



Features and Benefits



- Weathertex is reconstituted hardwood Weatherboards and Panels for the exterior cladding of residential and commercial buildings.
- Weathertex is manufactured from sustainably harvested timber sourced from within 150 km of the factory. The product contains 97% timber and 3% natural wax. It contains no glues, resins, or silica.
- Weathertex has a negative carbon footprint. It contains more stored carbon than is generated during its manufacture. Timber is the only building product that stores carbon sequestered from the atmosphere.
- During the manufacturing process all the sugars and starches are removed from the timber. While this does not make Weathertex Termite proof, it is the last thing that they will eat.
- Weathertex is quick and easy to install with Selflok and concealed fix Primelok Weatherboard systems and the invisible on and off stud joining systems with Weathergroove panels.
- Weathertex is coated with a non toxic acrylic primer that is quick and easy to paint.
- You can use standard woodworking tools.
- Not containing any softwood or glues, Weathertex's water absorption and thickness swell properties are far superior to other timber based Weatherboards and Panels.
- With a presence in the marketplace for over 40 years, Weathertex is proud to offer a 25 year product warranty.

AND THE USE OF TIMBER

Timber is the only building product with a potentially negative carbon footprint ie. it can store more carbon than is generated in its manufacture.

Sustainably harvesting trees is one of the greenest things you can do (under the right conditions) because:

- Carbon sequestration/storage slows significantly when a tree reaches maturity; 25 to 30 years old in most cases
- Harvesting or thinning mature trees lets younger trees flourish and sequester more carbon
- There is no need to replant as natural regrowth replaces trees harvested and maintains biodiversity

Harvesting must be to a standard such as PEFC or FSC and can be from plantation or native forests. This means no high heritage old growth forest needs to be touched.

Timber is used for sustainable purposes in buildings for:

1. Sub floors (joists)
2. Flooring
3. Framing
4. Cladding
5. Trusses
6. Doors/Windows
7. Furniture

Many countries around the world have, or plan to legislate to have, a minimum percentage of timber or a zero carbon footprint for new construction. This is difficult and expensive without the use of timber.

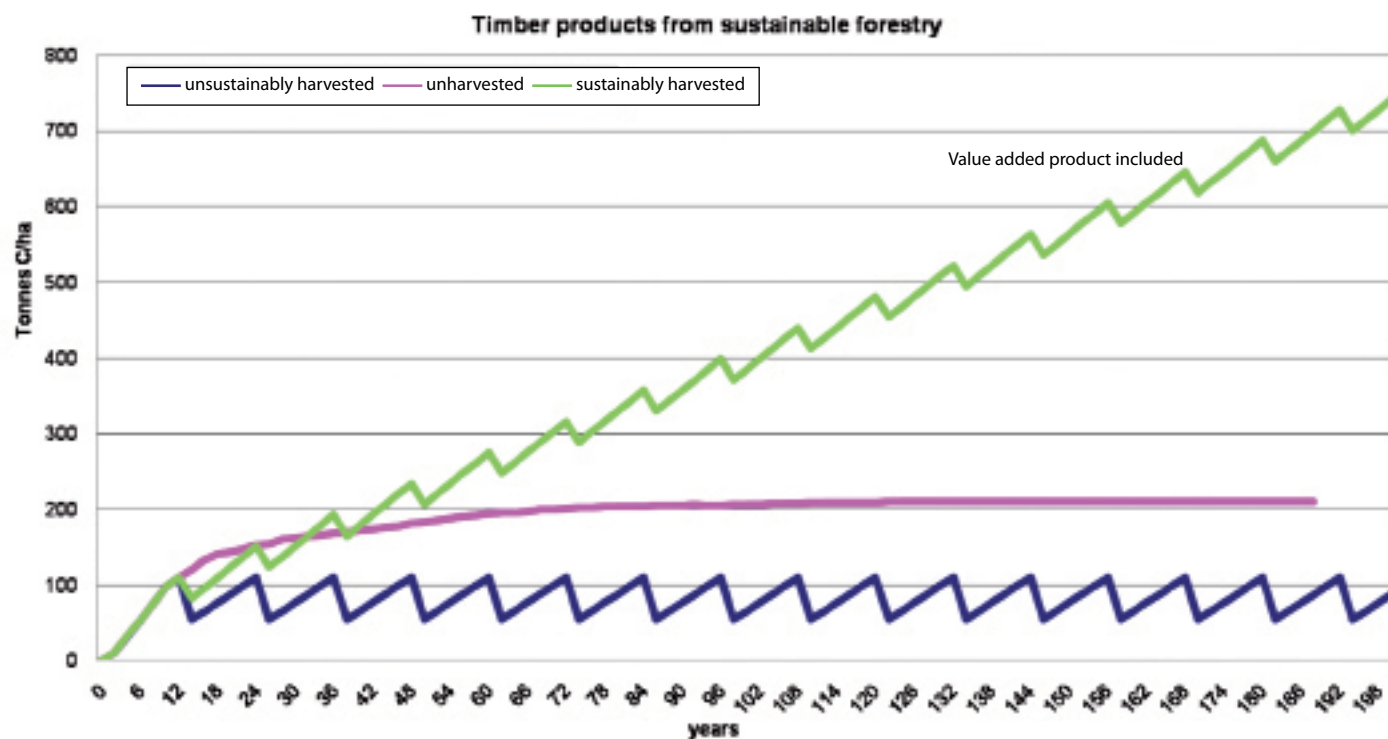
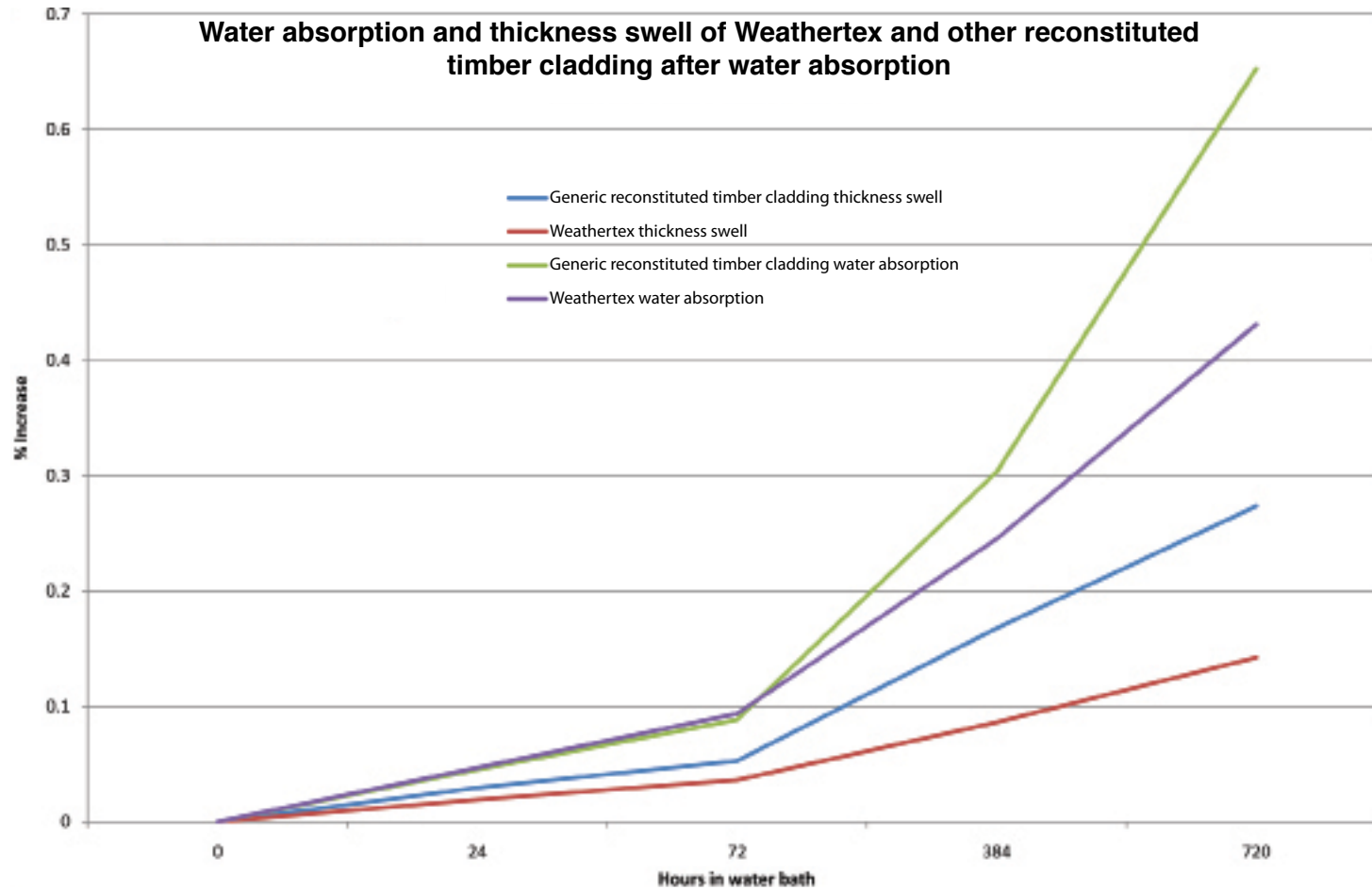
Most non-timber building materials such as fibre cement, brick, aluminium, concrete and glass, have a positive carbon footprint.

BUILDING MATERIAL SELECTION

In the Green Building Council of Australia's GreenStar program, 1 or 2 points are currently available due to selection of PEFC or FSC sourced timber. It is expected that this will increase over the next few years as the above opportunity becomes better known and the introduction of programs that recognise the carbon stored in timber building materials, such as the Ecospecifier Green Tag program, are more widely accepted.

Weathertex is manufactured from pulp wood only. For every tonne of saw logs or poles that are available in our forests there are 6 tonnes of pulp wood available. There is only a market for 4 tonnes, ie. wood chip for paper and Weathertex. The other 2 tonnes are left in the forest to mulch. Therefore, Weathertex utilising this valuable resource prevents its degradation and ensures the carbon the tree has sequestered is locked into this long-lasting product for years to come.

Weathertex is truly a green product which is therefore good for our environment.



Step 1

Weatherex comes from REAL timber... Sustainable plantation and PEFC sources are used.



Step 2

Logs are then reduced to 19mm chips using a high volume chipping machine.



Step 3

The woodchips are then fired, using high pressure steam, through the mason gun, the only one of its type in the world.



Step 4

This is a wet process. After 3% wax is added the fibres are passed through a board machine and reconstituted into what is known as "wet-lap".



Step 5

At this stage the "wet-lap" is approximately 60% moisture and around 35mm thick.



Step 6

The "wet-lap" is then fed into the hydraulic press for 30 minutes where steam platens "cook" the finished sheets.



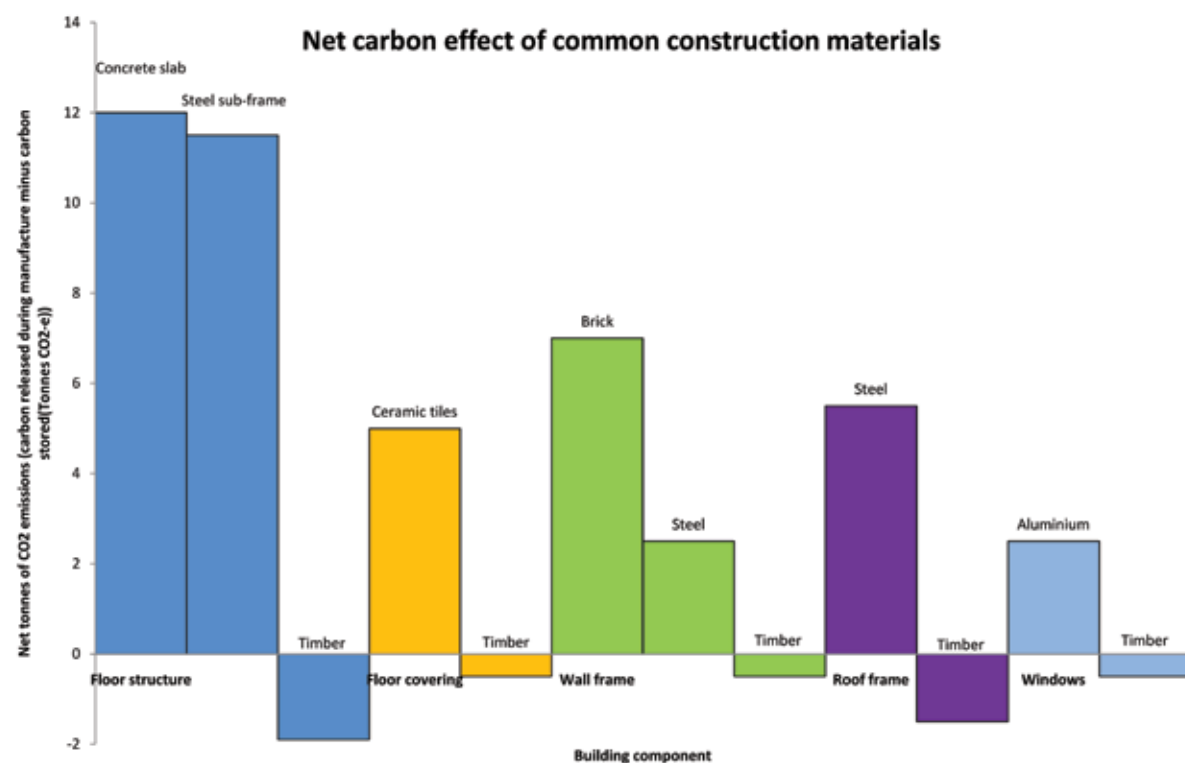
Step 7

Stainless steel plates are used in the press to emboss the easily recognised textures of our feature sheets.



Step 8

The sheets emerge from the presses having been reduced to around 10mm thick.



Carbon in timber products

Material	Carbon Released (kg/m ³)	Carbon Stored (kg/m ³)
Sawn timber	15	1650
Steel	19500	0
Concrete	440	0
Aluminium	80500	0

Factory Process

Step 9

After being sorted into textures, the sheets are then humidified and processed through the planer, to ensure all sheets are 9.5mm thick.



Step 10

Now 9.5mm thick, the sheets are ripped into profile widths using the multi-saw system.



Step 11

The sheets have now become a Weathertex profiled Weatherboard, and receive their first primer coating.



Step 12

The boards then enter the infra-red ovens to cure, where they reach temperatures in excess of 70°C.



Step 13

Our quality control teams then grade the boards as they exit the paint line.



Step 14

Weathertex's innovative "Primelok" systems utilises a special spline machine to insert the spline into the board.



Step 15

Almost ready for despatch, Weathertex is then packed and wrapped using an orbital plastic wrapping machine.



Step 16

Safely packed it is now ready to begin the journey to warehouses and building projects throughout Australia and the World.



Weathertex General

1. What are the main ingredients of Weathertex?

Australian hardwood timber, a small quantity of petroleum wax (<3%), white acrylic primer applied to the surface.

The accessory products are made from a range of materials including PVC (poly vinyl chloride), aluminium and galvanised steel.

2. How do you get the timber grain pattern into the surface of the product ?

This is pressed into the board using a plate in the presses. Similarly, the smooth surface is pressed onto the board.

3. What standard does Weathertex comply with?

AS/NZS1859.4:Wet – Processed Fibreboard.

In addition, the process is certified to the ISO9001 standard for manufacturing and has been under this system for over 15 years. There are numerous other standards that the product meets or is compared to for its performance, including: New Zealand Building Code, thermal insulation, bush fire standards, noise insulation, bracing and use in high wind zones.

4. What is Weathertex's Carbon Footprint?

Weathertex has recently undergone an environmental audit of its processes. This process confirmed that the carbon emissions created at the factory during the manufacturing process are less than the carbon stored within the final product. Weathertex are proud to be providing a product which is sustainable and helping to save the planet.

5. What thickness is Weathertex?

All Weatherboards and Architectural Panels are 9.5mm thick. Some products are milled at different points to a thickness less than this.

6. Where does the timber that is used in Weathertex come from?

The timber used is brought in as round log. It is all hardwood. It is a selected mix of species (gums, ironbark, blackbutt, mahogany, stringybark) which lend their natural characteristics to the final product (eg ; product durability, expansion / contraction, water absorption). The timber is mostly sourced from Forests NSW with some private timber as well. Forests NSW timber is certified under the Australian Forestry Standard AS4708. Weathertex carries this certified timber through its chain of custody certification, which means that some of our products carry the PEFC (Programme for the Endorsement of Forest Certification Scheme) logo and certification.

7. What does the Warranty cover?

The warranty covers the board against cracking, splitting and rotting. Some products are supported by other warranty terms. See www.weathertex.com for full details.

8. What surface patterns of board are available?

Smooth, Ruff sawn, Ruff-X and Woodsman.

9. What lengths / widths of board are available?

Sheets – ExteriorBoard and High ImpactBoard are 1220mm wide. Weathergroove is 1196mm wide. Various lengths are available including: 915mm, 1220mm, 1830mm, 2440mm, 3050mm and 3660mm.

Planks – all planks are 3660mm in length. Different profiles have different widths, including: 168mm (170), 197mm (200), 298mm (300), and 145mm (150). Not all widths are available in all markets.

10. What does Weathertex weigh?

One, 3660 x 1220 sheet = 50kg

One, plank of Millwood = 10kg

One, plank of Federation = 6kg

11. What is a datum line ?

The datum line is a level from which all other levels can be measured. Usually set at the base of the lowest plank, a string line together with a spirit level can be used to set this. Also, laser levels can be used for this purpose. A water level is also useful. Commonly a position on the bottom building plate is selected for this purpose because it can effectively be marked for future reference in the building process.

12. How many joiners are in a pack?

Architectural Panel joiners come in packs of 5, while Weatherboard joiners come in packs of 25.

13. What is the R-value of Weathertex?

Weathertex's R-value in isolation is 0.05m²K/W. In combination with other insulation products, higher R-ratings can be achieved.

14. Does Weathertex provide bracing for my structure?

When fixed according to normal specifications the Weathertex Sheets provide bracing to the structure at the levels explained in the Installation Guide. Weathertex planks also provide some small bracing, however at a lower level, than sheets. Your architect or designer should provide calculations for your whole structure during the design process.

15. Can I use Weathertex close to other building structures?

Generally this is a question for council. Weathertex, when installed over fire retardant layers such as a fire resistant gyprock, can provide sufficient protection to meet various codes or council requirements. Please refer to the Weathertex technical guide for building in fire zones.

16. I am building in a bush fire prone area, can I use Weathertex as the external cladding?

The Australian Standard AS3959-2009: Construction of Buildings in Bush fire Prone Areas, provides the framework for what is now acceptable in building throughout most of Australia. Weathertex is suitable for use in BAL-LOW, BAL-12.5 and BAL-19 construction levels. Consult your council for further information regarding what is acceptable for the region.

17. Is Weathertex termite proof?

It is considered that where the Weathertex has been used in combination with other, more nutritious, cellulosic materials (eg; sawn timber framing, decking, skirting etc) then these materials are the preferred target for termite attack.

This has been proven in an experiment performed at a test site where the Weathertex sample specimen, in a comparison to other hardwood timber sample specimens, survived measurably better over the test period.

FRAMING

18. Can I install Weathertex on steel framing?

Yes. Steel gauge ranges from 0.5mm to 2.5mm, and there are also a variety of cross sections that are available. Both nails and screws can be used to fix Weathertex to steel frames; depending on the frame thickness. Wind lift off results vary depending upon the frame and type and number of fixings used. Refer to manufacturer's requirements and Weathertex Installation Guide for specific details of what can be used.

19. What support should I have behind my Weathertex?

In general, planks may be installed across studs which are set at 450mm or 600mm centres. Unless the planks are to be joined on stud, on a wall less than 5.5m long, they must be joined using a joiner so that the ends can be maintained in alignment, and the join is correctly flashed against moisture.

For sheets, 450mm and 600mm stud centres are also applicable. However, if joining off-stud, noggings must also be in place every 750mm to maintain flatness in all directions across the sheet.

20. How close to ground level can I install Weathertex?

A minimum of 225mm above unsealed surfaces and 150mm above sealed surfaces. Also, the possibility of water pooling at the base, or running onto the wall, must be assessed and built out of the design to avoid occurrence.

UNDERBOARD

21. Why should I use perforated sarking behind the Weathertex?

Water moves into and out of the home through ventilation systems designed into the structure. Sometimes these ventilation systems are either ineffective or non-existent. When this is the case, the water will find another way to move through the wall. This is most likely to be directly through the building layers. With changes in humidity and temperature, water vapour will condense on some surfaces and saturate the building layers. The perforated sarking is still largely impervious to the flow of water but allows opportunity for the water to escape, as it vapourises again, through the small holes in the sarking. For the same reason sarking which is a water / vapour barrier cannot be used as water does not have a path to escape in an acceptable time period.

22. Why should I use a cavity fix installation technique?

As opposed to sarking, Weathertex Wrapshield is a breather membrane through which vapour can move freely. In place of condensing on the sarking, the vapour will condense on an alternative surface which is most likely the inside of the cladding. However, because a cavity has been designed directly behind the cladding, this condensation is able to vent immediately to the atmosphere, and the building structure layers will dry in the shortest period possible. This ensures that there will be no moisture accumulation that could cause damage over a long unmanaged period of time. In addition to the breather membrane, cavity battens, cavity closers and longer fixings will be required to properly install the system.

23. What is thermal break?

With steel frames, heat conductance through the frame is rapid and occurs easily. A thermal break slows the conductance of heat through the frame between internal and external environments. This reduces an effect called ghosting which is visible on the outside wall on a dewy morning. Weathertex recommend, prior to considering the use of a thermal break, that the holding power of the fixing is not compromised. Some thermal break materials are flexible which will cause the Weathertex to sit free from the frame and potentially in a loose position.

FIXINGS

24. What nails can be used to install Millwood?

Generally, 50mm x 2.8mm Countersunk head galvanised are suitable. These are as supplied by Weathertex. Alternatively, nails with the equivalent dimensions and corrosion protection characteristics are acceptable. Nails with ring shanks have better holding power in

timber frames.

Gun nailing – there are a wide variety of nails in this range. Maintain the basic dimensions as described above. The difference will be the type of shank available (ring, twist, etc). All of these are designed for better holding power on steel frames, but the same works for timber frames. Make sure that the gun pressure is right. Over driving causes the nail head to penetrate the surface and weakens the holding power. Under driving creates loose boards. It is acceptable to under drive the nail and tap home with a hammer. D-heads are not recommended as they are less aesthetically pleasing. In addition, in high wind areas D-head nails have reduced holding power.

Screws – ITW Buildex Countersunk Rib Head Wingtek screws (class 3) No.8 – 18mm x 35mm or equivalent are suitable. Screws provide for improved holding power. It is necessary to pre-drill and countersink prior to screwing. Otherwise, a mushrooming effect will be created around the screw head. Filled screw holes need to be sanded, repaired, filled, and reprimed prior to top coating.

In some high-wind areas, specific fasteners are required. See the Weathertex Installation Guide for information about fixing in high-wind areas.

25. When building a home within 500m from the beach what type of fastener should be used?

This area is corrosive to some materials. All fasteners should be suitably coated to withstand these conditions. Stainless steel or Class 4 screws may be suitable, but the advice of the fastener supplier should be sought.

26. If packers have been used on all studs, should the nail used change?

Yes. The length must increase by the thickness of the packing material to ensure that the same holding power is achieved. This will ensure that wind lift off specifications are still able to be met.

27. Can I countersink fixings and fill the holes effectively?

Yes. Initially, the sheets should be predrilled and countersunk before inserting the screw fixing. The screw fixing should be sunk tightly, up to 2mm below the surface of the Weathertex, so that the board is held tightly in place and the fixing is not loose. Use a single pack, high quality, flexible and paintable filler material. The filler should be forced into the hole from various angles to ensure that the whole space is filled, prior to trowelling off and allowing to dry before sanding flat. Two passes of the filler, with sanding between and after, is the most effective method. After sanding, a solvent based undercoat is most effective in sealing any raw board which may have become exposed during the process.

PLANKS

28. What is a Primelok Starter Strip?

This is a colorbond metal section which is used as the starting point for the first row of all Primelok products. It is placed at the datum, starting line, and the first plank spline is pushed over the hook part. It is supplied in lengths approximately 1800mm long. It is not structural, as it is only to position the first row of planks which are held in place by their own fixings. Starter strip fixings should be 30mm x 2.5mm galvanised flat head nails positioned every 300mm along the starter strip.

29. What is a storey rod or a step gauge?

These items are designed to ensure that the spacing between planks up a wall remains constant throughout the building process. Also, by using joiners, which lap the product below, the spacing can be kept consistent. Both Selflok and Primelok products are designed with self aligning capability. Care should still be taken to ensure that the product lines up as accurately as possible, as small variations in product and conditions are cumulative when moving up a wall.

30. How many Millwood planks will be required to clad a wall 10.4m long and 3.16m high?

Using the Wall Height Calculator in the installation guide, and the knowledge that a board is 3.66m in length, you will need 36 planks. You will need to cut the top plank down and only use part of it. You cannot modify the overlap as, in a classic plank, the look will change. Also, you will have 0.48m off cuts left over because of the length difference.

31. How many Classic Smooth 200mm planks are required to clad a wall 7.2m long and 2.95m high?

Using the Wall Height Calculator in the installation guide and the knowledge that a board is 3.66m in length, you will need, 34 planks. Note, you would have to modify the top plank to keep the required 20mm plank overlap or otherwise change the overlap to approx. 25mm. This will allow 14 planks to be fully used up the whole wall.

32. When building should I line up all my joiners to make the building easier?

It is best to keep the joiners staggered. Alternatively, if joins can be located behind external fittings, eg; downpipes, water heaters etc., then visible joins can be minimised.

33. When installing Rusticated or Classic planks how do you install the first row of planks?

This product is installed as a normal lapped product where each row is overlapped on the row immediately below it. If this first row is

installed flat, then the joiner will not be able to be used without cutting the back leg off the joiner and the angle difference of the bottom board may be noticeable. To get the angle right, produce a strip of Weathertex approximately 35mm wide and attach this 5mm up from the datum.

34. How do planks join at external corners?

The most efficient and aesthetic means of treating corners is the installation of an anodised aluminium external corner (large box or small box style). These have neat wings as part of the design so that small differences in the cut ends may be masked by the overlapping cover of the corner design. These joiners also provide flashing for the structure which is suitable for most applications.

Alternatively, wood stop joiners as described below may be used.

Millwood and Old Colonial are flat products, and will meet each other square if allowed. Lapping products such as Classic, Rusticated and Primelok will not come together square at a corner unless they are splay cut. Beneath the boards, a damp course (flashing) should be applied to prevent water ingress. A wood stop (can be any size according to personal preference) can be used on the corner. This can be installed after the planks have been put into place. Provide a 3 mm clearance to the wood stop. This should be filled with a flexible and paintable sealant.

SHEETS

35. What is the difference between ExteriorBoard, High ImpactBoard and SignBoard?

ExteriorBoard is high density Weathertex which is designed for exterior use. ExteriorBoard can be identified by its green edging.

High ImpactBoard is high density Weathertex which is designed for interior use only.

SignBoard is a lower density product which does not have the full characteristics of other Weathertex products and does not carry a warranty.

Each product is labelled accordingly, on its back along with other normal identifier coding.

36. When installing Weathergroove, can I nail in the grooves?

Weathertex does not recommend nailing in the grooves. It is very difficult and the risk of damaging the sheet is high. (Refer to the Weathertex Installation Guide.)

37. Is there a certain nailing pattern I must use when installing sheets?

Yes. The nailing / fixing pattern is important when installing sheets

(Weathergroove, ExteriorBoard, or High ImpactBoard). Fixings are required to hold the sheet flat, achieve wind lift off specification, and provide bracing to the structure. Fixings should be 45 – 50mm in length. Fixings should be spaced no further than 150mm apart around the perimeter of the sheet (or the nearest edge to the perimeter if nailing off stud) and no further than 300mm apart throughout the centre of the sheets. Fixings must also be no closer than 12mm from the edge of sheets.

38. Why do I need to use double studs when installing ExteriorBoard?

ExteriorBoard must be installed by fixing around the edge of each sheet. When the Deep Channel Joiner is used, this provides for a gap between boards of about 12mm. When you also consider that fixings must be set back at least 12mm from the edge of the sheet then this means that the fixings will be at best 36mm apart. Normal studs are 45mm wide which means that the fixing will be dangerously close to the edge of the stud and at risk of missing the stud or compromising the holding strength.

BOARD JOINING

39. What is the Weathergroove Horizontal joiner?

Two styles are available, the PVC and anodised aluminium Z style. Both styles have been designed to provide for an expansion joint between adjacent sheets, and to flash the bottom sheet against moisture ingress.

40. How do you cut a joiner?

Normal wood working tools or a Stanley knife or hacksaw blade will work.

41. How is a Weathergroove joiner different from a SignBoard sheet joiner?

The Weathergroove joiner fits onto the grooved sections of Weathergroove and has a front face equal to the width of the groove (ie; 12mm). The SignBoard joiner fits over the top of the board that is 9.5mm thick and has a front face that is 25mm wide. This joiner also sits proud of the board surface.

42. When should joiners be installed?

Joiners must be installed as you build. To put them in later is difficult and may not provide the full benefit that the joiner design was originally capable of.

43. To what extent does board expand / contract?

Board expansion and contraction is mostly about the gain and loss of water, respectively. Temperature effects are minimal in this regard

when compared to water effects. Under the extremes of humidity that the board is likely to experience in use, the full length 3660mm board could expand and/or contract by as much as 9mm. To minimise this effect, more studs and more fixings will assist as they restrain the subsequent board movement. When fixed properly, the movement in the plank should be reduced to a maximum of around 2 – 4mm.

44. On a traditional H-style joiner, what is a nib or a wing?

The nib is a small device which prevents the planks from being placed directly against the spine of the joiner during installation. The plank meets the nib during installation and provides a gap to the centre spine. (There are two planks in play, one on each side of the joiner.) During its life, the plank will expand and contract due to moisture uptake and loss, respectively. When the plank expands, it will push over the nibs and move towards the joiner spine but will avoid buckling of the product. If the product contracts, it will move away from the spine but remain within the joiner. If this contraction occurs after painting, a white line may appear usually along one side of the joiner. This is the primer on the board which was not top coated during the original paint application.

H-joiners for sheets (except for the Weathergroove joiner) have a wing attachment, on either side of the centre spine, which keeps the boards separated. Upon any expansion, the wings can collapse to allow for board movement without board buckling effects.

45. What happens if the board is tightly installed and then it takes up moisture?

When moisture is absorbed, the board will expand and begin to push into the board adjacent to it. It could then buckle in or out of its normal alignment. To avoid adverse effects, an expansion gap must be maintained, or a correctly installed joiner put in place.

46. When should the ends of boards be primed?

The boards are supplied fully primed. When cut, there is an exposed timber surface. All cut surfaces must be primed for future protection.

47. What type of gap sealant should be used between planks?

A high quality sealant which has been manufactured for the purpose. The sealant used must possess high flexibility and be paintable. Even the best sealants are only capable of expanding / contracting 40% before failure. Therefore, a 2mm filled gap will only go to 3mm before it will fail, or be crushed down to 1mm before it gets pushed out. Either of these events will likely crack the top coat paint layer. We have found that Sikaflex PRO 2HP or Super Seal HPR25 are the most suitable products.

48. When is butt joining of planks acceptable?

This is only acceptable on-stud and on walls no longer than 5.5m;

this equates to one and a half normal plank lengths. The cut ends must be primed. During installation the ends should be brought into contact and then backed off slightly (ie. a gap of about 6mm) before filling the gap with a suitable sealant. This should provide a join with enough scope to expand and contract effectively during service.

49. How do planks join at internal corners?

The best method of dealing with internal corners is the use of anodised aluminium corner moulds. These are available in two sizes, one to cater for board thicknesses of 9.5mm (ie. Millwood, Old Colonial and Weathergroove), and the other to cater for overlapping boards giving a thickness of up to 19mm (ie. Classic, Rusticated and Primelok).

50. What joiner would be recommended for my job?

There are usually several joining options available for most jobs. The most effective method is using a joiner which can cater for movements in the product or frame during service. The traditional H-style joiner, which provides back flashing and a front surface, is still the best joiner for the purpose. This joiner allows the product to expand and contract within a defined boundary, and with the least amount of worry regarding water penetration or ongoing maintenance. The concealed joiner system has been developed to provide a more seamless look to the range of products. The joiner allows for a gap of at least 6mm between boards which must then be filled with a suitable sealant (Sikaflex PRO or Fuller Super Seal HPR25 are appropriate).

PAINTING

51. What types of paints can Weathertex be painted with?

Mostly people will apply a modern water based paint (acrylic). Higher quality paints will always give a better end result. The product can also be painted with solvent based paint (enamel), but this is becoming rarer. (Refer to Weathertex Painting and Staining Fact Sheet.) All paints must be external paints.

52. What happens when you paint Weathertex with dark colours?

Dark colours are highly absorptive of heat radiation. The heat difference of products painted white and black can be as much as 20 Degrees Celsius. Because of this heat difference, the moisture content of the board can be affected which leads then to expansion and contraction of the product. The joiners are made from PVC. At high temperatures the stability of the joiner is effected and it may distort. It is recommended to paint Weathertex a lighter colour rather than a darker colour (if possible.)

53. Do I have to use a joiner?

You do not have to use a joiner if you make a join on a stud on walls

Weathertex General

shorter than 5.5m. Using a joiner will ensure that the two neighbouring sheets / planks will be adequately aligned for their service life. It also gives the most protection from water seeping between the sheets and moving into the cavity.

MAINTENANCE

54. How do I remove the mould from my boards?

Mould is usually a factor of the environment, and attaches to the paint surface when the conditions are conducive to mould growth. The use of a dilute bleach solution will remove mould from the surface and should not damage paint work. Immediately rinse the area with water. It is advisable to test the technique on a small section first to ensure that the end result will be acceptable.





Peter Downes Design - Millwood Smooth



www.weathertex.com.au

Ph: 1800 040 080

Int. Ph: +61 2 4980 3100

Distributed by:



* Refer to the Weathertex Manufacturer's Warranty Conditions

"Weathertex", "Primelok" and "Selflok" are registered trademarks of Weathertex Pty Ltd. ABN 67 084 713 986

The information in this manual related to Weathertex's product as developed and manufactured at the time of printing. Importantly, Weathertex follows a policy of continuous product testing and improvement. For this and other reasons Weathertex reserves the right to make any changes or modifications to this manual and any other relevant document as and when it considers necessary and without notice. Accordingly, users of Weathertex's products are encouraged to regularly contact Weathertex to obtain the current manual.