Freestanding Guardrail system

Operation and Maintenance Manual

SPECIFICATION

Free Standing Edge Protection System - Specification

GENERAL DESCRIPTION

Our freestanding edge protection system is a cantilevered guardrail system that does not require any mechanical fixing into the roof surface. This system has been designed and manufactured to fully comply with current H.S.E regulations.

MATERIAL

The main and intermediate uprights are fabricated from 2mm hot dipped galvanised steel equivalent to BS EN ISO 1461, with the upper and lower cross rails manufactured from 1.5mm x 48.3mm external diameter galvanised steel. Also available polyester powder coated.

The rubber counterweight is manufactured from 100% recycled rubber compound with the fixing screws manufactured from zinc-coated steel.

SAFETY STANDARDS

Our Freestanding guardrail is tested to the following safety standards:

- HSG-33 Health and safety in roof work.
- HSE INDG 284 “Working on roofs”.
- EN ISO 14122 Part 3.
- EN 13374 Class A.
- BS 6399: Part 2 1995 Wind Code.

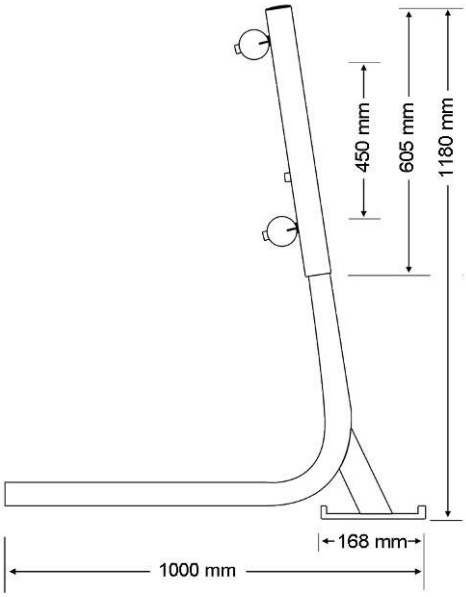
TEST PROCEDURE

Our Freestanding guardrail was tested to the Health and Safety executives specialist inspectors report No 15 by the British Standards Institute and the National Engineering Laboratory.

- All testing was carried out on a roof pitch of 10˚ as the building regulations stipulate that a flat roof can be installed to a maximum pitch of 0-10˚.
- All the testing was carried out on a standard 5m run of guardrail without any end returns.
- A 0.7kN load was applied to the top rail at the end of a 5m run without moving more than 100mm at the base.
- A 0.3kN load was applied to the top rail between the uprights, the tube deflection did not exceed 35mm.

SYSTEM COMPONENTS

Free Standing Edge Protection - System Components



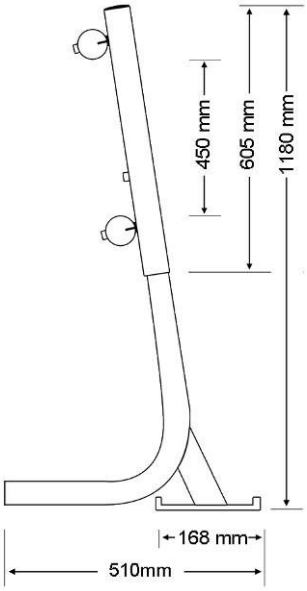
THE MAIN UPRIGHT

The main upright sits on the roof and has a 20kg counterbalance weight attached, and the adjustable top riser unit.

The foot of the upright which rests on the roof is protected by a rubber isolation pad. By loosening the fixing screws in the body of the top riser, the unit can be moved up and down the main upright to adjust the height of the top and middle rails or to raise and lower the main upright.

MATERIALS
The main upright is manufactured from 2mm x 48.30mm steel tube, which has a hot dipped galvanised coating and is available powder coated to any RAL colour.

NOTE: Main upright shown here with top riser unit attached.



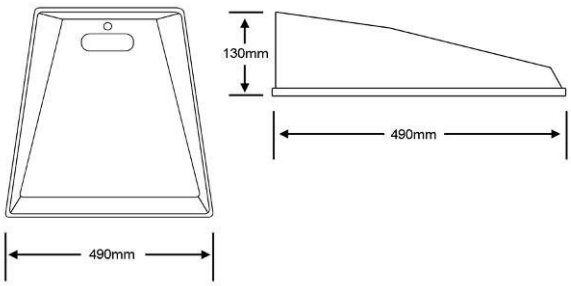
THE INTERMEDIATE UPRIGHT

The intermediate upright is a shortened version of the main upright and is designed to be installed un-weighted as an intermediate support. Just as with the long upright, this component consists of two separate components but is delivered pre-assembled ready to install.

The intermediate upright also features the protective rubber pad to isolate the foot from the roof membrane.

MATERIALS
The main upright is manufactured from 2mm x 48.30mm steel tube, which has a hot dipped galvanised coating and is available powder coated to any RAL colour.

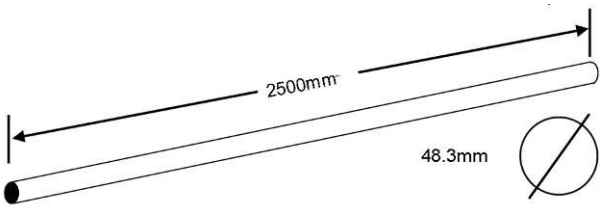
NOTE: Intermediate upright shown here with top riser unit attached.



THE 20KG COUNTERWEIGHT

The weight is designed to be attached to each of the main uprights, and is fixed in place with a small zinc coated grub screw which provides the necessary counterbalance weight to prevent the system from being moved.

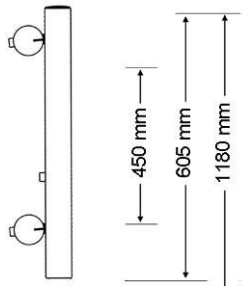
MATERIALS
The 20kg weight is manufactured from 100% recycled rubber compound.



THE 2.50M RAILS

All the main cross rails are supplied pre-cut to 2.50m lengths for ease of installation. This fixed length means there is no need to measure or cut the tubes to ensure the uprights are spaced evenly.

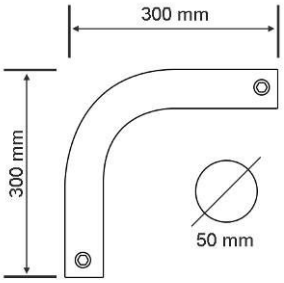
MATERIALS
The lightweight main rails are manufactured from 1.5mm light gauge steel making them easy to cut and transport and are galvanised coated to BS EN ISO 1461 and are available powder coated to any RAL colour.



THE TOP RISER UNIT

The top riser unit connects to the top of each upright and allows the top and middle rails to be evenly spaced whilst allowing the overall height of the rails to be adjusted to suit different applications.

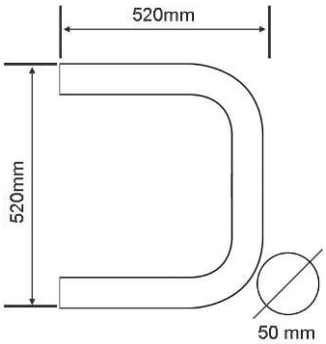
MATERIALS
The top riser unit is manufactured from 2mm steel and are galvanised coated equivalent to BS EN ISO 1461.These are also available powder coated to any RAL colour.



THE SWEPT BEND

The SC90 is an ergonomically designed 90˚ swept bend. This flexible pre-formed component can be used for both horizontal and vertical bends The fitting incorporates zinc coated grub screws for easy installation.

MATERIALS
The swept bend is manufactured from 2mm steel and is galvanised coated equivalent to BS EN ISO 1461.These are also available powder coated to any RAL colour.



THE ‘D’ END

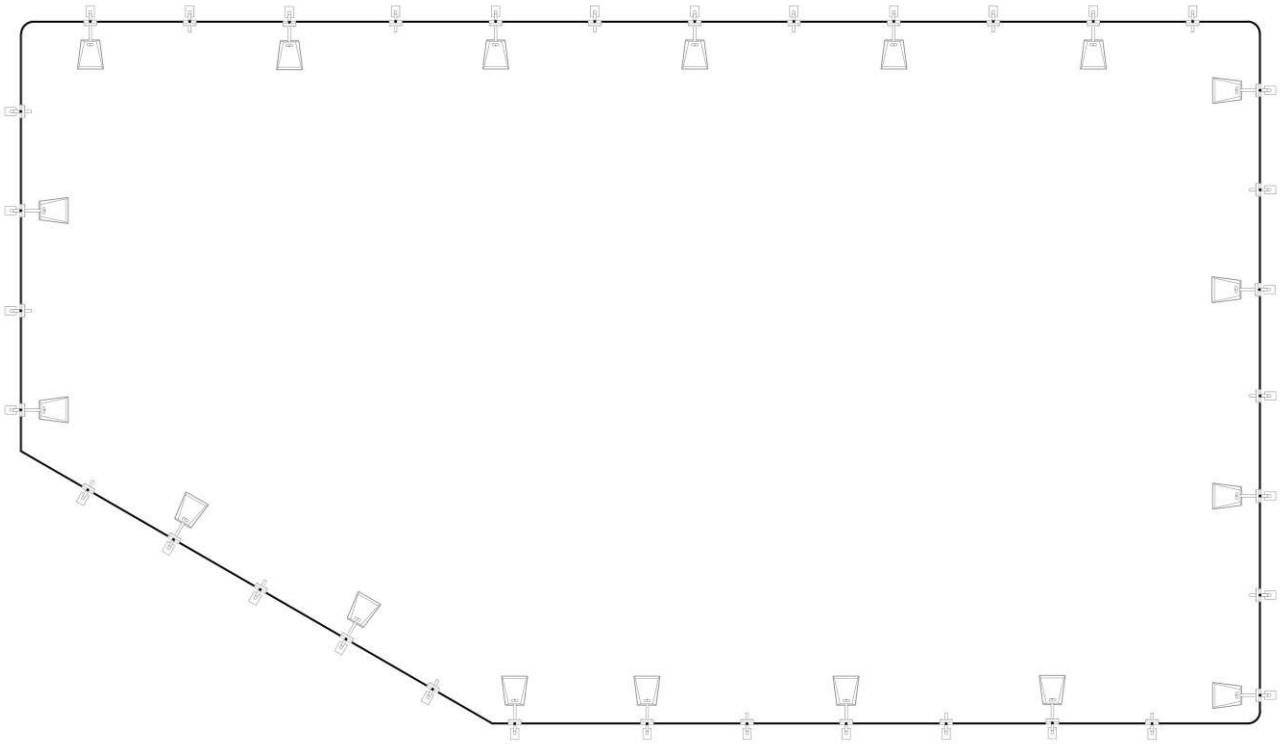
The pre-formed 180˚ bend inserts into the top riser and is a quick and convenient way of terminating a run of guardrail. This flexible pre-formed component can be used for both horizontal and vertical terminations.

MATERIALS
The ‘D’ end’s are manufactured from 2mm steel and is galvanised coated equivalent to BS EN ISO 1461.These are also available powder coated to any RAL colour.

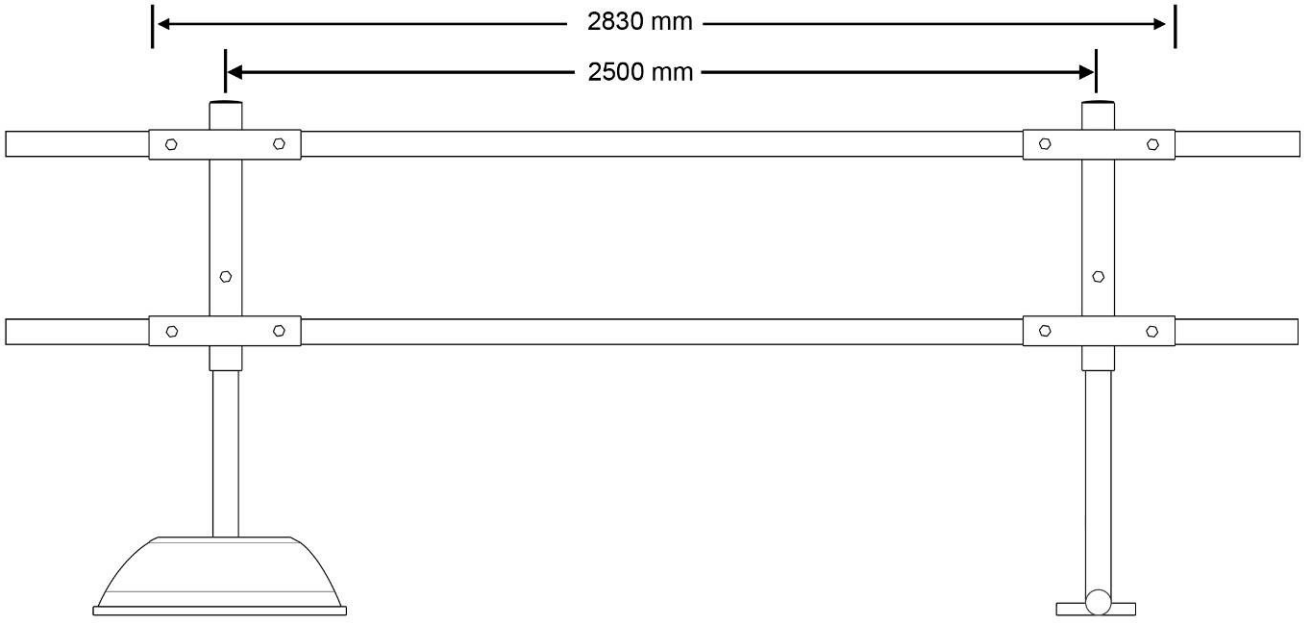
CONFIGURATION

Free Standing Edge Protection - System Configuration

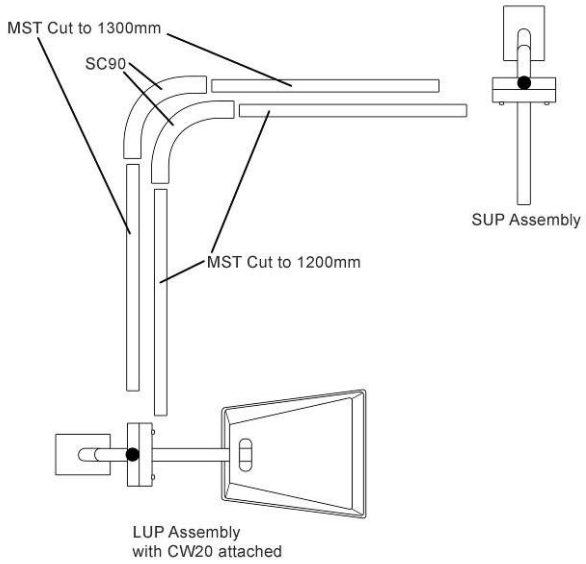
TYPICAL LAYOUT



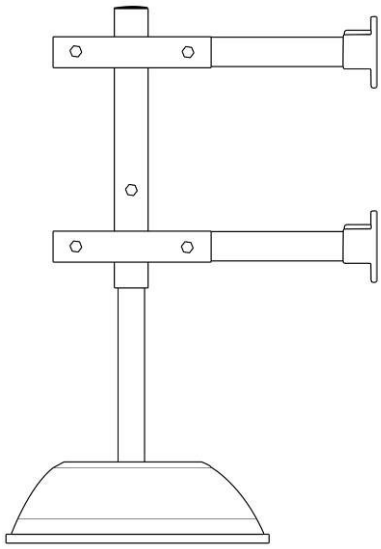
INSITU DIMENSIONS



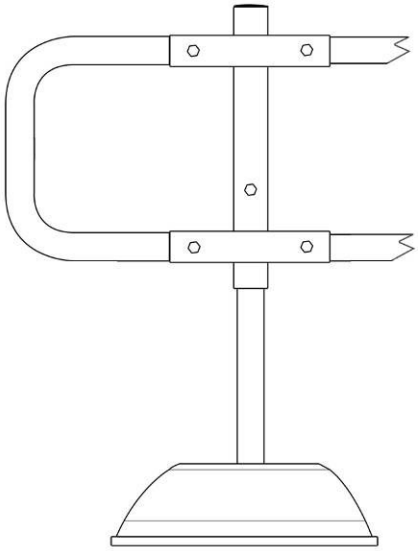
TYPICAL CORNER DETAIL



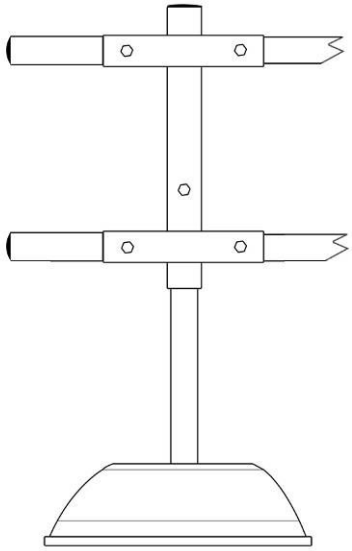
TYPICAL WALL FLANGE TERMINATION DETAIL



TYPICAL 'D' END TERMINATION DETAIL



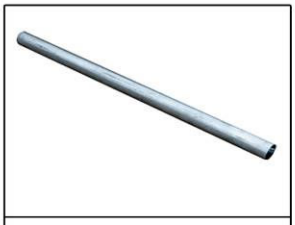
TYPICAL END CAP TERMINATION DETAIL



INSTALLATION

Free Standing Edge Protection - System Installation

Wherever possible the starting point for all installations should be the corners, remembering to carry out the initial setting out a minimum distance of 2m from the edge of the roof.



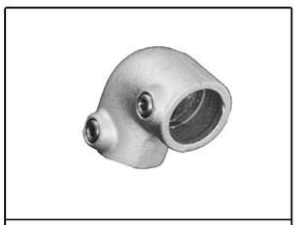
MST
2.5m handrail tube

LUP
Long Upright

SUP
Short Upright

CW20
20Kg counterweight

SC90
90 Deg swept bend



RC02
90 Deg elbow

RC11
Base flange

TRS
Top Riser

Step 1 - Corner assembly

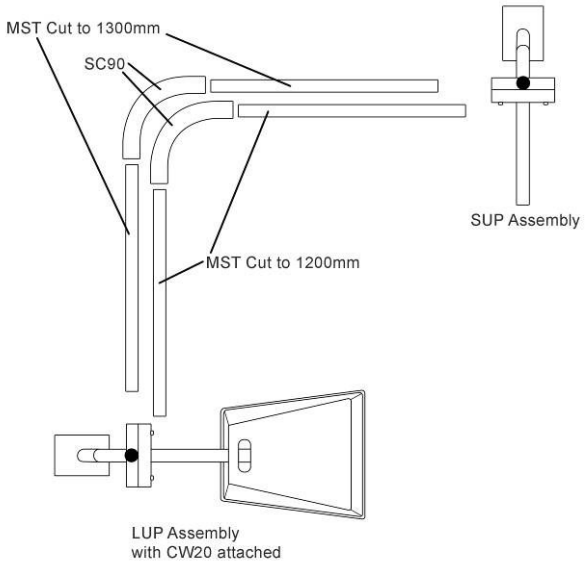
Begin by assembling a complete corner unit consisting of one LUP, one SUP, one CW20, two SC90 and two MST's cut to length.

Cut two MST's down to form two tubes at 1200mm and two at 1300mm.

Take the LUP's and connect a CW20, Insert one 1200mm tube into the top of the TRS, and one 1300mm tube into the bottom of the TRS, fully tightening the screws as you do so. Repeat the process for connecting the cut tubes to the SUP.

Join the LUP and SUP assemblies using two SC90's ensuring that all the screws are fully tightened.

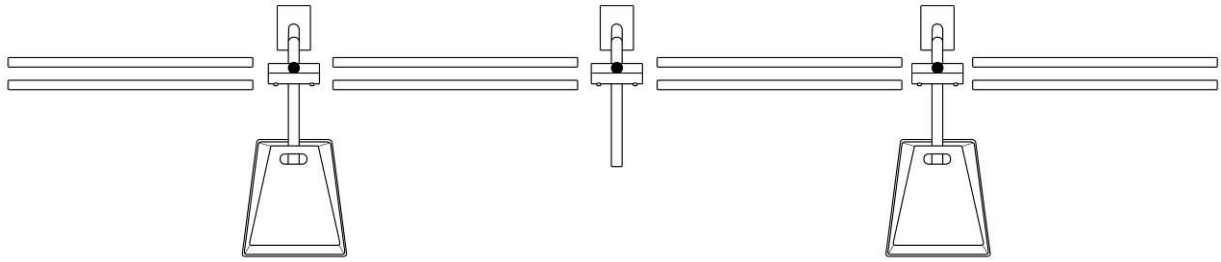
Using two people carry the corner assembly to the roof edge, being careful to remain behind the assembly at all times.



Step 2 - Setting out

Starting at the corner, place the 2.5m MST's end to end in pairs along the length of the roof and starting from the corner alternate an LUP and an SUP between each pair of MST's.

Once the LUP and SUP's are in place connect a CW20 counterweight to each LUP.

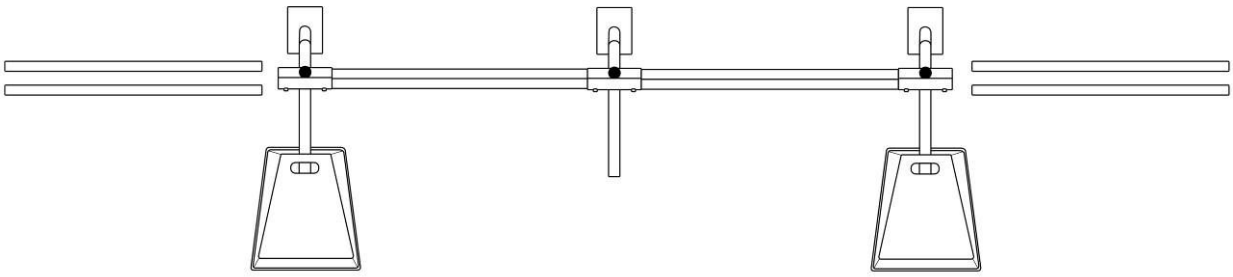


Step 3 - Section assembly

Once the setting out is complete continue to assemble the first 2 bay section by connecting the second and third pair of MST's to the first and second LUP's and fully tighten the screws.

Join these two LUP assemblies together using an SUP. You now have a completed two bay section.

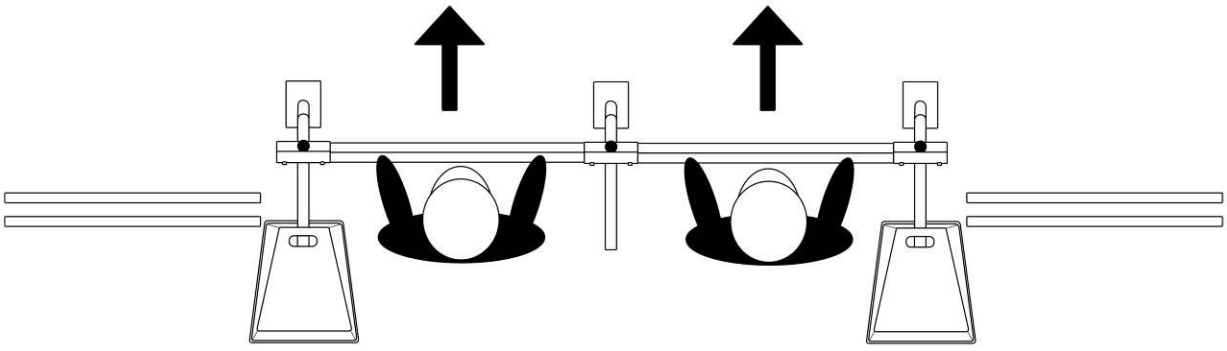
Repeat the above process until all the two bay sections are assembled.



Step 4 - Positioning.

Using at least two people positioned behind the assembly, carefully carry a two bay into position at the edge of the roof.

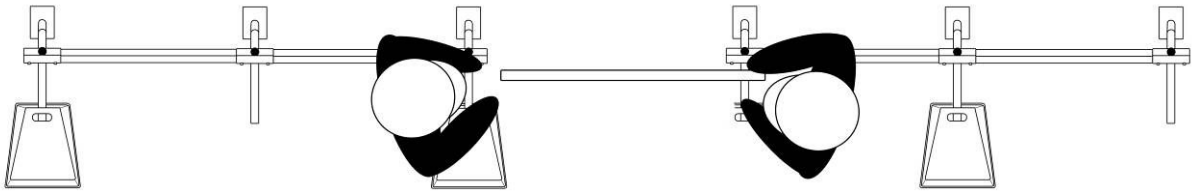
The two bay sections should be positioned leaving a single bay between each one.



Step 5 - Final assembly

Using the remaining MST's piece - in between the two bay assemblies.

By placing one person either side of the opening behind the existing handrail assemblies, connect the remaining MST's into the top and bottom of the TRS on each upright fully tightening the screws as you go.



RE-CERTIFICATION

Free Standing Edge Protection – Re-certification

- We recommend that the guardrail installation should be inspected periodically by a competent person. The frequency of these inspections will depend upon the environment, location, and utilisation, but should be at least every twelve months.
- Visual inspection of the complete installation in accordance with the current needs of the client. Check if any new equipment has been installed on the roof that may require further guardrail protection.
- Check against the original installation drawing to see if any part of the installation has been modified.
- Check that all counterweights are installed (this is essential in order to comply with wind calculations).
- Check all screws and fixings are in place and sufficiently tightened.
- Check the height of the top rails and that they are level.

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