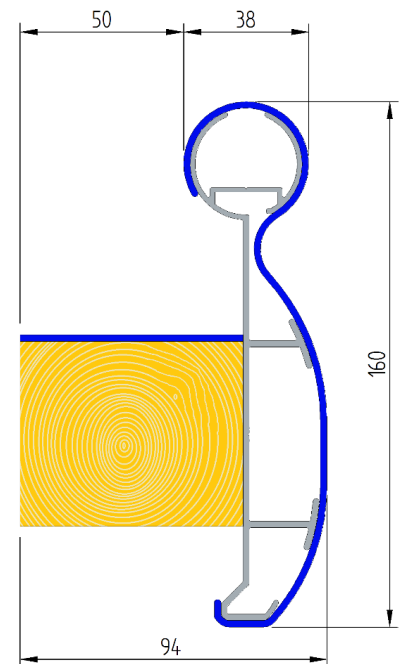
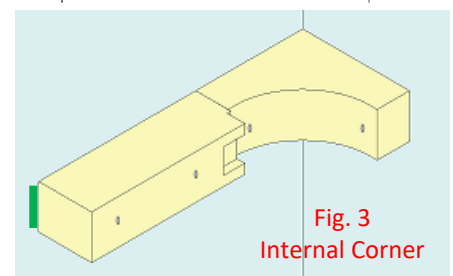
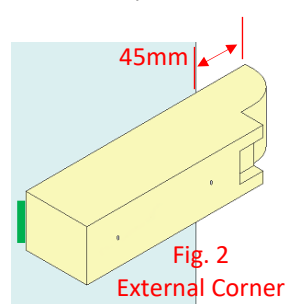
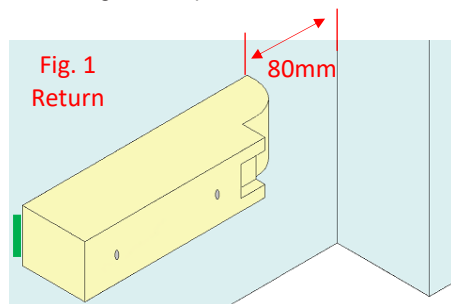
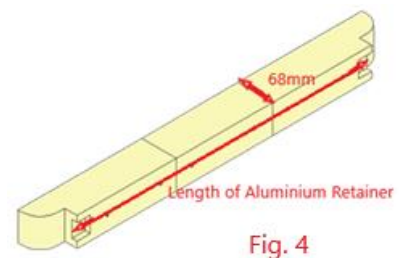


CHR160 Combination Hand Rail – Reduced Ligature Option

1. Use a laser level to mark a height of 100mm below the prescribed upper handrail surface height as the guide for the mounting system's position.
2. The handrail is mounted using solid wooden battens which are cut on-site with corners and returns mounted on pre-milled wooden profiled sections. It is necessary to make allowances for all wooden profiled corner and return sections to be taken away from the overall length of straight batten required. For each corner or return use the profiled sections as a template for marking positions and lengths.
3. For each return, place the profiled wood section against the wall, positioning the rounded end 80mm away from any architrave, wall or corner (Fig. 1). For any external corner, position the rounded end to overhang the corner by 45mm (Fig 2). For any internal corner use both profiled wooden sections pushed flush to the corner's vertex (Fig. 3). With all profiled sections centred relative to the laser line, mark the wall at the batten end as a datum for the straight batten length (Green line on Figs 1, 2 & 3). Measure the distance between datum points to determine the batten cut length.
4. Using fixings at spacings appropriate for the wall type, mount the wooden battens and profiled wooden sections onto the wall, drilling the wood if necessary to allow bolts through. Battens and profiled sections must be secured with at least 2 fixings 50mm from each edge along its '68mm depth' length. Spacings for the fixings on the battens should be even, ideally 500mm but no more than 800mm apart. Ensure that all fixings are tightened up to sit flush with the front face of the battens and profiled sections.

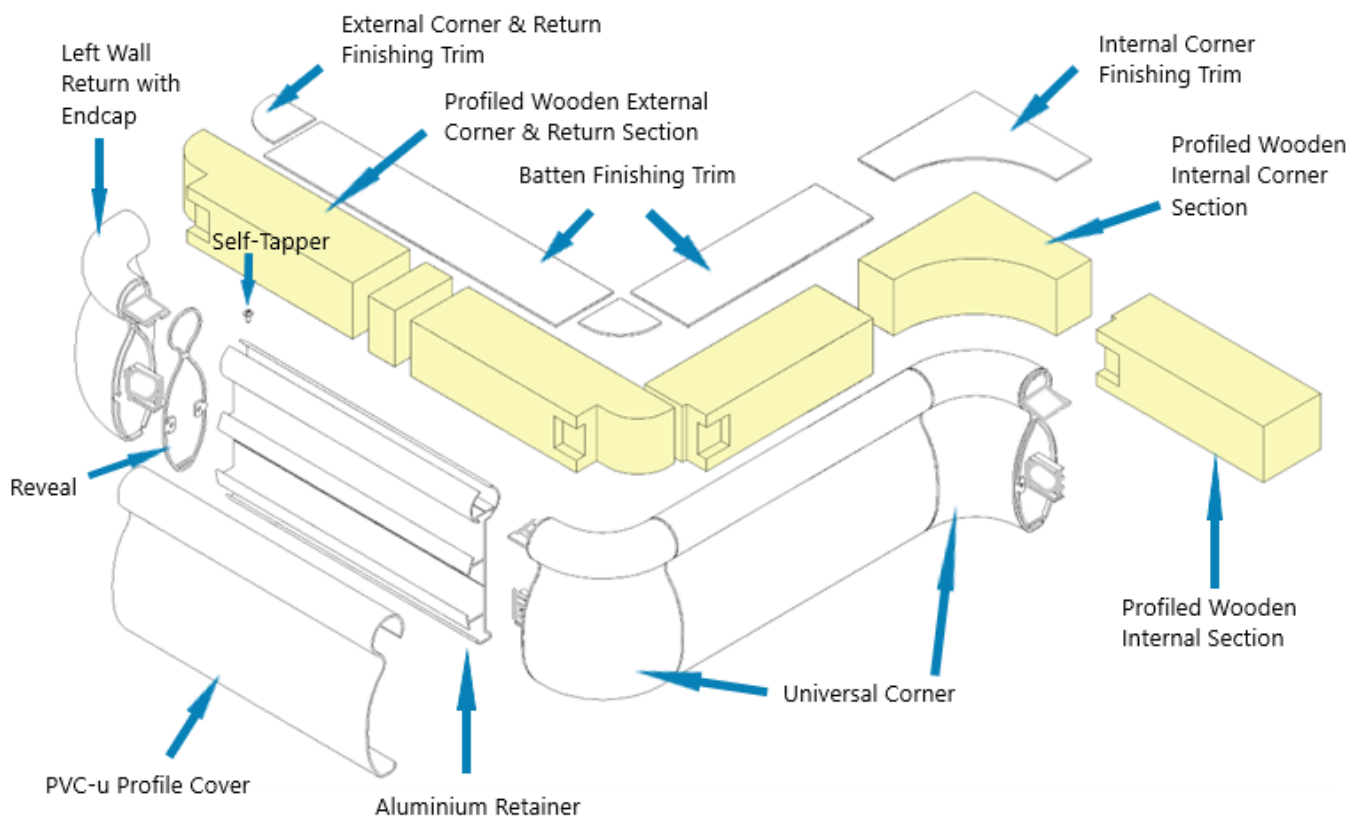


5. Make marks on the top of the batten sections to indicate where all the fixings have been positioned. These should then be used to avoid coincident fixings when fastening the aluminium retainer to the battens.
6. The length of the aluminium retainer is the maximum distance along the 68mm deep section (see Fig. 4).
7. To assemble the corner or return, with the reveal in situ butt up the corner/return to the retainer drill Ø6.0mm hole through the solid tab and through the bottom v-notch 10mm from the end of the retainer. Ensure the reveal is fitted correctly before fitting the return or corner onto the retainer, using the supplied nut, washer and bolt to secure through the retainer. It is also necessary to drill a Ø3mm pilot hole through the horizontal tab of the PVC corner or return 10mm from the end of and through the retainer to accommodate the self-tapper also provided.
8. Position the retainer against the battens and mark along the v-notch the locations of the holes needed to mount the retainer, making sure that all holes are equally spaced but they must also be at least 20mm away from any fixing through the batten into the wall (as described in 'Item 5' above). Remove the retainer and drill all marked holes. (see Fig. 5)
9. Ensure that the fixing screws (not supplied) provide at least 30mm of fastening depth into the battens. While maintaining alignment of the holes along the top v-notch with the laser level, attach the retainer to the battens.
10. Use the drilled Ø3mm pilot hole to fit the supplied self-tapper to hold the top section of the return or corner in place.



CHR160 - Reduced Ligature Version

11. Measure the length between the reveals as the cut length for each vinyl profile. For long sections of handrail, joints in the vinyl should not coincide with joints in the retainer and should be staggered so that they are at least 300mm apart.
12. Cut the vinyl cover, taking care to ensure that the cuts are both square and clean. Loosely position the vinyl against the retainer to check the fit. Place the cylindrical section of the PVC-u profile against the corresponding section of the retainer while butting one end of the PVC-u profile up against the reveal. Stretch the opening by pulling the bottom section out horizontally and gently pushing down vertically until it snaps around the upper section of the retainer. Leave the PVC-u profile in the horizontal position until the entire top section has been stretched into place. Once the entire length of the handrail section of the PVC-u profile has been positioned then the final section can be snapped into place by rotating the bumper section into the vertical orientation.
13. To fix the corner finishing trims into place apply a 3mm bead of Gradus Grip GG290 onto the wooden sections 10mm from the edge closest to the wall. To fit the straight finishing trim it is necessary to measure the distance between corner sections and trim it to length. Try to even out sections of trim and avoid joins in the trim being coincident with any joins in the batten, trim to fit any tight areas such that the trim sits flat on the batten. Apply a single continuous 3mm bead of Gradus Grip along the length of the batten and any corner/return section not already finished with a trim. Fix the trim in place by applying a firm but not forceful pressure to spread the adhesive underneath the trim, removing with a cloth any visible adhesive residues.



CHR160V/XX/XXX	PVC-u Profile Cover
CHR160A/XX	Aluminium Retainer
CHR1604L/XXXX	Left Hand Return for CHR160 (includes fixings)
CHR1604R/XXXX	Right Hand Return for CHR160 (includes fixings)
CHR1602/XXXX	Universal external/internal corner (includes fixings)
CHR1605	Reveal
R1569/004	69 x 2440mm Continuous timber batten
CHR160ALIG/RET	Profiled Wooden External Corner & Return Section
CHR160ALIG/CNR	Profiled Wooden Internal Corner Section
CHR160ALIG/SQ	Profiled Wooden Internal Section
CHR160/BAT/ALIG	PVCu Cover for baton 69mm x 2440mm made from SPE15N
CHR160 ALIG/IC	PVCu Cover for Internal Corner Baton made from SPE15N
CHR160 ALIG/EC	PVCu Cover for External Corner Baton & Return Baton made from SPE15N

Fitters Tips:

- When cutting CHR160 on site, the PVC-u cover may try and compress under the pressure of the saw blade while cutting. This can be reduced by cutting slowly. A fine-toothed blade for cutting aluminium/plastic is also preferred.
- When doing long runs of over 4m, start with a full 4m length of PVC-u cover starting from the cut end of the retainer; This usually ensures that joints of PVC-u and retainer never coincide.