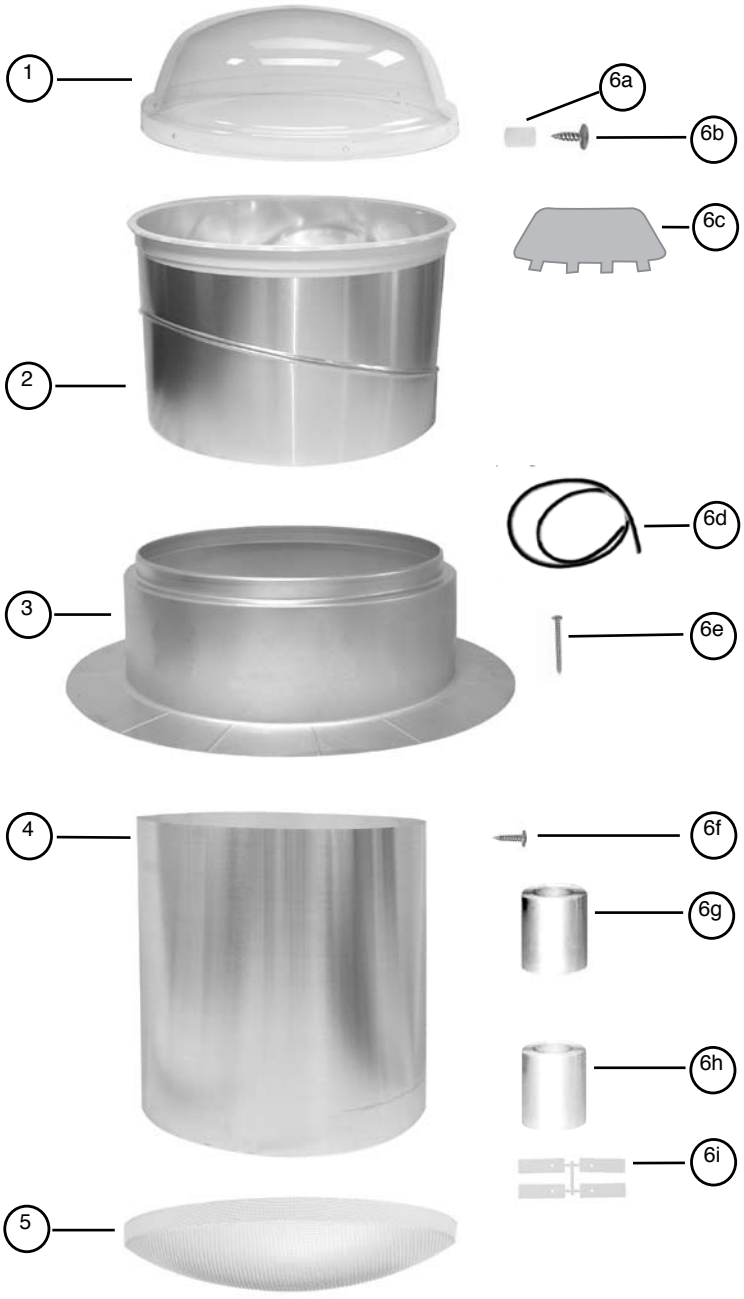
Solatube® SolaMaster® Series
Solatube 21-0 (21 in/530 mm Daylighting System) Installation Instructions

Please read all warnings and instructions before beginning the installation.



PARTS LIST

	Quantity
1. Dome	(1)
2. Top Tube Assembly including	(1)
a. Dome Ring	
b. Spectralight® Infinity Top Tube with Angle Adaptor	
3. Roof Flashing* (4 in (100 mm), 8 in (200 mm), 11 in (280 mm) or Curb Mounted)	(1)
4. Spectralight® Infinity 24 in (610 mm) Extension Tube (1)	
5. Open Ceiling Diffuser	(1)
6. Seal and Fastener kit including	
a. Dome Spacers	(6)
b. Dome Screws - #8 X 3/4 in (20 mm)	(10)
c. LightTracker™ Reflector	(1)
d. Dome Seal	(1)
e. Flashing Screws - #10 X 2 in (50 mm)	(20)
f. Tube Screws - #8 X 3/8 in (10 mm)	(16)
g. 2 in (50 mm) Foil Tape - 18 ft (5.5 m) roll	(1)
h. 2 in (50 mm) White Polymeric Tape - 7.5 ft (2.3 m) roll	(1)
i. Open Ceiling Diffuser Clips	(4)

Required Tools:

1. Roof Sealant – 3 tubes (10.5 fl. oz./310.5ml)
2. Electric Drill
3. Saber or Reciprocating Saw
4. #2 Phillips Head Screw Driver/Screw Gun
5. Utility Knife or Razor Knife
6. Tape Measure
7. Flat Bar
8. Metal Shears
9. Flashlight
10. Caulking Gun
11. Ladder
12. Plumb Bob
13. Magnetic Compass
14. Required Safety Equipment

For the most current Installation Instructions, please visit http://solatube.com/instructions

WARNING

Do not proceed with the installation until you have read the entire instructions, including these warnings. (Use of materials or methods not authorized by Solatube will result in an invalid warranty.)

Solatube International (seller) assumes no responsibility or obligation whatsoever for the failure of an architect, contractor, installer, or building owner to comply with all applicable laws, ordinances, building codes, energy codes, fire and safety codes and requirements, roof warranties and adequate safety precautions. Installation of this product should be attempted only by individuals skilled in the use of the tools and equipment necessary for installation. Protect yourself and all persons and property during installation. If you have any doubt concerning your competence or expertise, consult a qualified expert before proceeding.

Install at your own risk!

Solatube product installations may be dangerous and include the potential for death, personal injury and property damage. The hazardous conditions include but are not limited to the following:

- **During installation, the Solatube Daylighting System's reflective tubes may focus sunlight, causing intense heat or fire. Remove protective film only after the parts have been installed. Prior to and during installation, do not leave tubes in contact with combustible materials or unattended, especially near direct sunlight. Avoid skin burns.**
- Sheet metal edges may be sharp. Use protective gloves to avoid lacerations.
- Solatube Daylighting System installations require climbing and working at dangerous heights, including on ladders, scaffolding, roofs and in attic spaces. Risk of death, personal injury and property damage may result from a fall, or from falling objects. Use extreme caution to minimize risk of accidental injury, including, but not limited to the following procedures:

    o Clear area below your work space of all people, animals and other items.
    o Avoid working on surfaces that are slippery or wet.
    o Use foot-wear with excellent traction.
    o Use only strong, well supported ladders.
    o Work only in calm dry weather.
    o When in the attic, ensure that your weight is supported at all times with structurally sound framing; drywall material is not designed to carry a person's weight.

- To reduce the risk of fire, electric shock, and personal injury; basic safety precautions should always be followed when using electric tools, including always wearing safety goggles or other suitable eye protection, and ensuring work area is clear of all electrical wires, gas pipes, water pipes, and other obstacles.
- When working in the attic or other dusty areas, use of a mask or respirator is recommended to avoid lung irritation. Attic spaces may be dark, confined, and subject to extreme temperatures. Beware of sharp protruding objects. Do not attempt installation without having someone within range of your voice or close enough to come to your aid if necessary.
- The Solatube Daylighting System is not designed to withstand the weight of a person, tools or other objects. Walking or placing objects on the system could cause personal injury and property damage. If the dome is broken or cracked, or if the product is otherwise damaged, the structural capacity may be weakened, and the system should be repaired immediately. For safe installation and use, do not deviate from these installation instructions.

Installation Tips

- Allow at least 3 hours for the installation, particularly if this is your first installation.
- All adhesives, seals and tapes are recommended to be applied to a dry surface at a minimum of 70˚F for maximum performance.
- During the day, turn off all the lights in the room to see how much natural light comes in through the windows, and determine the best position for the Solatube Daylighting System. To light a specific area, place the system over the area, not in the center of the room. This will prevent the desired area from being shaded by tall objects in the room.
- Avoid roof locations shaded by trees, ridges and chimneys, or near water channels or valleys.
- Avoid roof areas with obstructions such as gas, water or drain pipes, air ducts, flues or furnaces, or HVAC equipment.
- Make sure the roof is adequate to endure an installation without damaging its water proofing properties or weakening the building structure.

Marking the Ceiling Location
Note: Requires 21 1/2 in (550 mm) of clearance between structural members.
Step 1: Determine location for optimum light performance. Make sure there are no obstructions in tube's path to roof or obstructions on roof restricting flashing or path of direct sunlight. Place a mark on floor at chosen location **(Diagram A)**.

Roof Location
Step 2: There are two options to mark roof location.
Option A: Using a lift, mark underside of roof structure directly over location with a plumb bob or laser. Center mark between structural members. Transfer location to the rooftop surface with a screw or drill bit.
Option B: Take measurements from two perpendicular outside walls of building to the approximate position on floor. On rooftop, measure distance from the same outside walls and mark flashing location **(Diagram A)**.

Roof Flashing Installation
Take all installation components up on the roof.
Note: Top tube, extension tube and diffuser can be assembled at ground level or on the roof.

Flat/Low Pitch Roof
For built-up, cap sheet or roll roof systems follow instructions below. For foam, PVC, or torchdown roofs, consult a commercial roofing contractor for alternate flashing applications.
Step 3: Remove the backing from dome seal and firmly adhere it along top edge of flashing.

Step 4: Scrape and sweep away gravel and dirt from roof area where flashing will be located. Roof surface under flashing and 3 in (75 mm) beyond edge of flashing must be smooth and free of debris.

Step 5: Turn flashing upside down and center it over roof mark, then trace inside circumference onto roof surface with a lumber crayon **(Diagram B)**. Using saber or reciprocating saw cut hole through roof deck 1/2 in (15 mm) outside marked line, being careful not to cut any framing members, concealed pipes or electrical wires **(Diagram C)**. Clean sawdust from around roof hole.

Step 6: Turn flashing upright. Center flashing on roof hole and trace outer edge of flashing. Apply a 3/4 in (20 mm) bead of sealant to roof 1 in (25 mm) inside perimeter of marked line, a 3/4 in (20 mm) bead of sealant on underside of flashing 1 in (25 mm) in from outside edge, and between layers of roofing exposed by flashing hole **(Diagram D**). Replace flashing to marked location and check for a proper seal. Fasten flashing to roof with 2 in (50 mm) flashing screws. Tighten screws until sealant is a minimum of 1/8 in (3 mm) and a maximum of 1/4 in (5 mm) thick between flashing and roofing material. Do not over tighten. Coat screw heads with sealant. Apply another bead of sealant to outer edge of flashing, spreading it evenly to seal flashing edge and roof surface.

Pitched Roof
Step 3: Remove the backing from dome seal and firmly adhere it along top edge of flashing.

Step 4: With flashing upright, center flashing over roof mark and trace inside circumference onto roof with a lumber crayon. Using a utility knife or razor knife, cut shingles 1/2 in (15 mm) outside marked line to expose roof deck. Turn flashing upside-down and center over roof location. Mark the inside circumference of the flashing turret onto the roof deck **(Diagram B)**. Using saber or reciprocating saw cut 1/2 in (15 mm) outside marked line. Be careful not to cut any framing members, concealed pipes or electrical wires **(Diagram C)**.

Step 5: Using a flat bar, break sealing tabs of asphalt shingles and carefully pull out staples or nails above the midpoint to upper edge of flashing. Remove enough shingles to expose roofing felt at the middle of flashing hole **(Diagram E)**.

Step 6: With a caulking gun, apply 1/2 in (15 mm) bead of roof sealant around underside of flashing along line of screw holes **(Diagram D)**. Turn flashing upright and center over roof hole, fasten flashing to roof with 2 in (50 mm) flashing screws. Tighten screws until sealant is a minimum of 1/8 in (3 mm) and a maximum of 1/4 in (5 mm) thick between flashing and roofing material. Do not over tighten. Coat screw heads with sealant. Replace shingles. Fill old fastening holes and re-secure shingle tabs every 4 in (100 mm) with roofing sealant **(Diagram E)**.

Metal Roof
Refer to the Solatube Metal Roof Instructions.

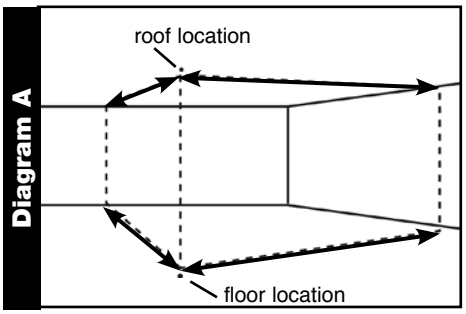
Curb Cap (Diagram F)
Note: Cap inside dimensions are 27 in x 27 in. Allow space between cap and curb to counter flash roofing material. Maximum outside diameter of curb assembly (including roof covering) is 26 1/2 in x 26 1/2 in.

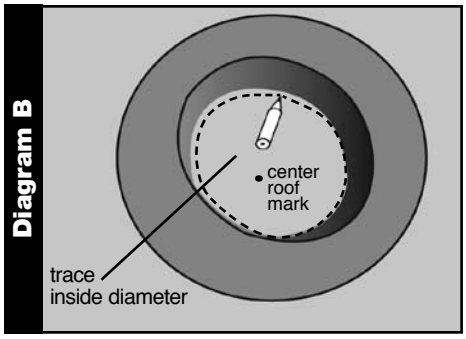
Step 3: Remove the backing from dome seal and firmly adhere it along top edge of cap.

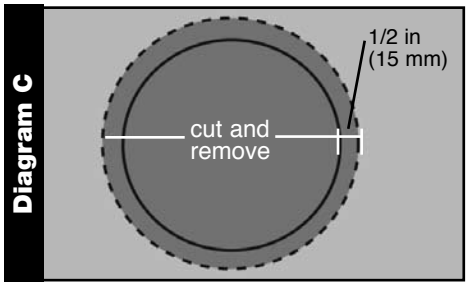
Step 4: Center curb cap onto constructed or manufactured curb supplied by others. Inside curb dimensions should be greater than 22 in (560 mm). Check that cap fits and that there are no obstructions in the way of tube's path.

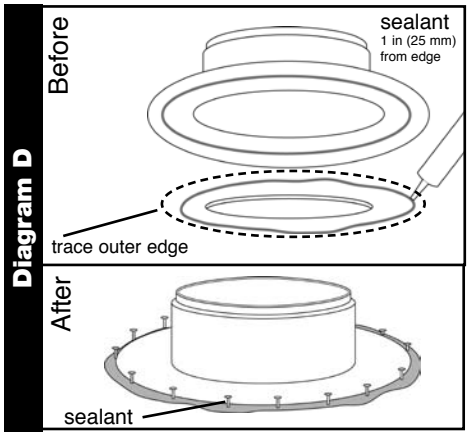
Step 5: Run 1/4 in (5 mm) bead of roof sealant (not provided) on top of curb where it will make contact with bottom of cap.

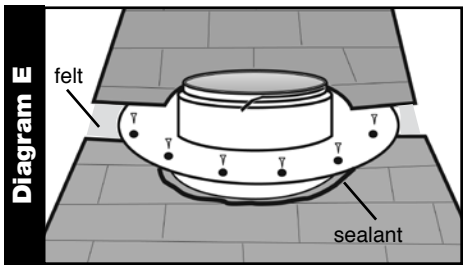
Step 6: Fasten cap to curb with eight 2 in (50 mm) flashing screws through sides of flashing. Do not

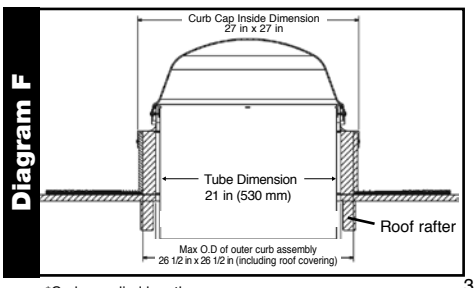












*Curb supplied by others.

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over tighten screws.

Extension Tube and Top Tube Assembly
Step 7: Peel inside plastic liner from notched tabs. Form extension tube by weaving opposite sides of tube through the shallow notches and by weaving center tab **(Diagram G)**. Firmly apply foil tape to seam working out all wrinkles. Peel the rest of the plastic liner from the inside of the tube.

Step 8: Remove inside plastic liner from top tube. Insert the end of the extension tube that does not have pre-punched holes into top tube with a minimum 2 in (50 mm) overlap. Firmly apply foil tape and screw three 3/8 in (10 mm) tube screws through overlapping tube joint **(Diagram H)**.

Installation of Diffuser
Step 9: Slide diffuser over the end of the extension tube that has four pre-drilled round holes. Tape diffuser to extension tube using white polymeric tape.

Step 10: Insert back of diffuser clip, through hole in extension tube. Run one 3/4 in (20 mm) screw into each hole. Do not over tighten screws **(Diagram I)**.

Note: If top angle adapter happens to separate, simply slide top half of angle over bottom half of angle, lining up riveted seams. With rivets lined up, connect tube angle together starting at wider section of top half. Raise opposite side of bottom half of angle tube as you guide angle grooves back together **(Diagram J)**.

Installation of Tube Assembly
Step 11: Insert open ceiling tube assembly into flashing opening. Adjust angle of top tube so assembly hangs plumb down into building with dome ring resting on top of flashing.

Step 12: Make corresponding marks on dome ring and flashing to align assembly when reinserted **(Diagram K)**. Remove assembly and tape angle joint and tube rivet seams with foil tape. Screw three 3/8 in (10 mm) tube screws into angle adapter joint **(Diagram H)**. Re-insert assembly into flashing and align marks.

Note: If insulating flashing, pack fiberglass batt insulation around inside walls of flashing before inserting top tube assembly.

LightTracker™ Reflector and Dome Installation
Step 13: Peel protective liner from LightTracker™ Reflector Using a magnetic compass, position reflector with reflective side facing inside and due south. Insert mounting tabs between top tube and dome ring **(Diagram L)**.

Diagram G

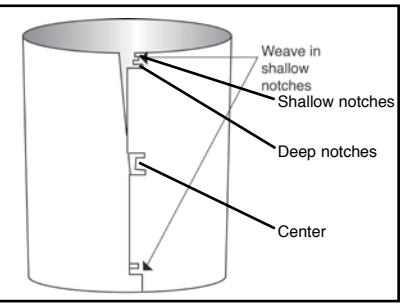


Diagram H

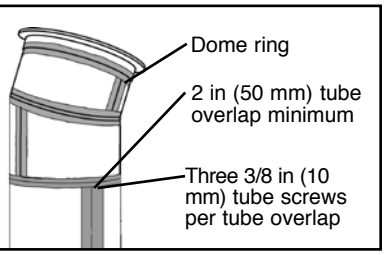


Diagram I

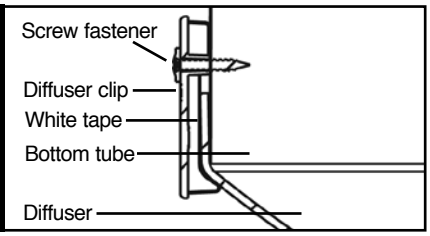


Diagram J

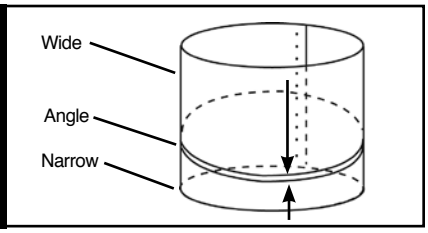


Diagram K

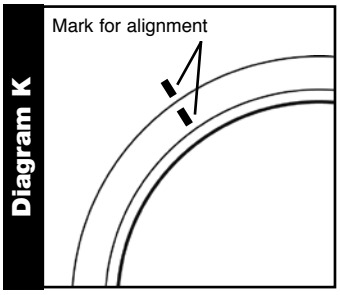


Diagram L

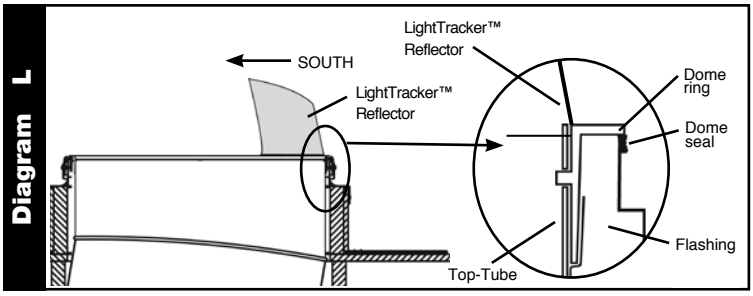
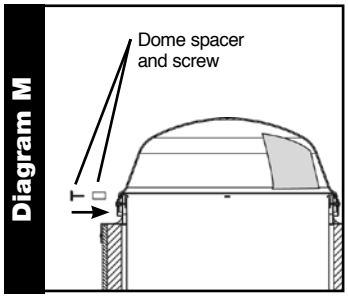


Diagram M



Solatube Dome Edge Protection Band

Step 14: Place dome over reflector and flashing until dome rests evenly on dome ring.

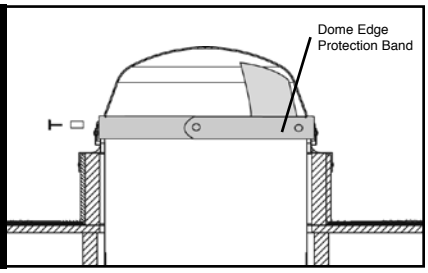
Step 15: Insert nylon dome spacers into dome holes. Fasten dome to flashing using 3/4 in (20 mm) dome screws. Tighten screws tight against spacer **(Diagram M)**.

Dome edge protection band required for fire-rated roofs when using the 4 in flashing on the Solatube 21-O. Dome edge protection band sold separately.

Addendum to parts list:	**Quantity**
1. 21 in (530 mm) Dome Edge Protection Band	(1)

Step 1: Insert nylon dome spacers halfway into dome holes. Starting with the middle hole in band, slide band over spacer and fasten using 3/4 in (20 mm)dome screw. Continue installing screws in both directions. The last screw will go through the holes in the band where it overlaps **(Diagram A).**

Diagram A



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