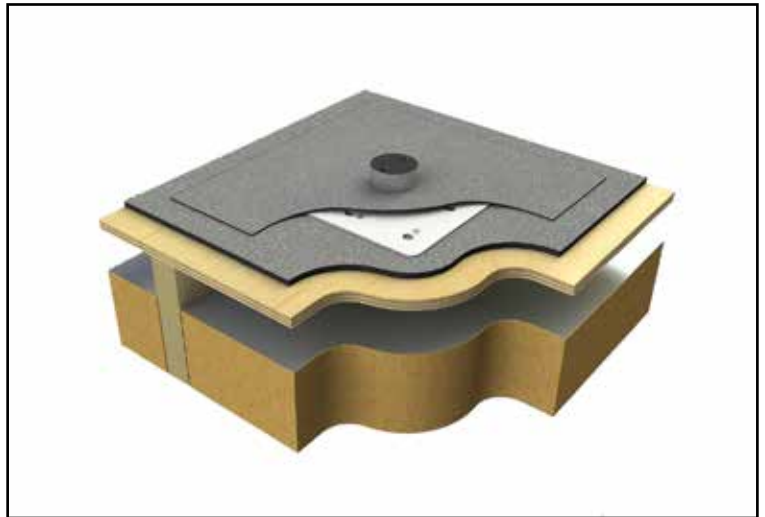


## Fixing Point for Cold Roof Constructions

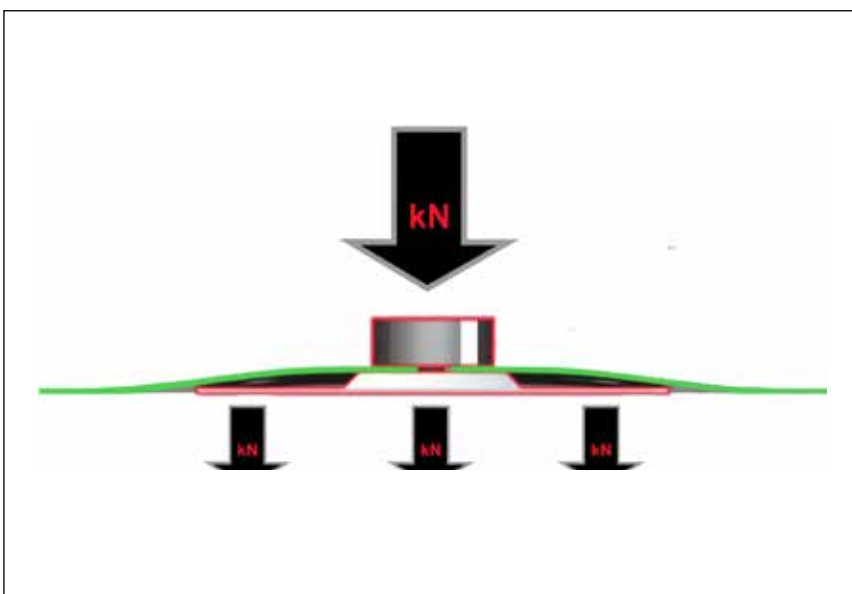
### The ProTrak PV Integrated Fixing Point (IFP) for Cold Roof Constructions

The ProTrak PV is part of the ProTrak family of fixing points for membrane roofing. It has been specifically designed for cold roof constructions where the roofing membrane is laid directly over the roof deck that supports the roof membrane. The use of the ProTrak PV provides a low profile, integrated and custom engineered solution to the provision of a mechanical fixing point in a membrane roof. The ProTrak PV allows direct fixings into the structure of the building and does not rely on adhesive or welded joints for its stability. All fixings remain beneath the membrane element providing a completely weatherproof fixing point. **The ProTrak PV is comprised of three main components as follows:**

- 1) A fixing plate 200mm x 200mm with six fixing holes providing exceptionally good pull out values when all of the fixing holes are used.
- 2) A piece of roofing membrane compatible to the main roof membrane. This is welded or joined to the field membrane after the fixing plate has been secured.
- 3) The fixing point. A solid stainless steel anchor point providing two M10 female threaded blind holes 20mm deep. These provide a universal base point for fixing a multitude of apparatus and fittings to.



### The seal and CPT™ (Constant Pressure Technology)



The ProTrak PV uses the simple principle of a washer to effect a mechanical seal to seal to the flange. The flange or roofing membrane becomes the washer meaning that there is no gasket, glue, sealant or other perishable part utilised and the seal will last as long as the membrane does. This principle has been tested to air pressures of 2 bar with zero drop.

Rather than an uncontrolled compression of the flange, CPT™ or Constant Pressure Technology was developed.

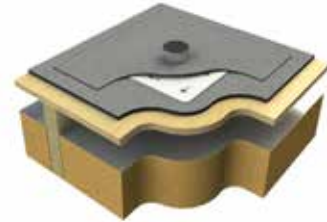
This patented mechanism ensures that the membrane is sealed and subjected to a controlled compression which remains constant even when under loadings from roof plant, wind uplift and snow.

All forces applied to the fixing point are transferred directly to the fixing plate without affecting the roofing membrane flange.

The ProTrak PV is protected design and subject of a pending patent application - any design infringement will be addressed in the strongest manner appropriate.

## Design Considerations

- 1) **Quantity** - the number of IFP's required for a particular application will be affected by various factors some of which are outlined below.
- 2) **Loading** - the IFP units will support varying downward loads depending upon the substrate they are mounted upon. For cold roof constructions calculations will be required to ensure that the proposed loadings can be supported by the roof or wall structure in question. The same applies for warm roof constructions except that the insulation manufacturers static load rating may affect the load bearing capacity of the IFP.
- 3) **Uplift** - the IFP units depend upon the type and number of fixings used to secure them in position. Where a profiled roof deck is used, the maximum number of fixings may be reduced - see Fitting Instructions below. The fixing manufacturers pull out values in various substrates are a guide but it is suggested that the actual pull out values are tested on site for accuracy.
- 4) **Supporting rails** - where supporting rails are fixed to the IFP units, consideration must be given to the strength of these rails and the centres at which they require supporting to perform in accordance with expectations.
- 5) **Location** - the geographical location, height and other physical constraints will need to be taken account of in any design involving the use IFP's.
- 6) **Minimum no** - a minimum no of 2 IFP's must be used for all applications
- 7) **Warranty for branded IFP's** - where a branded IFP is purchased as part of a roof system it will be covered by the warranty supplied by the roofing manufacturer.
- 8) **Warranty for IFP's purchased from Roof-Pro** - where the IFP is used on a roofing system and purchased from Roof-Pro the following is normally the case. The roofing manufacturers warranty is not rendered invalid by the inclusion of the IFP so long as a) the manufacturer's membrane is fitted to the IFP and b) it is weathered by a contractor approved by the roofing system manufacturer. If required, a warranty can be obtained to cover the seal between the membrane and the fixing point but excluding the lap joint seal. Conditions apply - further details upon request.

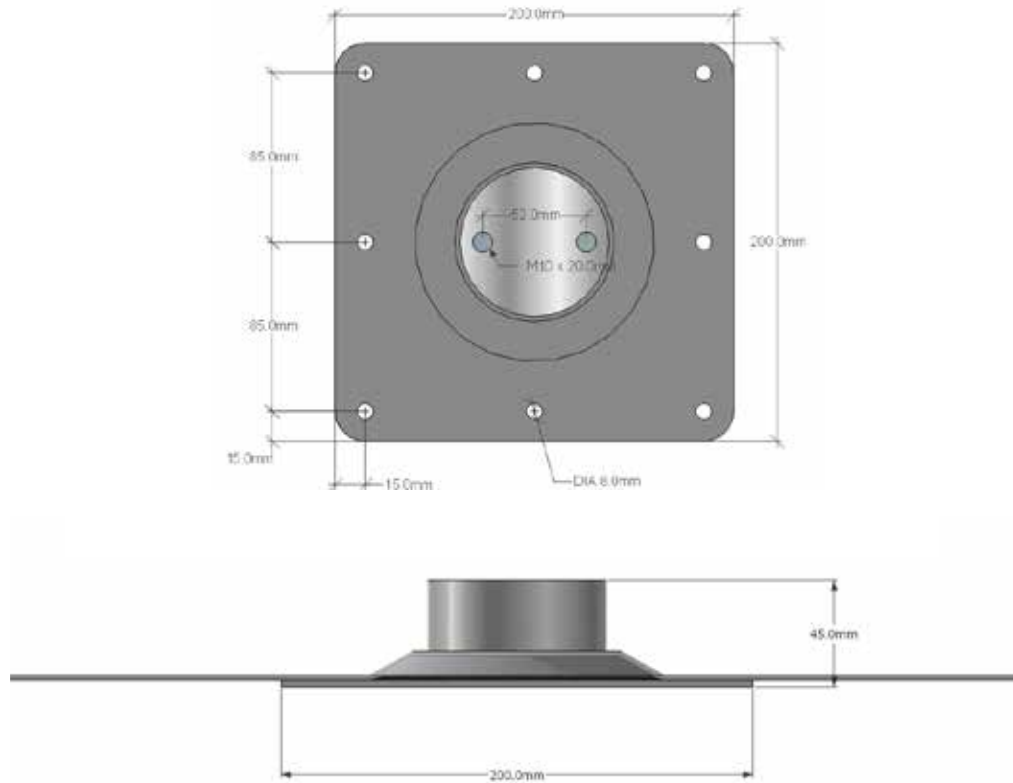


## Fitting Instructions

- 1) **Sequence** - the IFP's are designed to be fitted over the completed weathering layer of the roof on which they are to be used.
- 2) **Inspection** - the IFP is supplied in packaging designed to protect it from damage. Prior to installation, the IFP should be checked for defects, especially damaged membrane. If a unit is damaged, do not install it but return for evaluation.
- 3) **Setting out** - where for loading purposes it has been established that the IFP's should be positioned over structural elements eg rafters or purlins, these should be identified and the IFP's set out and located accordingly.
- 4) **Framing** - in addition to 1) above the IFP's should be positioned on the roof taking into account the constraints of any framing system that will be fitted to them. Particular care should be taken to get the orientation of the two fixing points correct as this cannot be adjusted once the IFP has been installed.
- 5) **Fixing on cold roof constructions** - ensure that the fixings used will penetrate the roofing membrane or layer and the roof deck below in accordance with the manufacturers tolerances. Use all available fixing holes to achieve the maximum pull-out value.
- 6) **Fixing on warm roof constructions** - ensure that fixings of sufficient length to penetrate the insulation and the roof deck are used in accordance with the fixing manufacturers instructions. Use as many fixing points as possible to achieve the maximum pull-out value.
- 7) **Metal roof decks** - where the roof deck is a profiled metal deck, the fixings must only be into the crown of the profile. This means that a maximum of six fixings can be used - see diagram. care should be taken to identify and locate the positions of the crowns before fixing commences.
- 8) **Weathering** - the flange of the IFP should be sealed to the roof deck in accordance with the roofing system manufacturers recommendations for lap joints of their particular roof system.
- 9) **Health & Safety** - all regulations applicable to working at height and roof work in general should be followed. Once installed, the IFP can pose a trip hazard. Use the warning sign supplied with the fitting and position so that site operatives are warned before entering that particular area



## Technical Data



<b>Static loadings in Kg for ProTrak PV</b>				
Maximum IFP loading capacity per post 250kg on cold roof constructions - subject to roof deck structural loading capacity calculations				
<b>Typical Uplift Values in kN* - minimum of four fixing points must be used</b>			<b>No of fixings per unit (safety factor of 3)</b>	
Substrate type	Thickness	kN per fixing	4 no fixings	6 no fixings
Steel Decking	0.7mm	1.6	2.1kN	3.2kN
	0.9mm	2.2	2.9kN	4.4kN
	1,2mm	2.7	3.6kN	5.0kN
	1.6mm	4.0	5.0kN	5.0kN
Plywood	18mm	2.2	2.9kN	4.4kN
OSB	18mm	2.2	2.9kN	4.4kN
Softwood boarding	25mm	3.4	4.5kN	5.0kN
Softwood joist	35mm embedment	4.1	5.0kN	5.0kN
Concrete	25mm embedment	4.1	5.0kN	5.0kN
<b>Unit weight (approx.)</b>	Fitted with 1.5mm single ply 2.4kg		Fitted with SBS torch on membrane 2.65 kg	
* Based on the Fixfast HD-6.1 range of fasteners. The above values are typical test results and do not include safety factors and intended as a guide only. On-site pullout tests should be carried out to determine the actual uplift values				
Please note that Roof-Pro do not undertake calculations				