FLAT ROOF SUN TUNNEL INSTALLATION INSTRUCTION

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

Dispose of all packaging carefully and responsibly.

The Sunlume Sun Tunnel 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'.

Sunlume Sun Tunnel has a 10 year guarantee against any defects arising due to faulty materials.

1. 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 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

Sun Tunnel 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 Sun Tunnel system.

Other safety recommendations

Do not install Sunlume Sun Tunnels 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.

Building Regulations

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

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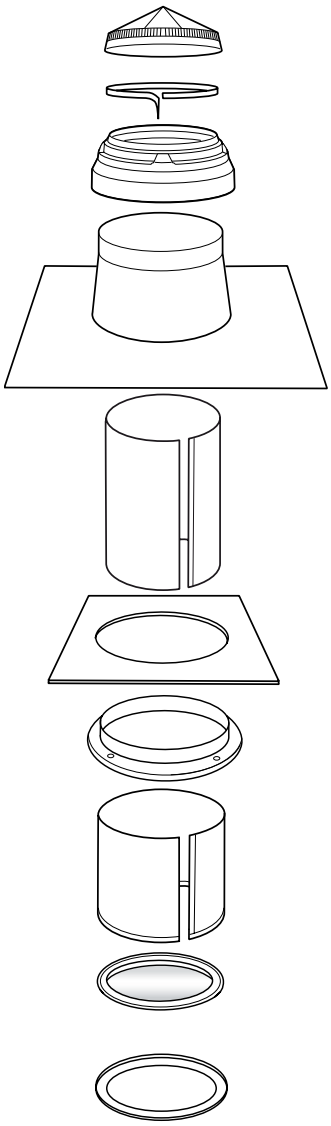
2. Components for a standard kit installation of a DIAMOND dome in a FLAT ROOF



Polycarbonate roof dome

Brushed nylon condensation sealing gasket

Galvanised flashing plate and ABS collar
Flat roofs are usually covered in built up felt roofing, asphalt, lead or a proprietary single ply roof covering. For asphalt, Trocal or hot applied bitumen roofing the galvanised flashing plate will be required. The standard ABS flashing plate will be suitable for most other roof types.
Whether or not you have an ABS or galvanised flashing plate, a standard ABS collar is supplied.

Plain end pipe 610mm
Must be used to terminate above ceiling level

3mm plywood backing panel
And marking out template

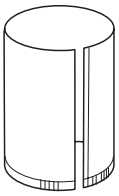
Fixing ring
To be fitted to ceiling opening

Sun tunnel bell end
Slides over end of plain end pipe above ceiling level

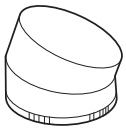
Ceiling diffuser
Opal or prismatic

Clip-on diffuser trim
In white as standard

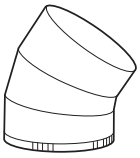
Optional additional components



610mm extension length with crimped end
0.5mm thick anodized aluminium tubes suitable for extending both flexible and rigid installations



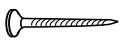
2 section 30° adjustable elbow
Used where a small offset is required includes 5 x 3.2mm x 10mm pop rivets for assembly of 450mm and 530mm elbows



3 section 45° adjustable elbow
For large offsets includes 10 x 3.2mm x 10mm pop rivets for assembly of 450mm and 530mm elbows

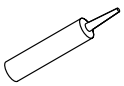
Installation pack

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 35mm or 45mm screws (depending on Sun Tunnel 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 (not to be used on lead flashings)

Silver aluminium tape

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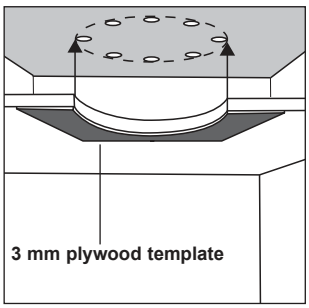
3. Planning and starting your installation

Under no circumstances should any element of a structured timber or beam be cut without prior clearance from a structural engineer.

It's normal to fit the Sun Tunnel between joists (which are generally at 16" (400mm) centres)

Some flat roofs have a narrow ventilation gap or grille, just behind the fascia board running along the edge of the roof (which often supports the rainwater gutter). The joist positions can be seen through the gap.



When you have decided where you would like the Sun Tunnel to be positioned on the ceiling of your room, drill a small pilot hole to determine whether there is sufficient clearance within the ceiling space. For most domestic applications, the Sun Tunnel will fit easily between flat roof joists, it may be necessary therefore to slightly adjust the centre point of the Sun Tunnel location so as to fit between the joists without cutting the joists.

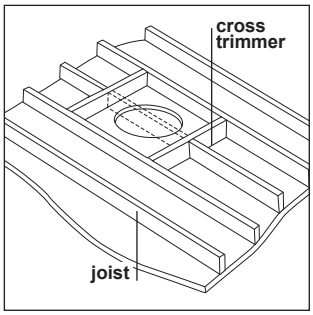
Use the 3mm plywood backing panel as a marking out template and carefully enlarge the hole ensuring that the hole is in the centre of the two joists (the 3mm plywood panel is used later to secure the Ceiling trim). Enlarge your pilot hole to 2" (50mm) in diameter. Check that there are no adjacent power or other services nearby, then enlarge the hole to 6" (150mm) diameter.

Enlarge the hole to the sizes shown in the table below. Drill directly upwards and through the external roof covering above, eight equally spaced pilot holes inside the perimeter of the ceiling hole.

Nominal Diameter	Diameter	Actual Diameter	Structural Opening
230mm	9"	(230mm)	240mm
300mm	12"	(305mm)	315mm
450mm	18"	(458mm)	470mm
530mm	21"	(536mm)	550mm

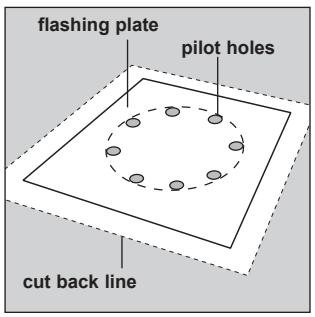
Not enough space between rafters or joists?

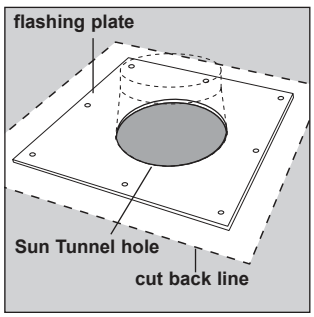
If there isn't sufficient space, as a guide, on a 'cut roof', one rafter and ceiling joist may be cut to allow installation of your Sun Tunnel but cross trimmers between adjacent rafters or ceiling joists must be installed at each side of the openings to support the 'cut' ends.

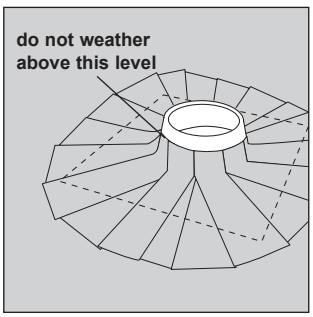


4. Preparatory work outside

Establish whether your flat roof is safe to walk and work on. If it isn't, prepare 'duck-boards' so that you can work safely.
Place the flashing plate over the eight pilot holes, aligning the pipe with the holes. Mark the perimeter of the square plate on the roof, using a felt pen or masking tape. Cut the roof covering back to 2" (50mm) beyond the flashing plate.







Using the eight perimeter guide holes, cut a circular hole through the roofing board material. The hole must align with the hole in the ceiling below.
Ensure that the surface to receive the flashing plate is clean, dry and free from imperfections. Secure the flashing plate with the 45mm screws provided. Using felt, asphalt or lead, appropriate to the roof covering you have, form a weatherproof dressing around the flashing plate, up to a height of 6" (150mm).
Don't weatherproof on the upper vertical section of the flashing plate as it could obstruct the fitting of the collar.

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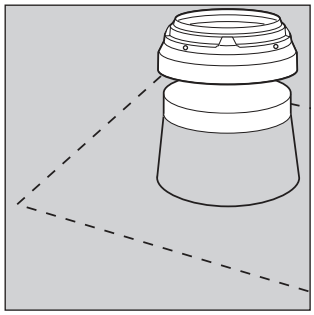
5. Fitting the collar

Sunlume Sun Tunnels are supplied with an ABS (acrylonitrile-butadiene styrene) collar for dome to fit on to.

Once the flashing plate is secure and the weatherproof dressing finished, sit the ABS collar onto the flashing plate.

Drill five equally spaced holes around the collar in the positions shown adjacent. When using the ABS flashing plate, use the closed pop rivets supplied or use the 15 mm self tapping screws and washers if using a galvanised flashing plate. Apply silicone sealant over the screws/washers to form a weatherproof seal.

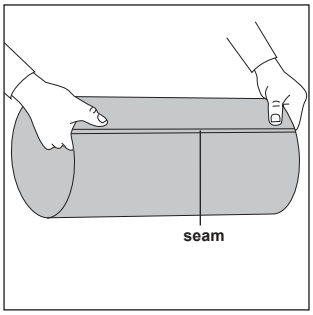


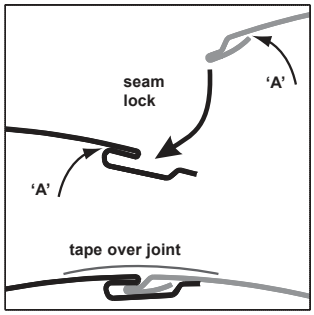
6. Assembling the pipe

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. 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.

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

Carefully run a Stanley knife down both sides of the joint 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.



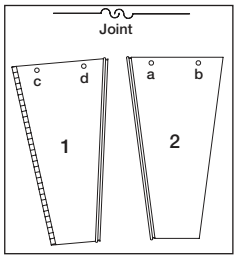


Care must be taken when handling the Sun Tunnel, as the edges may be sharp.

7. Assembly of 450mm and 530mm elbows

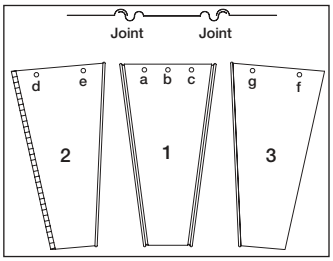
30° Adjustable Elbows

1. Pop rivet Section 1 together at **c** and **d**
2. Pop rivet Section 2 at **b**
3. Insert Section 1 into Section 2
4. Pop rivet Section 2 at **a**



45° Adjustable Elbows

1. Pop rivet Section 1 together at **a**, **b** and **c**
2. Pop rivet Section 2 at **d**
3. Insert Section 1 into Section 2
4. Pop rivet Section 2 at **e**
5. Pop rivet Section 3 at **f**
6. Insert Section 1 into Section 3
7. Pop rivet section 3 at **g**



Note: It is recommended that you peel back the protective lining just sufficient to assemble the elbow but leave the protective film in place to be removed after the fitting of the elbows, to avoid the possibility of fingermarks or damage to the completed elbows.

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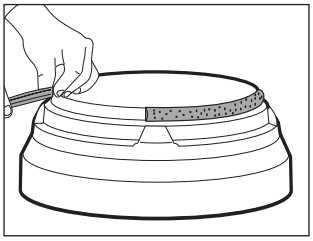
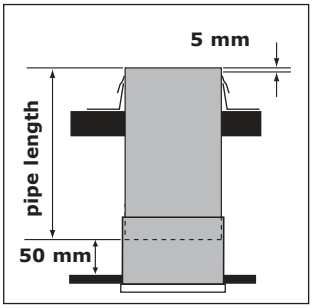
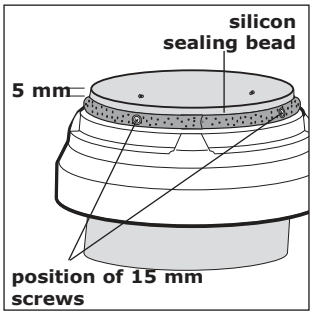
8. Fitting the first pipe

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







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 Sun Tunnel against ingress of dirt or insects but still allows it 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 5mm above the collar and be cut approximately 50mm 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 5mm through the top of the collar. Secure the pipe in position using four of the 15mm self tapping screws and washers supplied, screwing through the brushed nylon gasket and into the rigid Sun Tunnel.

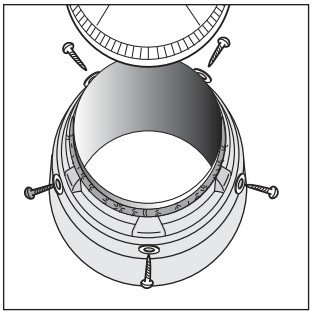
Once the pipe is fixed in position, carefully wipe the top of the outer surface of the Sun Tunnel to remove any moisture, dirt or finger marks, etc. and apply a thick bead of silicone sealant, to seal between the Sun Tunnel and the ABS collar as shown, and then allow to dry.

9. Fitting the dome

Take care when handling the dome so as not to scratch the surface.

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.

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

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10. Fitting additional extension pipes

Fit additional straight lengths to suit your particular roof void. The crimped ends are slightly smaller than the plain ends. The crimped ends fit tightly into the plain ends.
If there is a large void between the ceiling of your room and the flat roof, you may need to connect additional pipes together.
Alternatively you may want to create an offset. This is when the Sun Tunnel has two elbow sections. This can enable the Sun Tunnel to enter the room in a location which is not directly underneath where it exits through your roof. Rotating the elbow sections can achieve different angles.

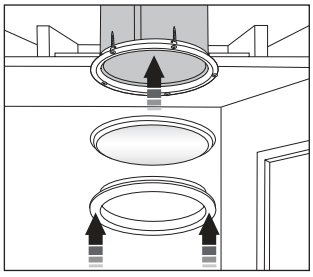
Ensure that all of the protective film is removed from the previous pipe or elbow just before attaching the next section. Once you are satisfied that the angle and the location of the tubes are correctly aligned to pass through the loft space, continue as above with third or fourth sections and further elbow joints.

Make sure the final pipe you use has two plain ends as the bell end needs to fit over the bottom of the plain end pipe. When you are satisfied that the angles and connections are all correct, drill small pilot holes on each side of the tube to elbow joints 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, apply carefully as it is extremely difficult to remove once applied. On long unsupported lengths of pipe, additional fixing screws can be used to fix the Sun Tunnel 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 Sun Tunnel 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 Sun Tunnel and secured with suitable fixings.

11. Fitting the ceiling diffuser

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



Screw the fixing ring through ceiling and into the plywood backing template using five of the 45mm screws supplied.
Remove the protective film from the assembled bell end length. Pass the bell end length through the fixing ring and slide over the trimmed plain end pipe. **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 diffuser 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.

If the ceiling is not perfectly flat, such as an Artex ceiling or similar, apply a thin bead of a proprietary sealant 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.

Return to the loft space and carefully seal all joints and seams of the bell end length. Dust may enter the Sun Tunnel during installation, which may settle on the ceiling diffuser over a period of time. Simply remove the trim and diffuser and clean with a dry lint-free cloth, then replace and reseal if necessary. No further cleaning or long term maintenance should be required but if flies for insects appear in the diffuser, these should be removed. Some insects are attracted by strong light so carefully check to ensure that silver tape covers every possible gap.

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