



eSafety Supplies

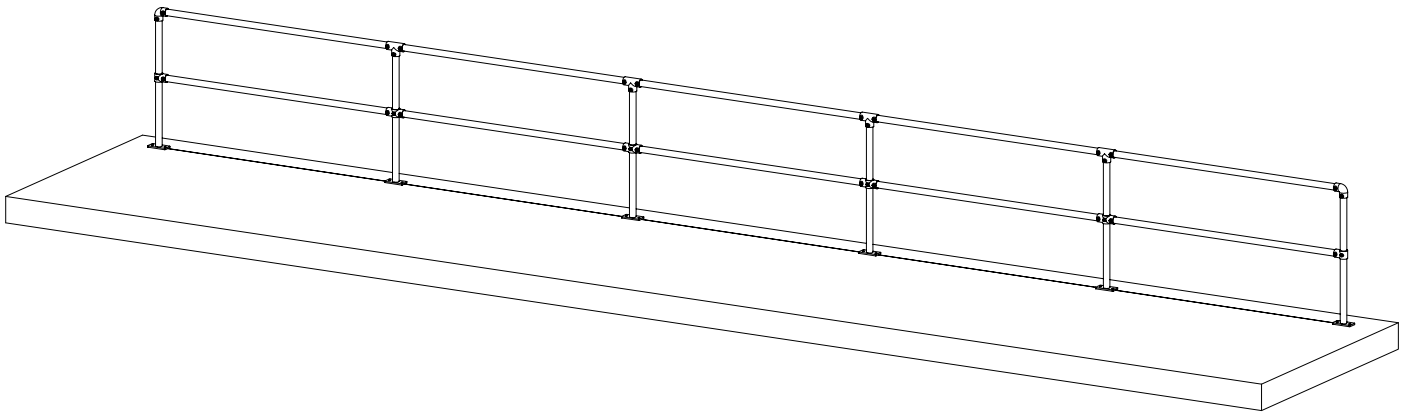
# **TYPICAL INSTALLATION GUIDELINES**

# INSTALLATION CHECKLIST

Items for installation	Descriptions
	Basic Tools to assemble Tubeclamp fittings.
Fittings	The fittings supplied by Tubeclamp.
Tubes	Steel or aluminum round tubes.
Allen Key	Size A and B fittings typically use 6mm. Size C, D, and E fittings typically use 8mm.
Measuring Tape	To ensure that the fittings are in the correct position.
Spirit Level	To ensure the tubes level with the ground.
	<b>Tools required to drill into walls and floors.</b>
Drill	Tool used to make holes into concrete or brick. Must use a hammer action drill. (Optional tool Rotary Hammer Drill).
Drill Bits	To drill into concrete or brick, masonry drill bits are necessary.
Tube Cutting Tool	Angle grinder with metal cutting disc, or drop saws with metal cutting disc, or metal cutting circular saw.
Extension Cord	To power drill and saw at more suitable locations.
Mark Out Medium	Mark out locations for mounting the fittings (e.g. chalk, pen, spray paint, etc).
Permanent Marker	Mark where the tubes require cutting.
Metal File	To debur any sharp edges on the cut tubes.
Dust Pan & Brush	Clean the area around the hole after drilling.
	<b>Tools required to fasten structures to walls and floors</b>
Fasteners	Used to fix fittings permanently into place. For detailed information seek competent persons.
Fastening tool	Tool used to tighten the fastener. For further detail seek competent persons.
Hammer	Used to set items into place (e.g. putting fasteners into mounting holes).
	<b>Optional items</b>
Washers or Packers	Used to help level the base fittings if ground is not level.
Pliers	Used to pull incorrectly installed fasteners out.
	<b>Safety Equipment</b>
Safety glasses	Protect eyes when drilling concrete or cutting steel tubes.
Working gloves	Worn during the entire installation.
Ear plugs	Protect ears when drilling into walls or floors.
Sunscreen	When working outdoors.

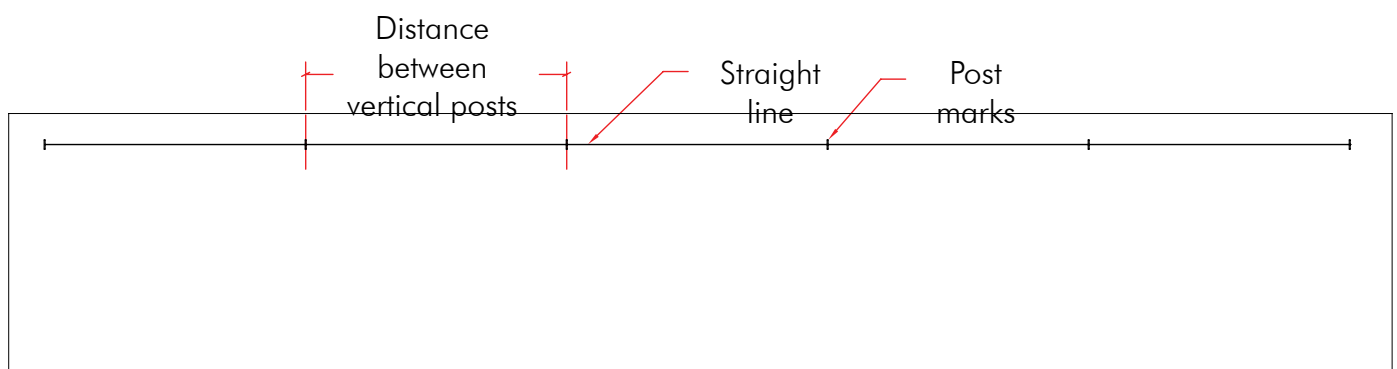
# INSTALLATION GUIDELINES

The procedure shown in the following pages is a step by step process to installing a handrail efficiently. Tubeclamp installers use this method with successful results, however, installers may choose their own methods if they wish. Before commencing any installation project, check that all fittings and tubing are present. Also check that all tools are available and in working order.



**STEP 1** Ensure that all equipment is present before starting install.

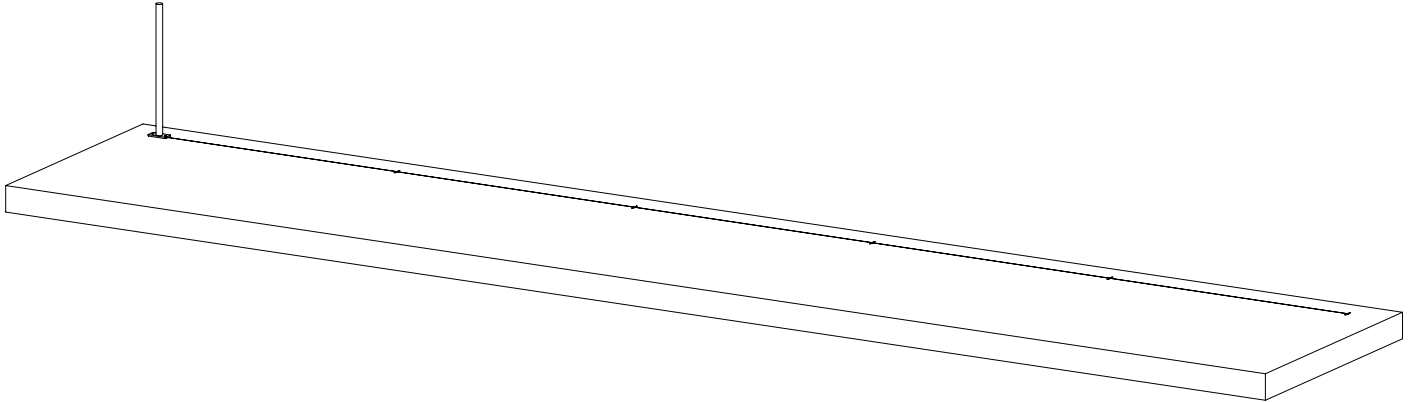
The best method to produce a straight handrail is to use a chalk line. Using just a tape measure is fine, however, double and triple check that your marks are in-line and the distances between each post is correct. This is the most important step so do this carefully and don't rush this step. It is very easy to modify your marks now than to change them after installing handrail.



**STEP 2** Mark out all the positions of the vertical posts, or just the next couple posts. The best method to produce a straight handrail is to use a chalk line. Using just a tape measure is fine, however, double and triple check that your marks are in-line and the distances between each post is correct. This is the most important step so do this carefully and don't rush this step. It is very easy to modify your marks now than to change them after installing handrail.

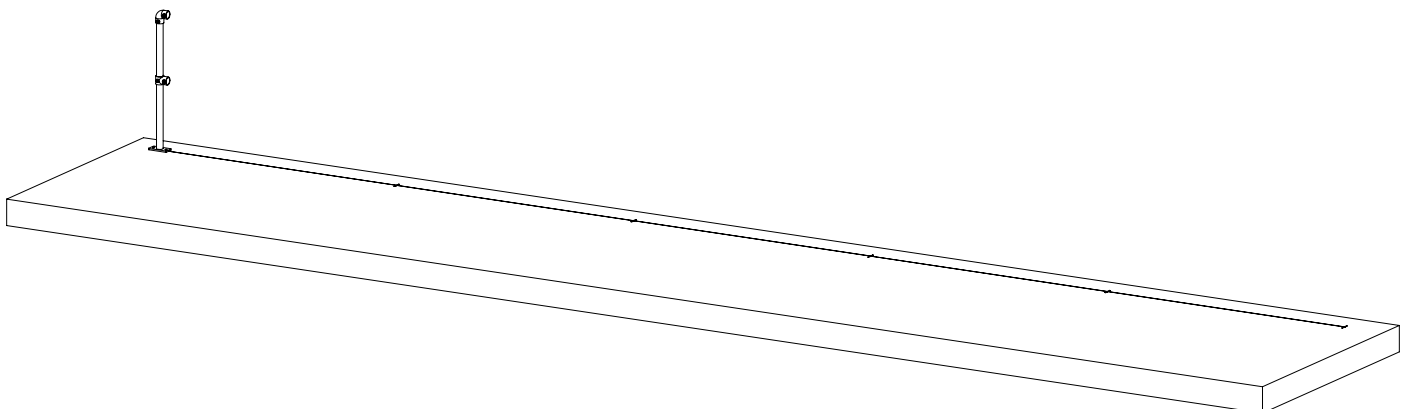
# INSTALLATION GUIDELINES

Double check that your first post is positioned in the correct orientation. The position of the first post should determine all future posts to ensure that your handrail will have a uniform look. See Figure 16 for more information.



**STEP 3** Place your first vertical post into place

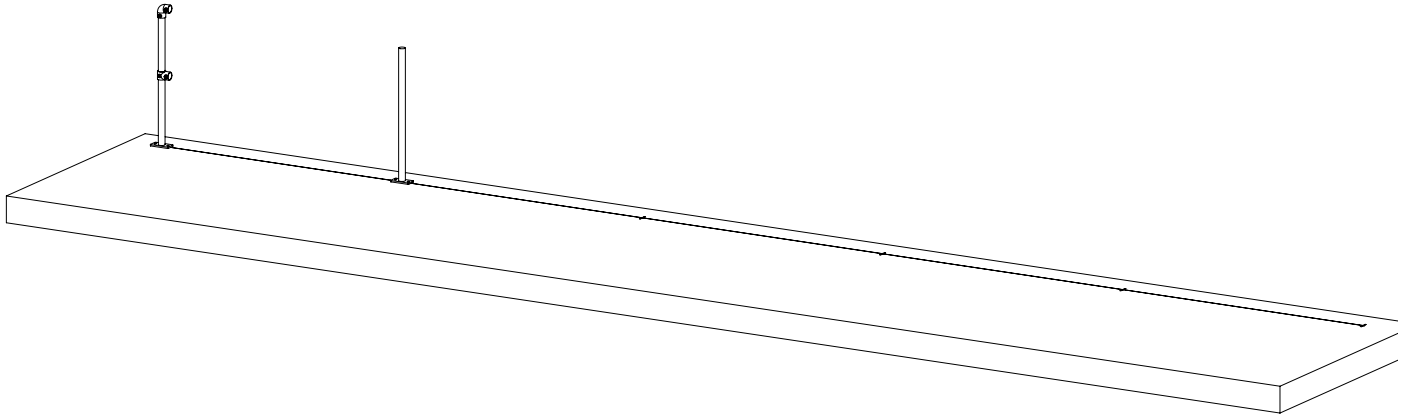
When you have drilled out the holes, remove the dust from each hole. Place the post over the holes and insert your concrete fasteners. Secure the fasteners until the post does not move when pushed. Place any necessary fittings onto the post and just tighten the grub screws such that they stay in place.



**STEP 4** After mounting the post using concrete fasteners attach the starter fittings.

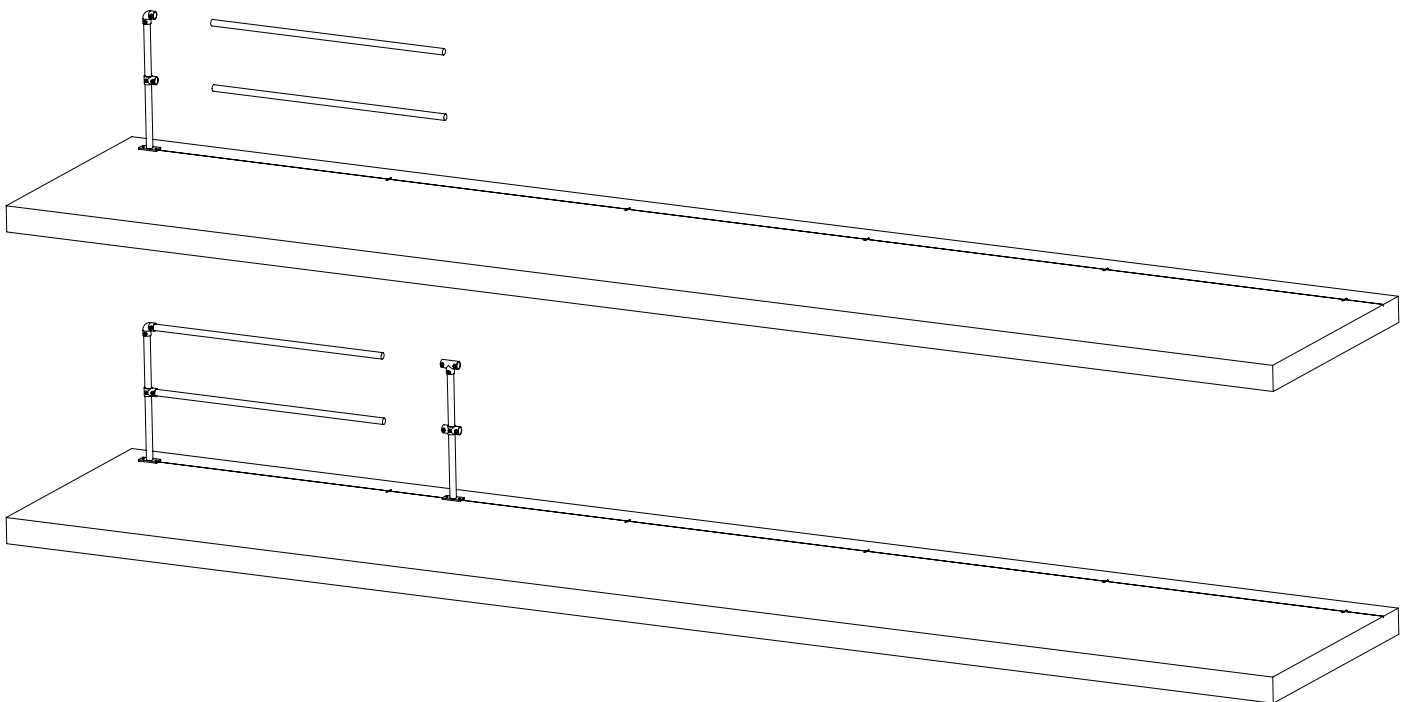
# INSTALLATION GUIDELINES

Position the next post onto the marked layout drawn previously. Double check the distance between the two posts are correct. Drill the holes and remove all the dust and debris.



**STEP 5** Drill the holes for the next post.

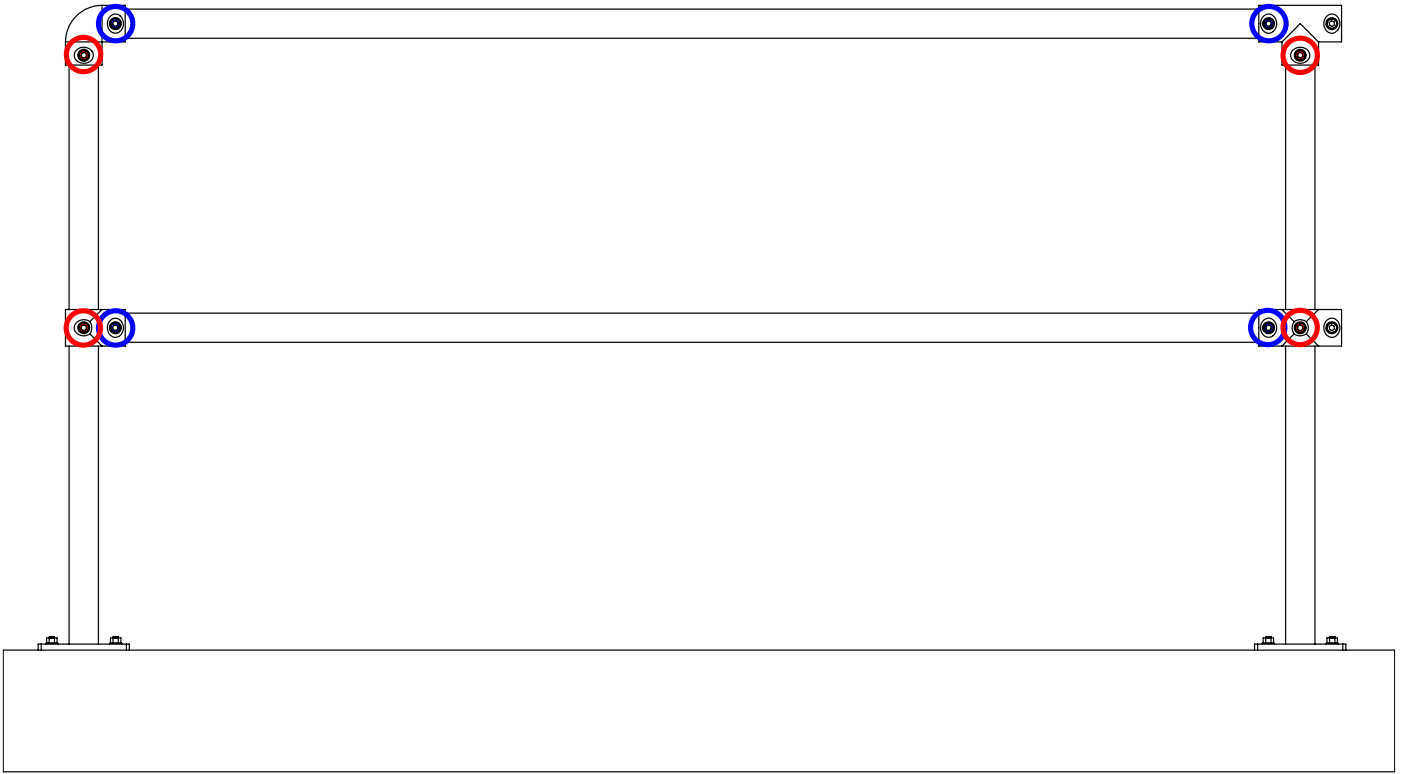
Slide the horizontal tubes into the end post. Then pre-install the second post with its necessary fittings and bring the post up to the drilled holes; and secure the second post into place. Lightly fasten the tubes into place.



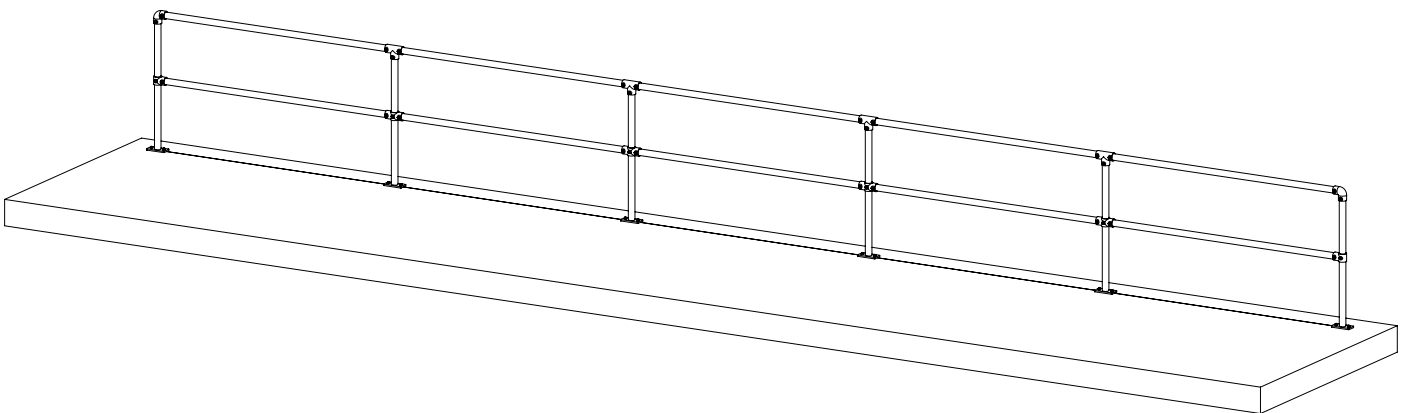
**STEP 6** Install the horizontal tubes and second vertical post.

# INSTALLATION GUIDELINES

To get the fittings into position, tighten the grub screws indicated with the blue circles first. Then adjust the fitting to the correct height and tighten the grub screws in the red circles. Continue this until all grub screws are tightened.



**STEP 7** Tighten the grub screws in the blue circles first. Then tighten the grub screw in the red circles.



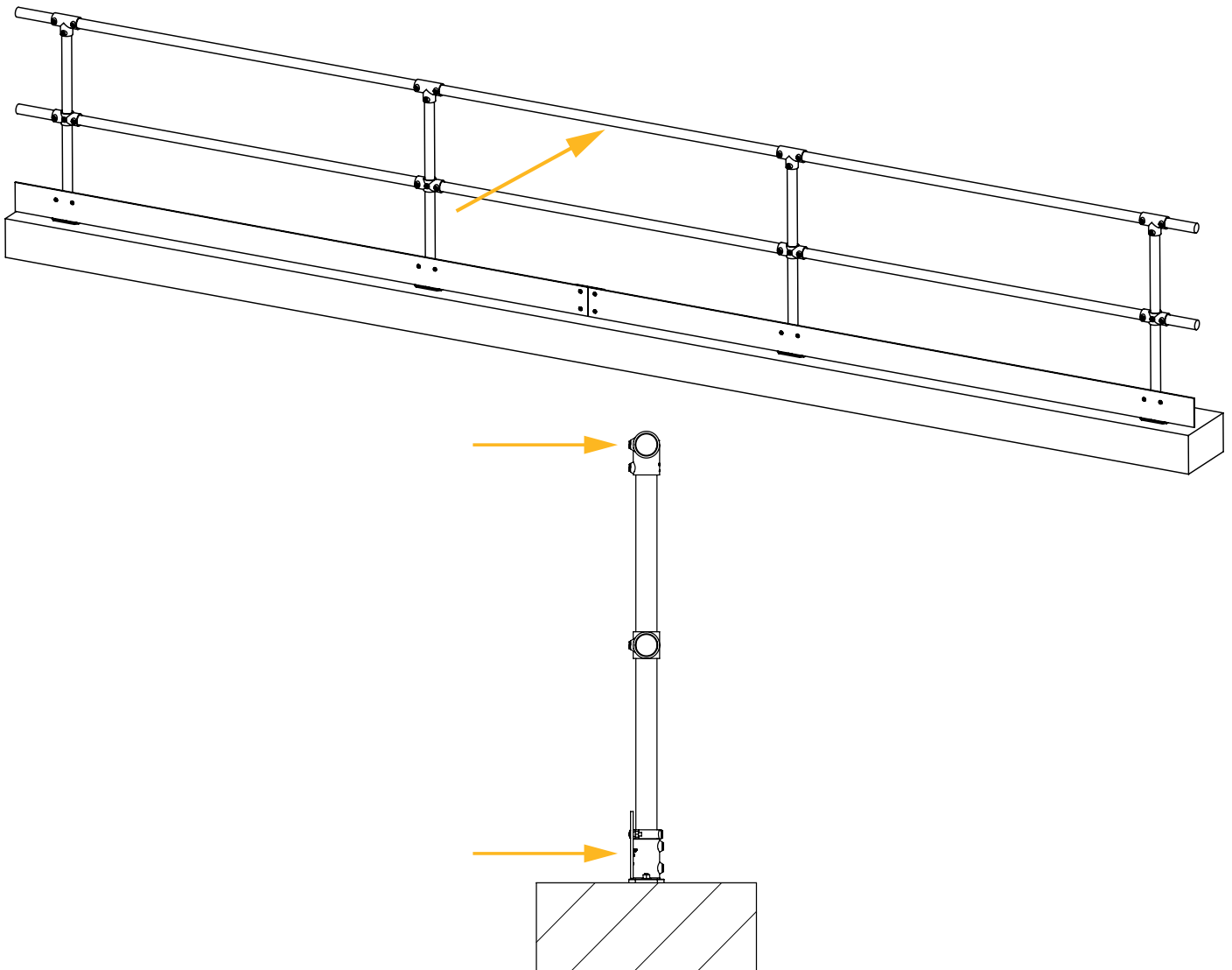
**STEP 8** Repeat step 5 to step 7 until handrail is completed.



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# HANDRAIL TESTING

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## Handrails

When the handrail has been installed. Test the handrail by pushing the handrail horizontally at each post and top rail. Push it with a force of 600N (about 60kg). If the handrail returns to neutral position without deflecting more than 100mm then the handrail passes (less is better).

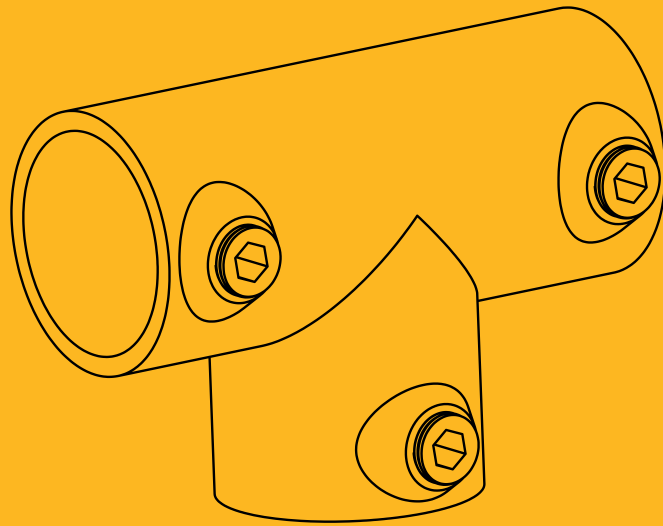
## Toe-boards / Kick-boards

Push with a force of 100N (about 10kg) horizontally at the midway point between posts. If the toe-board / kick-board deflects no more than 10mm. Then the boards pass (less is better). Test along the entire length of handrail.

Please refer to Australian Standard AS 1657-2013 Appendix B, Fixed platforms, walkways, stairways and ladders - Design, construction and installation.

**For video footage of our in-house test, Please refer to our youtube channel - Tubeclamp TV**





# ADVANTAGES OF USING TUBECLAMP FITTINGS

## STRONG



Made from ductile cast iron, our products are built to last. Tubeclamp fittings are capable of holding a maximum of 5,650N (575kg - tested in house). This can be achieved simply by tightening the grub screws using an Allen key. Using such an easy mechanism, everyone can build robust and artistic objects.

## MODULAR



Modular structures eliminate design and engineering costs as well as on-site fabrication issues while reducing installation costs. Tubeclamp fittings can be adapted or extended with additional components, and easily adjusted on-site.

## NO WELDING



Designed for ease of use, our Tubeclamp fittings are created for the modern construction environment. It combines the benefits of strength and durability without the need of specialised tradesmen, hot work permits, fire spotters, and welding protection to finished surfaces.

## SAVE TIME



Our innovative and cost effective system enables any individual the ability to connect and build structurally secure objects without the need for time and labour intensive alternatives.

## SUPPORT



From design to installation, you can rest assured, Tubeclamp products are backed with the experience and expertise to find a solution to meet your exact needs.