



# SAFESITE

LIMITED

Think **Safety**, Think **Safesite**

## O&M - SYSTEM 2000

# System 2000 Edge Protection System

## PRODUCT SPECIFICATION

**FEATURES** :- System 2000 - Metal Counter Weight  
Adjustable Base Foot System

### GENERAL

Safesite System 2000 free standing guardrail system does not require physical fixing into the roof's structure/membrane. The complete system's design, manufacture, testing and installation has been externally assessed and tested to EN 13374.

### MATERIALS

System 2000 is fabricated from steel to BS EN 10025 S275 Grade and S275JO Grade. All steel components are then hot dipped galvanised to BS EN ISO 1461. All tubing is manufactured in steel - 48.3mm external diameter. (Wall thickness 3.2mm) All fixing screws are A2 Grade Stainless Steel and are greased before installation. All cast clamps used to join the guardrail are galvanised malleable cast iron produced to BS EN 1562 : founding malleable cast iron.

All components in contact with the roof membrane are covered with 3mm fluted rubber. Counter weights are totally fabricated in steel. Where tubing is cut on site zinc rich paint is applied to the cut end of the tube.

### LAYOUT

Height of guardrail is set at 1100mm. All vertical supports are set at no more than 2m centres with counter weights set at no more than 4m centres on a straight run. All stop ends are quadruple counter weighted or supported by way of a wall/ladder clamp.

### TESTING

All systems have been tested to EN 13374: Temporary Edge Protection Systems - Product Specification Test Methods and have been awarded a Class A Pass.

### WIND LOADING

All installations are wind speed calculated to BS 6399 : Part 2 : Code of Practice for Wind Loads.

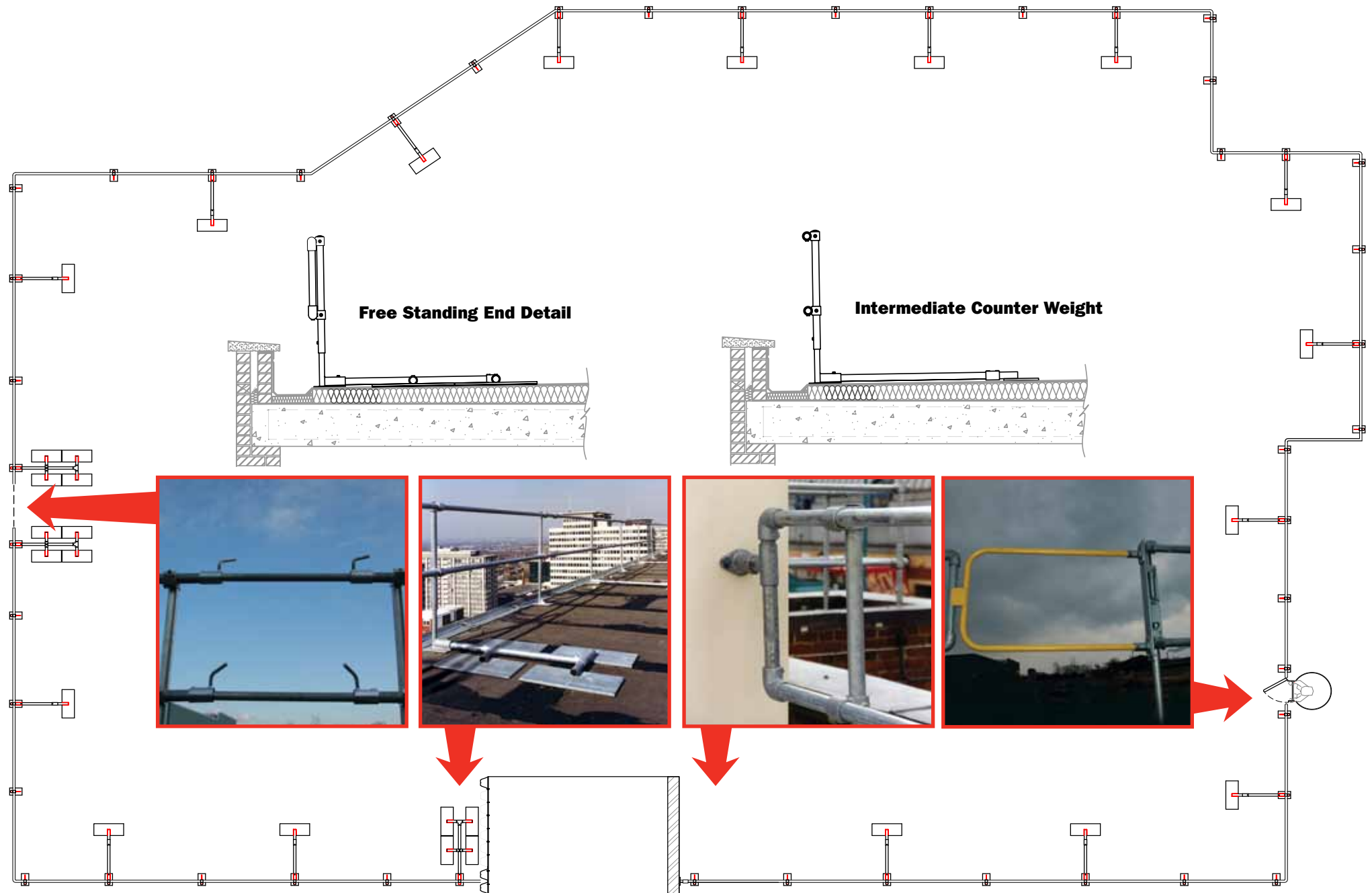


### SYSTEM PLAQUE - SL111

Provides details of the system and approvals. Material : Plastic.  
Net weight : 0.085kg.

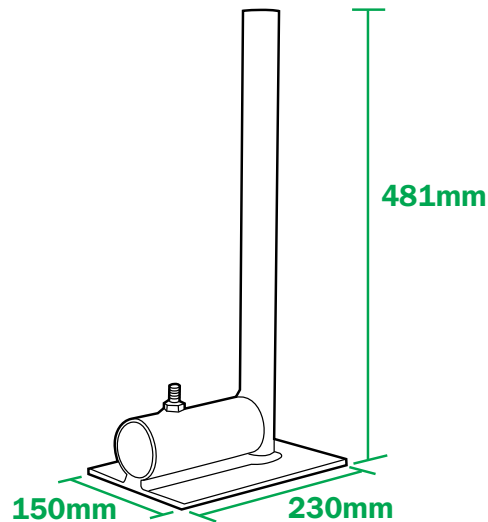


# Complies with EN 13374 Class A - Edge Protection System



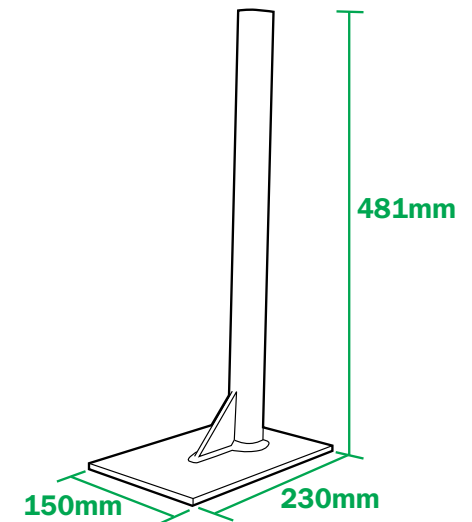


# System 2000 Edge Protection System



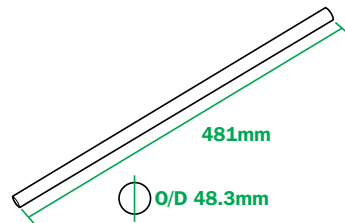
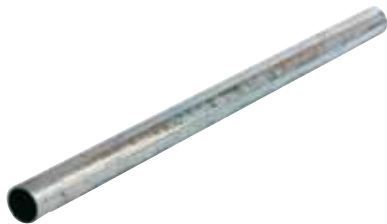
## **BASE FOOT - SL101A**

This component provides support to the system and is used where cantilever tubes and counter weights are required. The base is bonded with fluted rubber matting for membrane protection. Material : Galvanised steel to BS EN ISO 1461. Net weight : 4.3kg



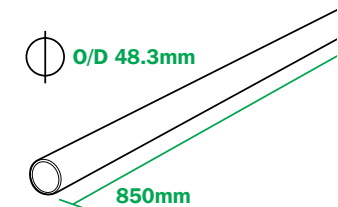
## **INTERMEDIATE BASE FOOT - SL101C**

This component provides support to the system and is used as an intermediate base between those requiring a Counter Weight. The base is bonded with fluted rubber matting for membrane protection. Material : Galvanised steel to BS EN ISO 1461. Net weight : 2.9kg.



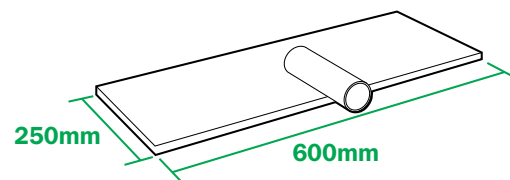
## **CANTILEVER TUBE - SL104**

This component provides the link between the Counter Weight and Base Foot. Material : Galvanised steel to BS EN ISO 1461. Net weight : 4.6kg



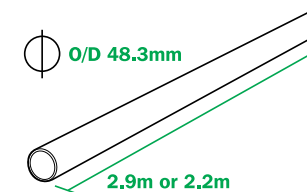
## **SUPPORT LEG - SL103**

This component provides height adjustment to the system. Its unique telescopic design allows re-roofing operations to continue without the need to move the system. Material : Galvanised steel to BS EN ISO 1461. Net weight : 3.1kg.



## **COUNTER WEIGHT - SL106**

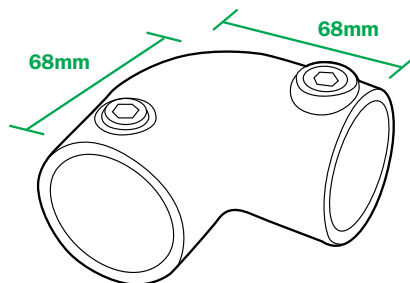
This component provides the stability to the system. The base is bonded with fluted rubber matting for membrane protection. Material : Galvanised steel to BS EN ISO 1461. Net weight : 19.7kg.



## **MAIN RAIL TUBE (2.9M - SL 102) (2.2M - SL 107)**

Supplied in two sizes for convenience, these components provide the horizontal rails of the system. Material : Galvanised steel to BS EN ISO 1461. Net weight : 10.4kg. & 8.1kg.

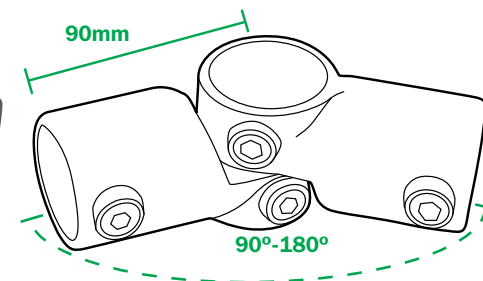
# Complies with EN 13374 Class A - Edge Protection System



## **90° ELBOW - 15-8**

This provides the means of dealing with corners and changes in level.

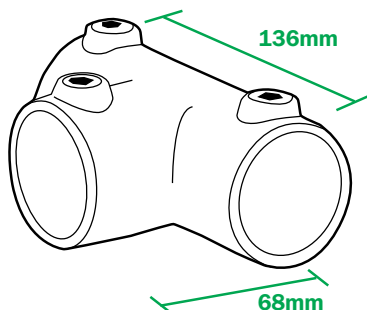
Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461. Net weight : 0.76kg.



## **ADJUSTABLE SIDE OUTLET TEE ELBOW - 19-8**

Used in pairs these components deal with angles 90°-180° and changes in level.

Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461. Net weight : 1kg.

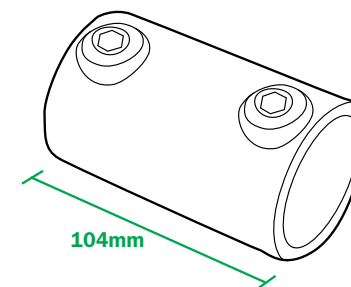


## **THREE SOCKET TEE CONNECTOR - 25-8**

This component is used in many different instances, for example, to provide a Double Counter Weight end detail and also changes in level.

Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461.

Net weight : 1.08kg.

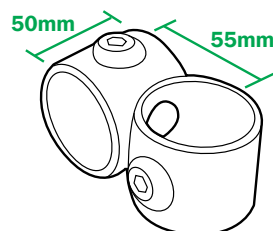


## **STRAIGHT COUPLING - 14-8**

This component provides the method to link the horizontal Main Rail Tubes.

Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461.

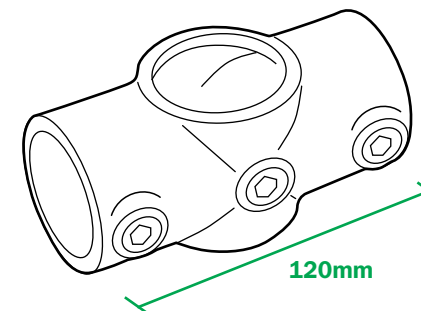
Net weight : 0.6kg.



## **CROSS OVER - 45-8**

This component provides the method of linking the horizontal Main Rail Tubes to the Support Legs. Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461.

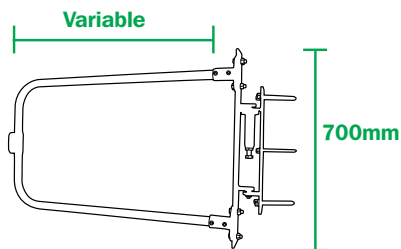
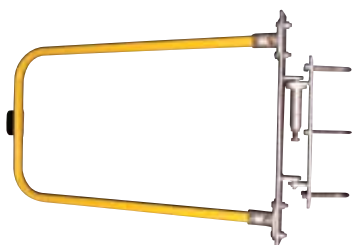
Net weight : 0.59kg.



## **TWO SOCKET CROSS - 26-8**

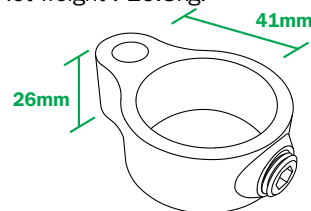
This component is used where the first two of four Counter Weights need to be joined to the Cantilever Tube to form a counter weight end detail. Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461. Net weight : 0.85kg.

# System 2000 Edge Protection System



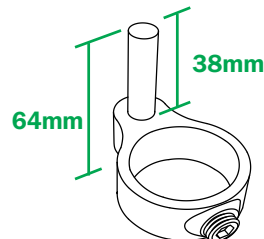
## SELF CLOSING GATE - GT25P

This component is used to provide a sprung loaded access point.  
Material : Galvanised steel to BS EN ISO 1461. Net weight : 16.3kg.



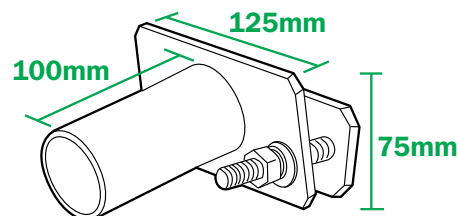
## EYE FITTING - 78-8

This component is used in conjunction with the Pin fitting to form half the hinge for a gate access point. Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461. Net weight : 0.28kg.



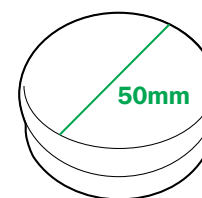
## PIN FITTING - 83-8

This component is used in conjunction with the Eye Fitting to form half of the hinge for a gate access point. Material : Malleable cast iron to BS 1562 and galvanised to BS EN ISO 1461. Net weight : 0.30kg.



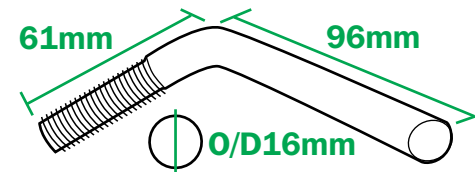
## WALL/LADDER CLAMP - SL 109C

This component provides the means to terminate the system against a façade or clamp the system to a cat ladder/structure where the stringer is a maximum of 70mm wide.  
Material : Galvanised steel to BS EN ISO 1461. Net weight : 1.1kg.



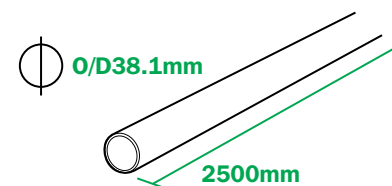
## PLASTIC CAP - SL105

This component is fitted to the top of the Support Leg to prevent water ingress.  
Material : PVC. Net weight : 0.009kg.



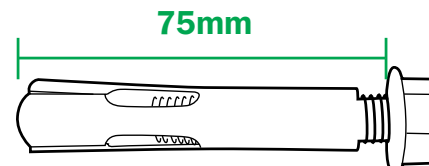
## L BAR - SL108A

This is used in conjunction with a Link Tube and a pair of Straight Coupling Connectors when providing a sliding Link Tube access point. A grub screw on each of the Straight Couplings is replaced with an L Bar. The L Bar in each of the Straight Couplings provides the means of locking the Link Tube in place. Material : Stainless steel. A2-50. Net weight : 0.113kg.



## LINK TUBE - SL108

This component provides a telescopic entrance/exit point within the Main Rail Tube's length at any desired position. The Link Tube is used with a Straight Coupling Connector adapted with the L Bar to provide the means of locking the Link Tube to the Main Rail Tubes when not in use.  
Material : Galvanised steel to BS EN ISO 1461. Net weight : 6.5kg.



## WALL FIXING - SL110

The wall fixing is used in pairs in conjunction with a Wall Clamp  
Material : Stainless steel. Net weight : 0.064kg.



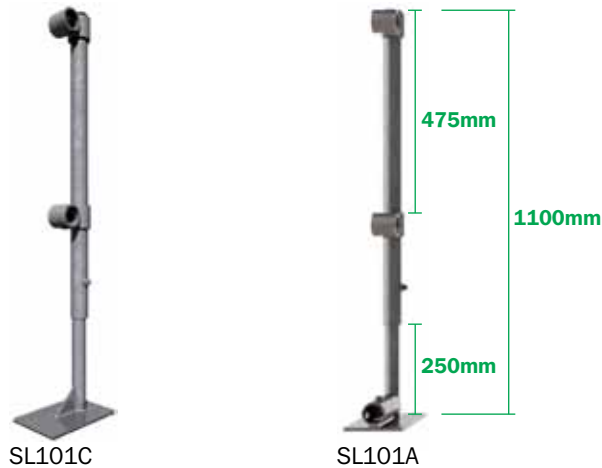


# System 2000 Assembly Guide

## BASE FEET (SL101A) (SL101C) AND SUPPORT LEG FEET (SL103).

Stand a Base Foot (SL101A) or (SL101C) on a flat surface, slide the Support Leg (SL103) over the Base Foot as shown, (make sure the Grub Screw is at the bottom of the support tube). Rotate the Support Leg until the Grub Screw is on the right hand side of the Base Foot.

Repeat the procedure for the required amount of legs.



## SETTING THE HEIGHT OF THE BASE FOOT AND SUPPORT LEG.

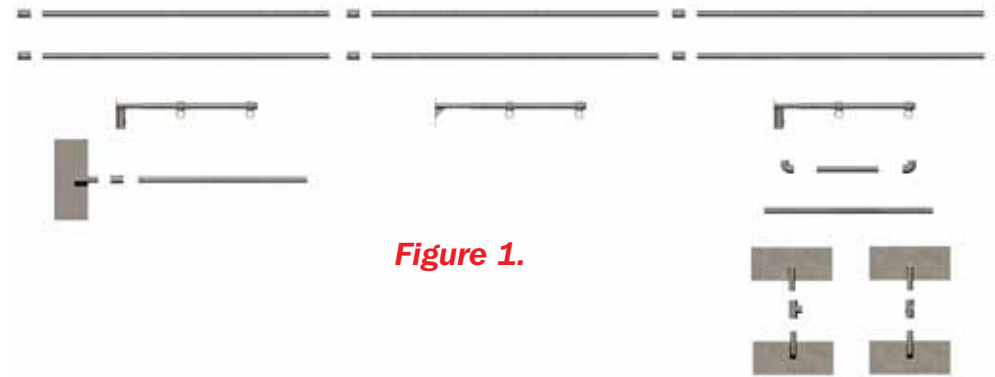
Raise the Support Leg up from the Base Foot 250mm and lock the Grub Screw using a 6mm allen key. Use this procedure for all required feet and legs.

## FIXING THE 90° CROSS OVER CLAMPS (45-8) TO THE SUPPORT LEG

Slide 2 No. Cross Over clamps onto the Support Leg with the Grub Screws facing down.. Place the top Cross Over clamp flush with the top of the Support Leg, making sure that the Cross Over clamp is square with the Base Foot. (The Grub Screw of the Cross Over should be in line with the Grub Screw of the Support Leg) tighten the Grub Screw. Slide the second Cross Over clamp up until there is 475mm gap between the bottom of the top Cross Over clamp and the top of the second Cross Over clamp. Turn the Cross Over clamp until it is square with the Base Foot making sure the Grub Screw of this Support Leg aligns with the top Cross Over Grub Screw, and the Base Foot Grub Screw. Tighten the Grub Screw of this Cross Over. Repeat to all legs.

The Support Leg with a Base Foot (SL101A) is now known as a Weighted Leg.

The Support Leg with a Base Foot (SL101C) is now known as a Budget Leg.



**Figure 1.**

## LAYING OUT SUPPORT LEG AND MAIN RAIL TUBES

Lay out the equipment in approximately the positions shown above. Always ensure that you and the equipment are at a safe distance from the roof edge. It is a recommendation of Safesite that this distance is no less than 2m. Lay out two 2.9m Main Rail Tubes (SL102) or (SL107) side by side and in a continual line, for the whole length of the required guardrail (ensure these do not roll towards the roof edge).

Then start laying out the Support Leg Units (Budget Leg/Weighted Leg). If your start position is from a corner, start with a Budget Leg. 2m along from that position lay a Weighted Leg, carry on laying out the Support Leg Units in this alternative manner for the required length of guardrail.



# System 2000 Assembly Guide

The guardrail must always end on a Weighted Leg, the only exception to this rule is if the guardrail can be fixed to a suitable structure i.e. brick/concrete walls or cat ladders etc, then a Budget Leg can be used.

If the start point of the guardrail is from a position that can not be fixed, (this might be a glass or steel building) then your first leg must be a Weighted Leg, the next one is a Budget Leg laid 2m away along the guardrail length, then carry on laying out the support leg units alternating between the two different support leg units. (Budget/Weighted).

## Fixed, Free Standing and Intermediate Details



### A

#### SLIDING LINK TUBE

Extra components

4No. Straight Couplings (14-8)

4No. L bars (SL108A)

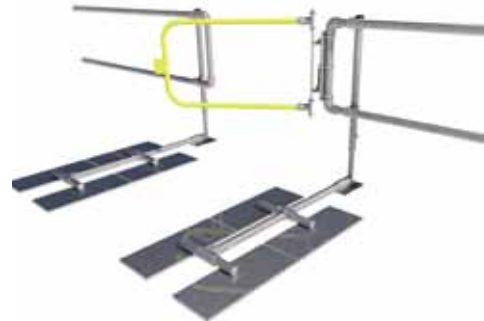
2No. Link tubes (SL108)

8No. Counter weights (SL106)

2No. Cantilever tube (SL104)

2No. Two Socket Cross (26-8)

2No. Three Socket Tee Connector (25-8)



### B

#### SELF CLOSING GATE ACCESS POINT

Extra components

1No. Self closing gate (GT25P)

4No. 90° elbows (15-8)

2No. End pieces

8No. Counter weights (SL106)

2No. Cantilever tube (SL104)

2No. Two Socket Cross (26-8)

2No. Three Socket Tee Connector (25-8)



### C

#### FREESTANDING END

Extra components

2No. 90° Elbows (15-8)

4No. Counter weights (SL106)

1No. End pieces

1No. Two Socket Cross (26-8)

1No. Three Socket Tee Connector (25-8)



### D

#### WALL CLAMP

Extra components

1No. End piece

1No. Three Socket Tee Connector (25-8)

1No. Wall/Ladder clamp (SL109C)

2No. 90° Elbows (15-8)

2No. Wall fixings (SL110)

## LAYING OUT COUNTER WEIGHTS AND CANTILEVER TUBES

At the positions where the Weighted Legs are placed you will also require 1No. Cantilever Tube (SL104) and add 1No. Straight Coupling (14-8) for joining the Counter Weight to the Cantilever Tube.

At the stop ends of the guardrail that have a Weighted Leg you will require 1No. Cantilever Tube, 4No. Counter Weights, 1No. Three Socket Tee Connector and 1No. Two Socket Cross (26-8).

At the stop ends you will also require a length of tube 475mm long, to connect vertically between the top and the bottom Main Rail Tubes using 2No. 90° Elbows (15-8). (see figure 1).

## LAYING OUT FITTINGS

Where the two Main Rail Tubes butt together lay out 2No. Straight Couplings (14-8) in order for the Main Rail Tubes to be joined. At corners 2No. 90° Elbows will be used (15-8). (Use Adjustable Side Outlet Tee Elbows (19-8) in pairs where corners are not 90°. (see figure 1).

# System 2000 Assembly Guide

## STAGE 1

Starting at the corner, stand up the two corner legs, (the first one a Budget Leg and the second a Weighted Leg) making sure the Cross Over Clamps (45-8) are facing you. Space the legs 2m apart.



## STAGE 2

Working at a safe distance from the roof edge carry out the following:-

Slide a 2.9m Main Rail Tube (SL102) into the bottom Cross Over Clamp (45-8) of each of the standing legs. Position the tube so there is 60mm protruding from the cross over clamp (45-8), and tighten the grub screw.

These are located on the bottom of the Cross Over Clamp (45-8).

Slide the second 2.9m Main Rail Tube (SL102) into the top Cross Over Clamp (45-8), positioning the tube as before, leaving 60mm of the tube protruding from the Cross Over Clamp (45-8), and tighten the grub screw of the Cross Over Clamp (45-8), but on the Budget Leg only.



## STAGE 3

Form a corner connecting 2 No 90° Elbows (15-8) to one end of each of the Main Rail Tubes (SL102). Slide a 2.9m Main Rail Tube (SL102) into the bottom Cross Over Clamp (45-8) of a further Weighted Leg. Position the Weighted Leg 2m max from the corner and tighten the grub screws which are located on the bottom of the Cross Over Clamp (45-8).

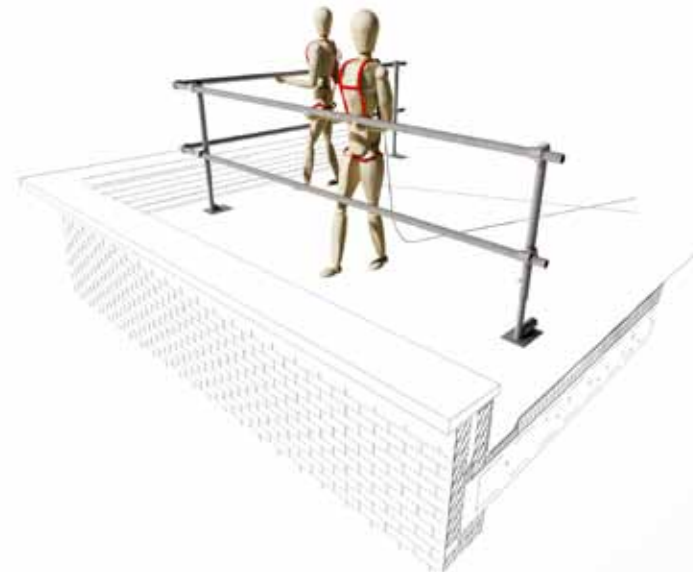
Slide the second 2.9m Main Rail Tube (SL102) into the top cross over clamp (45-8) of the Weighted Leg and tighten the grub screw of the Cross Over Clamp (45-8) as before.



## STAGE 4

Working in pairs lift the corner assembly into place at the corner of the roof. Once in place carry out adjustments as follows:-

The Weighted Leg is left free for the moment so that you can make adjustments to the height of the guardrail. This is achieved by releasing the grub screw at the bottom right of the Support Leg Unit, and using a spirit level. Lift or lower until the assembly is level and then re-tighten the grub screw. Once the assembly is level the Weighted Leg needs to be plumbed. To do this you simply slide the top of the leg slightly left or right. After checking with a spirit level tighten the grub screw of the top and bottom Cross Over (45-8).



# System 2000 Assembly Guide

## STAGE 5

Connect the Cantilever Tube (SL104) to the Counter Weight (SL106) using the Straight Coupling (14-8). Now slide the free end of the Cantilever Tube (SL104) into the bottom of the Weighted Leg and tighten the grub screw.



## STAGE 6

Secure a Straight Coupling (14-8) to each of the free ends of the 2.9m Main Rail Tube (SL102) of the assembly.

Working from both sides stand up the next Support Leg Unit and slide a 2.9m Main Rail Tube (SL102) through the bottom Cross Over Clamp(45-8) and back into the Straight Coupling (14-8) and tighten the grub screw securing the 2.9m Main Rail Tube (SL102) into the Straight Coupling (14-8), carry on with the top 2.9 Main Rail Tube (SL102), again going through the top Cross Over Clamp (45-8) and into the top Straight Coupling (14-8). Do not tighten the grub screw yet as this will permit movement while you level the Support Leg Unit. Once you have established this level, (as described in stage 4), tighten the grub screw on the Cross Over Clamp (45-8).



## STAGE 7

Continue with this method of fitting the 2.9m Main Rail Tube (SL102) and legs together for this run of guardrail, remembering to connect the Cantilever Tubes (SL104) and Counter Weights (SL106) to the appropriate Support Legs as you proceed.

## STAGE 8

Determine the end detail and finish the guardrail accordingly (see Fixed, Free Standing and Intermediate details).

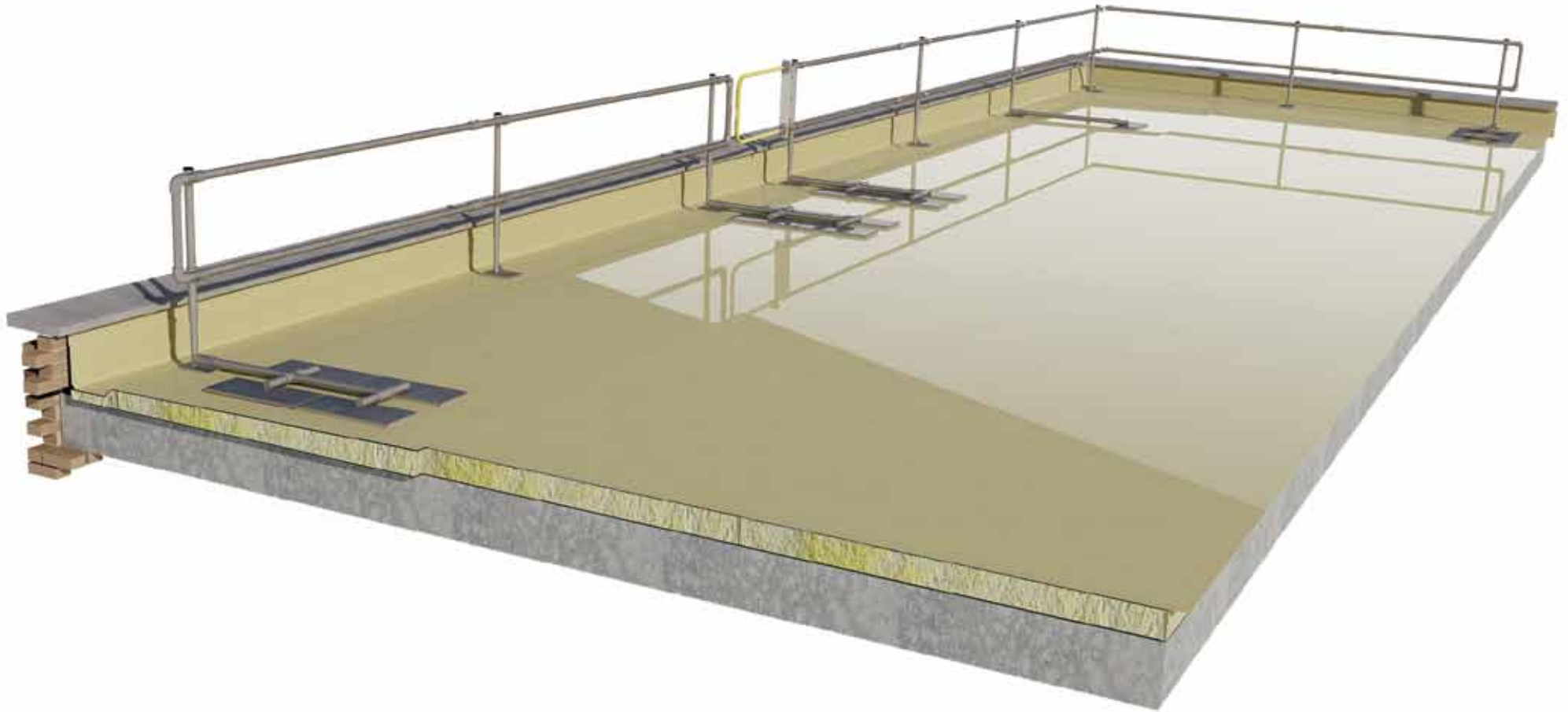


## WARNING

*Under no circumstances should any person be anchored to the system for fall arrest purposes. Further, components such as timber infill, advertising boards, polyethylene sheets must not be fixed to the system.*



# System 2000 Assembly Guide



# Guardrail Systems Recertification

- Periodic inspections by a competent person are required under Regulation 5 of the Workplace (Health, Safety & Welfare) Regulations, the Work at Height Regulations and BS EN 365. The frequency will depend upon the environment, location and usage but should be at least every 12 months.
- Walk and visually inspect the complete installed system in relation to the general client's needs. Establish if any modifications and/or additional products are required to reflect any refurbishment requirements or additional plant & equipment which have been installed and require access.
- Check installation configuration is complete as per the original installation drawing/plan.
- Ensure the system has not been modified or tampered with by unauthorised persons.
- Check all base feet are in contact with the roof membrane.
- Check all counter weights are in place as per the original drawing. This is essential for wind loading calculations.
- Check all grub screws are in place, greased and sufficiently torque.
- Check that the general height and level of the system including the leg centres.  
(This only tends to be an issue if the system has been tampered with between inspections).
- Any galvanised components showing signs of corrosion should be wire brushed thoroughly and galvanised spray/paint applied as appropriate.  
If rusted significantly, take digital photographs and include these in the inspection report.
- Where toe-boards are fitted check the brackets that support the toe-board are in place, greased and sufficiently torqued.
- Where applicable, check fixings to walls/structures including cat ladder clamps are in place, greased and sufficiently torqued.
- Check system plaque position & mark up to reflect date of the next required inspection. Establish if additional plaques are required due to any refurbishment works.

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