



INSTALLATION INSTRUCTIONS

for DIAMOND DOME on a PITCHED ROOF

- 1.0 Components for the installation
- 2.0 Installation instructions
- 3.0 Assembling the pipe
- 4.0 Fitting the first pipe
- 5.0 Fitting the dome
- 6.0 Internal installation
- 7.0 Fitting the ceiling diffuser

Frequently asked questions

“How long can a SunPipe be?”

A SunPipe can be almost any length that you wish, but loses 10% of light for every metre of SunPipe. For very long SunPipes, a larger diameter should be used. There is a 16% light reduction for every bend. On smaller sizes the total effective maximum length is 8m, and up to 20m on larger sizes.

“What spacing should I use for SunPipes?”

In general terms we recommend 300mm diameter SunPipes at 3 metre intervals, 450mm diameter SunPipes at 4m intervals and 530mm diameter SunPipes at 5 metre spacings.

“Do I need planning permission?”

No, normally it is not necessary to apply for planning permission for the installation of a SunPipe. However, if your property is situated in a Conservation Area then specific permission must be obtained from your Listed Building Officer.

“Are SunPipes suitable for use in a bedroom?”

Yes, but bear in mind that in summer months, due to the efficiency of the SunPipe, your bedroom will be flooded with natural day light first thing in the morning. For this reason, installations in bedrooms or hospital wards can have either a black-out diffuser or a motorised light shut off damper.

“Does the SunPipe require maintenance?”

Due to the shape of the dome, the SunPipe is self-cleaning. The ceiling diffuser fits snugly into the base of the ceiling diffuser to prevent dust or dirt entering the system and as a result the interior mirror finish surface never requires any maintenance. If however you are fitting a light kit, the bottom ceiling diffuser can be removed but care must be taken not to leave fingermarks on the internal mirror finish of the SunPipe.

“Will the top dome discolour over time?”

The top domes are UV protected and carry a twenty five year guarantee. However, after 10 years there may be a slight clouding of the external surface.

Preparation and safety information

Scaffolding

For flat roofs and single storey buildings not exceeding 10ft. (3m) in height, access to the roof can be gained by ladder, but caution should be taken to prevent any falling materials. For two-storey buildings and pitched roofs a tower scaffold or similar should be provided to gain access to the roof if it is greater than 10ft. (3m) in height from ground level and not more than 20ft. (6m) in height. For access to roofs greater than 20ft. (6m) in height a professionally installed scaffold access should be provided. All scaffolding and ladders must be properly fixed to the building and all necessary precautions must be taken to prevent falling materials and provide a safe working environment for personnel.

Electricity

Normal safety precautions should always be followed. A low voltage power supply should be used when appropriate. Care should be taken to ensure there are no wires, cables, leads, water or gas pipes near the work area. Suitable eye protection and protective gloves must be worn.

Cutting

SunPipe tubes can be sharp after their ends are cut, protective gloves must be worn.

Dust

A safety mask should be worn to ensure you don't inhale dust when carrying out the installation of a SunPipe system.

Other safety recommendations

Don't fit SunPipe when it is raining or the roof area is wet or slippery.

You will need the following equipment:

Protective eyewear, Protective gloves, Protective breathing mask, Ladders, Tin snips, Power drill, Power jig-saw, Dispensing gun to dispense the silicone sealant supplied, Miscellaneous other tools.

1.0 Components for a standard kit installation of a DIAMOND dome in a PITCHED ROOF

Polycarbonate roof dome

Brushed nylon condensation sealing gasket

ABS flashing plate for slate pitched roof

ABS undercloak roofing felt support

SunPipe crimped end connecting piece must be used at roof level [cut to length on site]

3 section 45° adjustable elbow

[for steeper roof slopes over 45° you will require 2 x 30° elbows]

Plain end SunPipe 610mm [580mm fitted] must be used to terminate above ceiling level

3mm plywood backing panel and marking out template

Fixing ring

to be fitted to ceiling opening

SunPipe bell end

slides over end of plain end pipe above ceiling level

Ceiling diffuser

opal, clear stippled or twin skin

Push on **Diffuser trim** in white as standard [also stainless steel effect, brass or chrome effect available]

15 x 15mm self tapping stainless steel screws/washers

5 x for fixing the collar to the flashing plate, 4 x for fixing the pipe to the ABS collar, 5 x for fixing the dome to the ABS collar, 1 x spare

13 x 45mm screws (depending on SunPipe size)

5 x for fixing the Ceiling diffuser, 8 x for fixing the Flashing plate to roof.

10 x Black washers

5 x for use when fixing the Dome, 4 x for use when fixing the Collar to the Flashing plate, 1 x spare.

Silicone sealant

Silver aluminium tape

Alternative components

ABS flashing plate, and lead skirt for plain tiled roofs.

Lead flashing for bold rolled tile roofs.

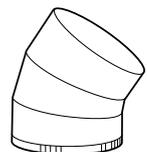
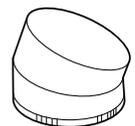
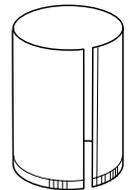
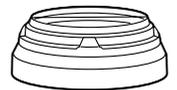
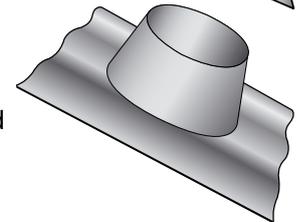
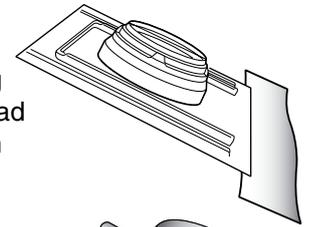
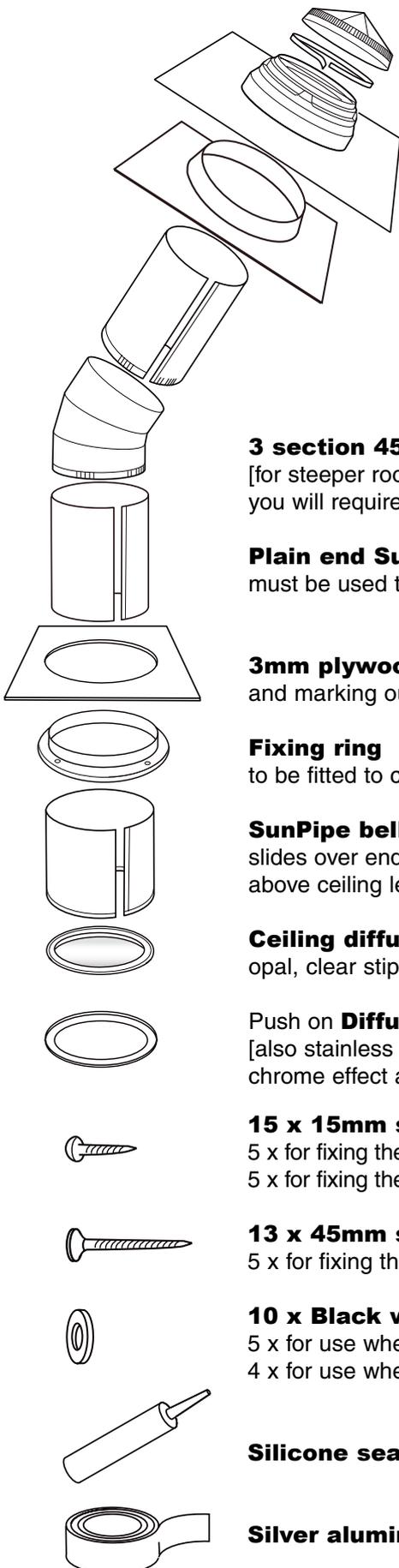
ABS collar for use with lead flashing

Optional additional components

SunPipe 610mm extension lengths with crimped end.

2 section 30° adjustable elbow, used where a small offset is required.

3 section 45° adjustable elbow for large offsets.

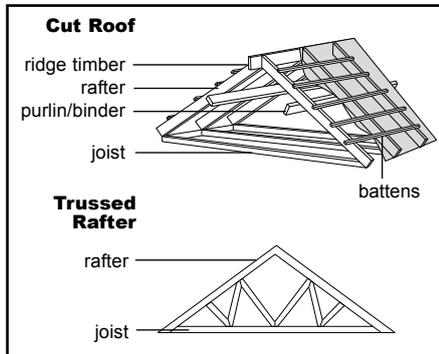


2.0 Installation instructions for a DIAMOND dome in a PITCHED ROOF

2.1 Before you start work

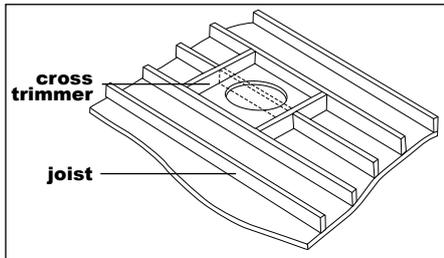
It's safer to fit the SunPipe between rafters

Most pitched roofs are constructed using the 'Cut Roof' or the 'Trussed Rafter' method. In newer buildings, trussed rafters are more common.



What if there isn't enough space to fit your SunPipe between existing rafters or joists?

In most homes SunPipes will fit between existing rafters or joists. However, if there isn't sufficient space, as a guide, on a 'cut roof', one rafter and ceiling joist may be cut to allow installation of your SunPipe but cross trimmers between adjacent rafters or ceiling joists must be installed at each side of the openings to support the 'cut' ends.



Under no circumstances should any element of a trussed rafter or, on a cut roof, a ridge timber, purlin or binder be cut without prior clearance from a structural engineer.

2.2 What's the best location for a SunPipe?

The most efficient place for your SunPipe is on a south facing roof slope. Always locate it as near to the ridge as possible. Try to avoid sheltered or concealed areas of your roof since the SunPipe will not benefit from direct sunlight.

In these circumstances the amount of light produced by the SunPipe which is in the shadow of the roof, will be similar to the amount of light obtained from a normally installed SunPipe on an overcast day.

There are a variety of views that have been given in the past on the best position for a SunPipe on a north facing roof. Previously our advice was to fit a vertical flashing on a north facing roof. However, our experience indicates that on a north facing roof, whether the SunPipe is vertical or perpendicular to the roof surface, there is very little difference in performance and therefore we do not need to recommend the use of a vertical SunPipe. We recommend the compact flashing with an elbow used internally as for any other SunPipe application.

2.3 Preparing for your particular roof type

SunPipes are suitable for virtually any type of roof covering but these instructions are particularly written for slate or tiled roofs.

For bold roll tiled roofs, you will require our lead flashing.

For thatched roofs, metal profile, asbestos, or other unusual roof coverings, please call our technical department on 01494 897705.

For most north facing roof slopes, it is advisable to use the **lead flashing** in the perpendicular form.

2.4 Preparatory work outside

You will need safe secure ladders and possibly a tower scaffold with all necessary safety rails to gain access to the roof surface. Ladders or tower scaffold must be safely tied into the building structure.

You will then need to gain access into the loft space, so from a secure and stable ladder or fitted loft ladder, enter the loft. The floor areas in some lofts are not safe to walk on. Use temporary boards to span between the joists if this is the case. Look carefully at the area where you want to install your SunPipe. Make sure there are no obstructions to the installation such as water tanks, pipes, electrical cables, etc.

Determine where you want the SunPipe to come into the loft from below and where you want it to exit through the roof. For best results, try to position the dome directly above your chosen location of the ceiling diffuser.

Drill a small pilot hole (midway between two rafters) through the internal roofing structure, and out through the external roof covering. Place a timber dowel or similar marker through the hole, (which will make it easier to see when you are outside). You will eventually need to enlarge the hole to the size shown in the following table.

Roof opening sizes

Nominal SunPipe dia.	Actual Size	Hole Size to cut
230mm	9"	(230mm) 240mm
300mm	12"	(305mm) 315mm
450mm	18"	(458mm) 470mm
530mm	21"	(536mm) 550mm

Please note: You will need to carry out a similar exercise to position the ceiling diffuser but please use the plywood template (supplied) for the exact size of the ceiling opening. Please see Section 6.0

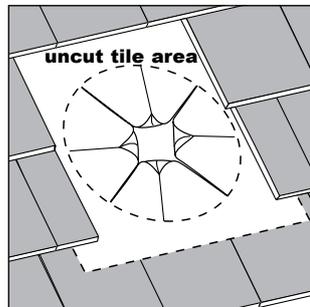
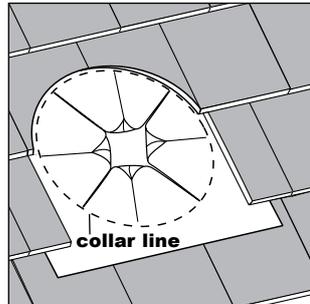
2.5 Preparatory work inside

Establish the position in which the SunPipe is to be installed by locating the dowel inserted from inside. Remove the slates or tiles from around the area. Set the slates or tiles aside. Temporarily place the flashing plate in position so that it is centred over the pilot hole. Remove sufficient tiles to mark and cut back the battens and cut diagonals in the felt covering to allow for the installation of the pipe. Refer to Section 2.4 above to determine the size of the hole to mark.

The ABS undercloak felt support plate is used to hold the roof felt in position to prevent it drooping. Once the position of the SunPipe has been determined and the felt cut, push up the undercloak support plate towards the underside of the roof to make the roofing felt in a taut condition then fix the support plate in position using battens to support the plate.

It is important to push up a length of the SunPipe from the inside of the roof, through the felt, so that the slits or cuts (as shown) secure the side of the SunPipe and trap the felt in position.

You can then cut the tiles around the ABS upstand. Place the tiles in position and make sure they fit.



2.6 Fitting the flashing plate on a slate roof

When fitting a SunPipe in a slate roof, the ABS flashing provides sufficient weatherproofing, you don't need any extra lead flashing. Therefore the ABS flashing plate should be tucked under the row of slates above, interleaved with the slates on each side and sit on top of the row of slates below. Use the 45mm long screws which are supplied, to fix the ABS flashing plate to the roof battens.

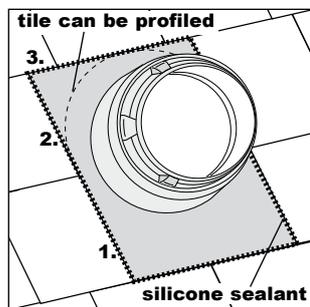
1. Wherever possible, align the bottom edge of the ABS flashing with the bottom edge of a row of slates. Cut the slate both sides to within 25mm of the SunPipe upstand collar.

2. Then re-lay the next row of slates carrying the slate over the ABS flashing but stopping 25mm short of the SunPipe upstand collar.

3. The third row of slates should then be carried over so as to weather the top edge of the ABS flashing.

Apply a thick bead of silicone sealant (supplied) around the slate edge and flashing plate to ensure a completely waterproof seal.

With some natural or man-made slates which are more than 5mm in thickness, it is advisable to use the lead skirt as set out in the following paragraphs.



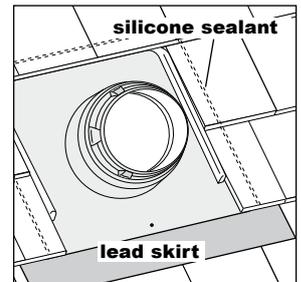
2.7 Fitting the flashing plate on a tiled roof

When fitting SunPipe in a plain tiled roof you should use the lead skirt.

Temporarily remove the tiles around the area in which you are going to fit the flashing plate. The ABS flashing is supplied with a self adhesive bitumen strip on its underside, to fix the lead skirt. The adhesive is protected by a strip of paper which should only be removed when you are ready to fit the skirt.

Lay the lead on a flat surface and clean off any dirt or dust.

Take the ABS flashing and carefully remove the protective paper and then place it firmly on top of the lead skirt, allowing the lead skirt to overlap by approximately 50mm to the underside of the ABS flashing. Press down firmly to ensure that the bitumen strip adheres to the lead. Secure the lead skirt with three pop rivets, one in the centre and one at each end.

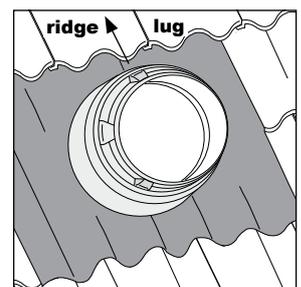


Please refer to the separate leaflet for fixing the weathering foam to the ABS flashing plate for profile tiles.

Carefully position the ABS flashing (with its lead skirt and foam attached). Fix down the ABS flashing plate to the roof battens using the 45mm screws supplied. Make sure that you use two screws in line with the bottom edge of the ABS collar but to the edge of the upstand, this will pull the ABS flashing down on to the batten allowing the correct alignment of the roof tiles. Apply a thick bead of silicone sealant (supplied) to the outer surround of the ABS flashing as shown. Replace the tiles and bed down to ensure a waterproof seal.

2.8 Fitting a lead flashing on bold rolled tiles

For bold rolled or profiled tiled roofs a Code 4 lead flashing can be supplied. It is supplied with the sides rolled for transportation. These should be un-rolled and dressed to the roof surface. It should be dressed under the row of tiles at the top edge of the lead and over the row of tiles at the bottom of the lead.



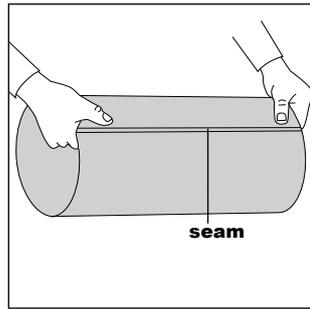
The lead flashing is supplied with an inner ABS support ring, which is used primarily for keeping the upstand in shape during carriage, and when installed gives the upstand additional strength. It is important not to damage the lead, since any blemishes are very difficult to remove.

2.9 Fitting the collar

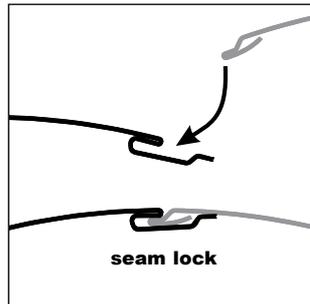
Place the collar carefully over the top of the lead **making sure to align one of the lugs on the collar pointing towards the ridge** of the roof (as shown) then push down the collar so that it fits firmly on top of the lead. Drill five equi-spaced holes around the lowest part of the collar, then secure the collar to the lead flashing with **closed pop-rivets** (supplied). If you need to seal any of the lead, make sure you **only use the lead sealant** provided.

3.0 Assembling the pipe

Lie the pipe on its side with the seam facing upwards. It is important that the protective film should be left on the inside surface of the pipe until later. This protects the pipe from dirty finger marks and also stops dust or dirt getting on the surface of the pipe. However, carefully run a Stanley knife down both sides of the joint where the protective film is attached to the inside of the pipe so as to be able to release the film later without too much difficulty.



Align the ends of the pipe. The special seams clip into one another forming a locking action. Put pressure on the seam all along its length to ensure the seal is secure. Apply a length of aluminium tape over the made joint

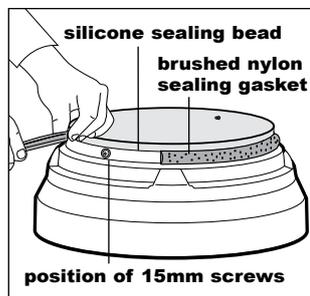


Care must be taken when handling the SunPipe, as the edges may be sharp.

4.0 Fitting the first pipe

Refer to Section 6.1 for determining the length of the first pipe before cutting.

Insert the topmost pipe into the ABS flashing plate from underneath. The crimped end should be at the bottom end of the pipe. Allow the pipe to project 5mm through the top of the collar flashing. Secure the pipe in position using four of the 15mm self tapping screws and washers supplied.

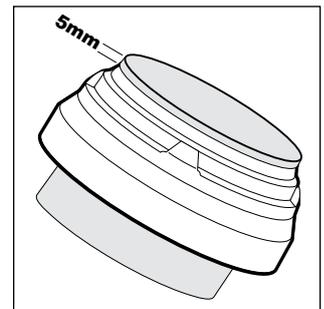


Once the pipe is fixed in position, carefully wipe the top of the outer surface of the SunPipe to remove any moisture, dirt or finger marks, etc. and apply a thick bead of silicone sealant, to seal between the SunPipe and the ABS collar, and then allow to dry.

This is the most important part of the Sun Pipe installation since this silicone sealant will prevent any rain or condensation from running down the outside of the SunPipe which may create a water stain on the ceiling.

Carefully apply the brushed nylon sealing gasket to the top of the collar (as shown) and over the screws that secure the pipe to the collar. The gasket should be level with the top of the ABS collar. This gasket seals the SunPipe against ingress of dirt or insects but still allows the SunPipe to 'breathe', thereby preventing any later problems of condensation.

Trim the top of the pipe if necessary after passing through the flashing to leave a 5mm upstand.

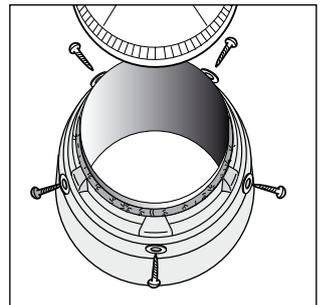


5.0 Fitting the dome

Before attaching the top dome to the collar/upstand, peel the protective film from the top rim of the first pipe and push it down the pipe, just enough to form a protective 'plug' in the pipe.

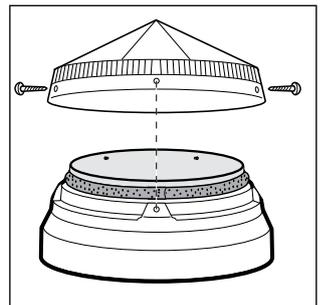
Take care not to scratch the dome when positioning it.

Align the pre-drilled holes on the dome with the lugs on the collar/upstand. Secure the roof dome to the collar/upstand using five 15mm self tapping screws and washers supplied.



All external works are now complete.

Carefully brush down the roof covering and all flashing to remove any particles of dust or dirt. Clean the dome with a soft cloth and water to ensure that the dome is free from any finger marks, dust or dirt



Note: When the SunPipe is initially installed, particularly in winter months, the air contained within the SunPipe tube does contain moisture and it is quite common therefore to see beads of condensation forming on the inside of the SunPipe dome immediately after installation. This is quite normal and the design of the SunPipe dome is such that this condensation will run down the inside of the dome, into the condensation gasket and will dry out naturally.

6.0 Internal installation

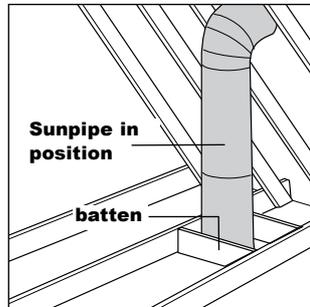
If you require the diffuser to be in a specific position in your ceiling, determine its final position and then drill a small pilot hole through the centre of the marked position and check in the loft space that the position is free from any obstruction.

6.1 Notes on internal arrangements for all PITCHED ROOF installations

For best results, silicone sealant (supplied) should be applied to all joints **before** final connecting, screwing and taping.

Push in three section elbow, (3 section for up to 45° pitch roofs or use two 2 section for steeper pitch roofs), adjusting it by rotating the sections to achieve the correct angle so that the elbow opening points vertically downwards.

Now peel off the coloured protective film down the pipe and elbow, carefully allowing it to form a descending 'plug' which prevents dust or dirt getting into the pipe whilst the installation is being completed.



Ensure that all of the protective film is removed from the previous pipe or elbow just before attaching the next section.

The second straight section of pipe should then be assembled as previously described and the two (or more) pipes connected together. Once you are satisfied that the angle and the location of the tubes are correctly aligned to pass through the loft space, continue as above with third or fourth sections and further elbow joints, depending on the distance you are spanning. **Make sure the final pipe has two plain ends.**

When you are satisfied that the angles and connections are all correct, drill small guide holes on each side of the SunPipe tube and screw the joints together with self tapping screws.

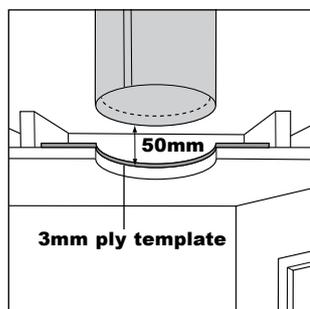
The silver aluminium tape should be used to seal all the joints and seams against dust and dirt.

On long unsupported lengths of pipe, additional fixing screws can be used to fix the SunPipe to any adjacent joist or rafter. Perforated strapping and drop wires should be used where it is considered there is likely to be any weight imposed on the elbow joints, such as long horizontal runs or complicated routes where the SunPipe may have to twist and turn. Drop wires should always be fixed vertically and attached to the rafters above and the perforated strapping should be fastened around the SunPipe and secured with suitable fixings.

Having established the entry point of the SunPipe into the room below, use the 3mm ply backing panel as a template to mark out the opening. Then use a pad saw or similar to carefully cut out the opening.

The bottom of the SunPipe tube should be trimmed back so that it is approximately 50mm above the top of the ceiling.

Insert the 3mm plywood backing panel in the ceiling space over the hole to provide extra support when fixing the ceiling diffuser (you may have to cut the plywood in two if you have limited access to the ceiling space).



7.0 Fitting the ceiling diffuser

To avoid any possibility of eye damage, be careful not to look upwards through the SunPipe. The efficiency of the unit is such that even in dull light, eye damage could result.

Remove the protective film from the assembled bell end length and pass through the fixing ring (as shown). Pass the bell end length through the cut opening and slide the bell end length over the trimmed plain end pipe.

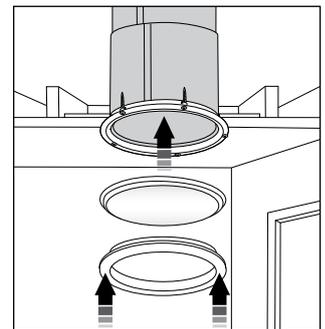
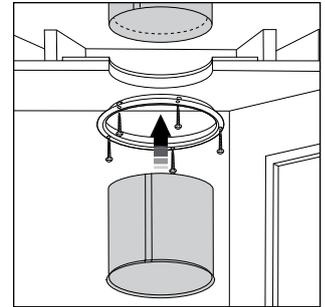
The fixing ring can now be screw fixed to the ceiling. Use five of the 45mm screws supplied.

Remove any remainder of the protective lining.

The ceiling diffuser is designed to push fit into the bottom of the bell end pipe. Twist the little turn buttons, which securely hold the diffuser in place. You can then clip the bottom ceiling trim into place making sure the lugs on the inside of the trim do not align with any of the screw position cut-outs on the fixing ring.

Return to the loft space and seal all joints and seams of the bell end length.

If the ceiling is not perfectly flat, such as an Artex ceiling or similar, apply a thin bead of a proprietary sealant, such as Decorator's Mate, around the external edge of the white trim to seal any gap between the ceiling trim and the ceiling itself. Lugs must not align with central ring diffuser clips. If it is ever necessary to remove the ceiling trim at a later date, clean off the proprietary filler and remake the joint.



When the installation is complete

Please leave these installation instructions with the owner of the SunPipe or Monovent Suncatcher. This will enable them to carry out the straightforward maintenance mentioned below

Maintenance

The SunPipe is designed to be maintenance free and the shape of the dome and the flashing is designed to be self-cleaning. If for any reason, further cleaning is required, only warm, soapy water should be used to wash the external dome and flashing. Take great care not to scratch the dome when washing. Internal cleaning should not be required since all components are effectively 'sealed-for-life'.

SunPipe has a 25 year guarantee against any defects arising due to faulty materials.

Monodraught SunPipe

Halifax House, Cressex Business Park, High Wycombe, Bucks HP12 3SE
Tel: 01494 897705 Fax: 01494 532465 www.sunpipe.co.uk email: info@sunpipe.co.uk