

FUSION® COMMERCIAL FITTING INSTRUCTIONS

Richard Burbidge FUSION® Commercial Outdoor Balustrade comprises a system of newel posts, rails, balusters and panels connected using a series of brackets and is suitable for use on horizontal commercial installations where the balustrades need to resist higher strength loadings of 1.5kN/m.

Note – Care should be taken when handling and assembling pre-finished components to avoid damaging the finish. All components and finishes are carefully checked prior to leaving the factory and are designed to withstand most types of normal use, however it is possible to damage these with sharp tools.

Please check all components carefully **PRIOR** to installation for any damage to the surface, as Richard Burbidge cannot be held responsible for any damage once the installation has commenced.

FUSION® Commercial Outdoor Balustrade carries design registration and only genuine Richard Burbidge™ Commercial Outdoor Balustrade components have been independently tested to guarantee conformity to UK Building Regulations.

FUSION® Commercial Outdoor Balustrades are tested by FIRA and when installed in accordance with these instructions conforms with Building Regulations for horizontal balustrades at 1100mm high and 1.5kN/m strength loadings (FIRA Structural testing report TCMSF17040).

Before commencing the installation please read all instructions carefully, in particular, special care and attention is required when planning and establishing the position of the newel posts. **Note: The maximum achievable span between centres of newel posts is 1004mm.**

Detailed instructions for planning and deck building can be found in the Richard Burbidge Decking systems brochure and on our website www.richardburbidge.com. Should you have any enquiries regarding FUSION® Commercial Outdoor Balustrade system please contact our technical department on 01691 678212.

To install FUSION® Commercial Outdoor Balustrade you will need, socket set including 24mm socket, pencil, electric/battery drill or hammer drill if installing onto concrete, hacksaw, craft/stanley knife, tape measure, spirit level, 3,4 & 6mm allen keys, posi drive screwdriver, 3mm & 3.5mm drill bits, clear silicone sealant, grease, 2 lengths of timber batten @ 795 x 50 x 25mm and 2 lengths of timber blocks/packers @ 99 x 50 x 50.

FUSION® Commercial Outdoor Balustrade has been designed primarily for new build concrete applications and timber decks.

Unless stated otherwise all fixings should be stainless steel. Please note that the LD575 Newel Posts are not supplied with ground fixings, as the type of fixings required will be dependent on the type of sub structure the posts are to be fixed to.

FUSION® Commercial Outdoor Balustrade Installation

Fig.1 illustrates a typical horizontal installation of FUSION® Commercial Outdoor Balustrade using a combination of newel posts, rails, brackets, balusters and panels.

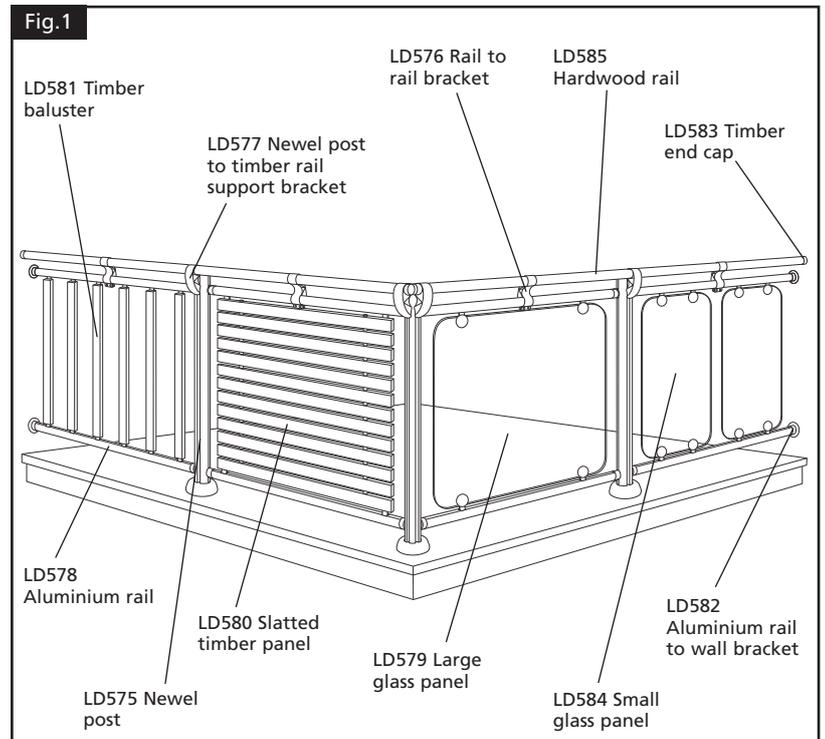
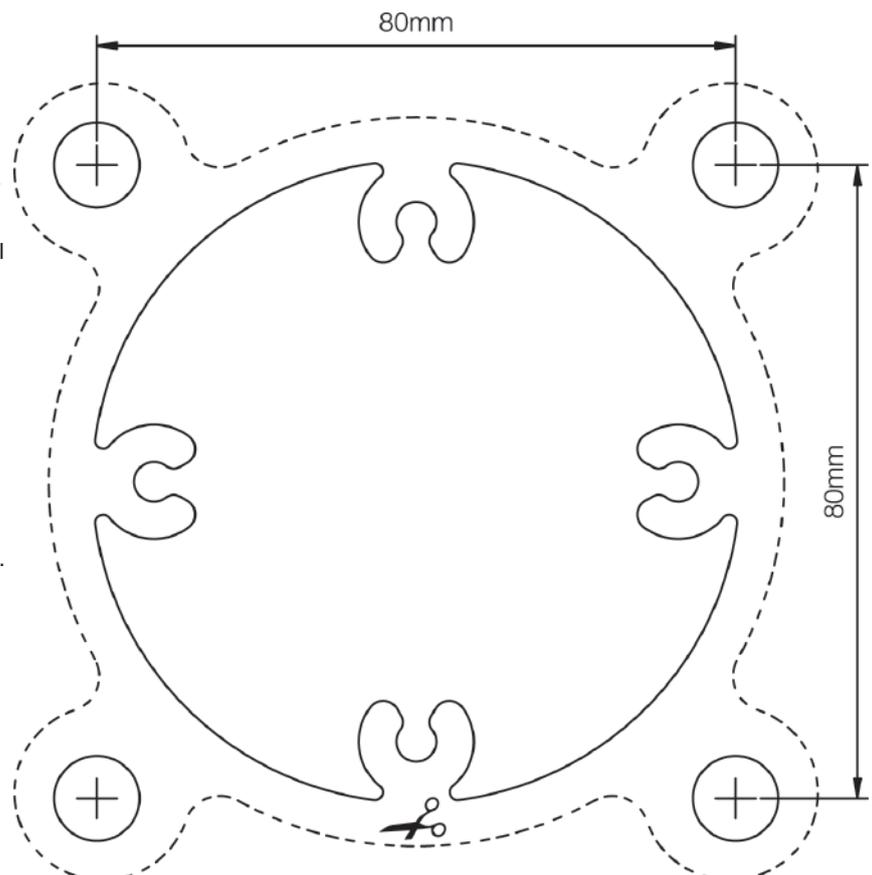


Fig.2 Newel Post Template



The system comprises;

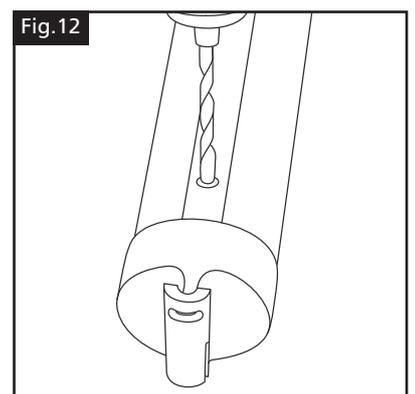
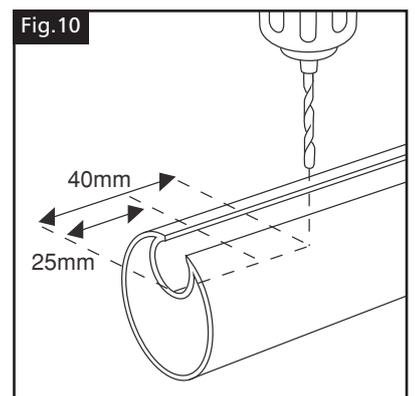
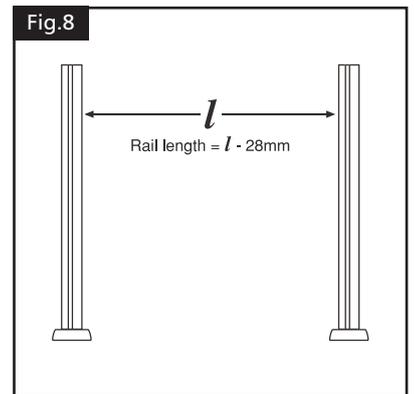
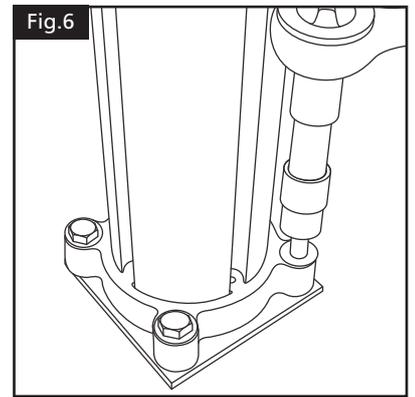
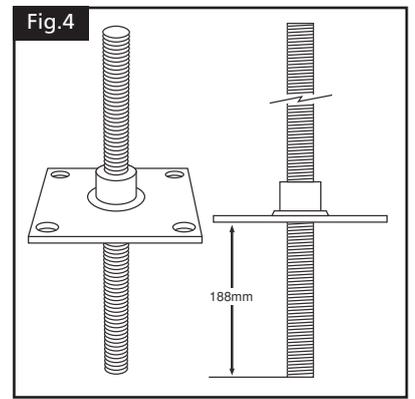
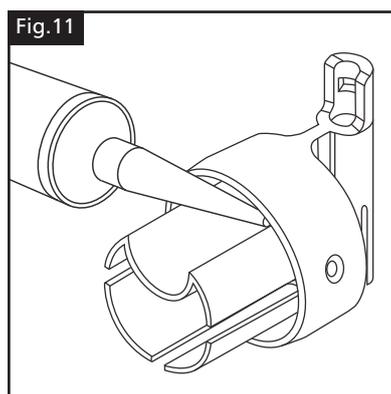
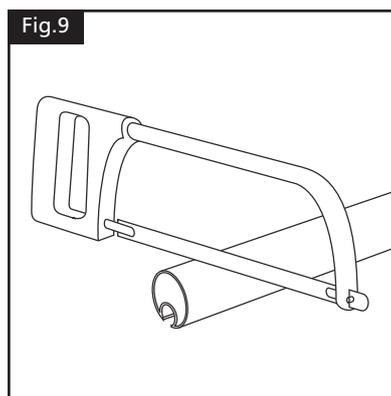
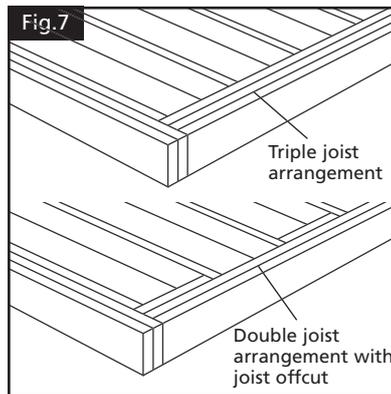
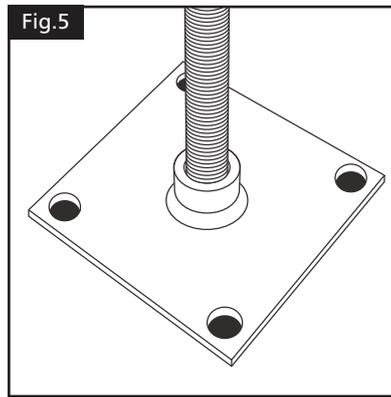
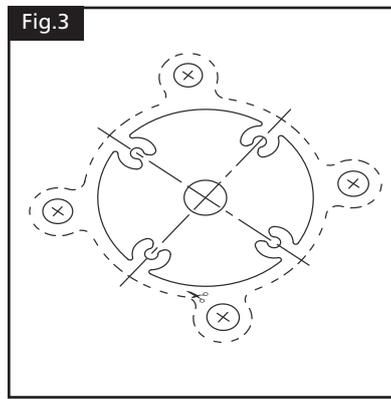
Concrete Installations

Product Code	Product Description
LD575	1000mm Newel post with base plate fixing, top hat, threaded bar, infill strip, top cap and newel post base cap
LD576	Rail to rail bracket connects Aluminium rail to Timber rail
LD577	Newel post to timber rail support bracket connects timber rails to newel posts
LD578	900mm length Aluminium rail with 2 rail to newel brackets
LD579	Large Glass Panel 800mm wide with 4 brackets
LD580	Slatted Timber Panel 800mm wide with 4 brackets
LD581	750mm length Timber Baluster with 2 brackets
LD582	Aluminium Rail to Wall Bracket for fixing Aluminium rail to wall
LD583	End cap for timber rail
LD584	Small Glass Panel 350mm wide with 4 brackets
LD585	2200mm Hardwood Rail

Cut and paste the paper template onto either cardboard or plywood and cut to shape (Fig.2 Full Size Template). This template is used to establish and mark the position of every LD575 newel post and base fixing plate, including drill hole positions. Place the template on top of the concrete and mark the 4 drill positions on the edge of the base plate plus the central drill position for the threaded bar (Fig.3). Drill the concrete using an appropriate sized drill bit to a depth to suit M10 masonry fixings and in the centre using a 18mm drill bit to a depth of approximately 200mm. Fix the threaded bar onto the base plate by threading until it is 188mm from end (Fig.4). Insert the M10 fixings into the 4 holes and place the threaded bar and baseplate over the 4 fixings, check using a spirit level for vertical and adjust accordingly until plumb. At this stage you should also slide the newel post assembly over the threaded bar and onto the fixings to check for plumb. Remove newel post assembly and apply resin anchor to 18mm centre hole and insert the threaded bar with base plate attached (Fig.5). Slide the newel post over the threaded bar and align the holes in the plinth of the newel post with holes in base plate. Fix the assembly to the concrete using stainless steel 4 x M10 fixings ensuring newel post is level and plumb. Repeat for all newel posts (Fig.6).

Timber Installations

The positions of the FUSION® Commercial Outdoor Balustrade newel posts LD575 should be established before fixing deckboards. The outside frame of the joist arrangement should be at least double joisted and an additional joist section should be fixed at every point a newel post is installed (Fig.7). The newel post centres are fixed so they are a maximum of 80mm from the outside edge of the joist. Once the joist arrangement has been constructed the deckboards should be installed. Place the template on top of the timber deckboards and mark the 4 drill positions on the edge of the base plate plus the central drill position for the threaded bar (Fig.3). Drill the centre hole using a 18mm spade/auger bit and the 4 outside holes using an 8mm drill bit. Fix the threaded bar onto the base plate by threading until it is 188mm from end (Fig.4). With the base plate attached to the threaded bar insert into the 18mm centre hole (Fig.5). Note if the deck is elevated and access can be gained the end of the



bar can be fixed to the underside of the joist using a nut and washer. Alternatively if no access can be gained i.e. ground level deck the bar should be resin anchored. In this type of installation the bar may need to be cut to length depending on the depth of joist used. Slide the newel post over threaded bar and align holes in plinth of newel post with holes in base plate. Fix the assembly to the top of the deckboard and through to the joists using stainless steel 4 x 100mm M10 coach screws ensuring newel post is level and plumb. Repeat for all newel posts (Fig.6).

Fitting Top & Bottom Rails

For spans less than 1004mm between centres of newel posts the top and bottom rails LD578 will need to be cut to length. Measure the distance in millimetres between the inside faces of the newel posts and subtract 28mm (Fig.8).

Example – Span between inside faces of newel posts = 850 – 28 = 822mm.

Mark and cut the bottom rails accordingly using a hacksaw. To avoid damage and furring place masking tape over the point to be cut (Fig.9).

In the channel of the rails drill 2 holes using a 3.5mm drill bit at a distance of 25mm and 40mm from each end (Fig.10).

Apply a bead of silicone on the face of a rail bracket supplied with the LD578 Rail (Fig.11) and insert the bracket into one end of the rail only. Wipe off any excess silicone and drill through the larger previously drilled 3.5mm holes using a 3mm drill bit (Fig.12) and fix using the self-tapping screws supplied (Fig.13). Drill through the holes in the side of the bracket using a 3.5mm drill bit and fix using the self-tapping screws supplied (Fig.14). Repeat this process for one end of all rails only so as to allow insertion of the baluster/panel brackets supplied with the LD579 Large Glass panel, LD580 Slatted Timber Panel, LD581 Timber Baluster & LD584 Small Glass Panel.

Glass & Timber Panels, Baluster & Bracket Installation

The LD579 Large Glass Panel and LD580 Timber Slatted Panel measure 800mm in width. When used on standard installations of 1004mm between centres of posts this will leave a gap either side of the panel and post of 62mm (Fig.15). Please note – the minimum length between centres of posts when using either the Large Glass or Timber Slatted Panel is 900mm.

When using 2 x LD584 Small Glass Panels on standard installations of 1004mm between centres of posts this will leave 3 gaps between panels and posts of 75mm (Fig.15). Please note – the minimum length between centres of posts when using 2 x Small Glass Panels is 855mm, which will give a gap between panels and posts of 25mm.

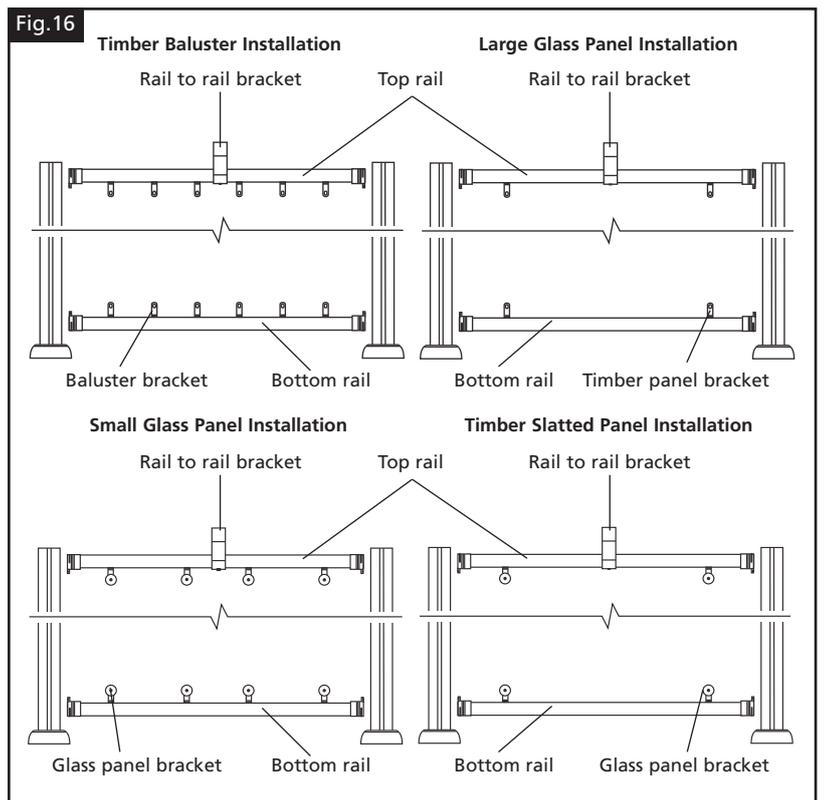
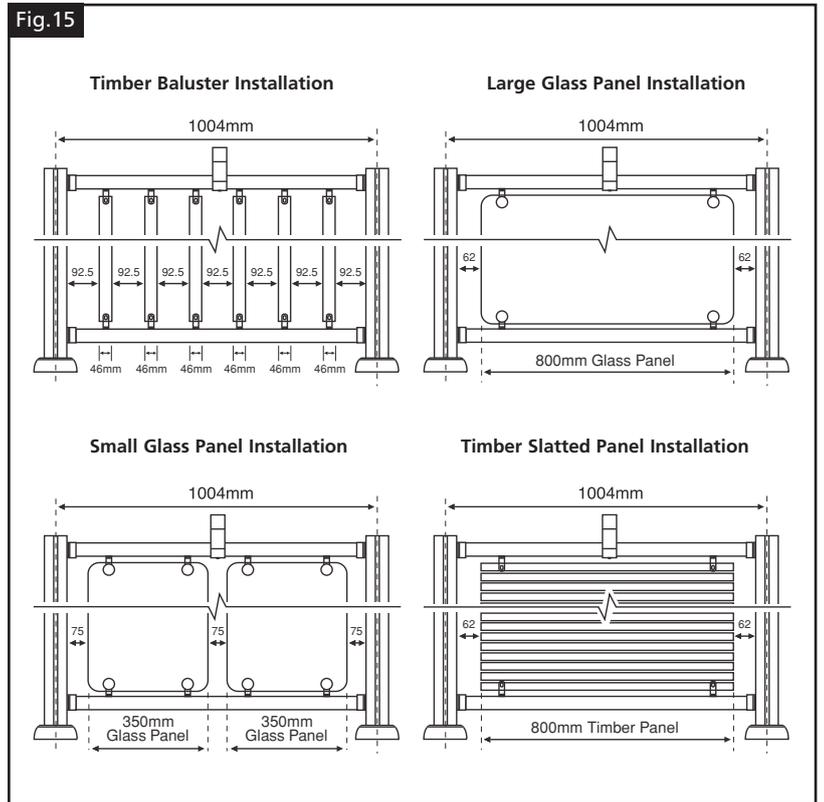
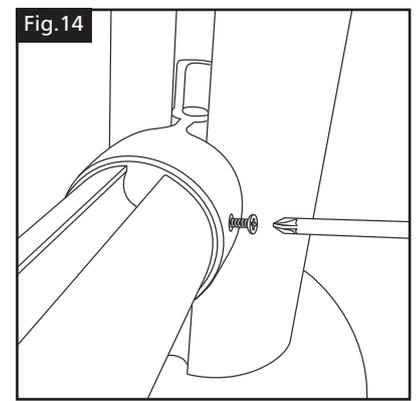
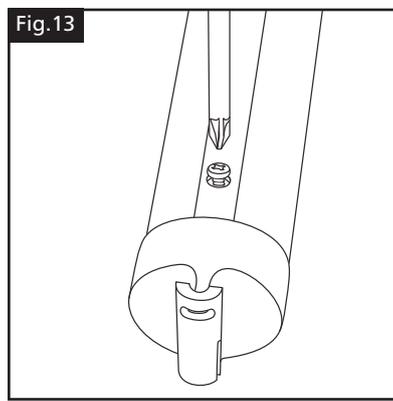
When using 1 x Small Glass Panel on runs less than 1004mm, the maximum centres between posts is 628mm and the minimum is 480mm.

On runs of 1004mm between centres of posts you will use 6 x LD581 Timber Balusters with a gap of 92.5mm between each baluster (Fig.15).

For installations where the rail has been cut down in length measure the distance between inside faces of posts (Fig) i.e.820mm and subtract the total width of balusters, 6 balusters @ 46mm = 276, 820 – 276 = 544 divided by 7 (number of spaces) = 78mm spacing between each baluster.

Bottom Rail Assembly

Slide the appropriate number of panel or baluster brackets into the rail (see Top Rail Assembly) making sure that the Richard Burbidge logo on the brackets all face in the same outward direction (Fig.16). Apply a bead of silicone to the face of a rail bracket (Fig.11) and fit to the other end of the rail but do not screw at this stage. To ease installations apply lubricating oil/grease to the rail brackets (Fig.17).



The bottom rail should be set at 99mm above the surface of the concrete or timber deck, use 2 lengths of 50 x 50 x 99mm timber packers. With the Richard Burbidge logo on the brackets facing outwards away from the area to be balustraded, apply lubricating oil/grease to the brackets and slide the rail and baluster bracket assembly between the posts down until it rests on the 99mm timber packers (Fig.18).

With the rail resting on the timber packers drill 3mm pilot holes through the previously drilled 3.5mm holes and secure the rail bracket to the rail using the self-tapping screws supplied (Figs.12 & 13). Drill through the holes in the side of the bracket using a 3.5mm drill bit and fix using the self tapping screws supplied (Fig.14). Drill through the rail bracket into the newel post using a 3mm drill bit and fix with the self-tapping screws supplied (Fig.19).

Top Rail Assembly

The top rail assembly has a combination of Glass Panel brackets or Timber Panel and Baluster brackets plus the LD576 Rail to Rail bracket.

On standard length spans of 1004mm between centres of posts when fixing;

The LD579 Large Glass Panel slide 1 x panel bracket into rail followed by 1 x rail to rail bracket and finally 1 x panel bracket (Fig.16).

The LD580 Timber Slatted Panel slide 1 x baluster bracket into the rail followed by 1 x rail to rail bracket and finally 1 x baluster bracket (Fig.16).

The LD581 Commercial Balusters slide 3 x baluster brackets, 1 x rail to rail bracket and 3 x baluster brackets (Fig.16).

For standard runs when using 2 x LD584 Small Glass Panels slide 2 x panel brackets, 1 x rail to rail bracket and 2 x panel brackets (Fig.16).

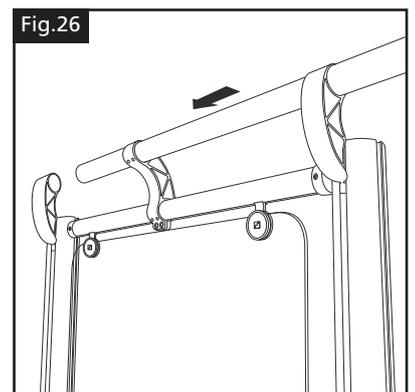
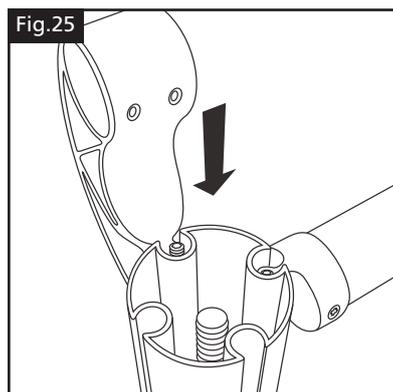
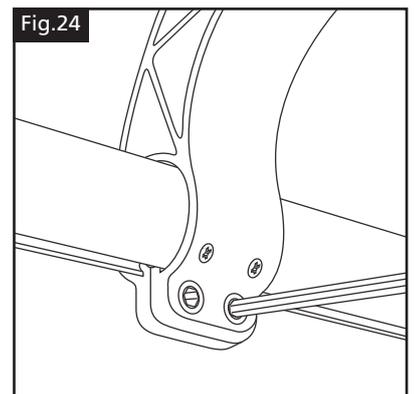
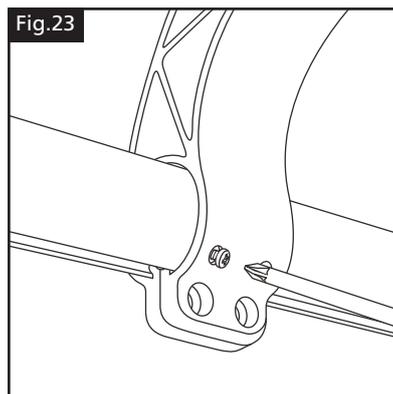
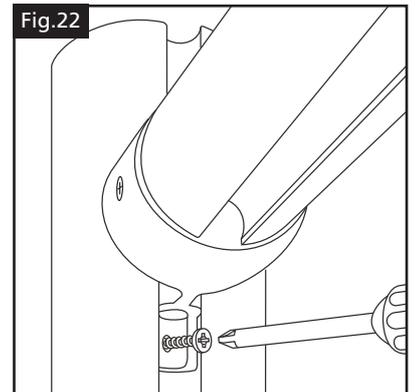
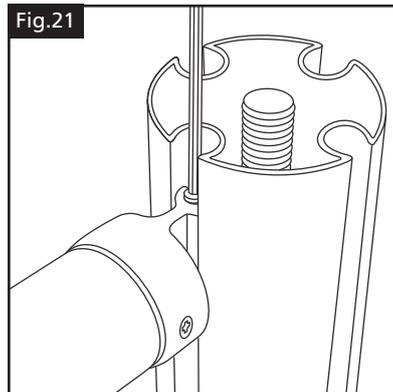
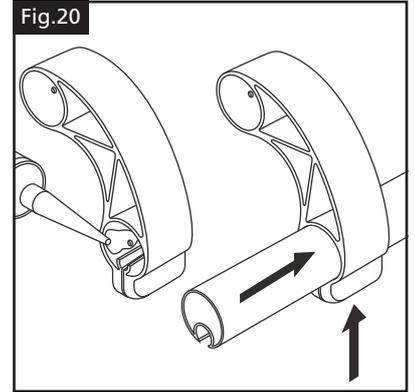
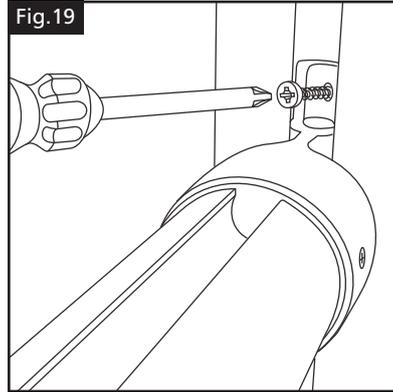
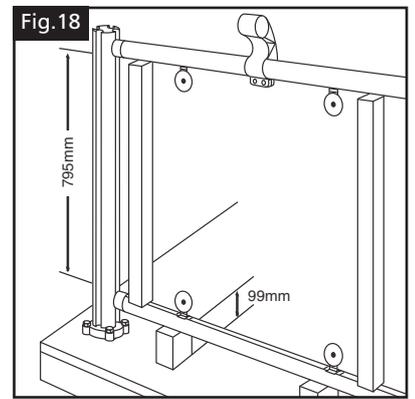
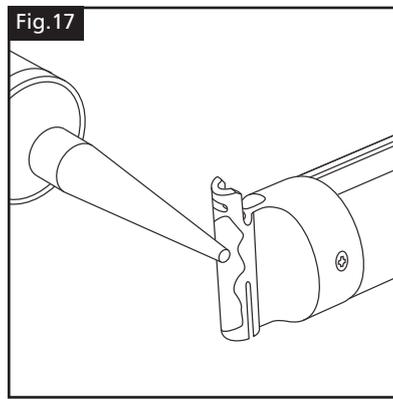
Whichever option you use remember that when sliding the appropriate number of panel or baluster brackets into the rail to make sure that the Richard Burbidge logo on the brackets all face in the same direction and that the rail to rail brackets also faces outwards. When sliding the LD576 rail to rail bracket onto the rail apply grease to aid installation (Fig.20).

Apply a bead of silicone to the face of a rail bracket (Fig.11) and fit to the other end of the rail but do not screw at this stage. To ease installations apply grease to the rail brackets (Fig.17).

The top rail should be set 795mm above the bottom rail, use 2 lengths of 795 x 50 x 25mm timber battens as guides and slide the top rail assembly between the posts until it rests on top of the timber battens (Fig.18). Using a 4mm allen key fix the grub screw into the bracket (Fig.21) and then fix to rail as previously described by drilling 3mm holes through the 3.5mm holes and securing with the self tapping screws supplied (Figs.12 & 13). Check that the glass panels can be located onto the brackets and adjust the height of the top rail if required. Drill through the rail bracket to the newel post using a 3mm drill bit and fix with the self-tapping screw supplied (Fig.22) (please refer to fixing Glass Panels).

Installation of Timber Handrail & Newel Post to Timber Rail Support Bracket

Centralise the LD576 Rail to Rail bracket between the newel posts and fix to the LD578 Aluminium Rail by drilling 3mm holes and screwing using the self-tapping screws supplied (Fig.23). Insert the 8mm socket caps supplied into the bottom part of the bracket and secure using a 6mm allen key (Fig.24). Slide the LD577 Newel Post to Timber Rail Support Bracket into the newel post and set at the same height as the LD576 Rail to rail bracket using a spirit level (Fig.25). Lock into position by tightening the grub screw using 4mm allen key as previously detailed in (Fig.21).



The LD585 Hardwood Rail is supplied in 2200mm lengths. Installation of this rail should be done in sections as the rail is inserted through both the LD576 Rail to Rail bracket and LD577 Newel to Timber Rail support bracket (Fig.26). On multiple runs of 1004mm spans the LD585 Hardwood Rail should be cut to length so that 2 lengths of rail can be fixed into the LD576 and LD577 brackets (Fig.27). Fix the rail to the brackets using the No 8 screws supplied.

Drill through the holes in the LD577 bracket into the LD575 newel post using a 3mm drill bit and fix the bracket to the post using the self-tapping screws supplied as previously detailed in (Fig.22)

At the ends of runs and where the configuration turns through 90° the LD585 Hardwood Rail can be capped using the LD583 End Cap. Place cap onto the end of the rail, pilot drill and fix using the screws supplied (Fig.28). Apply the self adhesive Richard Burbidge badge over the screw fix to finish.

As well as external corners the LD577 Newel to Timber Rail support can also be used on internal corners by using additional LD576 Rail to Rail brackets set in from the posts (Fig.29).

As an alternative to the cap you may prefer to mitre the rails (Fig.30).

Before the top hats are inserted into the newel posts some of the plastic infill strips should be cut to length and fixed.

Insert top hats over all threaded bars in all newel posts (Fig.31) and secure using nut and washers supplied (Fig.32). Final check and tighten all fixings in all posts and rails.

Fixing Balusters & Timber Panels

Once the spacing of the balusters has been calculated the baluster brackets should be fixed to the bottom and top rails by drilling through the holes in the baluster brackets and into the rails using a 3mm drill bit and fixed using the self tapping screws supplied (Fig.33). To fix the balusters, mark centrally 20mm from the end of the balusters and pilot drill to a depth of 15mm using a 3mm drill bit (Fig.34). Position the balusters to the front of the brackets using the Richard Burbidge logo on the front of the brackets to obtain the correct height. Screw into position using the screws and washers supplied (Fig.35)

Fixing Glass Panels

Large glass panel brackets are spaced at 600mm centres and the Small glass panel brackets at 200mm centres.

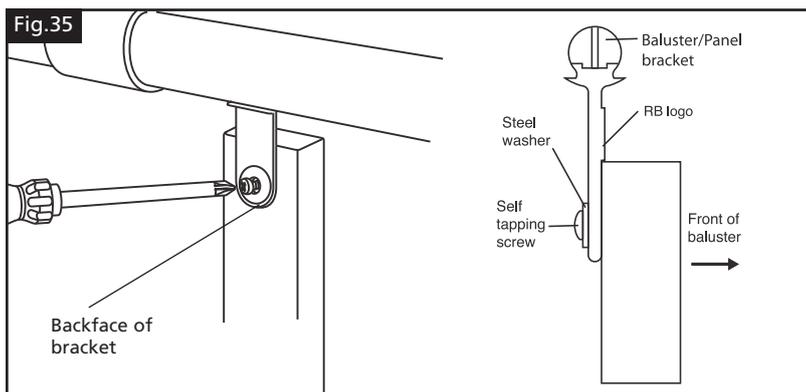
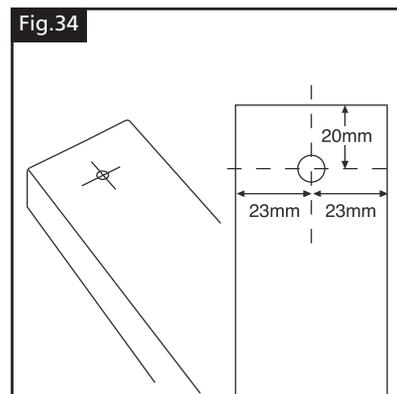
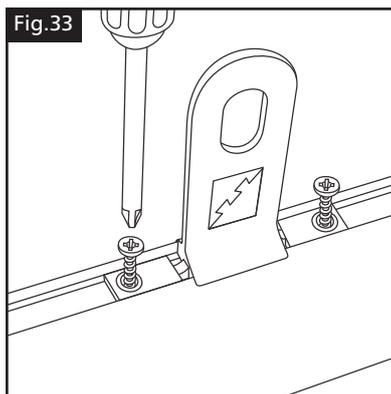
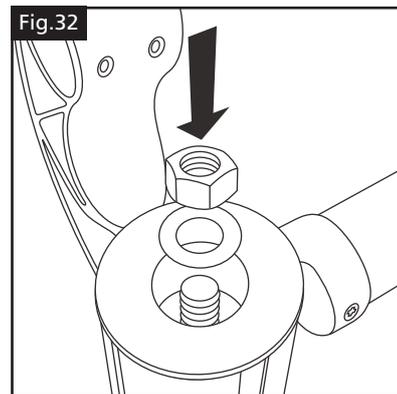
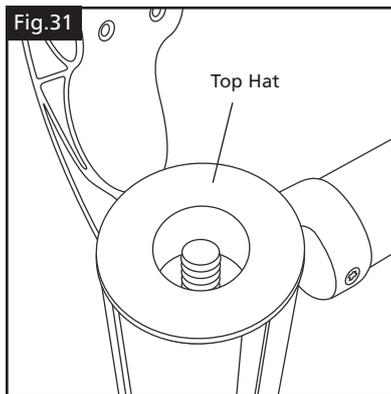
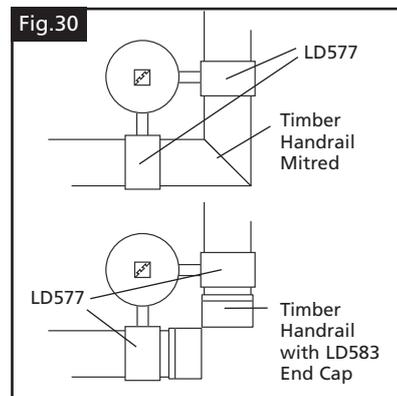
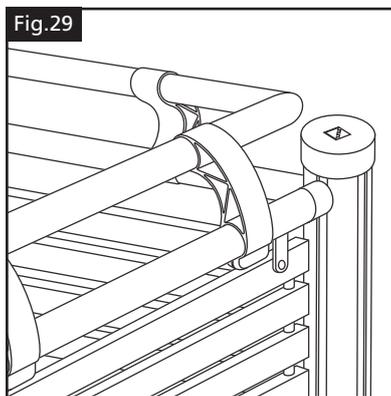
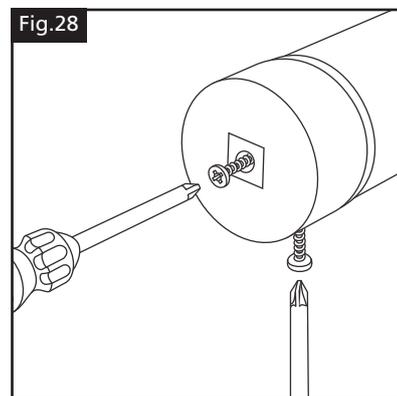
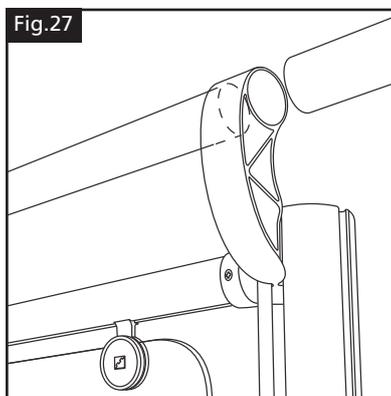
Space the brackets accordingly and fix the self-adhesive pads and nylon sleeves supplied to the brackets (Fig.36). Fix 1st part of the bracket to the bottom and top rails by marking drill positions (Fig.37), move brackets to one side and drill through the rail using a 3mm drill bit.

Reposition the brackets so that the holes in the bracket align the holes in the rail and fix brackets using the self tapping screws supplied (Fig.38).

Position the holes in the glass panel over the 1st part of the bracket and position and fix (not fully) the 2nd part of the bracket through the centre hole screw position, do not fully screw as you need to now position and fix 1 x 4mm socket cap screws into the base of the bracket using a 3mm allen key (Fig.39). Finally screw centre screw tight and insert self adhesive bolt cover badge (Fig.40).

Post Caps & Plastic Infill

Fix all the newel base post caps by applying a bead of silicone to both parts of the cap and click into position and fix to the newel posts by drilling using a 3mm drill bit and using the self tapping screws supplied (Fig.41). Cut and fix the plastic infills to length using a junior hacksaw and push into the grooves of the posts and rails (Fig.42). The top cap is fixed to the top of the post by screwing down onto the threaded bar. Align the Richard Burbidge logo with the top rail and fix cap to post using the 2 x self-tapping screws supplied (Fig.43).



Wall Fixing

Where FUSION® Commercial Outdoor balustrade ends against the wall use the LD582 Aluminium Rail to Wall Bracket.

Measure the distance in millimetres between the inside faces of the newel post and wall and subtract 26mm.

Example – Span between inside faces of newel posts = 850
 $- 26 = 824\text{mm}$.

Mark and cut the bottom rails accordingly using a hacksaw. To avoid damage and furring place masking tape over the point to be cut (Fig.9).

In the channel of the rails drill 2 holes using a 3.5mm drill bit at a distance of 25mm and 40mm from each end (Fig.10).

Apply a bead of silicone on the face of a rail bracket supplied with the LD578 Rail (Fig.11) and insert the bracket into one end of the rail only. Wipe off any excess silicone and drill through the larger previously drilled 3.5mm holes using a 3mm drill bit (Fig.12) and fix using the self-tapping screws supplied (Fig.13). Drill through the holes in the side of the bracket using a 3.5mm drill bit and fix using the self-tapping screws supplied (Fig.14). Insert the appropriate number of timber or panel brackets into the rail.

Push the LD582 wall bracket onto the other end of the rail making sure to apply a bead of silicone on the end of the bracket to be inserted as (Fig.11). Wipe off any excess silicone and drill through the larger previously drilled 3.5mm holes using a 3mm drill bit as (Fig.12) and fix using the self-tapping screws supplied (Fig.13).

Drill through the holes in the side of the wall bracket using a 3.5mm drill bit and fix using the self-tapping screws supplied (Fig.14).

Set the bottom rail at 99mm above the surface of the concrete or timber deck by using 2 lengths of 50 x 50 x 99mm timber packers (Fig.44). With the Richard Burbidge logo on the baluster or panel brackets facing outwards away from the area to be balustraded, slide the rail and baluster bracket assembly between the post and wall down until it rests on the 99mm timber packers. Plumb the wall so that the rail is in the same plane as the post and mark, drill and plug the wall using suitable wall fixings for the type of wall construction and to suit No 10 x 50mm stainless steel screws. Fix the bracket to the wall.

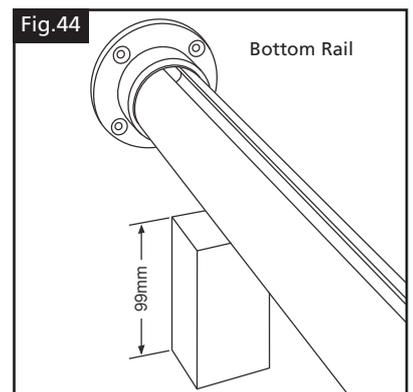
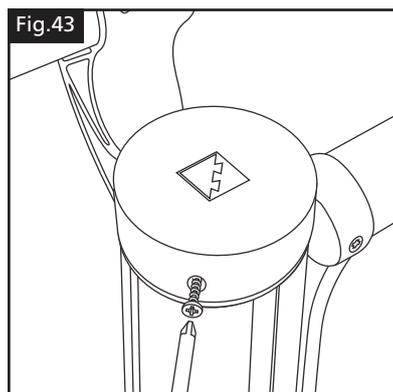
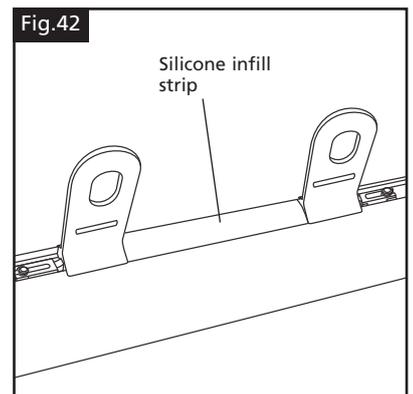
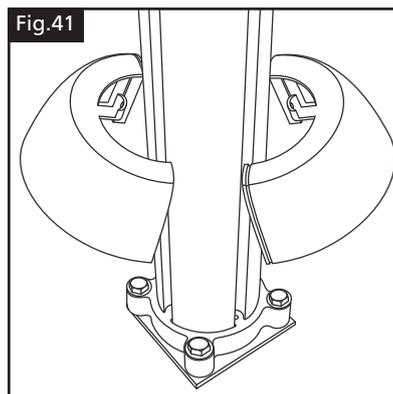
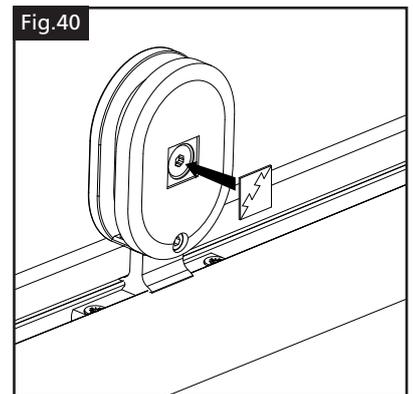
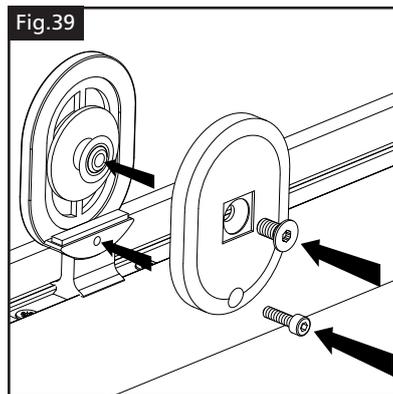
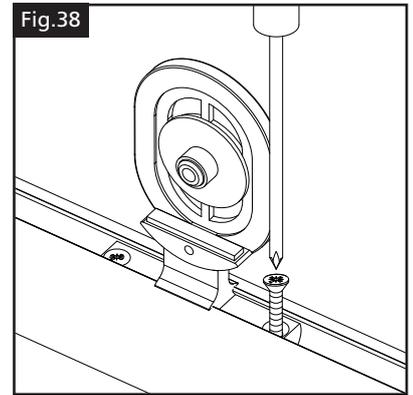
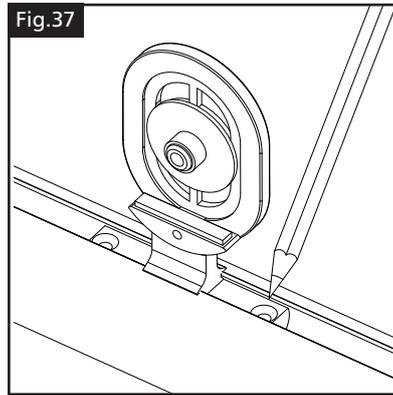
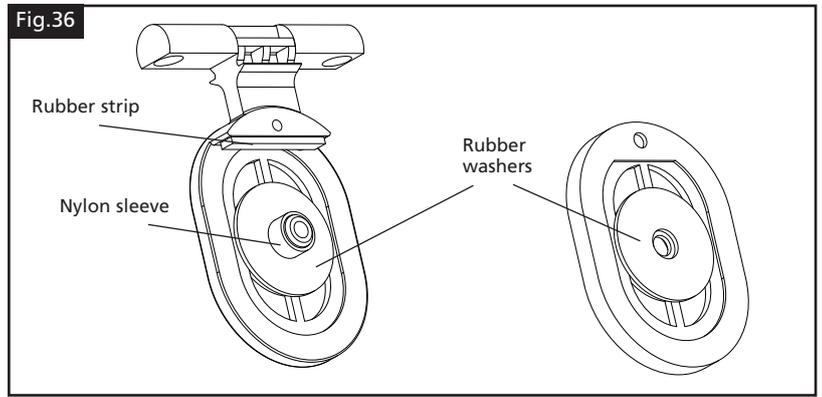
Repeat for the top rail making sure that the LD576 rail to rail bracket is also inserted. The top rail should be set 795mm above the bottom rail, use 2 lengths of 795 x 50 x 25mm timber battens as guides and slide the top rail assembly between the post and wall until it rests on top of the timber battens (Fig.45). Using a 4mm allen key fix the grub screw into the bracket (Fig.21) and then fix to rail as previously described by drilling 3mm holes through the 3.5mm holes (Fig.12) and securing with the self tapping screws supplied (Fig.13). Drill through the rail bracket to the newel post using a 3mm drill bit and fix with the self-tapping screw supplied (Fig.22).

Slide a length of LD585 Hardwood rail into the LD576 rail to rail and LD577 post to rail brackets until the rail meets the wall and mark the rail position to the wall using a pencil (Fig.46). Remove the hardwood rail and mark, drill and fix the LD583 End Cap using the No 8 x 38mm screw supplied and wall fixing appropriate for the wall construction and No 8 screw (Fig.47). Slide the hardwood handrail into the End Cap and mark and cut the handrail to the required length. Push the cut to length handrail into the End Cap and fix to End Cap using the No 8 x 19mm screw supplied (Fig.48).

Maintenance

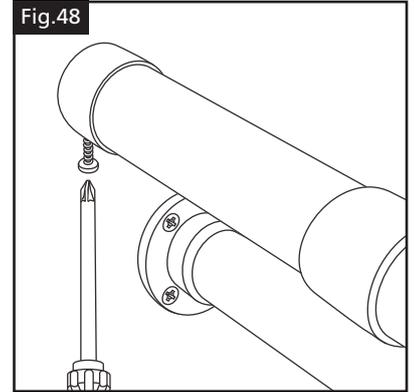
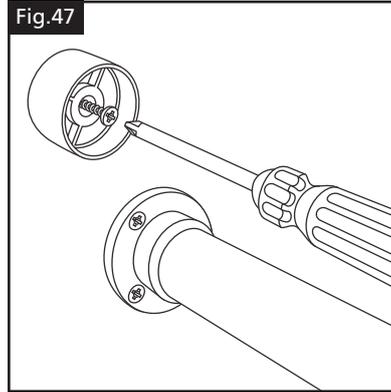
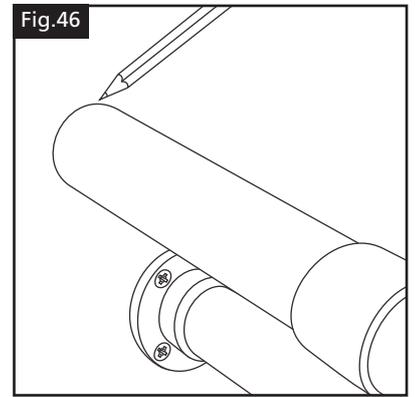
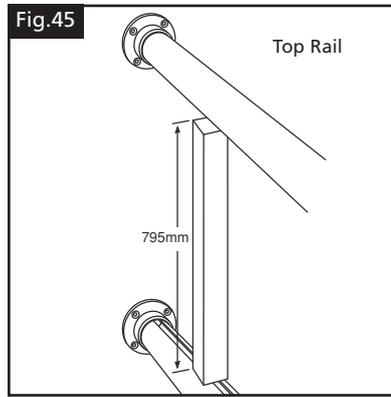
For all non-timber components use a soft cloth, luke warm water and mild detergent. Do not use abrasive cleaners and scourers, as these will damage the surface coating.

Timber components are manufactured from durable hardwoods and should be treated twice yearly with teak oil. It is perfectly natural as the timber weathers for some surface splitting and checking to occur and these natural defects should have no effect to the timber components performance.



Safety

For obvious reasons, do not use barbecues or sources of extreme heat near timber decks or FUSION® Commercial Outdoor Balustrade.



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