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# Installation Guide

## Altro Fortis Titanium™ 15

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# Altro Fortis Titanium™ 15 Installation Guide

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Altro Fortis Titanium 15 semi rigid extruded PVCu wall cladding can be used in busy public areas subject to impact and scuff damage. The cladding system has excellent adhesion properties to all suitable sound substrates used for internal wall construction. It is suitable for new and refurbishment building projects.

AltroFix Fortis double side tape and adhesive are supplied to fix the panel.

Silicone sealant is available in co-ordinating colours.

Altro Fortis Titanium 15 is a no trim, no accessory and no weld system. Colour matched mastic is available (supplied by others) for jointing and finishing.

## Description

Panels are 1.5 mm thick and are available in 3000mm length x 1220mm height.

The panels are supplied with a protective film on the face which can be left in place until the area is ready for use. This also helps protect the new surface from dust while other trades are working in the area.

Altro Fortis Titanium 15 PVCu panels have a maximum service temperature of 60°C.

Although the panels can be applied in most areas, they should never be installed near to a direct heat source (cookers, oven ranges, wall mounted griddles etc) where naked flame or severe heat would cause distortion or damage to the surface.

For these situations, Altro recommends using stainless steel panels.

## Surface Preparation

All surfaces must be smooth, sound, dry and free of contamination. If necessary, the walls should be cleaned down prior to the Fortis Titanium 15 installation. The working environment must also be clean and dust free. Failure to comply with these conditions will reduce the bond strength between adhesive and substrate, and may cause the panels to de-bond.

- Porous substrates (particularly plaster finishes) must have a proprietary sealer (e.g. Bondcrete) applied to the surface 12 hours prior to the installation. The sealer should be used in a diluted ratio of 1:10. Follow manufacturer's instructions.
- All substrates to be dry to 16% WME on Protimeter 'Surveymaster' equipment.
- All loose flaking paint and dust to be removed.
- Friable surfaces to be removed or made sound using proprietary surface treatment.
- All surfaces must be smooth, solid, sound, clean and permanently dry. All paint, oil, grease, excessive dust, curing and parting agents or any other contaminants liable to impair adhesion, cause discolouration or any other detrimental effect must be removed, prior to application of the wall-covering.
- All electrical switches, power points etc should be in a first fix state where possible. All electrical equipment should only be moved or altered by a qualified electrician.
- All plumbing, if possible should have pipework removed to a first fix state and "tails" left protruding from the substrate. Fortis Titanium 15 panels can then be drilled and slid over the pipe "tails". All holes should be drilled 3mm oversize to allow for expansion. Plumbing should always be carried out by a qualified plumber.
- Hot pipes and steam pipes should be insulated and a 3-5mm expansion gap should be created when installing panels around these pipes.
- All pipes, fixings bolts etc: fixed through the Fortis Titanium panels should have minimum 3mm expansion gaps and be sealed using silicone sealant.
- Panels should stored flat and be pre-conditioned and acclimatised for up to 8 hours in ambient temperatures similar to the prevailing operational conditions.
- The panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces). Storage on un-even surfaces could cause the panels to distort prior to installation.
- Walls should be level. High points must be removed and low points filled with an approved filler.(consideration should be taken that if the walls are outside Australian Standard guidelines then dry lining or rendering with sand & cement or hardwall plaster should take place.

## AltroFix Fortis Contact Tape

### Preparation

The panels can be fixed to most smooth, sound and dry substrates with AltroFix Fortis Contact Tape.

### Processing/Handling

AltroFix Fortis Contact Tape should be applied to all perimeters of the Altro Fortis Titanium 15 and in a grid pattern at a minimum 500MM centres. Apply the Fortis Contact Tape to the wall or on the back side of the Altro Fortis Titanium 15 (preferred) and press on firmly, roll using a hand roller.

Remove silicone release paper from Contact Tape and apply the Altro Fortis Titanium 15 to the wall without tension. Roll the Altro Fortis Titanium 15 firmly into place with a steel seam roller.

The contact tape adhesive bond gets stronger through rolling and also ensures the material is firmly bonded in place.

The adhesive bond will get stronger over time.

To achieve a permanent bond, work in accordance to these installation instructions.

## AltroFix W157 Acrylic Adhesive

The panels can be fixed to most smooth, sound, dry and porous substrates with AltroFix W157 single part Acrylic water based synthetic polymer emulsion adhesive.

### The adhesive is available in:

- 4kg unit (ref: A818/04) for 3000mm panels

A low speed electric drill with mixing paddle attachment should be used to ensure the adhesive has a smooth creamy consistency for easier trowelling.

Once mixed, the adhesive should be applied to the (pre-cleaned) back of the panel with a 3mm x 3mm notched trowel.

Note: AltroFix W157 is not suitable for fixing to non-porous substrates.

Appropriate P.P.E must be worn at all times.

Please ensure you follow the installation guidelines carefully to ensure best results.

## Suitable substrates/fixing methods

Wall substrate must be straight to within 3mm over 2 metres.

Substrate	AltroFix Fortis Contact Tape adhesive system	AltroFix W157 Acrylic adhesive system
Gypsum Board 12.5mm (c)	T	T
Minimum 9mm WBP Plywood*	T	T
Metal	T	
Plaster (a)	T	T
Cement Render (a)	T	T
Painted (b)	T	

(a) = Surface should be dry. If in doubt test with a protimeter, which should give a maximum reading of 16% WME wood moisture equivalent. Plastered surfaces must be sealed with diluted PVA (or similar) before cladding.

(b) = A bond test is advisable to check adhesive does not react with paint

(c)= W157 should not be used for bonding to moisture resistant substrates.

For other substrates please contact Altro for specific advice.

## Installation temperatures

Altro recommends the PVCu wall cladding panels are installed at approximately the same ambient 'service temperature' at which the area will be used when commissioned.

A minimum temperature of 14°C/57°F is recommended for all installation areas.

AltroFix adhesive must never be used below +5°C.

Panels should be stored flat and be pre-conditioned for up to 24 hours to attain the ambient room temperature prior to the installation.

The panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces).

Storage on un-even surfaces could cause the panels to distort prior to installation.

Please ensure you follow the installation guidelines carefully to ensure best results.

## Tools and equipment

In general, the main tools required are similar to carpentry hand tools. Below is a list of tools that you may find an advantage to have for the installation.

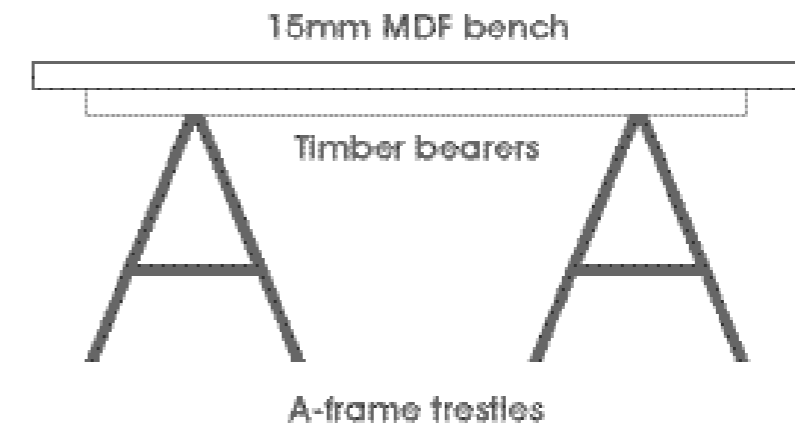
- 1 metre & 2 metre spirit levels
- Stanley knife
- Square
- chalk line
- Laser level
- Adjustable block plane
- 5m tape measure
- Hole cutters
- Scrapers
- 50mm paint brush / 100mm paint roller
- Good quality mastic caulking gun
- mixing paddle
- Biro pens and pencils
- Water based markers
- Hand roller
- 3000mm rigid straight edge
- Circular saw with T.C.T fine tooth blade and pressure guide for cutting
- Low speed electric drill (for mixing/stirring adhesive)

### Safety equipment:

- Barrier cream
- Goggles / safety glasses
- Protective gloves
- face mask (nose / mouth protection)
- Hard hat
- Safety boots
- Hi-Viz safety vest

### Other essential equipment:

You will also need a 3.0 x 1.22m workbench made from 15mm MDF board (or similar), with support bearers to prevent the MDF from bowing in the middle. The bench provides an excellent work surface for the panels which are 1.220m x 3.000m.



## Safety information

Apart from the normal health and safety rules employed within the construction industry, the following points should be noted:-

- Safety information displayed on the tubs and containers supplied by Altro must be strictly adhered to.
- Safety eye wear must be worn during cutting of materials, mixing of adhesive, cleaning and preparation of site, and where necessary to adhere to site regulations.
- Use face masks
- Display prominent safety signs when using hazardous materials, and to warn of a working area.
- Ensure good ventilation within the work area.
- Remove and dispose of all waste sensibly and carefully as per site instructions. Contact Altro on 1800 673 441 for all MSDS (Material Safety Data Sheets) and OH&S requirements.
- Apply barrier creams, and wear protective gloves when stirring and applying AltroFix adhesives.
- Keep the working area clean and tidy.

## Workstation

Set up a 'workstation' in close proximity to the area to be clad. A minimum area of 4m x 3m will be required to set up your work bench area.

Adjacent to the workstation, set up a 'glue-station', where all the stirring of adhesive takes place. The floor area in this location needs to be protected with cardboard (or similar) to prevent splashes of adhesive getting onto the floor.

If an existing or new floor has been laid prior to the cladding, it is essential to protect the floor around the work bench and the 'glue-station' where adhesive may get spilt.

The 'glue-station' is also where the trowels and mixing paddles are cleaned regularly to prevent a build-up of excessive adhesive on the tools.

**Please note:** If the adhesive gets on the floor and is allowed to set, removal can be difficult. Therefore if a spillage or splashes occur, they should be wiped up immediately.

### Setting out

- Firstly, check out the room which is to be clad, paying particular attention to the corners, window reveals, and door entrances. These need to be inspected to ensure they are straight, and free of any building waste which could prevent the panels lying flat to the substrate after the adhesive has been applied and the panel is installed.
- The wall surface must be clean prior to installation (if necessary, contact Altro Technical for specific recommendations on cleaning and preparation).
- Once preparation has been completed a datum line (horizontal top installation line) must be installed on the wall. The datum line is used for the calculation of measurements for the height, sockets and pipes etc: and to ensure the panels are 'plumb' as the installation proceeds. Use a laser level to apply the datum line accurately.
- The datum line height (from subfloor) should be calculated to allow for the appropriate skirting height where the bottom of the PVCu panel meets the specific floor finish (sheet pvc flooring, quarry tiles, pvc sit-on skirting etc). Note: Ceramic tile skirting must always be installed before the wall cladding is fitted.
- A series of 'check measurements' should be taken around the room from datum to subfloor to ascertain the 'average' height of the datum line.
- The datum height (minus the appropriate floor skirting height) will eventually be transferred on to the face of the PVCu wall panel. This will enable all subsequent measurements to be processed from the datum line on the panel.
- Once all measurements have been taken from the wall, they can then be transferred on to the panel. When the panel is eventually fitted to the wall, the top edge of the panel must line up with the datum line on the wall.
- After installing the datum line and calculating the average height, you must then plan the 'layout' of the PVCu Fortis Titanium 15 panels. This ensures the best layout of the panels and minimises the number of joints used in the system.

### AltroFix Fortis Contact Tape installation system

**Note:** This installation system is for areas of low frequency and low impact resistance.

Double sided tape with primer/sealer application (diluted PVA or Bondcrete similar)

- Prior to the installation of Fortis Titanium panels, Bondcrete / diluted PVA adhesive 'tape primer' should be applied to the substrate with a 100mm paint roller. The primer 'lines' should correspond to the double sided tapes which will subsequently be fitted on the reverse side of the panel – at the top, and at the bottom of the panel and all edges of the Whiterock Fortis Titanium 15 and in a grid pattern at a minimum 500mm centres. Allow the 'tape primer to dry.

Please ensure you follow the installation guidelines carefully to ensure best results.

### AltroFix W157 adhesive installation system

**Note:** This alternative bonded installation system is for areas of extra impact resistance.

This system uses both AltroFix W157 and Altro Double side tape with Altro W165 primer application

- Prior to the installation of Fortis Titanium panels, Altro W165 tape primer should be applied to the substrate with a 50mm paint brush. The primer 'lines' should correspond to the double sided tapes which will subsequently be fitted on the reverse side of the panel – at the top, and at the bottom of the panel and all edges of the Whiterock Fortis Titanium 15. The double sided tapes hold the panel firmly to the substrate and provide flush even edges and hold the panels whilst the AltroFix adhesive cures. Allow the 'tape primer' to dry to a tacky finish, (approximately 10 minutes).

**Note:** The W165 tape primer remains permanently tacky and never dries out totally.

### Installation procedure

Once all preparation has been carried out, walls are cleaned and free from dust, any possible contamination from grease has been removed, the datum line and tape primer has been applied, you are now ready to install the Fortis Titanium panels.

- Place panel on the workbench and inspect for any damage.
- Take measurements from datum line on the wall, and then transfer these to the panel. Cut the panel making sure the panel is well supported to reduce any risk of stress in the material when being cut.
- The most effective way to cut Altro Fortis Titanium 15 is with a track guided circular saw. The blade used to cut the panel should be carbide tipped with a minimum of 40 teeth.
- After the final cutting, plane the edges with your adjustable block plane to remove burrs and to leave a clean smooth finish.
- Offer the panel to the substrate to check your work (dry fitting), ensuring you have 2-3mm expansion joint at all abutments and pipe work.
- Ensure you have 2-3mm expansion joint at all panel to panel joints for application of silicone joint sealant, including internal and external corner junctions.

Please ensure you follow the installation guidelines carefully to ensure best results.

### Thermoforming external corners

The thermoforming of Altro Whiterock Fortis Titanium 15 can be accomplished using an Altro Whiterock Thermoformer. For proper thermoforming method please consult the Altro Whiterock Installation Guide.

Pre- thermoformed corners can be manufactured on-site and installed to suit the installation system prior to installing the full (field) sheets of Altro Fortis Titanium 15.

To minimise joints it is recommended that only outside corners are thermoformed, inside corners can be fitted and sealed with silicone sealant.

- When the finished panel has been made to suit the required silicone joint sealant wall finish detail, lay this face-down on the workbench and clean the back of the panel.
- Wipe down the back of the Fortis titanium 15 sheet to ensure it is clean.
- To the back of the panel apply double sided tapes at the top, bottom, edges and in a grid pattern at a minimum 500mm centres for the AltroFix Contact Tape installation system and to the top, bottom and edges for the alternative AltroFix W157 adhesive installation system - to correspond with the matching primer (DO NOT remove the tapes' protective paper at this time).

### Applying AltroFix W157 adhesive

- Wear appropriate safety equipment before handling materials.
- For Altrofix adhesives carefully stir using a large mixing drill and paddle for a minimum of 3 minutes, until an even consistency is acquired. Note: Adhesive must be mechanically mixed.
- Apply the adhesive to the back of the panel, using the recommended 3mm x 3mm notched trowel. The adhesive should be applied approximately 5mm from the edge of the double side tape fixed to the edge of the Altro Fortis Titanium 15 panel.
- The trowel must be held so that the adhesive is applied to an even finish, and the trowel notches are replicated to the same depth over the panel

### Fitting the Fortis Titanium panel

- Installation is ideally suited to two installers
- After applying the adhesive (if applicable), carefully remove the double sided tape 'protective film' and place into a rubbish container. Lift the panel and install to the required location, ensuring the top edge of the panel corresponds to the datum line on the wall.
- Once fitted to the substrate, apply pressure to the whole of the panel face to ensure the Double side tape and adhesive has been transferred and will be fully bonded to the substrate (this is normally done with a hand roller or block of timber covered with a material to prevent the surface being damaged).
- Failure to ensure a good transfer of adhesive to the substrate could result in the panel debonding.
- Ensure any adhesive residue is thoroughly cleaned off the surface of the panel or joint trims (and other adjacent surfaces). This must be done immediately, before the adhesive sets.

Please ensure you follow the installation guidelines carefully to ensure best results.

### Fortis Titanium panel joint finish treatment detail

Altro Fortis Titanium panels should be installed with a colour coordinated silicone sealant joint detail and finishing to all edges. Altro Fortis Titanium 15 is colour matched with the most widely available silicone sealants within Australia.

- The panels should be installed with a 2-3 mm gap.
- Altro double side tapes must be fitted approximately 3mm in from the vertical edge of each panel to ensure the panels meet accurately at the joint.
- Altro recommends using masking tape on the front face of the panels to counteract overspill and protect the surfaces.
- Ensure the edges of the panels are clean prior to silicone application.
- Place tube of silicone into caulking gun
- Cut off the end of the tube nipple, fix the nozzle and apply a bead approximately 3mm in diameter.
- Ensure sufficient silicone is pumped into the joint so that it forms up against the edges of the panel and double side tapes on the reverse of the panel if using the alternative AltroFix W157 system.
- Once completed, tool off the surplus to leave a neat, flush, sealed joint. Remove masking tape immediately sealant is smoothed away to reveal clean edges.

### Fitting and sealing to abutments

Altro Fortis Titanium panels should be fitted to within 3mm of rigid abutments such as window frames, door frames, architraves, ceilings, ceramic tile skirtings etc. thus ensuring a 2-3mm gap at these points.

This will allow for expansion and contraction to take place.

Prior to sealing the joint, clean the panel and adjacent surfaces.

All 'isolation' joints must be sealed with colour coordinated silicone sealant.

Please ensure you follow the installation guidelines carefully to ensure best results.

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