GUARDIAN TWIN HANDRAIL FIXING INSTRUCTIONS



Yeoman Shield products should be installed in accordance with the following manufacturers recommended instructions.



N.B. Details on Expansion and Contraction, Glazed Areas, Cleaning, etc., are shown on the reverse of this document.

General Notes

Please read the following details prior to reading the installation instructions below;

Our Guardian Twin Handrail system is designed so the lower protection rail profile is 10mm short of each Architrave/stop-start position. The upper 50mm dia Handrail profile is also 'set back' a further 10mm than the lower protection rail profile. The system is designed so the lower rail therefore protects the Handrail from direct heavy impact. (See wall return illustrations on page 3).

The upper 50mm dia Handrail profiles is supplied in 3.000m lengths and the lower protection rail profiles are supplied in 3.500m lengths.

The lower protection rail profile is designed to be folded at all wall return ends and external angles.

The chart below illustrates each fixing provided to secure each element of the Twin Hand-rail system;

List of components provided for securing each product

Component:	50mm dia Hand-rail	Lower protection rail
¾ " 8g pozi pan head screws	Wall returns/angles to Aluminium core	-
¾" 8g pozi csk screws	Aluminium core to Stainless Steel carrier	-
¾" 8g pozi csk screws	Joint to Aluminium core	Joint to Aluminium core
1½ " 10g wood screws/Brown Plug	-	Wall Return Fixing Plate
M6 x 90mm bolt	-	Aluminium core to spacer bracket
PVCu Glue	Caps to Wall Returns	_

List of fixings for securing PVCu Spacer Bracket to the appropriate wall substrate

Wall Substrate	Screw	Plug
Plasterboard (25mm)	M6 x 140 pozi pan machine screw	6mm 6500 rubber Rawlnut
Plywood ∕ MDF	M6 x 140 pozi pan machine screw	-
Brick / Block / Concrete	NFF0814ETAH (Hex head screw)	No. 7 Brown plug
Thermalite Block	NFF0814ETAH (Hex head screw)	GB10 Plug

When measuring for cutting and installation the chart below can be used to add/subtract wall dimensions in order to cut each Aluminium profile of the Guardian Twin-rail system to the correct overall size of Aluminium core required, before either fitting wall returns or folding the section accordingly. To use the chart, measure the actual wall size between each stop/start point of the wall substrate. i.e. Architrave to Architrave or Architrave to External corner, External corner to Internal corner, etc. and then make the necessary addition/deduction for **each** accessory.

For instance if a wall section between 2nr Architraves = 1000mm, the upper 50mm dia Aluminium core would be cut to 780mm allowing for 2 No. wall return ends. The lower Aluminium core profile would be cut to 1100mm long, prior to folding the section for the 2 No. wall return ends.

The upper 50mm dia core would require a wall return fixing to each end of the Aluminium core to complete the overall section length and the lower protection rail core would require the flanges cutting through 90mm in from each end and the profile then bending to 90 degree at these precise points to produce the 90mm wall returns.

Guardian Twin Handrail – Cutting to length chart for the Aluminium Core

Item:	50mm dia Hand-rail (upper profile)	125/200mm protection rail (lower profile)
Wall Return End – Each Accessory	Deduct 110mm	Add 50mm
Stop-End Cap – Each Accessory	Deduct 12mm	Deduct 40mm
External Corner – Each Accessory	Add 7mm	Add 90mm
Internal Corner – Each Accessory	Deduct 143mm	Deduct 90mm to first section
Internal Corner – Each Accessory		Deduct 125mm to second abutting section

N.B A wall surface of 285 mm is the smallest section that the handrail can be fitted to, which will accommodate only 1 No. spacer, and it will be necessary to fix any 50 mm Dia. Handrail profile Wall Return Ends to the substrate in order to secure the handrail into position, please refer to our Sales Office for further information.

Installation Procedure

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Determine the height of the hand-rail profile. Mark a datum on the wall 120mm below this height; this indicates the top edge of the wall spacer brackets.

Position all spacer brackets as per the dimensions illustrated in the diagrams below, with all subsequent interim spacer brackets @ 600mm centres.

We recommend all joints be positioned approx. 300mm from a spacer.

Prior to fixing the spacer brackets, assemble the Stainless Steel support rod, hand-rail carrier and extension blocks together, **see Diagram 3.**

Once all spacer positions have been marked out, drill and secure all spacers to the wall substrate through the 2 No. outer holes only, using the appropriate fixings as listed in the chart on Page 2. **NB:** The fixings pass through both the PVCu spacer and the PVCu 30mm extension block into the appropriate plug.

Spacer Positions

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Once all the spacer brackets are securely fixed in position the hand-rail section is installed as follows;

50mm dia Aluminium core installation

Using the chart on page 2, measure and cut the 50mm dia Aluminium core as necessary using a hacksaw or fine tooth drop-saw, allowing for all accessories such as wall returns, external / internal angles etc. (remember the 50mm dia Hand-rail profile is designed to be 10mm short of the lower section profile wall returns).

Secure all the accessories to the Aluminium core, using 2 No. 34" pozi pan, head screws**, see Diagrams 1 & 2.

Next, position the Aluminium core on to the Stainless Steel carriers and mark the hole positions on the underside.

Remove and drill 3.8mm pilot holes in the core before replacing on the Stainless Steel carriers and fixing into position using ³/₄ x 8g pozi csk screws**, see Diagram 3.

At all joints, drill and counter-sink the underside of the Aluminium core to accept the 34" x 8g pozi csk screw** to each side of the joint, insert the PVCu joint and secure in position, **see Diagram 4**.



** Screws supplied. - We recommend a screw fixing to both insert lugs and either side of a joint, to secure the accessory to the aluminium core.

125/200mm Aluminium core installation

Using the chart on page 2, measure and cut the lower Aluminium core as necessary using a hacksaw or fine tooth drop-saw, allowing for all accessories such as wall returns, external / internal angles etc., remember that the lower protection rail profile is designed to be 20mm longer overall than the upper Hand-rail section profile. (Also, the lower Aluminium core profile is designed to be cut across the length then folded at each wall return/external corner as one section.)

Once the core is cut to the required overall length, the wall return sections require folding. The wall return is created by cutting the top, middle and bottom flanges of the core 90mm from each end, using a hacksaw or drop-saw set to the required depth, without cutting through the back wall of the core, **see Diagram 5**. Once cut, the core can then be folded square by hand, **see Diagram 6**. -This process is also used to create the external corner detail, using the cutting chart on page 2.

Once the Aluminium core is cut to length and folded, offer the core up to the face of the spacer bracket and mark the centre of the bracket position onto the internal face of the core. Drill a 7mm dia hole 44mm down from the top of the core on the centre line marked on the core, this is the fixing location of the core to the spacer bracket, and secure the core to the spacer bracket using the M6 x 90mm pozi pan head bolt provided, **see Diagram 7.**

Secure the PVCu wall return fixing plates to the wall substrate, using a 11/2" 10g wood screw and No. 7 Brown plug, see Diagram 8.





Diagram 8



N.B. All cut Aluminium core should have the edges filed off. Special external/internal angles are available to order and if there is an issue with alignment due to the poor quality of wall surface/substrate, packers may be used to overcome this. **Please refer to our Sales Office regarding these items.**

125/200mm Aluminium core installation (continued)

At all joints drill and counter-sink the top & bottom edge of the Aluminium core to accept the ³/₄" x 8g pozi csk screw to each side of the joint, insert the PVCu joint and secure in position, **see Diagram 9a/b.**

If stop ends are preferred to wall return ends then these have been manufactured to 'slide' inside the Aluminium core and are secured into position by a countersunk screw** at both the top and bottom edges, **see Diagram 10**

When the Aluminium core is fixed into position insert the rubber infill strips into the centre groove, including all external corners, wall returns Etc., **see Diagram 11**.



N.B. All cut Aluminium core should have the edges filed off. Special external/internal angles are available to order and if there is an issue with alignment due to the poor quality of wall surface/substrate, packers may be used to overcome this. **Please refer to our Sales Office regarding these items.**

** Screws supplied. - We recommend a screw fixing to both insert lugs and either side of a joint, to secure the accessory to the aluminium core.

PVCu Cover installation

NB: When cutting the PVCu covers use a fine tooth Tenon Saw or electric drop saw. Once the PVCu cover is fit it is difficult to remove.

Circular Handrail

Square the ends of any 3.000m lengths of the handrail cover and clip over the 50mm dia Aluminium core section into place, ensuring the legs securely clip into the grooves on the underside, **see Diagram 12**.

Measure & cut any make up pieces and repeat the process until all sections are complete.



Protection Rail - PVCu Cover

Square the ends of any 3.500m lengths of the protection rail cover, cut the rail to the required length and clip over the 125mm Aluminium core section into place, **see diagram 13**.

Measure & cut any make up pieces and repeat the process until all sections are complete.

Cut all PVCu cover wall returns to 90mm and clip over the Aluminium core securing the modified external angle into position at the same time.



N.B. Having checked the finished installation for alignment, level, etc. clean down all surfaces on completion.

GENERAL INFORMATION



Yeoman Shield products are manufactured using Vinylac, a specially formulated PVCu material that is resistant to impact and abrasion, which is exclusive to Harrison Thompson & Co. Ltd.

Fire Test Information PVCu Protection Products

Fire tested in accordance with and achieved the following:

BS 476: Part 7: 1997 - The Surface Spread of Flame of Products - Class 1Y (Class 1 is the best classification in this test).

BS 476: Part 6: 1989 + A1: 2009 - Fire Propagation for Products - **Class O** - As defined in the latest Building Regulations, Approved Document B (Fire Safety).

BS EN 13823: 2010 + A1: 2014.

BS EN ISO 11925 - 2: 2010.

EN 13501 - 1: 2007 + A1: 2009.

Door Edge Protectors -Patented Product

Fire tested in accordance with and achieved the following:

BS 476: Part 22: 1987 - For ½ hour or 1 hour fire integrity on full door assemblies.

BS 476: Part 31.1: 1983 - To meet requirements of **BS 5588**.

PVCu Clad Glazing Bead

Fire tested in accordance with and achieved the following:

BS EN 1634 - 1: 2008 - For $\frac{1}{2}$ hour or 1 hour fire doors.

BS 476: Part 22: 1987 - For ½ hour or 1 hour fire integrity on full door assemblies.

All testing has been carried out at Exova Warrington or Exova Chiltern Test Houses and the full fire test reports are available on request.

Surfaces & Cleaning

Yeoman Shield products are inherently hygienic if they are properly cleaned and maintained on a regular basis.

Our PVCu materials are **'rigid'** and they do not support the growth of bacteria or mould. When cleaning, we recommend using a solvent cleaner or products such as Dettox, Johnsons Clear, etc.

Stubborn marks may need an industrial strength solvent cleaner to remove them, such as TRADESOLVE 1 (UN 1294). **N.B.** This type of cleaner should be used strictly in accordance with the manufacturers recommendations.

Smooth surfaces are more likely to show all marks, scuffs and scratches. The textured surfaces of **Yeoman Shield** products helps to hide the everyday knocks, bumps, scrapes and marks caused by vehicular traffic.

Maintenance

None required other than normal cleaning in accordance with details shown above.

Chemical Resistance

Vinylac is unaffected by commercial solvents and cleaners.

DDA

(Disability Discrimination Act)

Yeoman Shield products do not contravene the DDA requirements, and meet the principals of HTM69. (Further details available if required).

Installation

Manufacturers recommended fixing instructions are shown overleaf. However, if additional information or clarification of any points is required then please contact our Sales Office **0113 279 5854**.

We are CHAS (Contractor, Health & Safety Assessment Scheme), accredited contractors.

All our operatives hold relevant **CSCS** cards with Site Foremen having the **SSSTS** Certificates.

Expansion & Contraction

Yeoman Shield products will expand and contract according to temperature fluctuations:

Generally, PVCu materials expand or contract 0.07mm/m for every 1° Celsius rise or fall.

Please ensure that our materials are acclimatised to the environment into which they are being installed, they should be stored at normal working temperature for at least **24 hours** prior to fitting. We recommend the optimum temperature being **23**°, which is in line with the temperature during manufacture and this should limit the amount of expansion and contraction.

It is not advisable to take materials that have been stored in a cold environment, i.e. an unheated site, cold storage container/van, etc. and install these without allowing them to acclimatise, **as this may lead to unnecessary movement of material in the future.**

N.B. Greater movement may occur in glazed corridors. In extreme cases of temperature variation it may be necessary to use an alternative fixing method, please speak to our Sales Office for advice.

Colour Fastness

All Vinylac products are UV stabilised, therefore reducing the fading effect when exposed to direct sunlight. It should be recognised, however, that excessive expansion will occur in these conditions.

Further information regarding this and other colour issues can be found in our brochure or colour card, both of which are available from our Sales Office, or on our website.

Impact/Abrasion

Vinylac results: Abrasion **BS2782; Part 3:1990** Scratch ASTM D3363 - 74.

Bonding

Although **Yeoman Shield** supplied adhesives will perform in difficult environmental conditions they will activate more readily if applied at normal room temperature.

The bond strength will then continue to increase after the initial application.

Warranty

Yeoman Shield products are guaranteed free from defects. If they are installed correctly and in accordance with the manufacturers recommendations, they will protect surfaces from damage for many years.

Environmental

Yeoman Shield operates an Environmental policy and ensures the recycling of all materials and packaging wherever possible, a copy of our policy can be requested from our Sales Office.

All our materials/products are sourced and manufactured in the United Kingdom and can therefore contribute to achieving the requirement of the **BREEAM 2011 Technical Construction Manual** for building sustainability and life cycle, **as well as reducing our carbon footprint.**

Health & Safety

Full **COSHH (Control of Substances Hazardous to Health)** details on all **Yeoman Shield** products are available from our Sales Office.

In accordance with **REACH** Regulations, our products do not contain any chemicals that are on the **SVHC (Substances of Very High Concern)** list dated June 2012.

Technical Support & Advice

Data sheets on the various **Yeoman Shield** materials are available from our Sales Office.

Timber Products

All wood incorporated in **Yeoman Shield** products is purchased from an **FSC supplier**.

MAKING BUSINESS A PLEASURE

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