not work if it is not positioned close to the centre of the board.

Combo deck clips should be loosely positioned in the groove of the deck board over each joist as well as one locking clip over the joist that is closest to the centre of the board before sliding the next board in to position. Once the starter board is aligned and fixed in position you can prepare up to 7 boards pushed together with the clips in position over each joist. Apply enough force against the last board you are fixing in the "set" so that the boards are pushed close together (you can use a string line to ensure that the boards are straight and true) and then fix the set in place by screwing down the deck clips on the inside of the outer board (the last row of deck clips that have a board on either side of them). Make sure that all deck clips are evenly spaced over the joists before fixing them. Once the outer board is secure, you can screw down all the deck clips between the other boards (you may want to leave these clips unfastened until all the boards have been positioned on the deck just in case any last-minute adjustments to any boards are required). Repeat this process until you reach the finishing board.

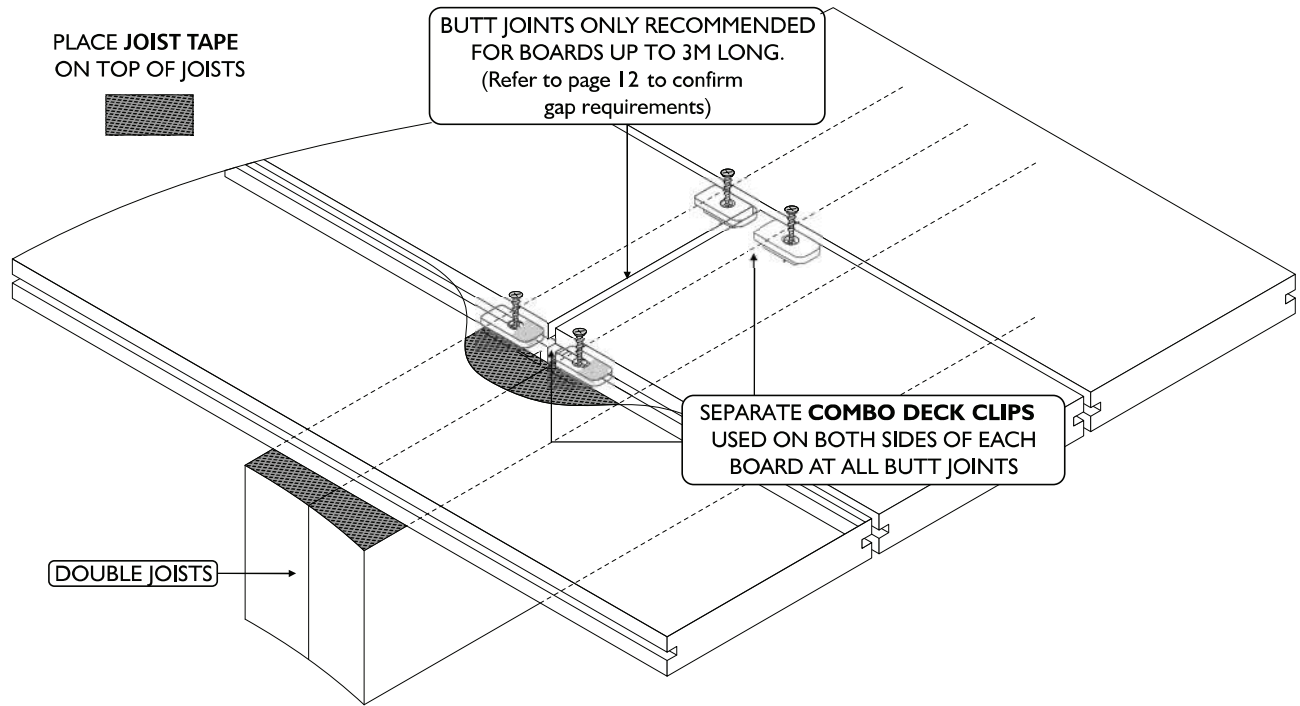
Combo deck clips are used to secure any breaker boards that are part of the deck design (refer to the Breaker board section on pages 4 and 5).

Starting/finishing board clips are used on the first and last board on the deck (refer to the Starting boards section on page 4).

The BAL is a special clip designed to give a 2-3mm gap between boards as required in a high bush fire zone. Contact Futurewood for more information.



## DIAGRAM H



When fixing a butt joint use a Combo deck clip on both sides of each deck board (4 in total for each butt joint, refer diagram H),

Drivers should be adjusted to a low or medium torque setting when fixing all Futurewood Deck Clips to ensure that the screws are not “over driven” in to the clips.

Additional care must be taken when fixing Combo deck clips to steel joists to ensure the screws cut properly and to reduce the risk of the driver or screw head stripping. If the screw does not self drill, the metal may be too hard or too thick and will need to be pre-drilled.

We recommend that a slow speed and minimal force is used to drive the screw through the clip until it is touching the steel. At this point the speed of the driver should be increased to approximately 1000rpm to allow the cutting edge on the screw to cut through the steel. Too much pressure or too little speed may cause the screw to go off line and will strip out the screw head and or the driver. Once the screw has cut through the steel, any pressure on the driver should be reduced immediately to stop the screw from driving through the clip.

Combo deck clips provide an automatic spacing of 5.5mm (+/- manufacturing tolerances) between each board.

The Futurewood Deck Clip System provides the best fixing option for CleverDeck Original composite decking as the clips are designed to allow the decking to “work” with the deck clip maintaining independent expansion and contraction between the decking boards and the joists. This independent fixing method virtually eliminates the pressure build up on the fastenings that can occur when the decking is fastened directly to joists.

## Screw fixing

Screw fixing is generally not needed or recommended other than for some stair installations where short boards are used, however, if there is a need to screw fix some boards on your deck please note the following instructions.

Pre-drilling and pre-countersinking are essential in order to reduce the risk of splitting when screwing directly in to the face of the CleverDeck Original composite decking. A minimum screw length of 60mm is required. When fixing a butt joint two screws are required to be positioned 25mm from the outside edge of each board and a minimum of 25mm from the end of each board. Drivers should be adjusted to a low or medium torque setting when fixing screws in to CleverDeck Original composite decking. Screws should not be “over driven or over tightened” in to the decking.

Screw fixing directly through the CleverDeck Original composite decking board is not recommended on steel joists when the board length is over 3 metres due to the different expansion and contraction characteristics of the two materials.

## Nail fixing

Nailing is not recommended.

## SPACING (Refer diagram I below)

CleverDeck Original composite decking expands and contracts lengthways due to changes in temperature (there is minimal change to the width of the board). It is critical that you have all the boards at roughly the same temperature and below 30°C as boards cut at different temperatures will affect the appearance of the finished deck.

The longer the board the greater the potential for a change in length due to temperature change. All boards must be the same temperature during the installation process (measuring & cutting). All boards should be kept in the shade so that they are not affected by direct radiant heat and are at a similar temperature. If there is no shade on the site, make sure that all measuring and cutting is done in the morning when the boards are still cool from the previous night. Once the boards are exposed to direct sunlight, they will absorb radiant heat and increase in length.

A 5.4 metre long board will grow in length by approximately 2.5mm for every 10°C increase in temperature. The board will contract in length by the same amount when the temperature of the board cools.

Even on a day of mild temperatures and minimum temperature change the boards may vary in temperature by 30°C or more if moved between direct sunlight and shade.

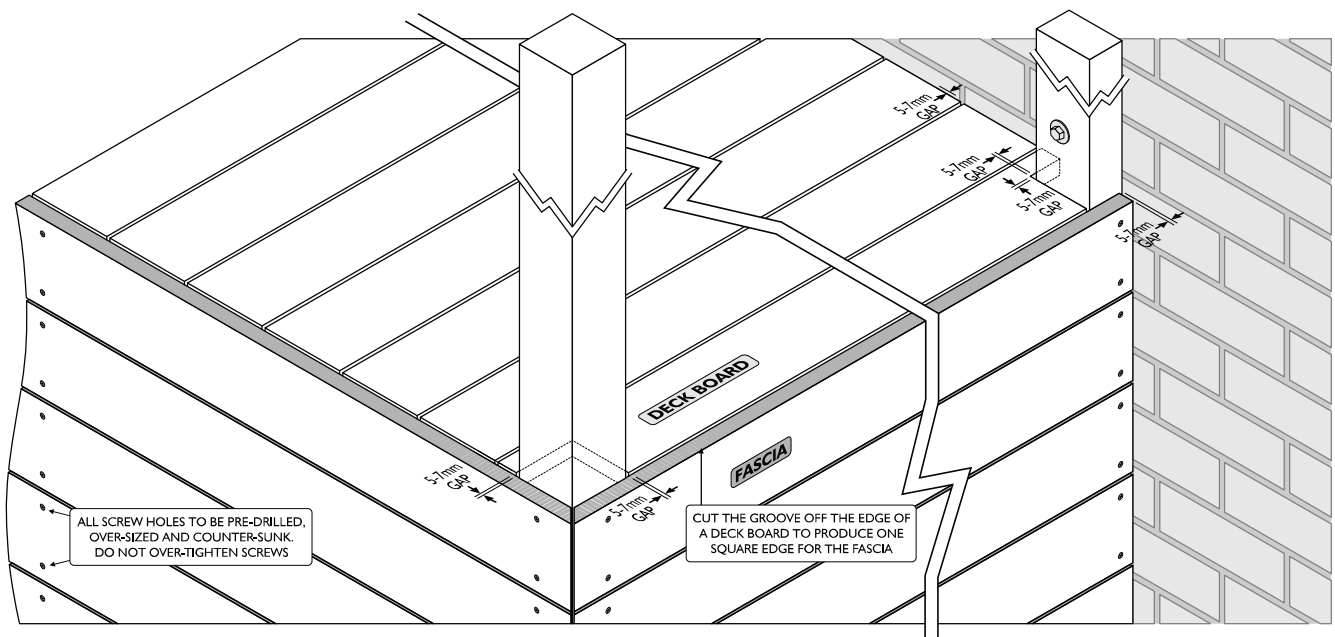
Boards should always be measured/cut/installed at cooler ambient temperatures (below 30°C). Therefore, in summer months and tropical areas installation should occur in the morning.

Butt joints are not recommended but if they must be used the boards should be less than 3 metres in length (as is the case with the length of the breaker boards or picture frame boards). A 2-5mm gap should be left for expansion when installing the boards at recommended temperatures, refer to the gapping table on page 12 for more information. Butt joints should always occur over a double joist or cleat (minimum 90mm x 45mm) to allow for the use of a deck clip and screw at the ends of each board (4 standard deck clips are required -2 deck clips per side per butt joint). (refer diagram H on page 10)

It is highly recommended that boards over 3 metres in length are not butted end to end (this applies for either a continuous run of boards or an angled or mitred join). Running long boards with a butt joint may result in a gap of more than 10mm once the boards have cooled and contracted. The preferred method of deck design is to use a breaker board (refer to the breaker board fixing information on pages 4 & 5). Other fixing options might be applicable if numerous butt joints are required. Please contact Futurewood for information regarding alternative butt joining options.

A 5mm to 7mm gap is required around posts or other protrusions in the decking. As mentioned in the substructure information any protrusions should have joists fitted around them so that the ends of boards are fully supported.

### DIAGRAM I



# CleverDeck Original Composite Decking Domestic Fixing Specifications

|   |         |
|---|---------|
| Maximum joist distance (centre to centre) laid at 90° to the joist  | 450mm*  |
| Maximum joist distance (centre to centre) laid at 60° to the joist  | 400mm*  |
| Maximum joist distance (centre to centre) laid at 45° to the joist  | 350mm*  |
| Maximum joist distance (centre to centre) laid at 30° to the joist  | 250mm*  |
| Maximum stringer spacing for stairs (centre to centre) Note: Stair installation using CleverDeck should always include a riser board) | 300mm   |
| Minimum ground clearance over well drained ground   | 100mm   |
| Minimum ground clearance over concrete (with no water pooling)  | 25mm    |
| Minimum spacing between boards (side to side)   | 2-3mm"  |
| Minimum spacing at end of boards (abutting a wall)  | 5mm     |
| Minimum spacing from boards running parallel to a side wall   | 5mm     |
| Maximum overhang of the width of a board past supporting joist (applies to edge boards or stair treads only)                          | 10mm    |
| Maximum overhang of the length of a board past supporting joist (applies to length only)  | 50mm    |
| Spacing required for butt joints in the deck (for boards up to 3 metres long and board is below 30°C)                                 | 2-5mm** |
| Spacing required where boards meet protrusions in the deck (for boards up to 3 metres long)   | 5mm     |
| Spacing required where boards meet protrusions in the deck (for boards over 3 metres long)  | 7mm     |
| Minimum spacing for screw fixings from the edge of the board  | 25mm    |
| Space between butt end and breaker board  | 2-7mm** |
| Space between mitre joints (for boards up to 3 metres long and board is below 30°C)   | 2-5mm** |

\*Maximum recommended centre-to-centre spans using a minimum of three joists. Closer joist spacing improves the strength of the deck so a joist spacing of 400mm will provide more strength than a spacing of 450mm and if you reduce the spacing to 300mm it will be stronger again.

\*\* Will depend on geographical region, installed temperature and likely temperature change over the year.

CleverDeck Original composite decking must not be applied directly to a solid surface.

Commercial installations will need to be assessed on a case by case basis.

Fixing details and specifications may change without notice.

For further information regarding your CleverDeck Original composite decking please email; [info@futurewood.com.au](mailto:info@futurewood.com.au)

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