



Anchor Points Application Guide

Flat Roof Applications


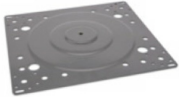

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Introduction

SFS Anchor Points can be installed very quickly and easily onto bituminous, single ply PVC & liquid applied flat roofs in conjunction with many OEM materials. Once the installation is complete and signed off by a competent installer, a number of personal protective equipment (PPE) options can then be attached to the anchor point to limit the possibility of a fall from height occurring.

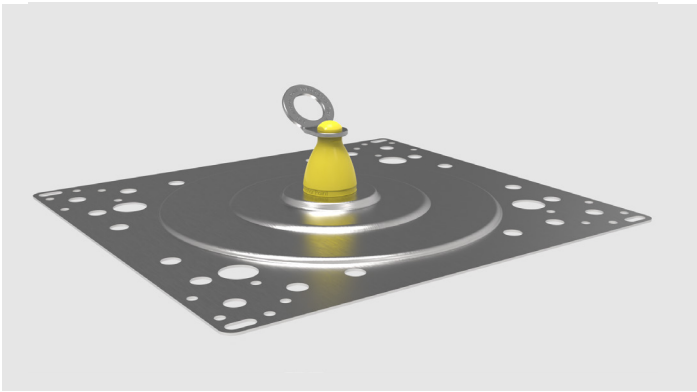
For the installation of the SFS Anchor Point, you will need either of A & C or B & C for your application:

No.	Product Description	Product No.	Product Code	
A	Mill finish base plate for bituminous or liquid applied applications.	1665988	FP-BP-MH	
B	Coated base plate for single ply PVC applications.	1665989	FP-BP-MH-PVC	
C	Single Anchor Point including swivel attachment.	1693436	FP-A-FP-50	



Fixing Methods

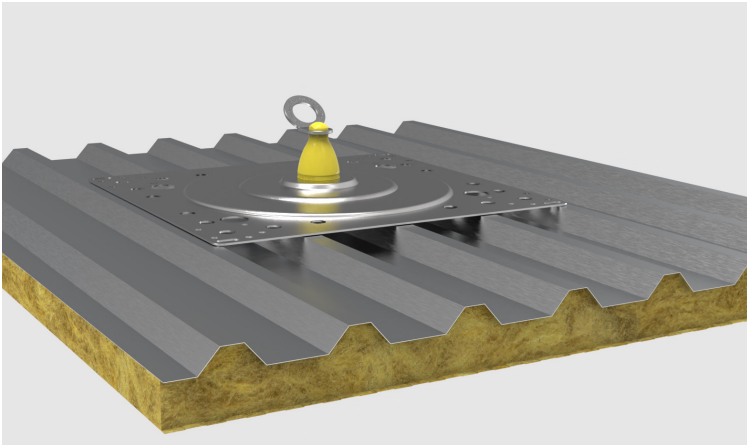
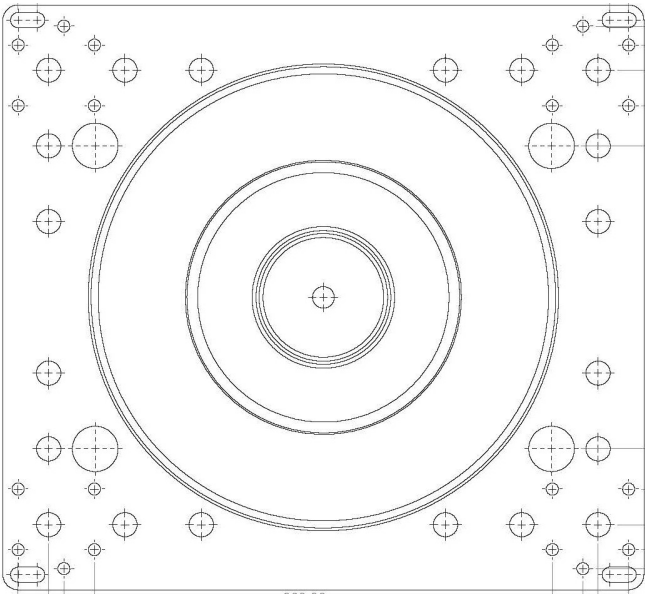
The SFS Anchor Point can be fitted to roof structures using a baseplate and fixing method suitable for the roof type. Once the roof type is known, a base plate and fixing method can be selected.



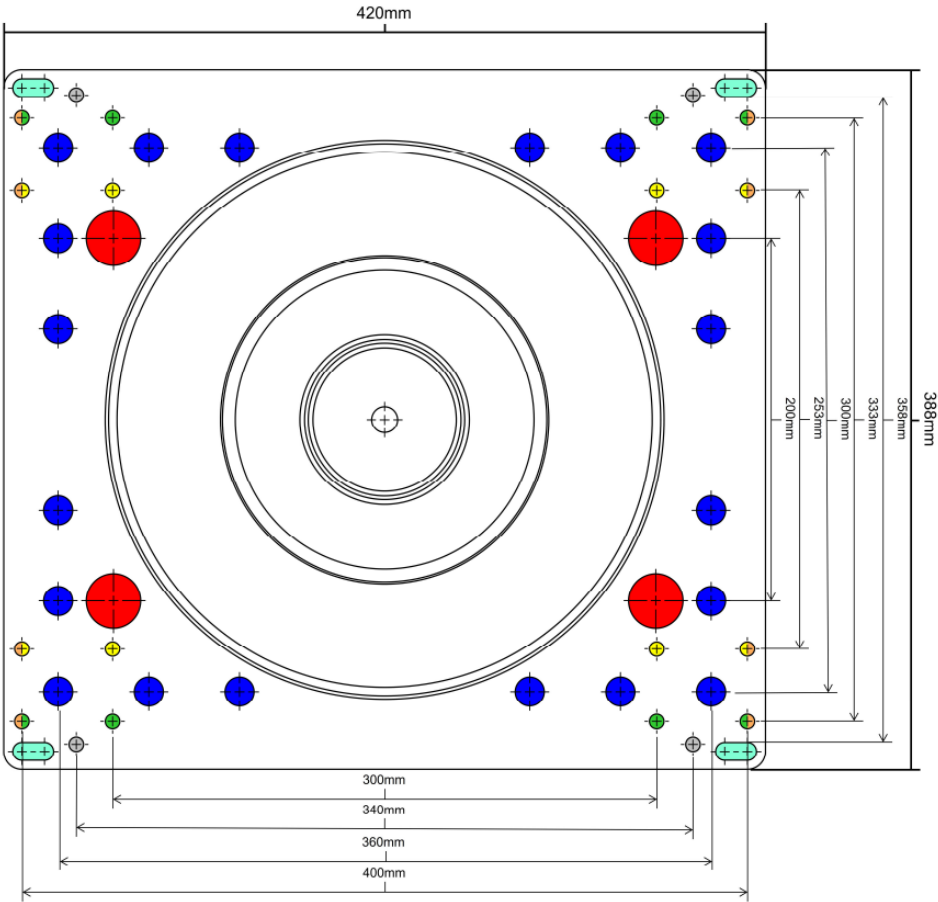
SFS base plates have a central raised dome, complete with a welded M10 female boss, into which the Anchor Point is securely attached. This weld is completely weather tight. Base plates to be used on metal roofing applications come complete with pads on the underside to seal the base plate to the roof sheet crown.

Each base plate, depending on application, will be fixed with either a specified number of rivets for Trapezoidal roof sheets, stainless steel gravity toggles, studding and resin, sleeves and fasteners and concrete screws for flat roofs. Base plates are also available PVC coated to aid a direct weld of a suitable membrane roof covering if suitable.

Base Plate Example



Multi-Use Base Plate



Red: 4×30 mm (240×300 mm) holes for gravity toggles with toggle cups- 4 required into 0.7 mm metal and 18 mm ply & OSB decks.

Blue: 10×16 mm holes for sleeve and stainless steel fastener into 0.7 mm metal, concrete, and timber decks. Please consult SFS for fixing numbers and details.

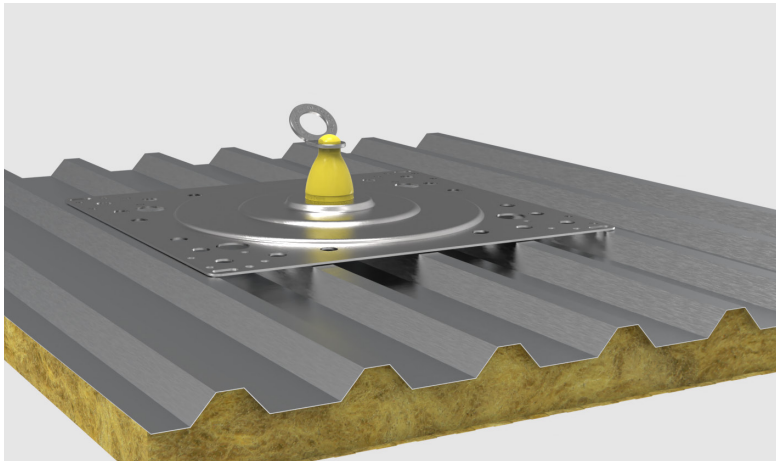
Green: 8×8 mm rivet holes for 333 mm sheet crown centres

Orange: 8×8 mm rivet holes for 400 mm sheet crown centres

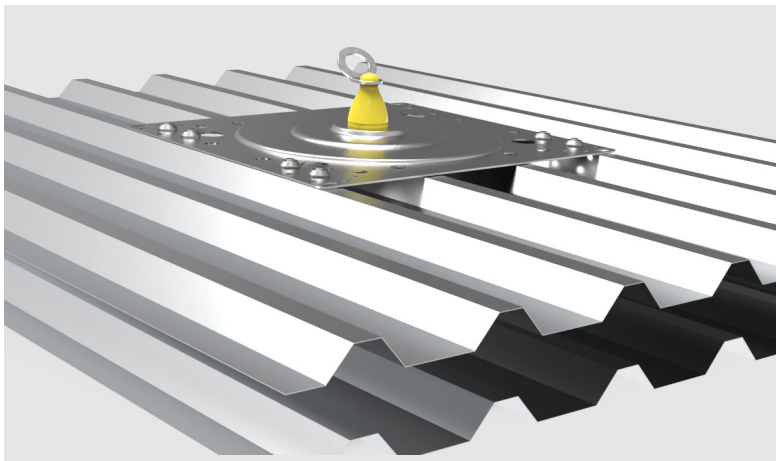
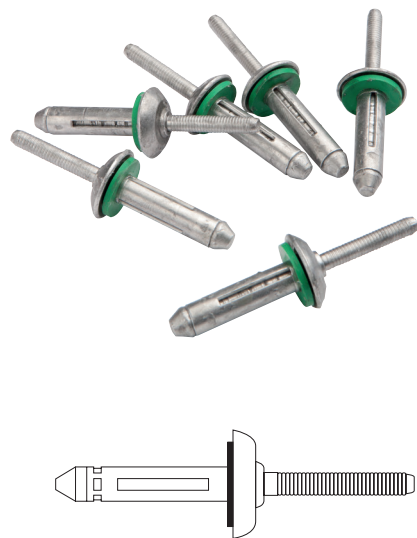
Yellow: 8×8 mm rivet holes for 300 mm sheet crown centres

Trapezoidal Sheet Types

Composite Panel
> 0.5 mm outer sheet thickness
Fixed with 7.7 mm BULB-TITE® rivets

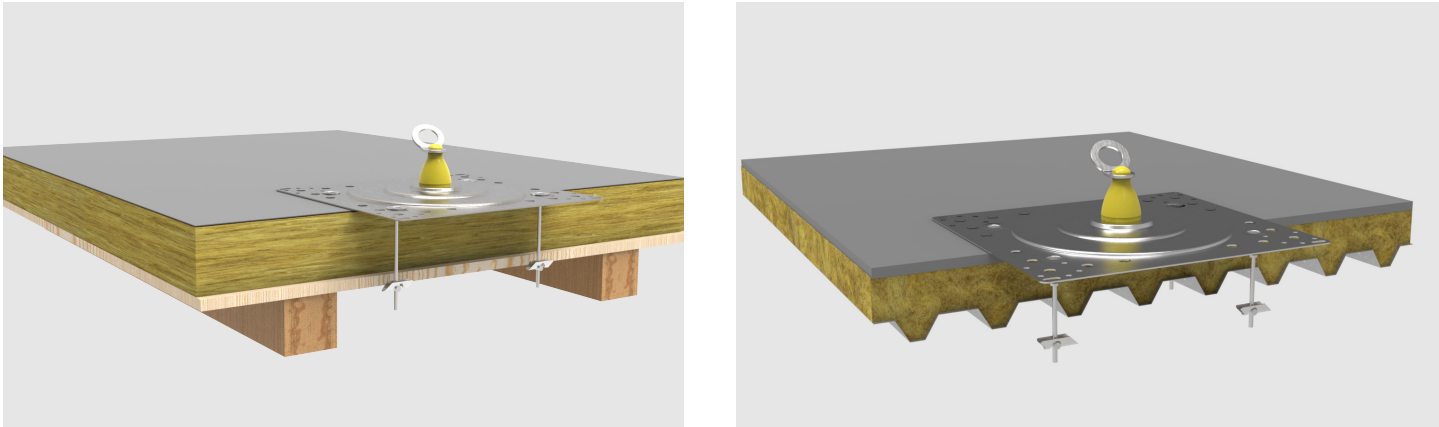


Twin Skin BUOS
> 0.7 mm sheet thickness
Fixed with 7.7 mm BULB-TITE® rivets

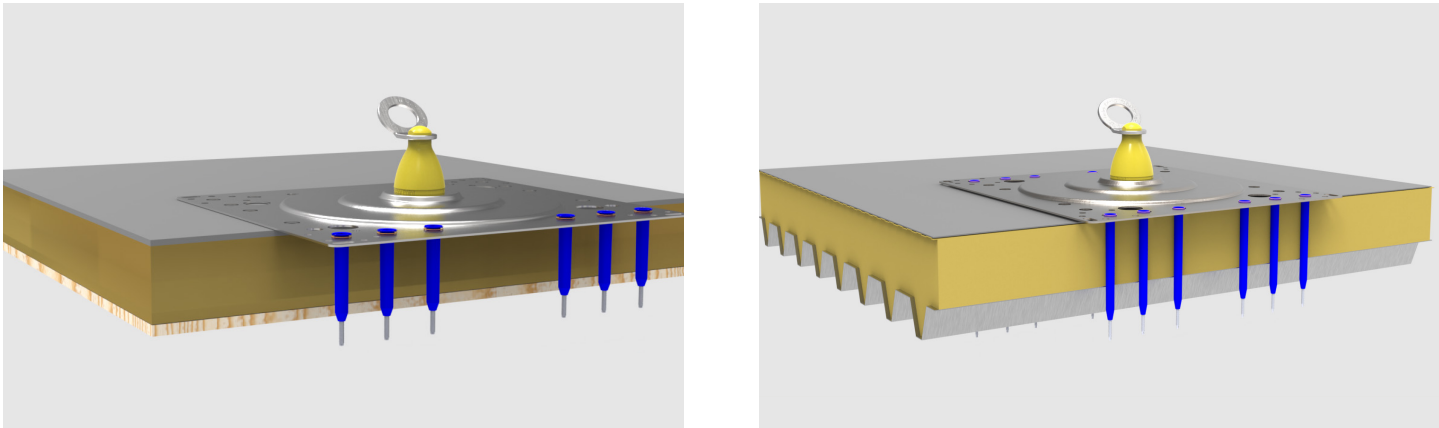


Flat Roof Types

18 mm Ply/OSB Board & 0.7 mm Metal Deck
Gravity toggles

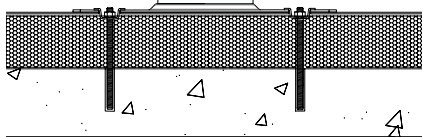
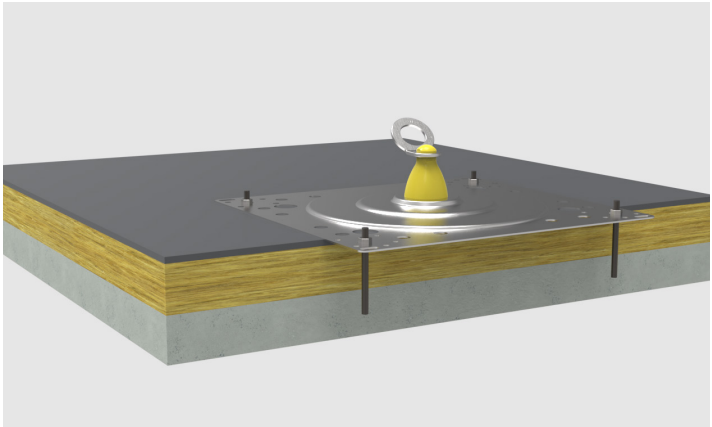


18 mm Ply & 0.7 mm Metal Deck
Typical sleeve and fastener installation. Please consult SFS for fixing numbers and details.

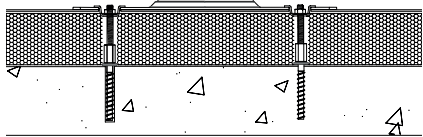
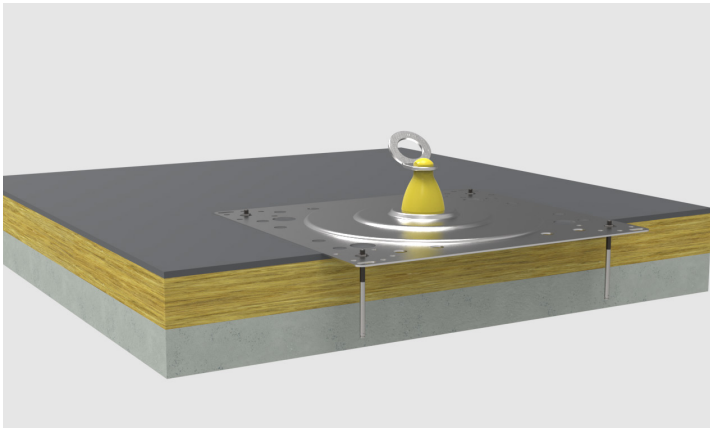


Flat Roof Types

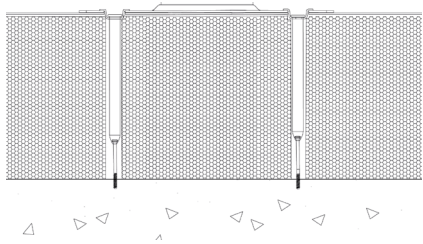
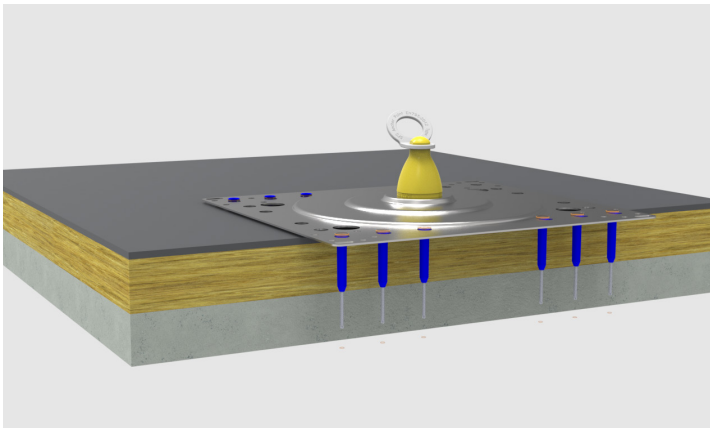
Concrete Deck
Typical stainless studs and resin



Concrete Deck
Concrete screws



Concrete Deck
Typical sleeve and fastener installation. Please consult SFS for fixing numbers and details.



Installation

All SFS Anchor Point installations should be carried out by trained personnel, competent not only in Fall Protection systems, but general roof and site safety.

Tool List

Installing an SFS Anchor Point requires nothing more than standard tools that an experienced roofer would carry. The following are the typical examples, although they are not limited to.

General

- Cordless drill
- 17 mm spanner/wrench
- 19 mm spanner/wrench
- 19 mm extended socket with wrench
- 2 x pairs of mole/vice grips
- Marker pen
- Tape measure
- Knife
- Cembre 130kN Hydraulic swager/crimper
- Cembre Hydraulic wire cutters
- Strap wrench with 130 mm diameter capability

Trapezoidal Roof Sheet Installation

- 8 mm HSS drill bits
- Gesipa PowerBird battery riveter/HN-2 long arm riveter c/w small jaws and nosepiece

Flat Roof Toggle Installation to Metal/Ply Decks

- 25 mm auger bit
- 25 mm bi-metal hole saws
- Arbour
- Arbour extension bar long enough to penetrate roof build up and deck
- 13 mm hex socket driver for drill

Flat Roof Stud and Resin Installation to Concrete Decks

- SDS Hammer drill to suit build-up depth
- 25 mm auger bit
- SDS masonry drill bit long enough to penetrate roof build up, screed, and embedment in deck.

- Wire brush
- Blow pump
- Resin applicator gun
- Hack saw/cutting disc/grinder
- File
- Hydrajaws pull test meter and plywood board/spreader plate for distributing load

Flat Roof Stainless Steel Fastener and Sleeve to Metal and Ply Decks

- Tx extended drive bar

Flat Roof Fastener and Sleeve to Concrete Decks

- SDS Hammer drill
- ZVK-STOP drill bit
- ZAK extension bar
- Tx extended drive bar

Flat Roof Concrete Screw to Concrete Decks

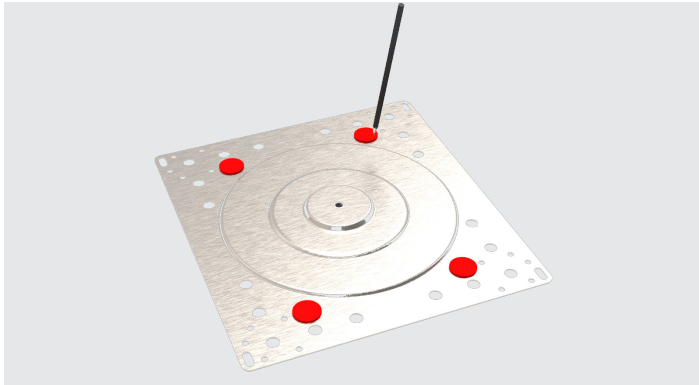
- SDS Hammer drill
- 25 mm auger bit
- SDS masonry drill bit long enough to penetrate roof build up, screed, and embedment in deck.
- ZA1/4 M6 300/750 Drive Bar
- T25 M6 Drive Bit
- Hack saw/cutting disc/grinder
- File
- Hydrajaws pull test meter and plywood board/spreader plate for distributing load

Post Installation

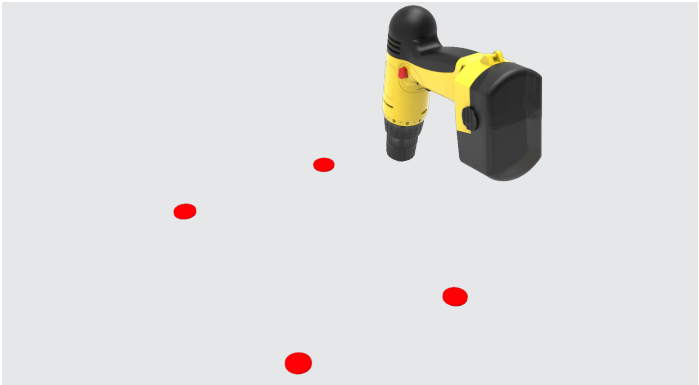
Flat Roof Gravity Toggle to Metal and Ply/OSB Decks

Note: For unknown substrate material & thickness, test the substrate with Pull-Test Device.

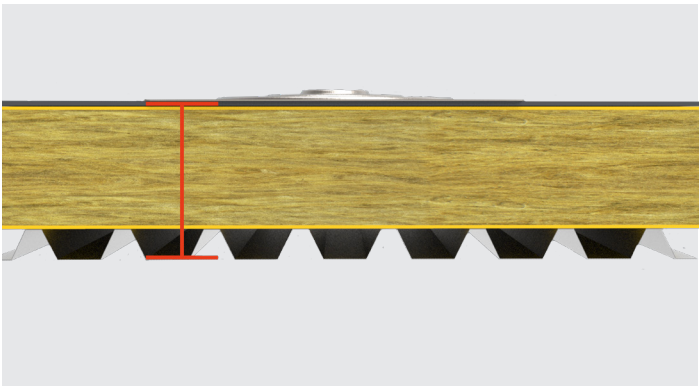
1. Ascertain location of base plate on membrane and mark 4 no. toggle fixing positions.



2. Using a 25 mm diameter hole saw suitable for the deck construction, drill through the insulation and deck in all four locations. Ensure all four fixing holes have been drilled through the total roof build up and are clear, clearing any debris away.



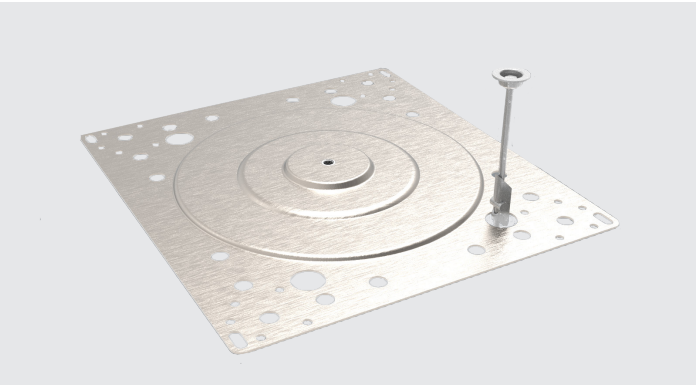
3. Measure the depth of the roof build up and ensure you have the correct toggle length. Toggles require an additional **80 mm** in length to deploy fully.



4. Wind enough thread through the toggle barrel so that the toggle catches when deployed, re-set the toggle parallel to the toggle stud.



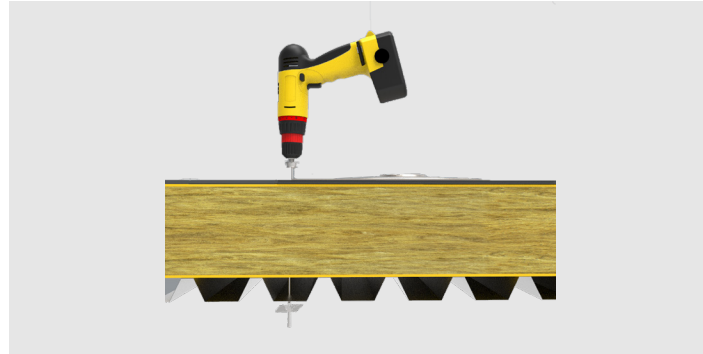
5. Insert toggle with care through base plate and drilled hole in roof, ensuring the toggle doesn't deploy until it has cleared the deck. Using toggle tubes prevents early deployment within the roof build up.



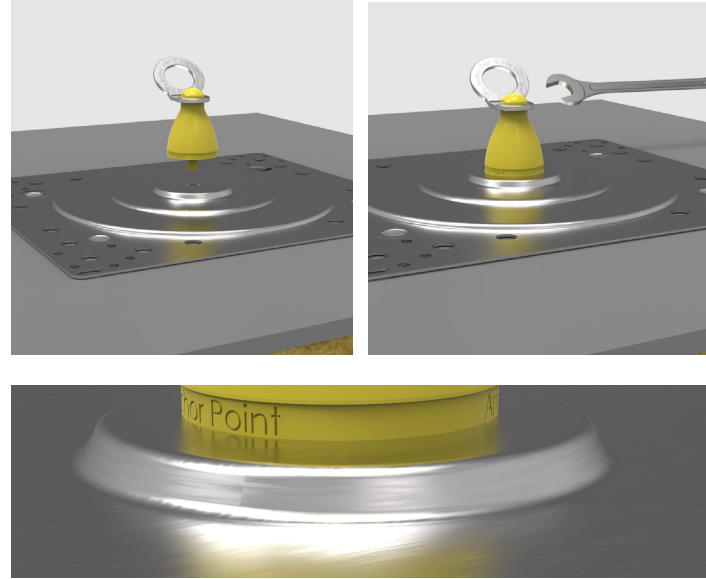
6. Once the toggle has dropped through the roof construction the toggle will deploy, this can be aided by shaking the post and stud slightly. When fully deployed, pull the toggle upwards so that it is tight against the deck, this will confirm the toggle is deployed or not. Repeating steps from 4 to 6 for the remaining toggles.



10. Once all four toggles have been deployed, pull, and hold the toggle whilst driving the nut with a battery powered drill and 13 mm hex driver until the plate is pulled tightly to the membrane.

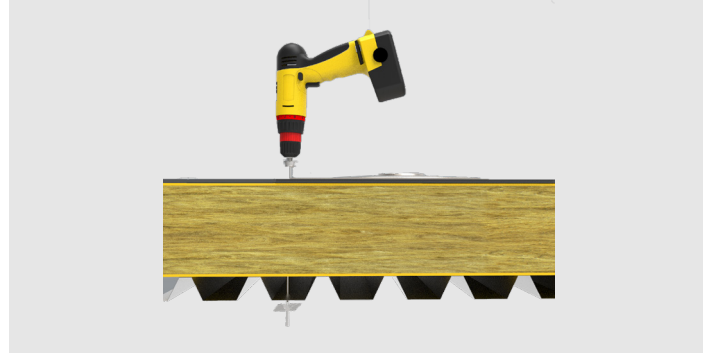


12. Turn Anchor Point lower body onto female boss in base plate by hand firstly then to the desired tightness with the 19mm spanner until Anchor Point is seated correctly.

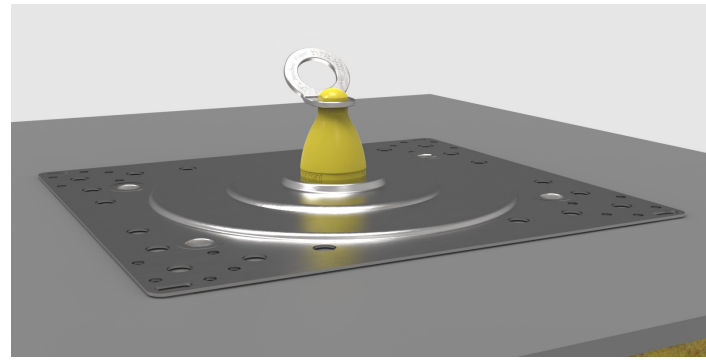


13. Add upper Anchor Point swivel and securing fastener to desired tightness.

11. This will lock the toggle fully as shown. Repeat until all four toggles are tightened down slightly depressing the base plate into the membrane.



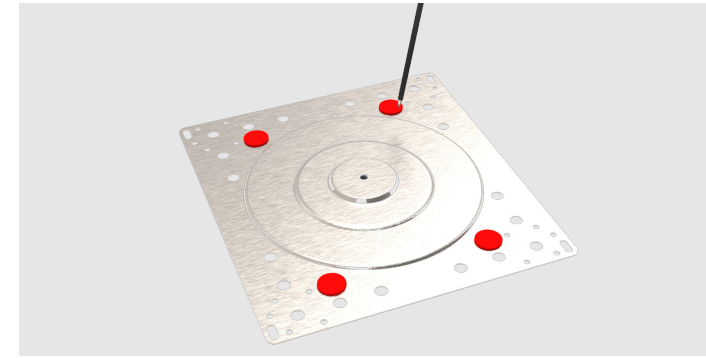
14. Installation is complete and is ready for use.



Flat Roof Stud and Resin to Concrete Decks

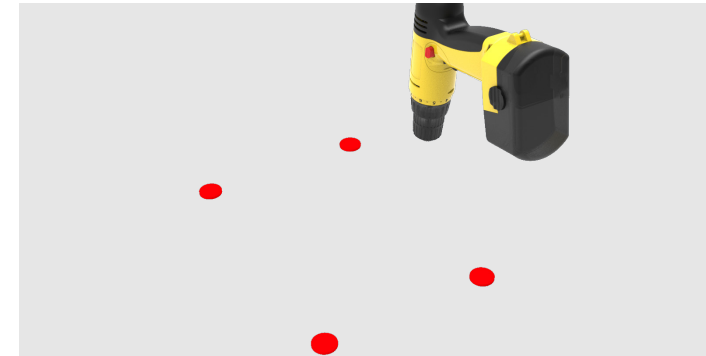
Note: For unknown substrate material & thickness, test the substrate with Pull-Test Device.

1. Ascertain location of base plate on membrane and mark 4 no. fixing positions.

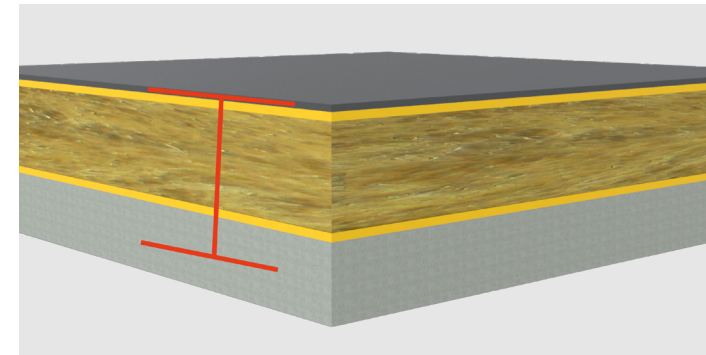


2. Using a hole saw or auger bit, drill through the insulation in all four locations.

3. Ensure all four fixing holes have been drilled through the insulation and are clear, clearing any debris away.



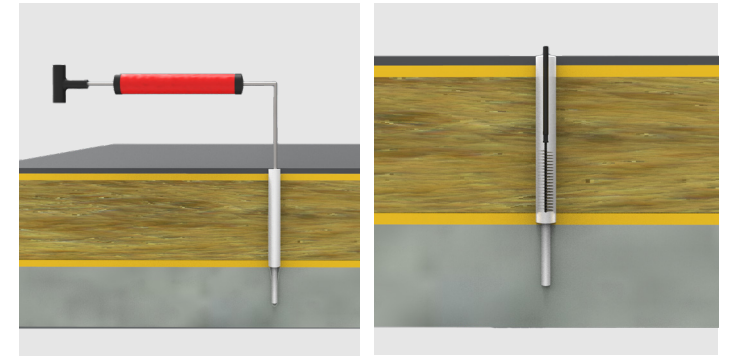
4. Ensure you have the correct stud length for the total build up depth, embedment into the substrate and enough protruding from the opening to fit a nut and washer.



5. Using a SDS Masonry Drill and specified diameter drill bit, drill 4 no. holes into the concrete deck to give the required fixing embedment. If screed is present above concrete deck, remove this first using a larger drill diameter ensuring correct fixing embedment is in concrete substrate ONLY.

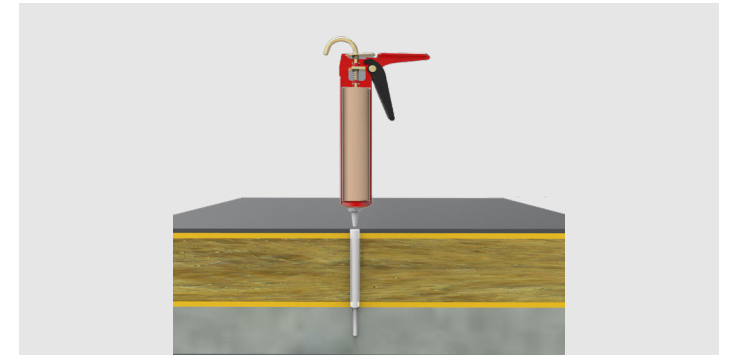


6. Using a wire brush and blow pump remove all debris remaining in each of the four holes.

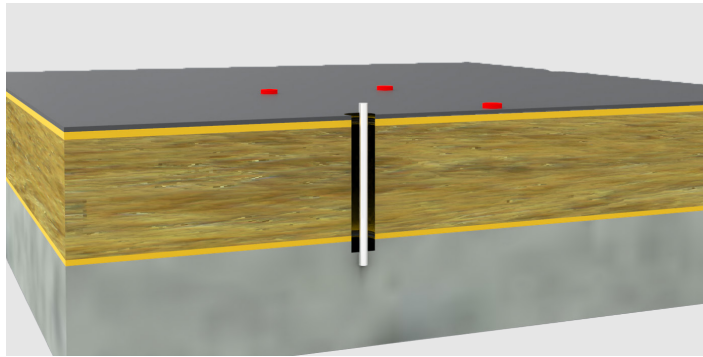


7. Prepare Fischer Vinylester resin tube, nozzle, and gun ready for application. Extrude enough resin through the tube on a test area ensuring the 2 chemical parts are correctly mixed.

8. Once the resin is prepared squeeze resin through hole into substrate, slowly retracting the nozzle as the hole fills until 2/3 full. Do this for all four fixing locations.

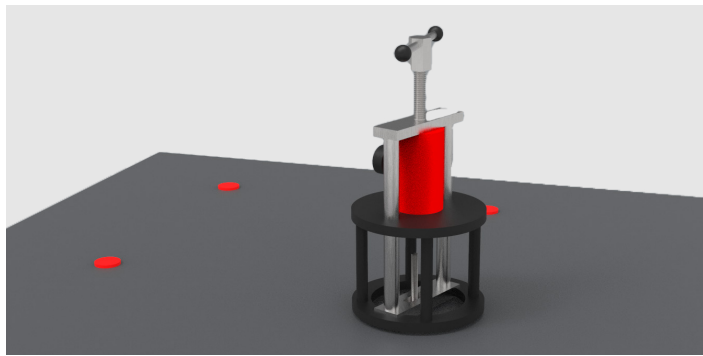


9. Before resin begins to cure insert studding gently into the hole turning the stud as you push it into the resin until the stud is fully inserted. Do this for all four fixings.

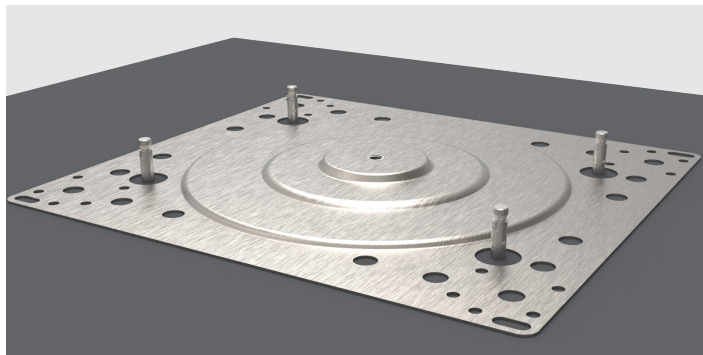


10. Allow for resin to cure based on temperature/conditions on site. See tube for indicative curing and setting times.

11. Once cured test a minimum of one in four fixings with a pull test metre to 6kN using a spreader plate if required.

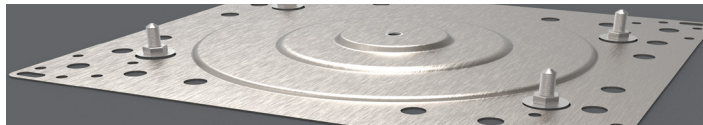


12. Drop base plate into position over protruding studs.

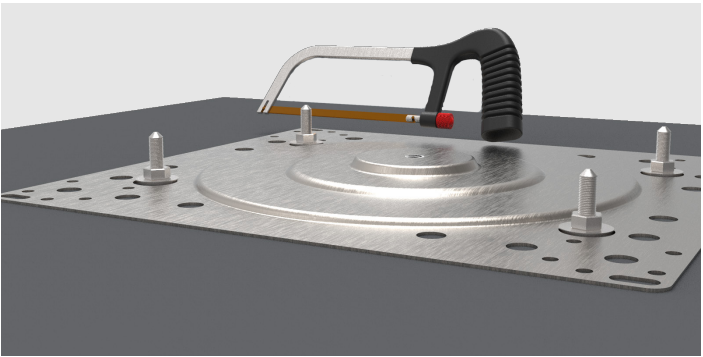


13. Place toggle cups over protruding studs above base plate for each of the four studs per post.

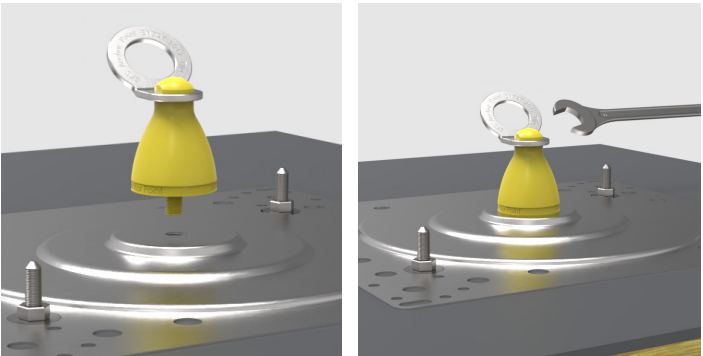
14. Add the nut to each fixing and tighten until base plate depresses into the membrane slightly.



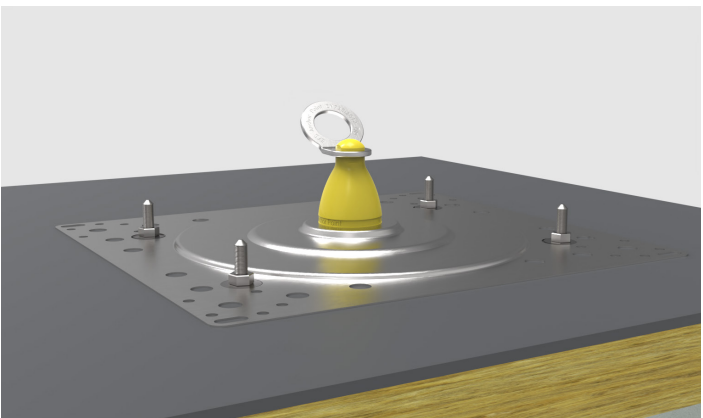
15. Cut off any excess studding and file down until smooth to avoid penetration through roof membrane, once laid.



16. Turn Anchor Point lower body onto female boss in base plate by hand firstly then to the desired tightness with the 19mm spanner until Anchor Point is seated correctly.



17. Add upper Anchor Point swivel and securing fastener to desired tightness.

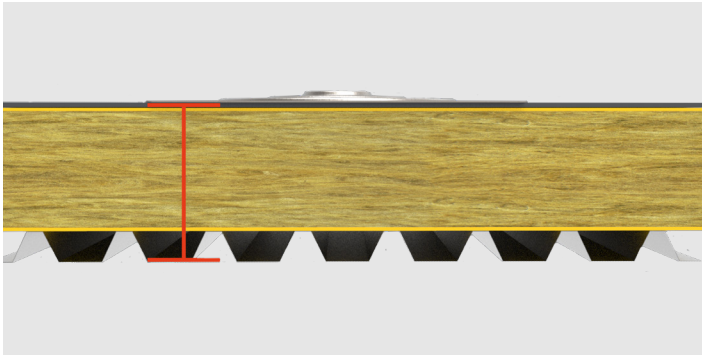


18. Installation is complete and is ready for use.

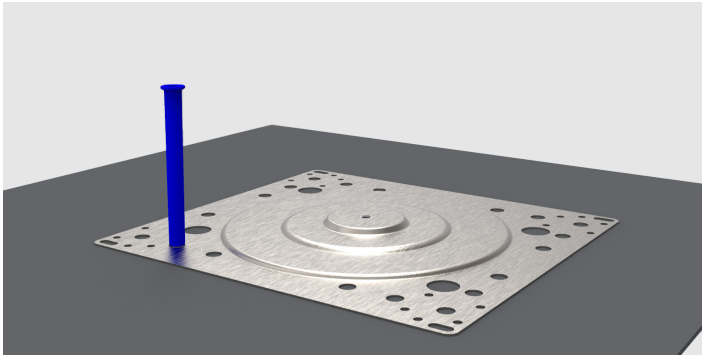
Flat Roof Sleeve and Stainless Steel Fastener to Metal and Ply 18 mm Decks

Note: For unknown substrate material & thickness, test the substrate with Pull-Test Device.

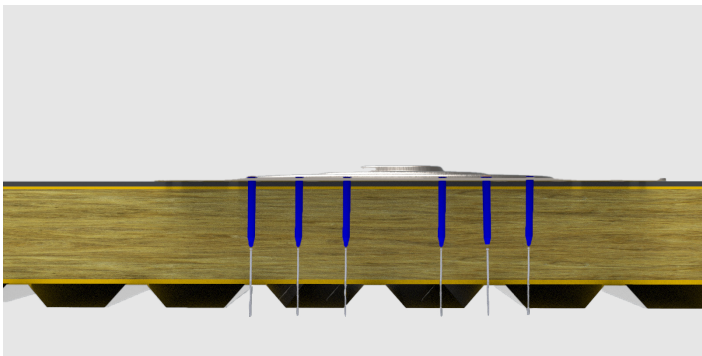
1. Ascertain location of base plate picking up the crown or trough of the deck based on the fixing length supplied.



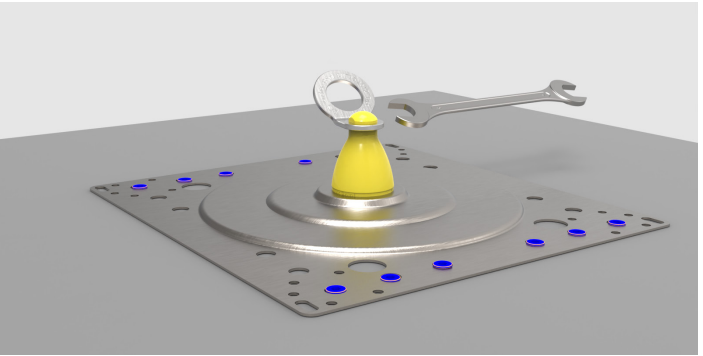
2. Push screws fully into Sleeves, through the plate and into the insulation.



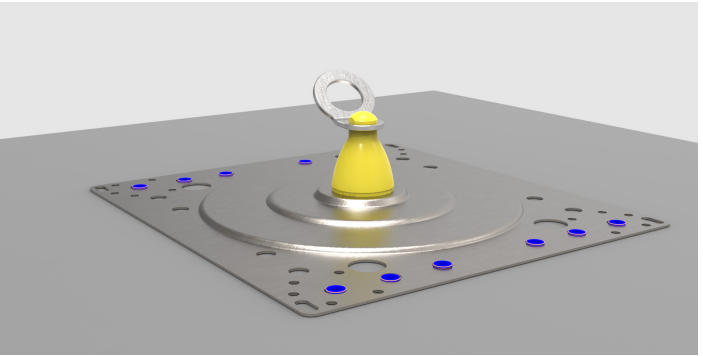
3. Take drill fitted with extended drive bar and T25 bit and fix all required number of fasteners through insulation build up and deck, securing firmly. **Do not overdrive.**



4. Turn Anchor Point lower body onto female boss in base plate by hand firstly then to the desired tightness with the 19mm spanner until Anchor Point is seated correctly.



5. Add upper Anchor Point swivel and securing fastener to desired tightness.

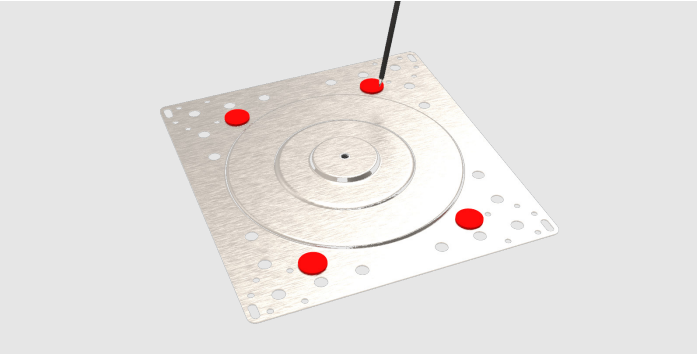


6. Installation is complete and is ready for use.

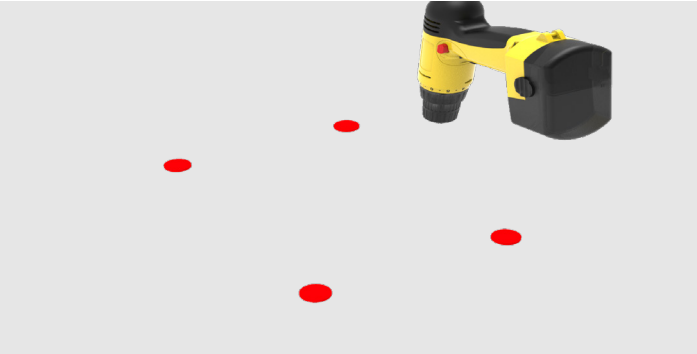
Concrete Screw to Concrete Decks

Note: For unknown substrate material & thickness, test the substrate with Pull-Test Device.

1. Ascertain location of base plate on membrane and mark 4 no. fixing positions.

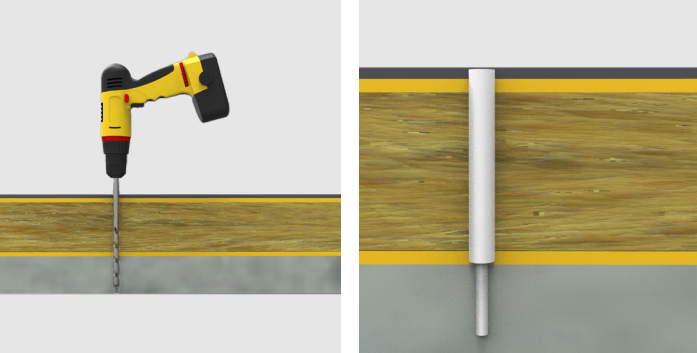


2. Using a 14 mm diameter hole saw or auger bit, drill through the insulation in 4 locations.

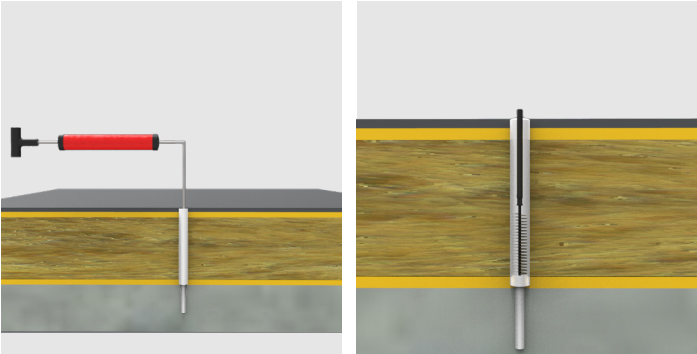


3. After removing insulation in all fixing holes clear any remaining debris away.

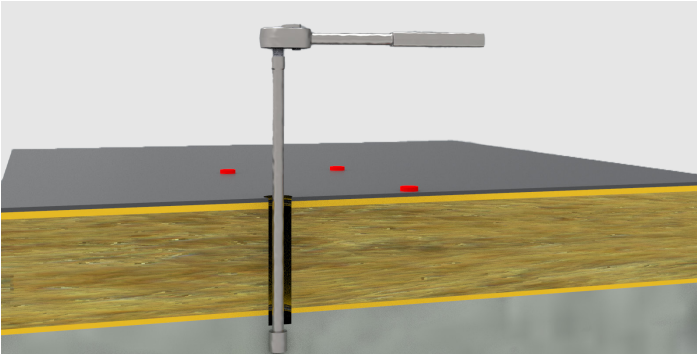
4. Using a SDS Masonry Drill of specified diameter, drill 4 no. holes into the concrete deck to give the required fixing embedment. If screed is present above concrete deck, remove this first using a larger drill diameter ensuring correct fixing embedment is in concrete substrate **only**.



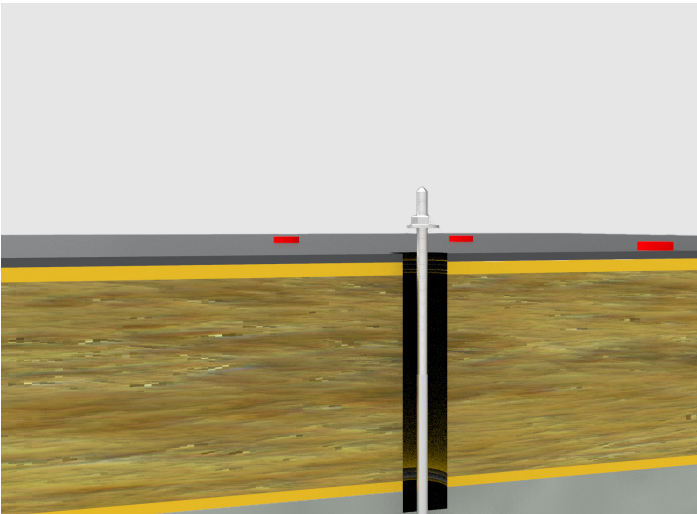
5. Using a wire brush and blow pump remove all debris remaining in each of the 4 holes.



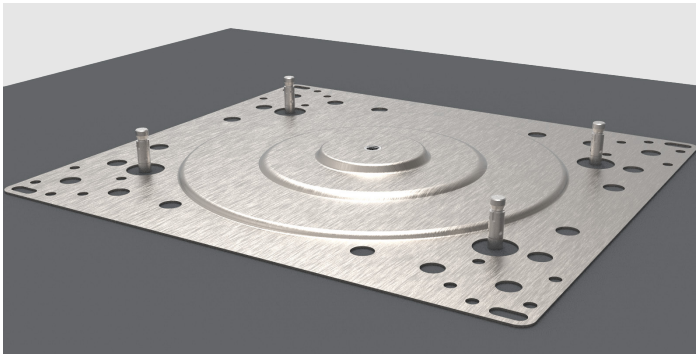
6. Using socket and extended drive bar fasten each of the screws into the concrete deck.



7. Turn studding into screw head of each fixing ensuring the correct stud length is used to allow enough to protrude from the opening to fit a nut and washer.

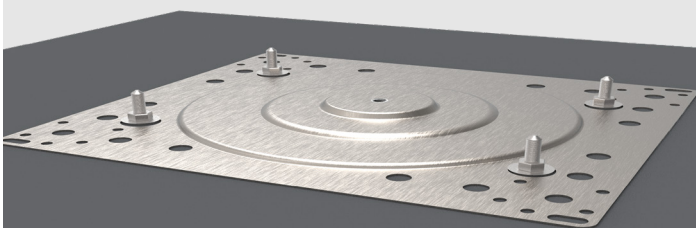


8. Drop base plate into position over protruding studs.

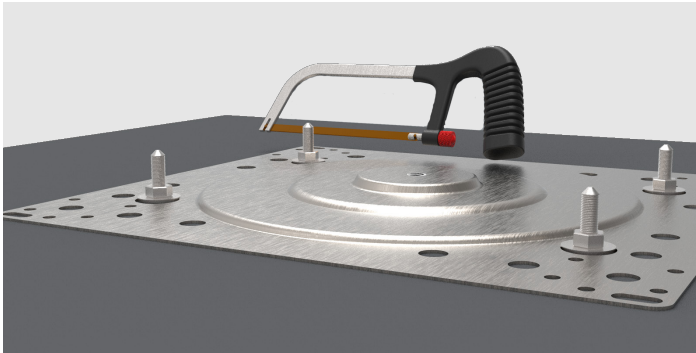


9. Place toggle cups over protruding studs above base plate for each of the 4 studs per post.

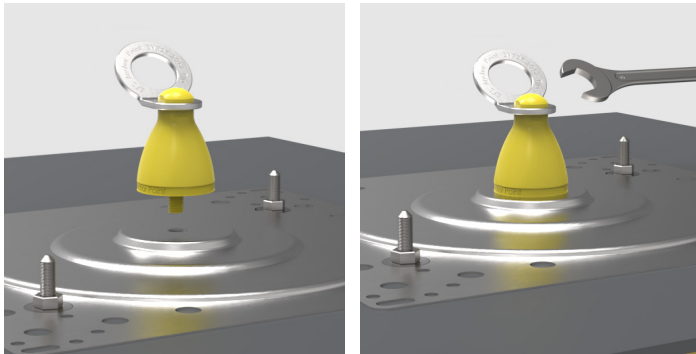
10. Add the nut to each fixing and tighten until base plate depresses into the membrane slightly.



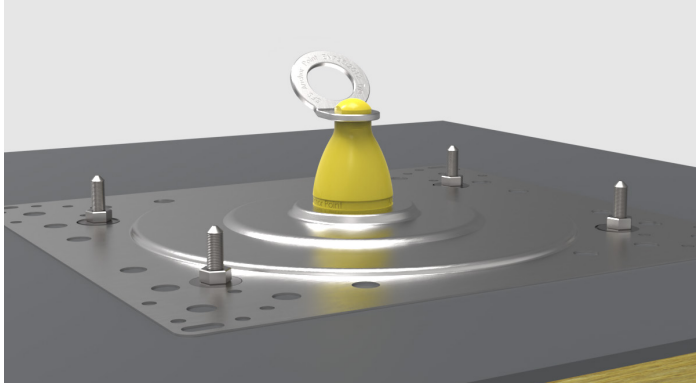
11. Cut off any excess studding and file down until smooth to avoid penetration through roof membrane.



12. Turn Anchor Point lower body onto female boss in base plate by hand firstly then to the desired tightness with the 19mm spanner until Anchor Point is seated correctly.



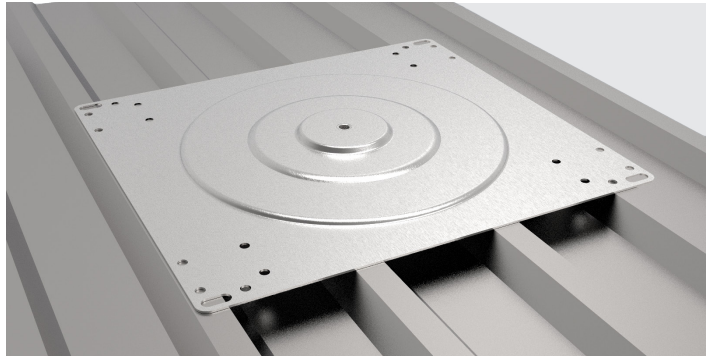
13. Add upper Anchor Point swivel and securing fastener to desired tightness.



14. Installation is complete and is ready for use.

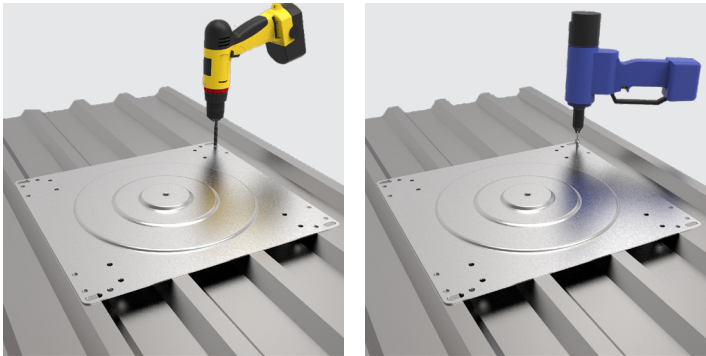
Trapezoidal Roof Sheets

1. Ascertain location of base plate, ensuring the plate is positioned so that the correct fixing holes sit centrally to the crown centres of the sheet. Ensure roof sheet is properly cleaned prior to installation.

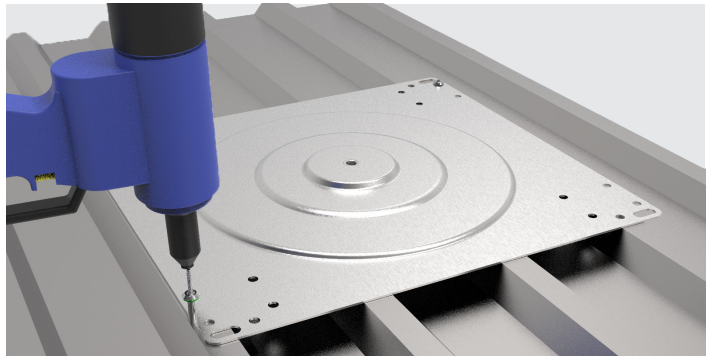


2. Once positioned drill first hole in corner of base plate using a 8mm drill bit.

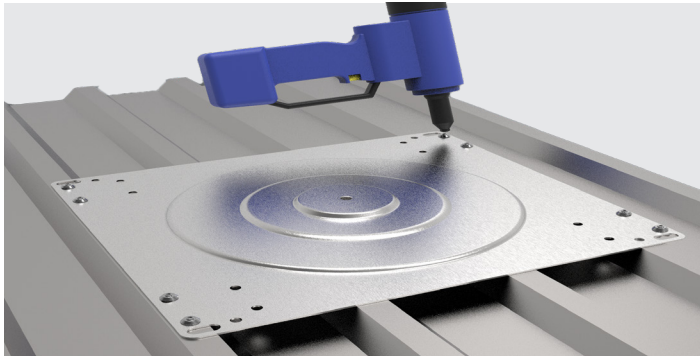
3. Insert rivet into drilled hole and using a PowerBird riveter pull the rivet fully ensuring the rivet mandrel is fully removed.



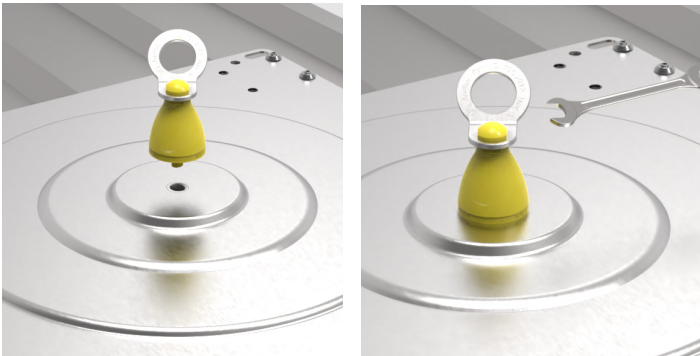
4. Drill and rivet the opposite corner.



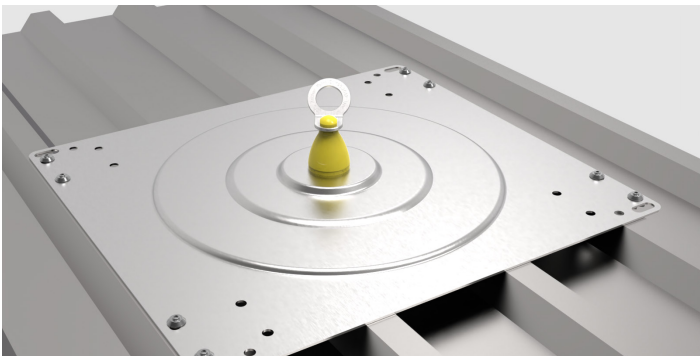
5. Repeat steps 2–4 on remaining fixing holes as per roof sheet specification and fixing number.



6. Turn Anchor Point lower body onto female boss in base plate by hand firstly then to the desired tightness with the 19mm spanner until Anchor Point is seated correctly.



7. Add upper Anchor Point swivel and securing fastener to desired tightness.



8. Installation is complete and is ready for use.



Roofer & Weathering

Weathering of a bituminous, single ply PVC or liquid applied membrane should be dealt with by a competent person. SFS take no liability for the effectiveness of the installation. The following should act as a guide and where needed, official guidance should be sought by the OEM.

For all membrane types, the surface of the base plate should be thoroughly cleaned prior to the installation of the SFS Anchor Point.

Bituminous
Typically for the bituminous membrane, the installer will require the use of a gas cylinder with blowtorch and suitable roller to press the molten patch into position.

Single Ply PVC
Typically for the single ply PVC membrane, the installer will require the use of a heat gun and suitable roller to hot air weld the patch into position.

Liquid Applied
Where liquid applied membranes are used, the installer must adhere to the OEM's installation methods at all times.

Other Membranes
For membranes such as EPDM, TPO & FPO there is currently a direct welding option to the base plate available, therefore consultation with the OEM should be sought prior to installation.



System Limitations

As with all products tested and certified in accordance to EN 795:2012, the SFS Anchor Point should be installed on roof systems with an angle of inclination that is less than 15 degrees.

Where the SFS Anchor Point is used as a system, by the connection of a 3rd party manufactured temporary life line, then system design considerations as defined in the 3rd party installation manual, should be used when positioning the SFS Anchor Point.

Primary consideration should be to life line deflection, predicted end loads and spans/spacing between anchor points, although other limiting factors may need to be considered. Always revert to the 3rd party manufactured temporary life line installation manual where necessary, no liability is accepted by SFS for their performance.

The structure to which systems are to be installed should be sufficiently strong to withstand the fall arrest/restraint loadings for which the system is designed. If there is any doubt as to the structure's ability to withstand such loadings, then the system should not be installed without appropriate testing on the substrate.

Periodic examination and re-certification of the installation should be made at intervals of no greater than 12 months from the date of last inspection. For details on the inspection of the life line please refer to any 3rd party supplied literature.

Working Position at Height

The positioning and installation of any anchor point depends on the situation on site and the intended use. SFS follows the hierarchy of control measures when working at height. This details the provision of work equipment to prevent falls and the mitigation of distance and consequences of a fall.

Therefore when working at height, SFS recommends that a user should be attached to a life line system at all times. Equally, proper risk assessments and detailed method statements should be in place prior to a user(s) entering into a scenario where a fall from height could occur.

The installation of the SFS Anchor Point needs to be correctly positioned based on the need and application. It is equally critical that system deflection afforded by the use of a 3rd party manufactured life line is considered in relation to the building height, any obstacles, the height of the user and any extension related to the users PPE.



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All information is non-binding and without guarantee. Before using the products, all specifications and calculations must be checked by a suitably qualified person and local regulations must be observed. This document is subject to revision. We reserve the right to make technical changes.
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