

Deck Preparation

See full instructions on www.wrg.ie before starting.

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Planning Your Deck

Designing and building a deck can be a fun and a rewarding experience. You probably have given some thought as to what you want in a deck, now is the time to really visualise it. What will your deck be used for, relaxing, entertaining, will you put garden seating, BBQ, tables with a parasol on it and how many people might you have on your deck? Will there be children and elderly people using it?

These are the questions you need to look at before starting.

- (1) Where will I install the deck?
- (2) What size do I want the deck?
- (3) Which deck board do I like best?
- (4) Decide on what direction you would like the boards to run.
- (5) Which substructure will I use: Hardwood, *Steel or Aluminium joists?
**Steel joists >2mm: A hole must be pre drilled in the joist and specific Steel Joist Installation Kits must be used.*

Follow the fitting instructions carefully, see full instructions on www.wrg.ie before starting.

Location and Deck Size

When deciding the size of your deck, look around at the space you have, your house, the size of your garden and what proportion of deck will enhance and improve the look of it. Your deck should have a southerly aspect. Is the ground level or falling? How close to the house do I want it? When deciding on the size of deck you need to take into account that the deck boards are 3600mm in length. You can make a deck any length, but you do not want to have a deck with very short end boards.

Tools Required

Whiteriver Decks can be installed using the same tools that you would use for fitting any timber deck. • Tape Measure • Electric Saw • Level • Square • Cordless Drill • Building Line • Safety Goggles

General

Composite decking has a composition of 60% timber, 30% HDPE Plastic and 10% Resins / Pigments etc. While the timber element is very stable (it is kiln dried at very high temperatures to remove the cell structure), the HDPE expands and contracts on the length of the board in line with changes in temperature and humidity. **It is necessary to leave a perimeter gap of 10mm around the entire deck and any fixed objects/obstructions and also a 5mm spacing must be left at each short board end to allow for normal seasonal movements.**

Design

Once you have made a decision on the above, now you need to decide on the deck design. A deck that is well designed can do amazing things to your home. First decide on the direction you would like the boards to run. Will there be steps? Would you like handrails around it? What colour will suit your garden and house best?

Ventilation and Site Conditions

There should be good drainage under the deck, ideally with a 2% fall but minimum of 1.66% (min. 1:60 fall) to let water drain off e.g. a 5 metre deck should have a fall of 100mm over the entire deck. Do not install the decking flat. The ground/substructure should be properly supported - please consult with an engineer if you are unsure. Whiteriver composite decking products CANNOT be directly installed onto a flat surface. It must be installed onto a substructure, so there is adequate and unobstructed air flow under the decking to prevent excessive water absorption.

Good ventilation under your deck is key to it performing well in the long term.

For non screed surfaces, plan a minimum of 100mm (4 inches) of continuous net free area under the decking surface. This is required to allow for adequate ventilation on all deck types so air can circulate freely between adjacent joist members to promote drainage and drying. Air must have an entry point and exit point to the subconstruction.

For screed surfaces, we recommend a minimum clearance of 100mm (4 inches) from the ground level. In this case, the joist should be built in two criss cross layers to allow for air movement. For small balcony areas, less than 10m², it is possible to have a lower clearance provided sufficient drainage and air movement can be provided. For balcony projects, we recommend getting the design reviewed by an engineer.

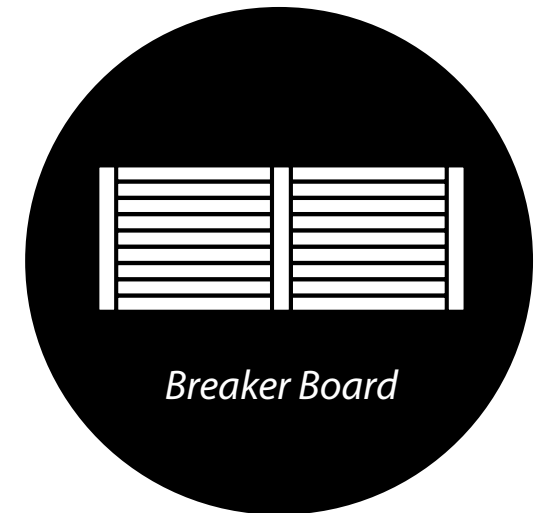
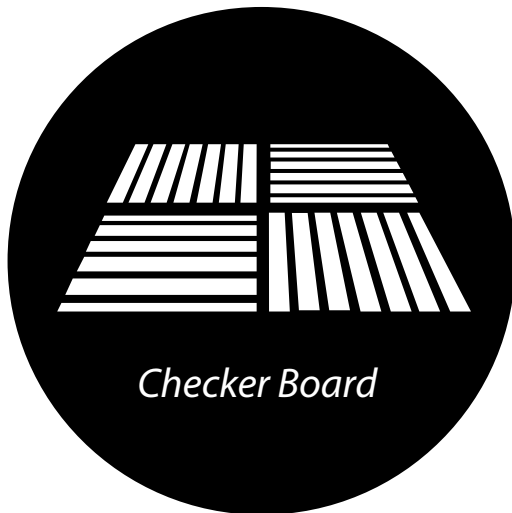
Please note areas that are walled in on all sides are not suitable for deck installation as there will not be enough air movement under the deck. If there is any dampness under the deck, it can lead to mould build up underneath the deck and excessive expansion and contraction in the boards. In summary, it is vital that the area underneath the deck is free draining and per above, adequate ventilation is provided for.

If you require any technical advice, please contact our sales office on

Tel: 041 - 686 1000 or Email: sales@wrg.ie

Direction of Deck

There is no correct deck direction, it is purely personal preference but whatever you choose dictates the sub-frame design and configuration. Things to consider: Think about where you or your guests will view the deck. Looking along the length of the boards will make the deck look longer, while looking across the boards creates an illusion of width. Would you rather the deck looked longer or wider? Also, most of our deck boards contain grooves which affect both the slip resistance qualities in particular directions and also the aesthetic of the board. Board lengths are 3600mm long.

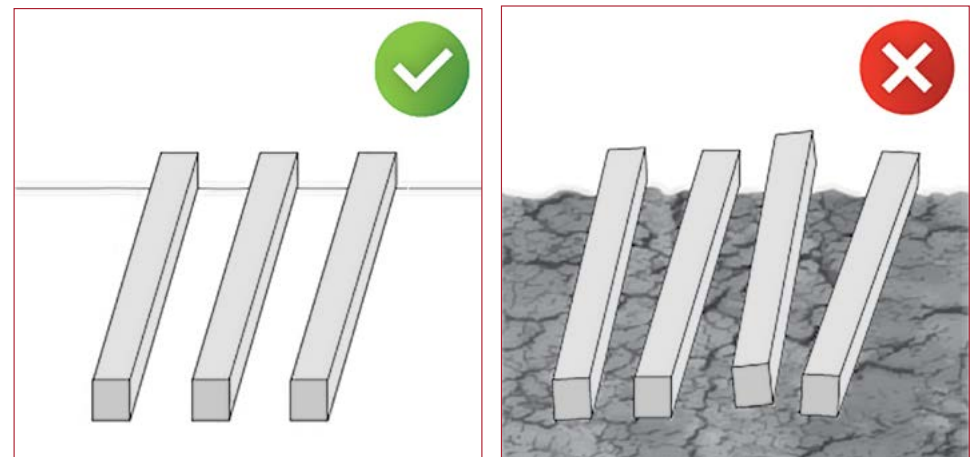


Composite Decking Installation Do's & Don'ts

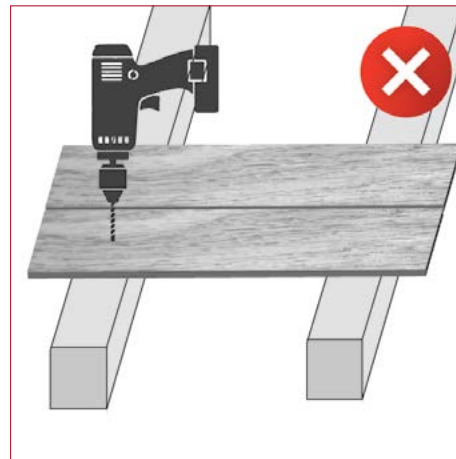
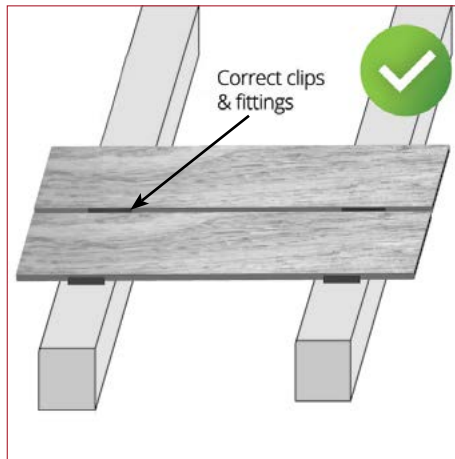
- ✓
 LEAVE A 10MM GAP AROUND WHOLE DECK TO ALLOW FOR MOVEMENT
- ✓
 ENSURE THERE IS GOOD AIR CIRCULATION AROUND AND UNDER THE WHOLE DECK ENDS AND SIDES
- ✓
 LEAVE A 5MM EXPANSION GAP BETWEEN BOARD ENDS AND 10MM EXPANSION GAP AROUND WHOLE PERIMETER
- ✓
 DOUBLE JOIST WHERE BOARD ENDS MEET. EACH BOARD END SHOULD HAVE ITS OWN CLIP & JOIST
- ✓
 USE STEEL INSTALLATION KITS FOR FIXING TO STEEL OR ALUMINIUM JOISTS
- ✓
 USE GOOD QUALITY HARDWOOD JOISTS OR ALUMINIUM. PRE DRILL FACIA BOARDS BEFORE FIXING
- ✓
 USE RECOMMENDED CLIPS TO SECURE BOARDS TO JOISTS
- ✓
 PRE DRILL STEEL JOISTS TO RECEIVE STAINLESS STEEL SCREWS
- ✓
 ACCLIMATISE BOARDS TO THE ENVIRONMENT FOR 3 DAYS PRIOR TO INSTALLATION
- ✓
 LEAVE A NATURAL FALL TO ALLOW WATER TO DRAIN AWAY
- ✓
 USE LOCKING CLIPS TO CONTROL EVEN EXPANSION & CONTRACTION ALONG THE LENGTH OF THE BOARD
- ✓
 20MM MAX. OVERHANG FROM JOIST AT DECK EDGES WITH LAST FIXING CLIP MAX 30MM FROM BOARD END
- ✗
 SCREW DIRECTLY THROUGH BOARDS
- ✗
 STORE BOARDS ON SOLID OR UNEVEN SURFACES
- ✗
 INSTALL IN AREAS THAT HAVE WALL ON ALL SIDES
- ✗
 LEAVE BUTT JOINTED AND CUT ENDS UNSEALED

Please read the instructions fully before starting to install. Failure to install composite decking correctly will result in the deck becoming structurally unstable.

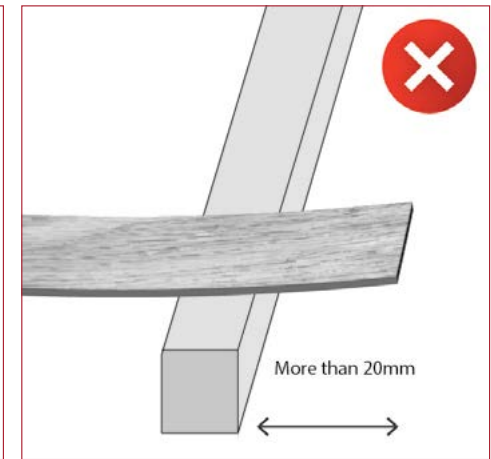
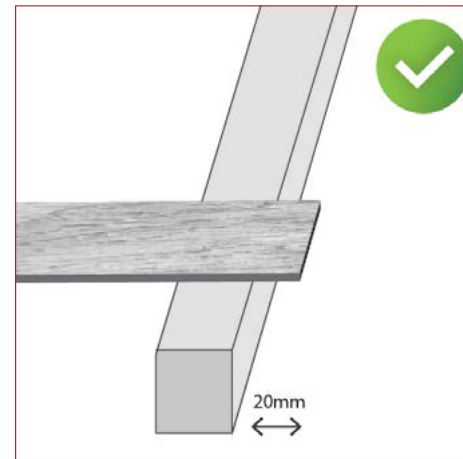
A 10mm gap around the whole deck must be left for expansion and a 5mm gap between board ends.



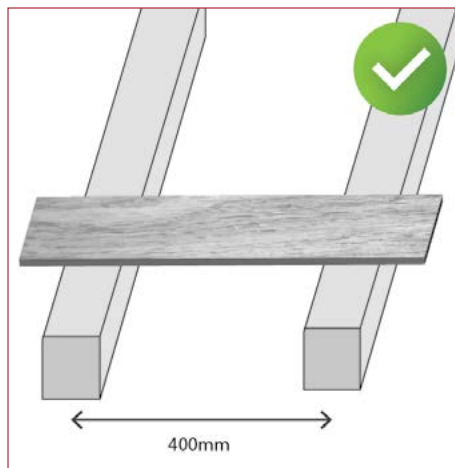
A structurally sound sub frame must be installed ensuring there is no movement prior to fixing boards to the joists. A 2% fall to allow water to drain and a minimum 100mm free air space between the boards and the ground beneath to allow sufficient airflow to prevent the build up of moisture is essential.



Composite decking should only be installed using correct clips and fittings. Failure to do this will effect the structure of the deck as well as warranty. Never screw directly through the boards. Steel joists >2mm must be pre drilled and specific Steel Joist Installation Kits must be used.

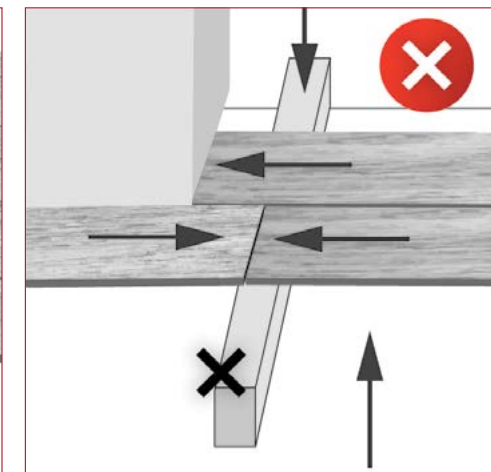
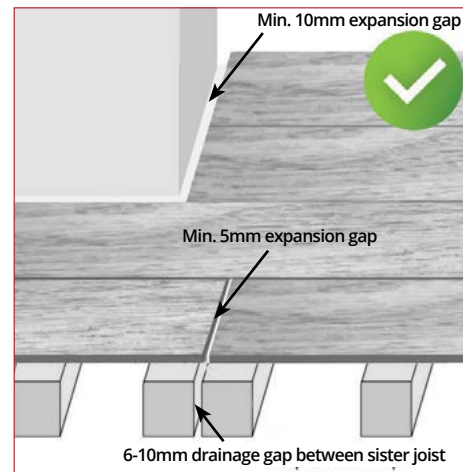


Maximum overhang 20mm.



Joists must be set to a maximum of 400mm centres. This is to ensure stability and also to avoid warping.

Note: 400mm centres are recommended for residential installations, 300mm is recommended for commercial.

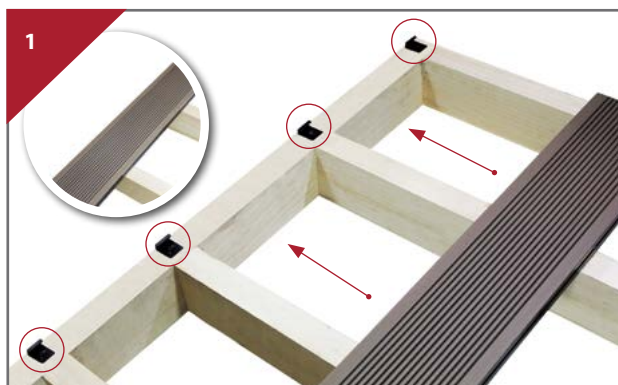


Board ends butted together must be supported by separate joists and have a min 5mm gap for expansion. Failure to do this may result in structural failure and warping. There should be a spacing gap left between the double joists to allow rainwater/debris to fall through the boards.

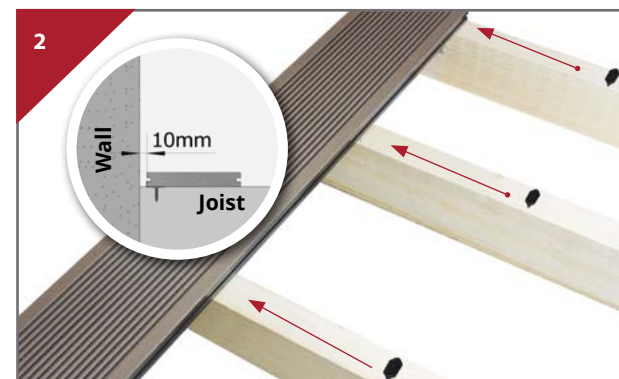
Quick Installation Guide

- Make sure you have ordered enough material, so as not to be short. Allow for about 5% waste.
- Store decking on site for at least 3 days, raised off the ground, lying flat and keep it dry.
- Read the full set of instructions on www.wrg.ie before starting.
- Ensure there is adequate ventilation under the deck. Air should have an entry point and exit point to the subconstruction.
- Make sure you allow for expansion of the deck. An expansion gap of 5mm must be allowed where board butt ends meet and a 10mm gap should be left where boards meet fixed points eg. walls, pillars or railing posts. No objects e.g. post and railing systems etc. should be fixed directly to/through the deck as this will prevent seasonal movement. These should be fixed to the substructure.
- There should be good drainage under the deck, ideally with a 2% fall but minimum of 1.66% (min.1:60 fall) to allow for water drainage.
- It is essential to use a locking clip on the joist nearest the centre of every board. This minimises the amount of expansion that the board can do.
- Whiteriver decking is approved for use over joist centres of maximum 400mm/16" (300mm/12" in commercial use).
- Each board end must sit on it's own independent joist with a 5mm expansion gap at board ends per above. There should be a 6-10mm gap between each joist to allow for water/debris to fall straight through

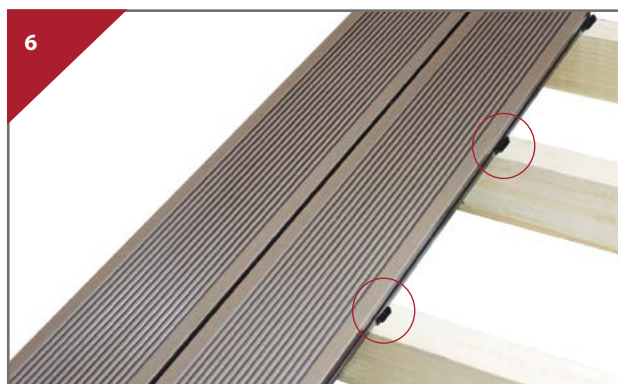
Note: Cantilever / overhang of deck board from joist at deck edges should be no greater than 20mm with the last securing clip no more than 30mm from board end to prevent cupping.



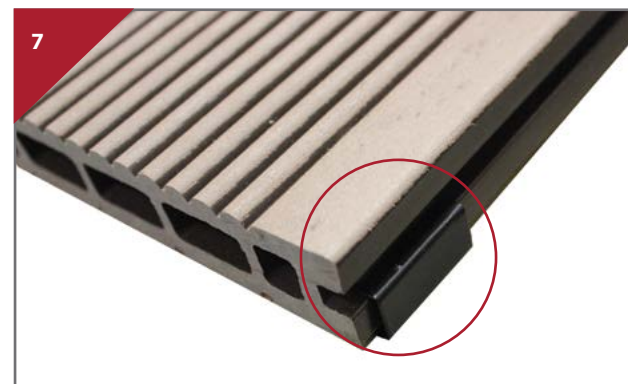
Secure start/end clips in line with each joist. Please note an expansion gap of 10mm must be placed around any fixed objects within the decking e.g. stair case, post brackets and any permanent fixtures that may prevent the decking expanding and contracting naturally. Where two boards join together on the first row, a starter/end clip must be used on each board with a 5mm expansion gap on the short end. Hollow deck boards are not suitable for face fixing. Push the first deck board into the start/end clip. Check that the board is straight and fully inserted into the clip.



Insert a standard clip into each deck board in line with joist and screw fully but do not over tighten.
Note: A locking clip will need to be installed on each deck board per point 3.



Push the second row of boards into the previous installed row of boards making sure that the deck board grooves are in tight on the clips. Continue to keep inserting clips and boards in this way (using one locking clip per board).

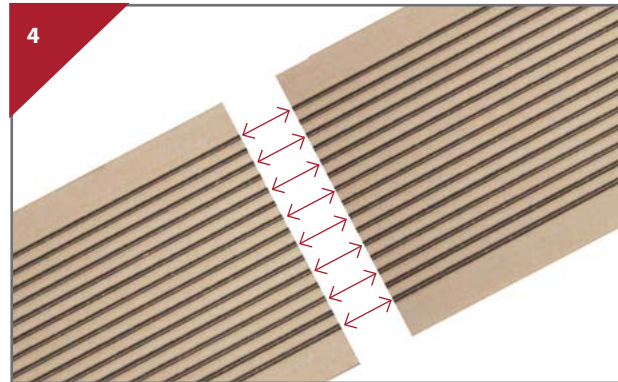


For the last row of boards use a start/end clip in line with each joist. You need to use these clips even if you putting on a fascia board.

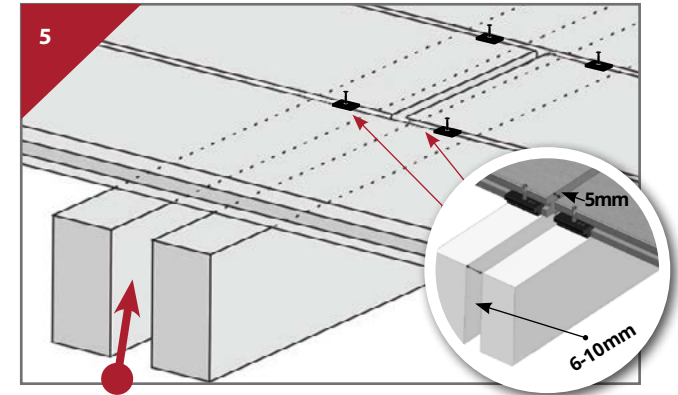


It is very important to install one locking clip per board onto the joist nearest the centre of the board. This helps maintain a consistent expansion gap at the short ends. Failure to use the locking clip will result in uneven gapping at short ends.

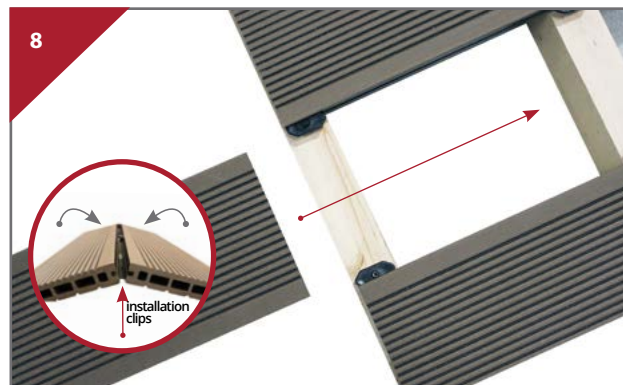
Attn: Each board only requires one locking clip in the middle. The teeth should always face the same direction



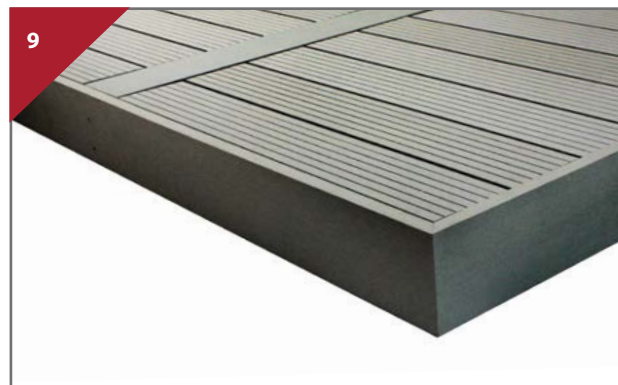
When butt jointing boards along the length of the deck you must leave a 5mm gap for seasonal expansion and contraction - see diagram above. Note comments on point 5 regarding double joisting. Boards must not meet across one single joist and must be sealed to prevent swelling, cupping and splitting - see diagram 11.



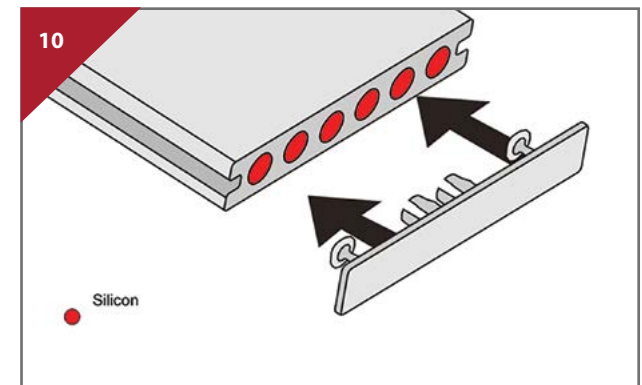
All board ends should be on their own independent joists with their own clip i.e. when butt jointing boards, sister joisting must be used. This is to ensure that the board will not slide off the joist - failure to do so will void the warranty. Also there needs to be a minimum of 6-10mm between the sister joists per diagram for water to go down between the joists or swelling could occur at the ends. UltraShield board ends meeting across sister joists should be sealed with a polyurethane matt exterior varnish to prevent end swelling, cupping and splitting.



If not framed by wall or building on each side, the second last row of boards can be slid into position after you have fixed the last row and the clips for the second last row have been fixed into position. If a wall or house prevents sliding the board in, fix the last board using the start/end clip. Next insert fixing clips into groove of board and then slide them along with a screwdriver into position. (See Insert)



You can use a solid fascia plank for a great looking finish. It is very important to predrill all composite material prior to fixing with a hole slightly bigger than the screw. Fix in two stainless steel screws into the substructure at intervals of 300-400mm - the fascia must be predrilled with a countersunk hole and fixed to a solid timber plank in all areas (not directly to the butt ends of exposed joists). **You must leave a minimum 40mm gap between the bottom of the fascia and the ground to allow for ventilation.**



Moisture can penetrate to the core in the end-cut area and could cause swelling, cupping and cracking at the edge area. Our end pieces are made from durable material with high impact resistance under harsh weather conditions. To prevent moisture penetration we recommend:
Nevada solid board: Seal all cut ends with a water based polyurethane matt exterior varnish to the full surface of all end-cuts.
Hollow boards: End Pieces should be installed at the end-cut and sealed all round with outdoor silicone sealant.

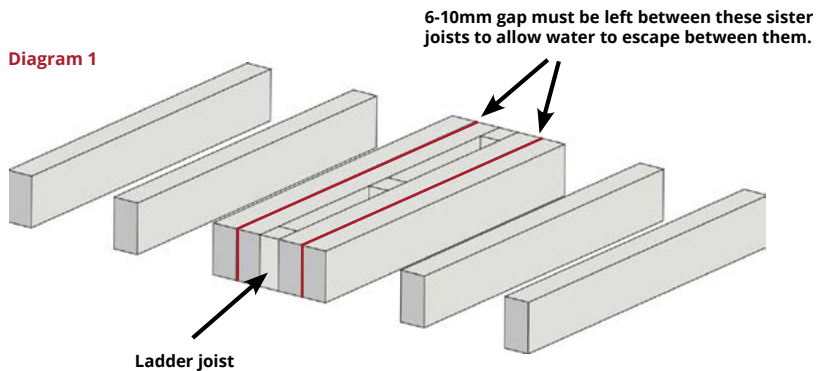
Note: It is very important to provide ventilation to enter the under side of our deck when finishing off the side trims.

Breaker Board Installation

Diagram 1 and 2 below show how framework and installation of the breaker board respectively. Diagram 1 framework uses a ladder joist installation where the user is building a frame perpendicular for the board that will be running down it.

Note: The T-Clip can be used as a breaker board clip by cutting it as shown in Diagram 3.

Diagram 1



Important: All board ends meeting the breaker board should be sealed with a water based polyurethane matt exterior varnish to prevent moisture penetrating the core which may cause swelling, cupping or cracking on the edge area.

Diagram 2

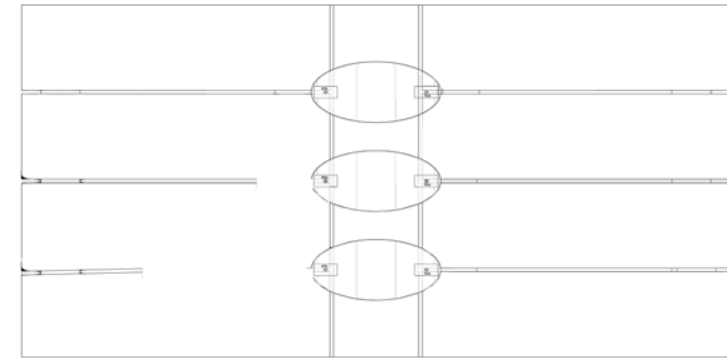
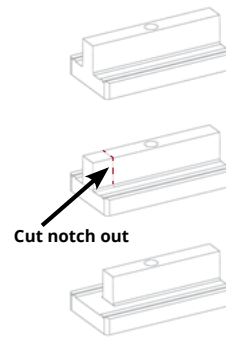
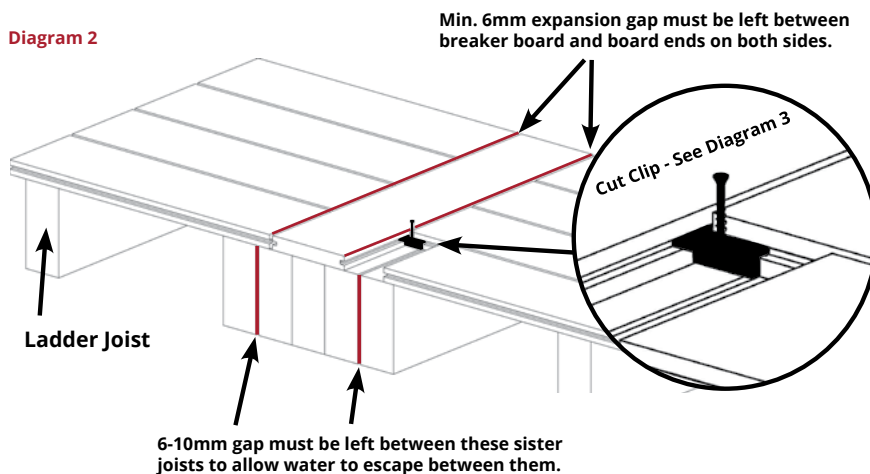
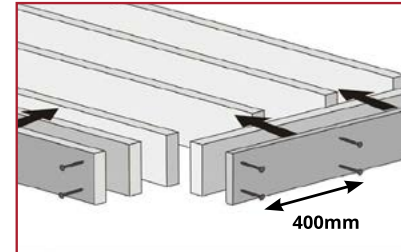


Diagram 3

Fascia Board Installation

Installing against the width and length of decking



Fascia boards need to be fixed at installed on 400mm centres to prevent warping or buckling. All fascias need to use two screws 40mm away from the ends regardless of the thickness.

First, pre-drill the holes for the fascia board. The fascia board should be drilled with slightly bigger holes than the screws or routed to allow for expansion and contraction and fixed either at either end or in the middle. When fixing bigger holes, it is recommended to use washers. The fascia board will be installed into the block wood and through the joist.

Note: NEVER install the fascia by drilling into the decking ALWAYS install the fascia into the joist and ALWAYS pre-drill the fascia with a countersunk hole.

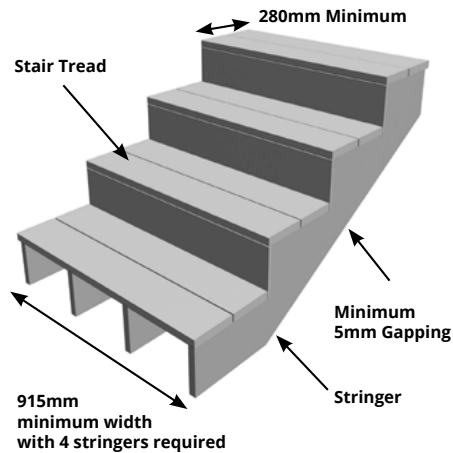
Good ventilation under the deck is key to it performing well in the long term. DO NOT close off air flow around the perimeter of the deck by fixing fascia too close to the ground.



Stair Tread Installation

Stair treads must meet requirements by Government Building Standards - please consult Department of Housing, Planning and Local Government.

A minimum of four (4) stringers are required. Overhang on a stair tread should not exceed more than 16mm. Joist centres on steps are 300mm.



First, determine how many boards your stair is going to take to finish (including clip spacing of 6mm between boards) and then you can start to measure where the starter clip will go. Use a white chalk line (NEVER USE COLOURED CHALK) to ensure that all starter clips are lined up on each joist as shown in **Diagram 1**.

Note: The stair tread board can only cantilever/overhang 16mm. If this is exceeded the warranty will be voided.

Place stair tread board over all the starter clips and push down as shown in **Diagram 2**.

Now that the starter clips are inside the underside of the stair tread, the final step is to push forward to ensure that it is secured into place as shown in **Diagram 3**.

Now take the next board and have it situated behind the stair tread board as shown in **Diagram 4**.

Slide the clips into the two grooves and glide them along until they are on their respective joists and then screwing down onto the joists as shown in **Diagram 5 & 6**.

Finally, finish your last board by face fixing into the board at every joist as shown in **Diagram 7**.

Note: Remember to pre-drill before face fixing into the board. Also face fixing must happen at a 90 degree angle and must be at least 40mm by 40mm from the ends and the width of the board. All pre-drilling must be with a countersunk bit.

Diagram 8 shows a completed staircase from the side to get a better idea of how the final installation will look.

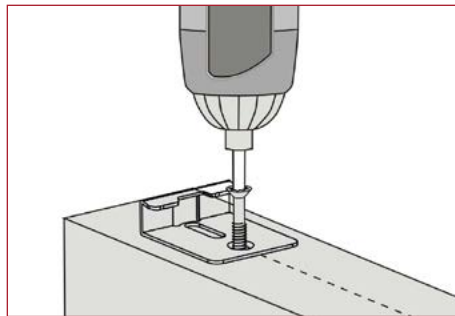


Diagram 1

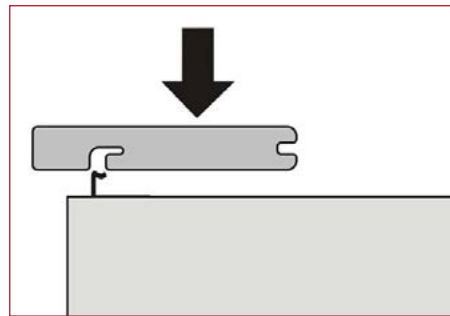


Diagram 2

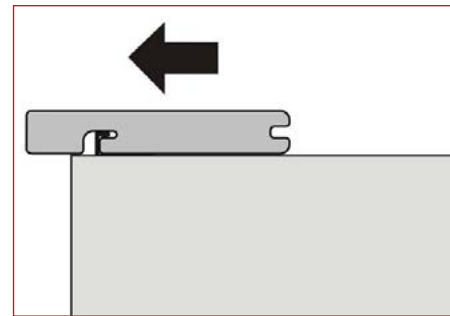


Diagram 3

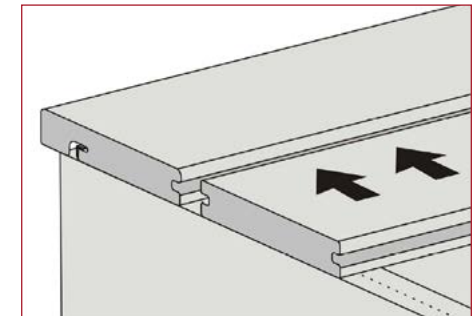


Diagram 4

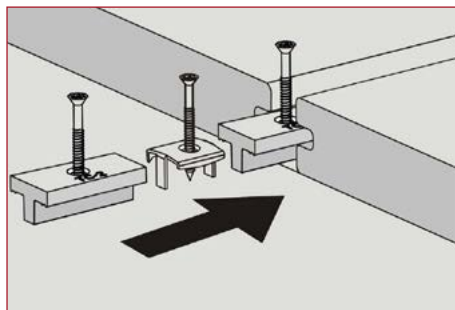


Diagram 5

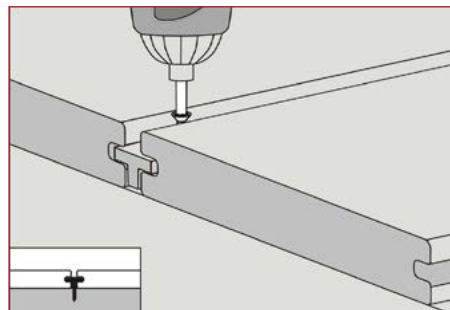


Diagram 6

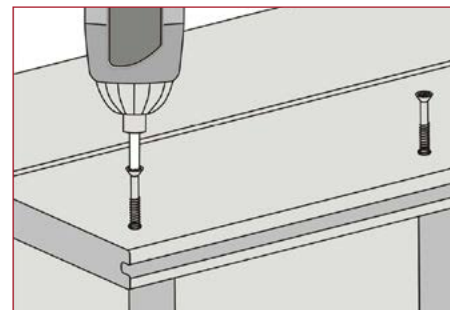


Diagram 7

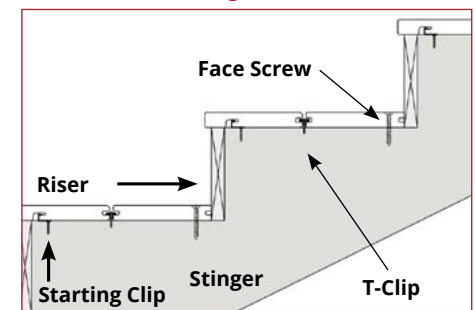
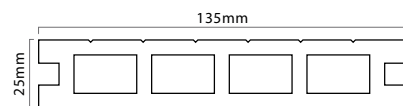


Diagram 8

Technical Data

MONTANA

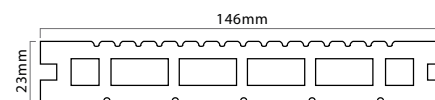
Montana Composite Decking.
Available in Fired Earth, Anthrazit, Charcoal and Soft Grey.



Test Items	Requirement	Result
Max Load	Mean \geq 3300 Min \geq 3000	Mean 4619 N Min 4409 N
Deflections under 500 N	Mean \leq 2.0mm Min \leq 2.5mm	Mean 1.11mm Min 1.14mm
Swelling and Water Absorption	Mean Swelling \leq 4.0% in thickness \leq 0.8% in width \leq 0.4% in length Water Absorption Mean \leq 7% Max \leq 9%	Mean Swelling \leq 0.08% in thickness \leq 0.02% in width \leq 0.01% in length Water Absorption Mean \leq 1.79% Max \leq 1.98%
Creep Behaviour	Known Span in use Mean $\Delta S \leq$ 10mm Max $\Delta S \leq$ 13mm Mean $\Delta Sr \leq$ 5mm	Span: 400mm Mean $\Delta S \leq$ 3.29mm Max $\Delta S \leq$ 3.53mm Mean $\Delta Sr \leq$ 0.74mm
Joist Spacing	Span: 400mm	

ARIZONA

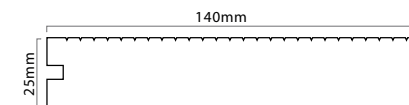
Arizona Composite Decking.
Available in Soft Grey only.



Test Items	Requirement	Result
Max Load	Mean \geq 3300 Min \geq 3000	Mean 3759 N Min 3595 N
Deflections under 500 N	Mean \geq 2.0mm Min \geq 2.5mm	Mean 1.35mm Min 1.44mm
Swelling and Water Absorption	Mean Swelling \leq 4.0% in thickness \leq 0.8% in width \leq 0.4% in length Water Absorption Mean \leq 7% Max \leq 9%	Mean Swelling \leq 0.09% in thickness \leq 0.02% in width \leq 0.01% in length Water Absorption Mean \leq 1.66% Max \leq 1.82%
Creep Behaviour	Known Span in use Mean $\Delta S \leq$ 10mm Max $\Delta S \leq$ 13mm Mean $\Delta Sr \leq$ 5mm	Span: 400mm Mean $\Delta S \leq$ 5.00mm Max $\Delta S \leq$ 5.17mm Mean $\Delta Sr \leq$ 2.33mm
Joist Spacing	Span: 400mm	

NEVADA

Nevada Composite Decking.
Available in Soft Grey and Anthrazit.



Test Items	Requirement	Result
Max Load	Mean \geq 3300 Min \geq 3000	Mean 7716 N Min 7514 N
Deflections under 500 N	Mean \geq 2.0mm Min \geq 2.5mm	Mean 0.72mm Min 0.80mm
Swelling and Water Absorption	Mean Swelling \leq 4.0% in thickness \leq 0.8% in width \leq 0.4% in length Water Absorption Mean \leq 7% Max \leq 9%	Mean Swelling \leq 0.02% in thickness \leq 0.02% in width \leq 0.03% in length Water Absorption Mean \leq 0.1% Max \leq 0.1%
Creep Behaviour	Known Span in use Mean $\Delta S \leq$ 10mm Max $\Delta S \leq$ 13mm Mean $\Delta Sr \leq$ 5mm	Span: 350mm Mean $\Delta S \leq$ 0.98mm Max $\Delta S \leq$ 0.62mm Mean $\Delta Sr \leq$ 1.06mm
Joist Spacing	Span: 400mm	

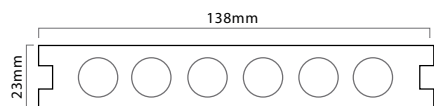
All above tests have been carried out by Intertek Testing Services according to European Standards EN 15534-1: 2014

Decking Calculator (No. of boards required)

Product	10m ²	12m ²	14m ²	16m ²	18m ²	20m ²	22m ²	24m ²	26m ²	28m ²	30m ²	32m ²	34m ²	36m ²	38m ²	40m ²	42m ²	44m ²	46m ²	48m ²	50m ²
Montana	20	24	28	32	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99
Arizona	18	22	26	29	33	37	40	44	48	52	55	59	63	66	70	74	77	81	84	89	92
Nevada	19	23	27	31	35	38	42	46	50	54	58	61	65	69	73	77	81	84	88	92	96

UltraShield® Naturale™

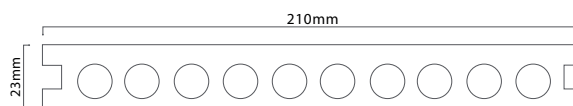
UltraShield Composite Decking.
Available in Teak, Silver Grey, Antique, Walnut and Cedar.



Test Items	Requirement	Result
Max Load	Mean ≥ 3300 Min ≥ 3000	Mean 4090 N Min 3866 N
Deflections under 500 N	Mean ≥ 2.0mm Min ≥ 2.5mm	Mean 1.14mm Min 1.19mm
Swelling and Water Absorption	Mean Swelling ≤ 4.0% in thickness ≤ 0.7% in width ≤ 0.3% in length Water Absorption Mean ≤ 7% Max ≤ 9%	Mean Swelling ≤ 2.40% in thickness ≤ 0.06% in width ≤ 0.08% in length Water Absorption Mean 1.9% Max 2.0%
Creep Behaviour	Known Span in use Mean ΔS ≤ 10mm Max ΔS ≤ 13mm Mean ΔSr ≤ 5mm	Span: 350mm Mean ΔS 2.0mm Mean ΔSr 1.5mm
Joist Spacing	Span: 350mm	

UltraShield® Naturale™ Wide Board

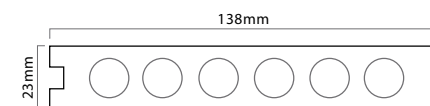
UltraShield Naturale Wide Plank Composite Decking.
Available in Old Mist and Pebble Grey.



Test Items	Requirement	Result
Max Load	Mean ≥ 3300 Min ≥ 3000	Mean 4090 N Min 3866 N
Deflections under 500 N	Mean ≥ 2.0mm Min ≥ 2.5mm	Mean 1.14mm Min 1.19mm
Swelling and Water Absorption	Mean Swelling ≤ 4.0% in thickness ≤ 0.7% in width ≤ 0.3% in length Water Absorption Mean ≤ 7% Max ≤ 9%	Mean Swelling ≤ 2.40% in thickness ≤ 0.06% in width ≤ 0.08% in length Water Absorption Mean 1.9% Max 2.0%
Creep Behaviour	Known Span in use Mean ΔS ≤ 10mm Max ΔS ≤ 13mm Mean ΔSr ≤ 5mm	Span: 350mm Mean ΔS 2.0mm Mean ΔSr 1.5mm
Joist Spacing	Span: 350mm	

UltraShield® Textured

UltraShield Textured Composite Decking.
Available in Sapele and Graphite.



Test Items	Requirement	Result
Max Load	Mean ≥ 3300 Min ≥ 3000	Mean 4090 N Min 3866 N
Deflections under 500 N	Mean ≥ 2.0mm Min ≥ 2.5mm	Mean 1.14mm Min 1.19mm
Swelling and Water Absorption	Mean Swelling ≤ 4.0% in thickness ≤ 0.7% in width ≤ 0.3% in length Water Absorption Mean ≤ 7% Max ≤ 9%	Mean Swelling ≤ 2.40% in thickness ≤ 0.06% in width ≤ 0.08% in length Water Absorption Mean 1.9% Max 2.0%
Creep Behaviour	Known Span in use Mean ΔS ≤ 10mm Max ΔS ≤ 13mm Mean ΔSr ≤ 5mm	Span: 350mm Mean ΔS 2.0mm Mean ΔSr 1.5mm
Joist Spacing	Span: 350mm	

Decking Calculator (No. of boards required)

Product	10m ²	12m ²	14m ²	16m ²	18m ²	20m ²	22m ²	24m ²	26m ²	28m ²	30m ²	32m ²	34m ²	36m ²	38m ²	40m ²	42m ²	44m ²	46m ²	48m ²	50m ²
UltraShield Naturale & Textured	20	23	27	31	35	39	43	47	51	55	59	62	66	70	74	78	82	85	90	94	98
UltraShield Wide Board	13	16	18	21	23	26	28	31	34	36	39	41	44	47	49	52	54	57	59	62	65