

### Installation Instructions

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450 Handrail

Data Sheet: Page 1 of 1 BB March 2024

#### Please read the following prior to installation of Gradus 450 Handrail

As wood is a natural material shade variations may occur between lengths. Sort the lengths by colour (light to dark) before use. Acclimatise the handrail to room temperature 24hours before installation. Store lengths on a flat unsupported surface. Do not lean the rails upright as this may cause the product to bow.

1. Cut the wood handrail to the required length, ensuring that an allowance is made for returns, external and internal corners. Allowances for corners are as follows:

Returns:	75mm
a. External Corners:	0mm
b. Internal Corners:	115mm

**When cutting the timber sections the recommended blade for the radial saw is a Triple Chip, Negative Rake Blade (300mm diameter / 96 teeth)**

2. Starting 100mm from the ends of the timber handrail and spaced at a maximum of 760mm centres, drill 15mm deep holes using a 6.5mm drill on the centre line marked on the base of the timber handrail. Screw the threaded insert into the timber using a 6mm hex key.
3. For Stainless Steel Returns, Returns and Splices: Position the aluminium spline in the centre of the cut end of the handrail. Mark the holes and drill 2 x 30mm deep holes using a 4mm drill bit. Fix the spline using the screws provided. To attach the returns or corners: Slide the component over the spline and fix into place by means of the grub screw, tighten using a 4mm hex key.
4. Prior to securing the retainer to the bracket, ensure that the cover plate has been placed onto the bracket. Screw the brackets into the threaded inserts and align. Mark the wall by use of chalk line or laser level to establish the position of each bracket
5. Once marked attach the stainless steel bracket to the wall using the following size fixings.

Drywall or metal stud:	75mm No 8 toggle bolt or drywall fixing.
Concrete or blockwork:	75mm No 8 Pozi drive screw
Timber:	75mm No 8 wood screw
6. Once fixed snap the stainless steel cover into place over the mounting base.

Please call Technical Services on 01625 428922 for any further assistance.