

Natural Lighting by Monodraught

Flexible Sunpipe®

Universal Installation Instructions

Preparation and Safety Information

Scaffolding

For flat roofs and single storey buildings not exceeding 10 ft. (3 m) 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 10 ft. (3 m) in height from ground level and not more than 20 ft. (6 m) in height. For access to roofs greater than 20 ft. (6 m) 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 with tin snips, 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

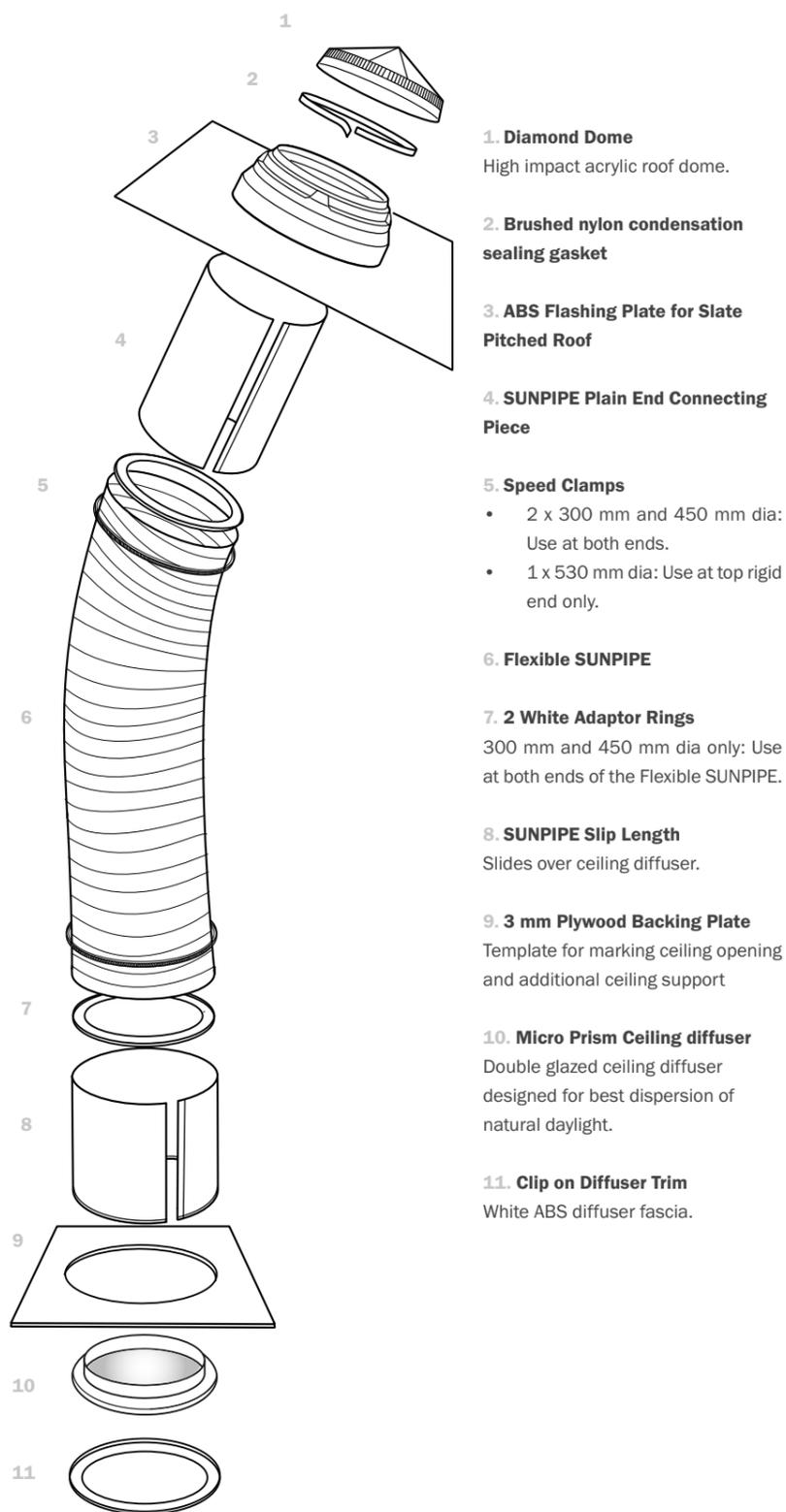
Protective eye-wear, protective gloves, protective breathing mask, ladders, tin snips, power drill, power jig-saw, dispensing gun to dispense the silicone sealant supplied, pad saw, stanley knife, miscellaneous other tools.

Building Regulations

Always check with your local council that your installation complies with all local Building Authority requirements.

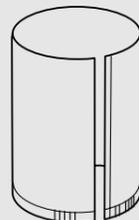
Pitched Roof SUNPIPE

Components for a Standard Kit installation of a Flexible SUNPIPE System



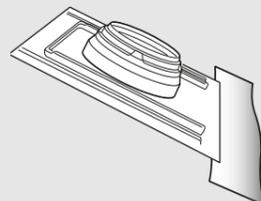
Optional Additional Components

610 mm Extension length with crimped end

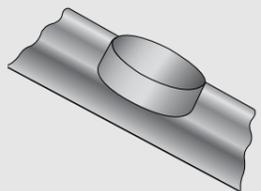


Alternative Components

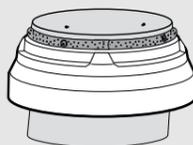
ABS flashing plate, weathering skirt and weathering foam for plain tiled roofs.



Lead flashing for bold rolled tile roofs.



ABS collar for use with lead flashing.



Installation Pack

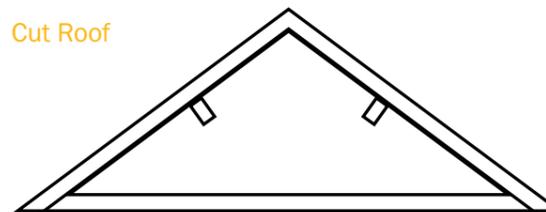
- 13 x 45 mm Screws (depending on SUNPIPE size).
- 15 x 15 mm Self Tapping Stainless Steel Screws/Washers.
- 10 x Black Washers
- Silver Aluminium Tape
- Silicone Sealant

Before You Start

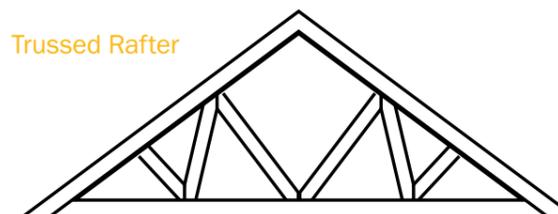
It's Safer to Fit the SUNPIPE Between Rafters

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

Cut Roof



Trussed Rafter



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.

Different Roof Types

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.

External Preparation

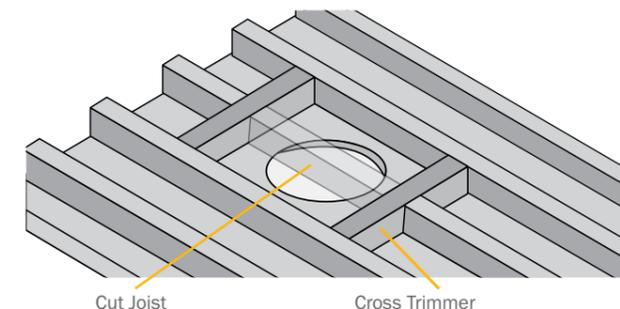
You will need safe secure ladders and possibly a tower scaffold with all necessary safety rails to gain access to the roof surface. Ladders or tower scaffold must be safely tied into the building structure.

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.

Insufficient Space Between Joists

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. However, 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.

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.

Positioning the SUNPIPE

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.

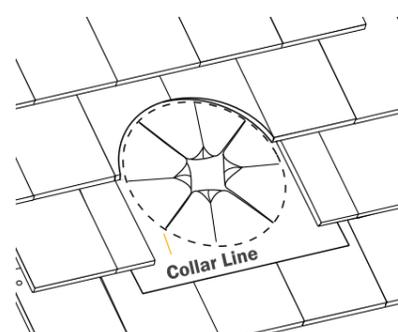
Nominal [mm]	SUNPIPE Diameter	Actual Diameter	Hole Size to Cut Ø
230	9"	230 mm	240 mm
300	12"	305 mm	315 mm
450	18"	458 mm	470 mm
530	21"	536 mm	550 mm

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

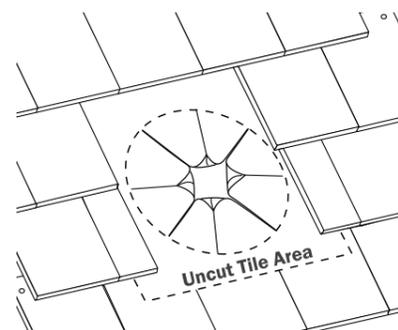
Removing the Tiles/Slates

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.

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.



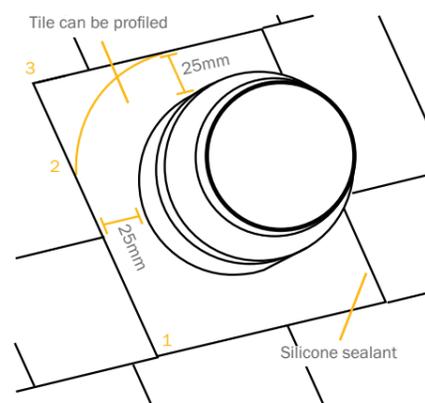
It is important to push up a length of the SUNPIPE from the inside of the roof, through the felt, so that the slits or cuts (as shown) secure the side of the SUNPIPE and trap the felt in position.



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

Installing the Flashing Plate on a Slate Roof

When fitting a SUNPIPE in a slate roof, the ABS flashing provides sufficient weatherproofing. 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 45 mm 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 and top to within 25 mm of the SUNPIPE flashing collar.
2. Then re-lay the next row of slates carrying the slate over the ABS flashing but stopping 25 mm 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.

Installing the Flashing Plate on a Tiled Roof

When fitting the SUNPIPE in a plain tiled roof you should use the weathering skirt which is fixed using a Poly-Butyl strip and pop rivets.

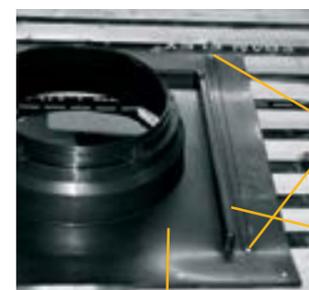
Lay the skirt on a flat surface and clean off any dirt or dust. Take the ABS flashing and carefully remove the protective paper and then place it firmly on top of the skirt, allowing the skirt to overlap by approximately 50 mm to the underside of the ABS flashing. Secure the skirt with the pop rivets as shown.



Rivet positions

Carefully position the ABS flashing (with its skirt) onto the roof.

Fix down the ABS flashing plate to the roof battens using the 45 mm screws supplied as shown.



Weathering Upstand

Make sure that you use two screws in line with the bottom edge of the ABS collar but also outside of the weathering upstand, this will pull the ABS flashing down on to the batten allowing the correct alignment of the roof tiles.

Apply a small amount of silicon sealant over the rivet and screw heads, this will ensure a waterproof seal.

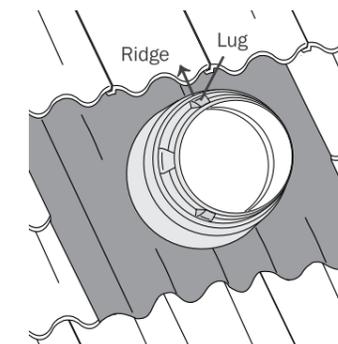
Fitting a Lead Flashing on Bold Rolled Tiles

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 unrolled 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.

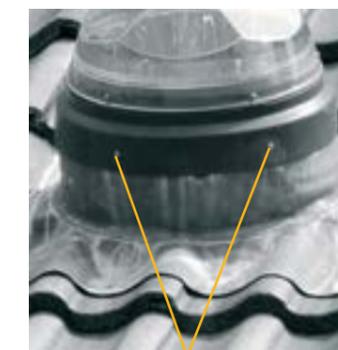
The lead flashing is supplied with an inner ABS support ring, which is used primarily for keeping the upstand in shape during carriage, and when installed gives the upstand additional strength. It is important not to damage the lead, since any blemishes are very difficult to remove.

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 equispaced 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.



Fixing holes for closed pop rivets

Assembling the Rigid Pipe

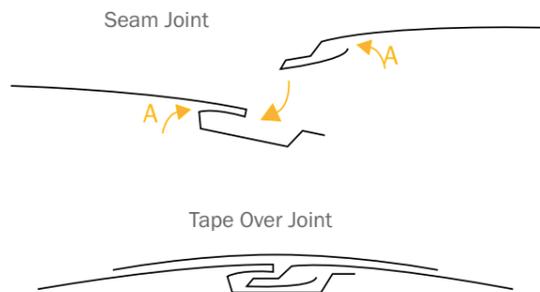
Lie the pipe on its side with the seam facing upwards. It is important that the protective film should be left on the inside surface of the pipe until later.

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.

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

Run a Stanley knife down both sides of the joints at points 'A' as shown, 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.

Carefully apply a length of aluminium tape over the joint, as it is extremely difficult to remove the tape once applied.

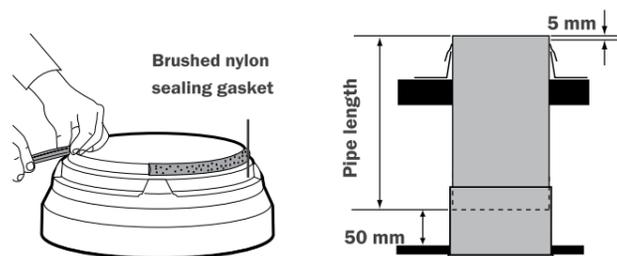


Fitting the First Rigid Pipe

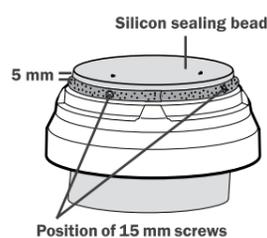
Carefully apply the brushed nylon gasket to the top of the collar (as shown). The gasket should be level with the top of the ABS flashing or collar. This gasket seals the SUNPIPE against ingress of dirt or insects but still allows the SUNPIPE to 'breathe', thereby preventing any later problems of condensation.

Measure the distance from the top of the collar to the underside of your ceiling. The pipe should project 5 mm above the collar and be cut approximately 50 mm above the room's ceiling.

If fitting additional lengths, the crimped end should be at the bottom.



Insert the topmost pipe into the ABS flashing plate from underneath. Allow the pipe to project 5 mm through the top of the collar.



Secure the pipe in position using four of the 15 mm self tapping screws and washers supplied, screwing through the brushed nylon gasket and into the rigid SUNPIPE.

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 as shown, and then allow to dry.



This is the most important part of the SUNPIPE installation since this silicone sealant will prevent any rain or condensation from running down the outside of the SUNPIPE.

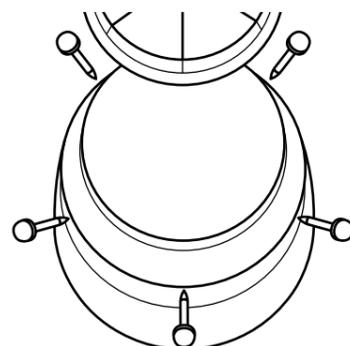
Fitting the Dome

Before attaching the top dome to the flashing or collar, 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' at the bottom of 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 15 mm self tapping screws and washers supplied.



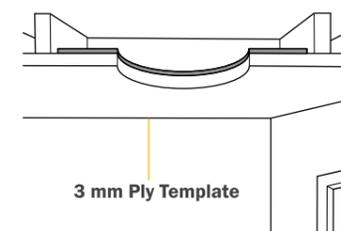
All external works are now complete.

Carefully brush down the roof covering and the 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.

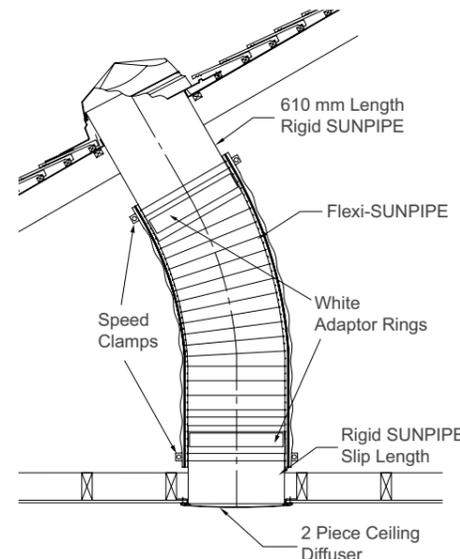
Internal Installation

Having established the entry point of the SUNPIPE into the room below, use the 3 mm 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 3 mm ply backing plate should then be placed in the ceiling space over the hole to provide extra support to the ceiling diffuser.



Please note: If using a 530 mm diameter pipe, no white adaptor rings and only one speed clamp (for securing the flexible pipe to the top rigid pipe) are supplied.

Slide the first white adaptor ring onto the section of rigid SUNPIPE protruding into the loft space and secure into position using four self tapping screws from inside the pipe.



Pull the Flexible SUNPIPE over white adaptor so that it covers the adaptor by at least 100 mm.

Secure the Flexible SUNPIPE in place using the speed clamp above the edge of the white adaptor ring.

Pull the Flexible SUNPIPE to the right length and cut as required. The wire helix can be cut with a wire cutter. The flexible material and insulation can be cut with scissors.

Seal the edge of the Flexible SUNPIPE to the top rigid length with the 100 mm wide silver tape supplied.

Slide the second white adaptor ring into the lower end of the Flexible SUNPIPE so that the ring is at least 100 mm within the flexible pipe.

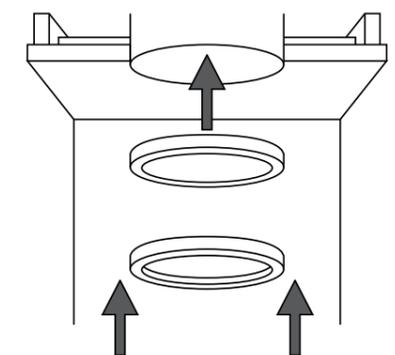
Remove the protective film from the assembled slip length.

Fitting the Ceiling Diffuser

To avoid any possibility of eye damage, be careful not to look upwards through the SUNPIPE.

Screw the fixing ring through ceiling and into the plywood backing template using five of the 32 mm screws supplied.

You can then clip the diffuser trim into place. From inside of the loft, slide the slip length over the ceiling diffuser.



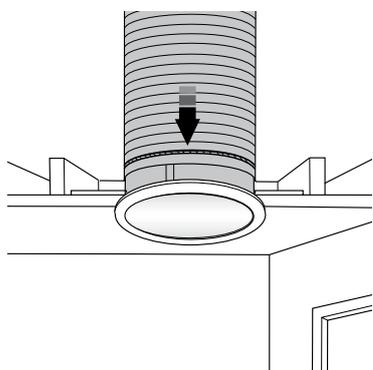
Fitting the Flexible Pipe to the Slip Length

300 mm and 450 mm diameter

From the inside of the loft space slide the flexible pipe and white adaptor over the slip length.

Pull back the Flexible SUNPIPE insulation layer and seal the edge of the inner layer to the slip length using the silver tape. Replace the insulation back over the inner layer.

Secure the Flexible SUNPIPE in place using the second speed clamp below the edge of the white adaptor ring. Seal the edge of the insulation layer to the slip length with the silver tape. Ensure that the slip length is still over the diffuser, refit if necessary.



530 mm diameter only

From the inside of the loft space slide the flexible pipe over the slip length. Pull back the Flexible SUNPIPE insulation layer and seal the edge of the inner layer to the slip length using the silver tape. Replace the insulation back over the inner layer and seal the edge of the insulation layer to the slip length with the silver tape.

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 **10 years' guarantee** against any defects arising due to faulty materials.

When the Installation is Complete

Please leave these installation instructions with the owner of the SUNPIPE. This will enable them to carry out the straightforward maintenance mentioned above.

Dispose of all packaging carefully and responsibly.

This product should not be discarded with household waste. Take to your local authority waste disposal centre.

Information

Frequently Asked Questions

What is the performance difference between a rigid and a flexible SUNPIPE?

A rigid SUNPIPE loses 10% of light for every metre of SUNPIPE and 16% light reduction for every bend. A flexible SUNPIPE is not as efficient in transferring the light through to the ceiling and is approximately 30% as effective, compared to the rigid system.

Where possible, Monodraught recommend using rigid systems.

What spacing should I use for SUNPIPES?

In general terms we recommend 300 mm diameter SUNPIPES at 3 m intervals, 450 mm diameter SUNPIPES at 4 m intervals and 530 mm diameter SUNPIPES at 5 m 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 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 fingerprints on the internal mirror finish of the SUNPIPE.

Will the top dome discolour over time?

No, because our domes are manufactured from acrylic, therefore there is no discolouration to our domes over the life of your SUNPIPE system. This has been tested and verified by the Building Research Establishment (BRE). Full test reports available at www.monodraught.com