CIRALIGHT

SunTracker 400

Installation Manual

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Contents

Thank You

To whom it may concern,

Thank you for your purchase of our energy-saving Ciralight SunTracker.

Upon installation of these Active Daylighting skylights, your building will immediately become more energy efficient, will harness abundant, natural sunlight, and will enhance the human experience of all who work or live beneath them.

Your support of Green building practices through the use of Active Daylighting technologies is sure to inspire a higher standard for Sustainable Architecture, Construction, and Property Management while also setting the example that future generations will follow.

From all of us here at Ciralight Global and all those who will benefit from the natural lighting provided by Ciralight SunTrackers in your building;

Thank you.

Jeff Brain
CEO, Ciralight Global Inc.

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Warranty Disclosure

Ciralight's responsibility for any loss or damage ends, and title passes, when products are delivered to the carrier, to Customer, or to Customer's agent (including, without limitation, any test house, value added service provider, or contractor), whichever occurs first.

Ciralight warrants those products manufactured, assembled or customized by it against defects caused by manufacturing, faulty assembly or customization for ten (10) years after delivery. All other products, and the components and materials utilized in any assembled or customized products, are covered by, and subject to, the terms, conditions, and limitations of the manufacturer's standard warranty, which warranty is expressly in lieu of any other warranty, express or implied, for by Ciralight or manufacturer. Customer's exclusive remedy, if any, under these warranties is limited, at Ciralight's election, to any one of (a) repair by Ciralight or the manufacturer of any products found to be defective, or (b) replacement of any such product.

Products are deemed to be accepted by Customer unless Customer notifies Ciralight in writing within ten (10) days of delivery of product shortages, damages, or defect. No returns may be made for any reason without a Return Authorization Form issued by Ciralight. If Customer refuses to accept tender or delivery of any products or returns any products without authorization from Ciralight, such products will be held by Ciralight awaiting Customer's instruction for 20 days, after which date Ciralight may deem the products abandoned and dispose of them as it sees fit, without crediting Customer's account.

Neither Ciralight nor its suppliers will have any liability or obligation to Customer or any other person for any claim, loss, damage, or expense caused in the whole or in part, directly or indirectly, by the inadequacy of any products for any purpose, by any deficiency or defect in any product (whether or not covered by any warranty), by the use or performance of any products or by any failure or delay in Ciralight's performance hereunder, or for any special, direct, indirect, incidental, consequential, exemplary or punitive damages, however caused, including, without limitation, personal injury or loss of business or profit, whether or not Customer will have informed Ciralight of the possibility or likelihood of any such damages.

Customer expressly agrees, as a material condition of Ciralight selling the Product to Customer, not to disassemble or break the seal on the GPS Controller or any sealed or hidden portion of the Product, or to decompile, or otherwise reverse engineer, or attempt to reverse engineer, the Product in whole or in part, or derive the technology, operating system or computer program from all or any portion of the Product or permit or encourage any third party to do any of these activities. The warranty for the Controller shall become voided if the seal of the GPS Controller unit is broken for any reason.

Safety

When on a roof installing Ciralight SunTrackers, a few safety precautions to keep in mind include:

- Regardless of flat or sloped roof, harness yourself with an authorized Roof Fall Protection kit; which includes a harness, rope, and the necessary braces and screws
- Closed toed shoes with sufficient grip should be worn at all times
- Gloves and Kneepads are recommended, but not required
- Beware of high winds when installing the Ciralight SunTracker Dome as its large surface area can be caught by a strong breeze and blown from the roof and damaged or possibly hurt others below
- Be careful when standing over the roof extrusion or un-domed Dome Frame, as you can fall through and into the building interior below

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Product Part List

Parts for each SunTracker 400

Qty. Product Parts (Options/Info)

BASE UNIT

1	Plastic Dome (Acrylic or Polycarbonate)
1	Aluminum Dome Frame
1	Crossbar (installed at Factory)
1	Top Diffuser Lens (installed at Factory)
1	Dome Frame Retainer
16	Screws - #8 5/8 inch Self Tapping Stainless Steel Screw
1	Solar Tracking GPS Controller (Yellow)
2	Thumb Nuts

MIRROR SYSTEM

3	Mirrors (Large, Medium and Small)
1	Mirror Bracket
1	Vertical Mirror Post (14")
1	Bolt (3/8"-16 x 1 ½" Hex Tap Bolt)
2	Lock Washers
3	Lock Pins (1/16" x 2")
1	Small Bottle of Loctite

LIGHTWELL

4	Lightwell – Side Panels (Lengths vary)
--	Screws - #8 5/8 inch Self Tapping Stainless Steel Screw
12	For 24 Inch Lightwell
16	For 36 Inch Lightwell
20	For 48 Inch Lightwell
24	For 60 Inch Lightwell
1	Bottom Diffuser Lens (Flat, Pyramid and Low Ceiling in Acrylic or Polycarbonate)
--	Foam Insulation Tape Single-Sided (Lightwells & Dome Frame)
1	Silicone Sealant Tube
12	Curb Screws #10-32 x 1 ¾ Phil Pan M/S 18-8 Stainless Steel Screw (Dome Frame to Curb)

Tools Required

- Power Drill
- ¼" Hex Bit
- 5/8" Hex Bit
- Philips Screw Bit
- Adjustable Wrench
- Compass (Smartphone App)
- Caulking Gun

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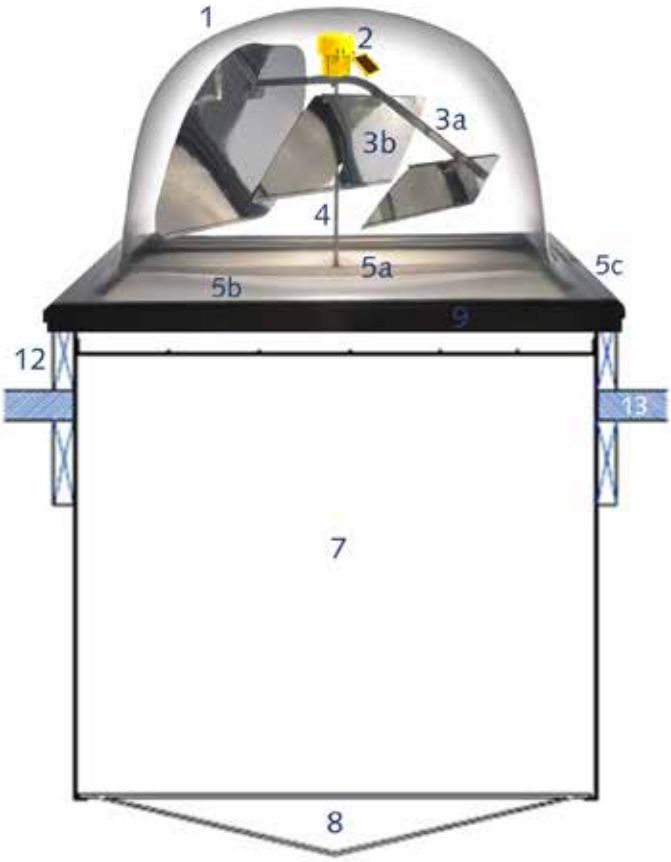
Product Part Names

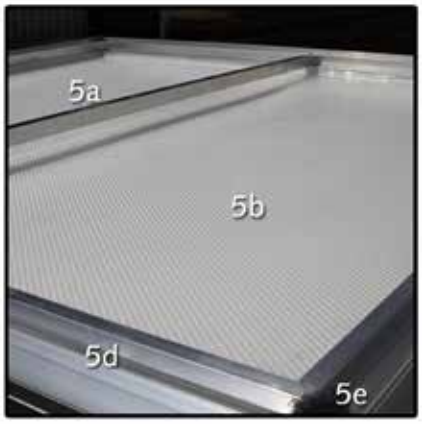


Base Unit
1. Dome
2. GPS Controller
3. Triple Mirror System
   a. Mirror Bracket
   b. Aluminum Mirror Blade(s)
4. Vertical Post
   a. Post Bolt
   b. Lock Washers
   c. Post Bolt Nut(s) **
   d. Loctite.
5. Dome Frame Assembly
   a. Crossbar *
   b. Upper Diffuser Lens *
   c. Dome Retainer Cap *
   d. Weather Stripping *
   e. Weep Sponge *

Required Accessories
7. Reflective Lightwell
8. Lower Diffuser Lens

Optional Accessories
9. Security Bars
10. Safety Screen (not shown)
11. Shade Screen (not shown)

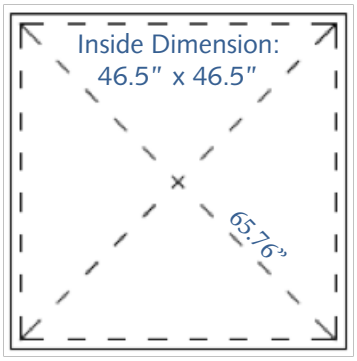
Building Construction
12. Roof Curb
13. Roof



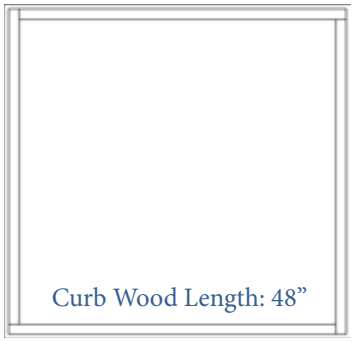
*Pre-Assembled 400 & 800 **800 Only (Pre-Assembled)

Roof Openings & Building Curbs

**To determine roof location of skylight curbings, consult architects drawings and proceed. Before cutting or drilling through a roof, it's the responsibility of the contractor to ensure that there are no obstructions above or below the roof*



Outside Dimension:
49.5" x 49.5"



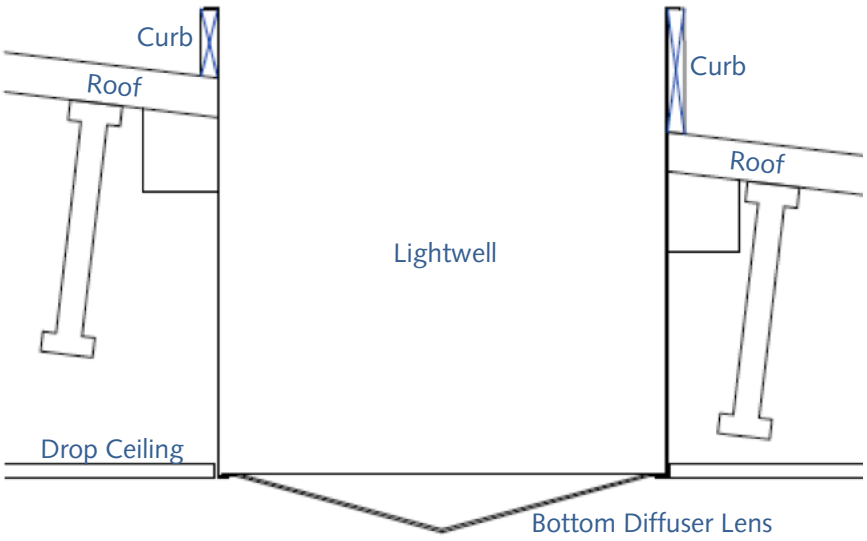
Roof Cutout
46.5" x 46.5"

Curb Dimensions
Curb I.D: 46.5" x 46.5"
Curb O.D: 49.5" x 49.5"

Building The Curb

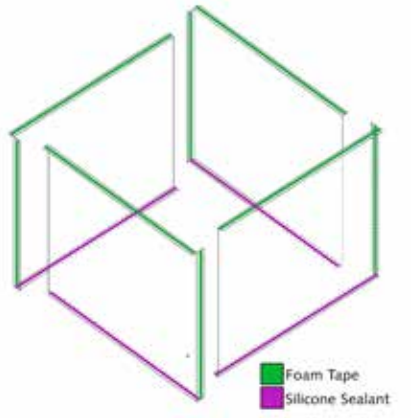
1) Use (nominal) 48" quality pressure treated lumber
2) Curbs must be raised 8" minimum
3) Top of the curbs must be level, plum to the bottom of the lightwell
4) All corners must be square
5) Curb should measure 65.76" across the inside diagonal
6) Apply weatherproof flashing to exterior of curb

**On a slanted roof, the low side of the curb will need to be taller than the high side to maintain a level top to the installed curb. Metal curb can be substituted for wood.*



SunTracker 400 Installation

Lightwells



1) Remove protective film from **Lightwell Panels**

2) Run **Foam Tape** top to bottom along inside of Side Flange

3) Arrange a dry fit with four (4) **Lightwell Panels**: Make sure the Outward Flange is on top and Inward Flange is on bottom; Side Flange is outside adjacent Panel

4) Screw the **Lightwell Panels** together through the Side Flange: Use one (1) screw within 2″ of the top and bottom, and a screw every 8″ in between

5) Repeat on all four (4) **Lightwell Panels**

6) Apply **Silicone Sealant** along entire Inner Flange edge

7) Gently lower the **Bottom Diffuser Lens** to the bottom of the **Lightwell** and press the edges into the **Silicone Sealant**

8) Lift the assembled **Lightwell** over the Curb and slide it down into the building; Outward Flange sitting flush upon the Curb

9) Nail the **Lightwell** to the top of the Curb using one (1) nail (not included) every 8″

10) Apply **Foam Tape** on top of the entire Outward Flange, adhesive side down


2) Lightwell Panel w/ Foam Tape

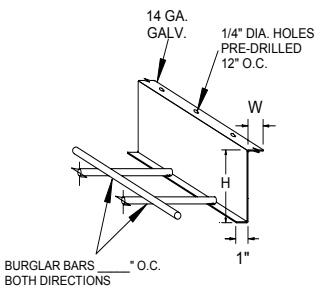

8) Lightwell Flush upon Curb


10) Foam Tape on Outward Flanges

Security Bars/Safety Screens (if applicable)

**If Security Bars or Safety Screens are included in the installation, do not add the Foam Tape to the top outward Lightwell flange; this will be added after the addition of the Security Bars or Safety Screens*

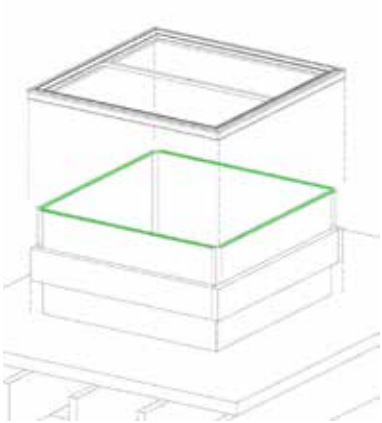
1) Lower the **Security Bars/ Safety Screens** onto the top of the curb, above the top **Lightwell** Flange



2) Affix the **Bars/Screen** to the top of the Curb using screws or nails (not provided) in the pre-fabricated holes

3) Apply **Foam Tape** on top of the entire edge of the **Bars/ Screens** on the Curb, adhesive side down

Dome Frame



1) Place pre-assembled **Dome Frame** onto Curb

2) Screw the **Dome Frame** to the Curb with 10-32x1¾ Phil Pan M/S 18-8 Stainless Steel Screws using the pre-fabricated holes on all four (4) sides

Vertical Post to Crossbar

**Proper Installation of the Vertical Post is one of the most critical parts of the SunTracker installation. If the post is not correctly installed, the SunTracker will not work to it's full potential. The Flat-side of the D-Cut Hole in the top of the post MUST face "True South." This is critical. It is recommended you read all "Vertical Post to Crossbar instructions first before installing.*

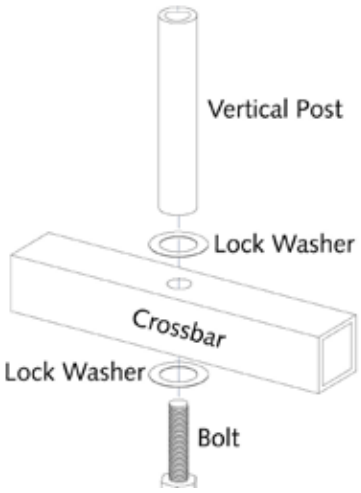
1) Take the 3/8" **Bolt**, place one (1) **Lock Washer** on it, and slide the **Bolt** up through the **Crossbar's** center hole

2) Place another one (1) **Lock Washer** on the **Bolt**

3) Screw the **Vertical Post** down on the **Bolt** until there's ½" of threading visible and apply a few drops of **Loctite** to the area

4) Screw the **Post** further and adjust the D-Cut Hole at the top of the **Post** until the flat side (of the D) is perpendicular to True South (NOT Magnetic South). We recommend you use a smartphone application to locate True South

5) With the **Vertical Post** facing the correct direction, firmly tighten the **Bolt** from below the **Crossbar**



3) Apply Loctite to Bolt Threading

4-5) Tighten Post's D-Cut Hole to Point to True South

GPS & Mirrors

2-3) Lock Pin through Bracket

1) Remove the protective film from each **Mirror**'s reflective side

2) Take the **Mirror Bracket** and attach the smallest **Mirror** to the front of the **Bracket** (reflective side forward) by aligning the **Mirror's Brace** to the pre-fabricated holes and putting a **Lock Pin** all the way through

3) Attach the medium-sized **Mirror** to the middle of the **Bracket** and the largest **Mirror** to the back with a **Lock Pin** each reflective-side facing forward

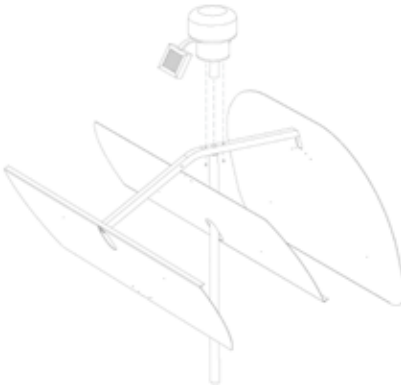
4) Slide GPS Controller onto Mirror Bracket

4) Take the **GPS Controller** and slide it's three (3) posts through the prefabricated holes in the center of the **Mirror Bracket**, with the Solar Panel facing forward

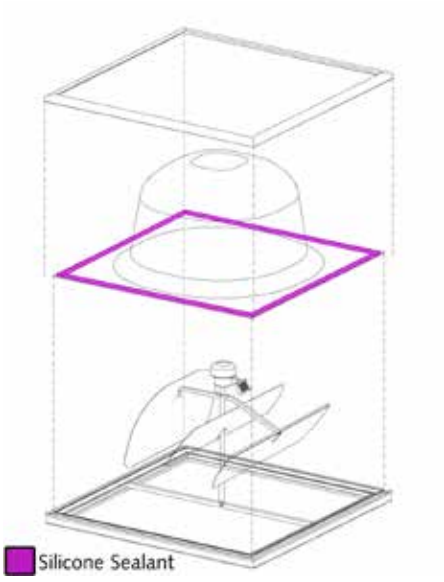
5) Tighten one (1) **Thumb Screw** to each of the **GPS Controller's** Screw Posts

6) Take the entire **Triple Mirror GPS Array** and slide the D-Shaped GPS Post into the D-Shaped Hole of the **Vertical Post**, making sure the hole in the middle **Mirror** goes around the Vertical Post

7) Gently rotate the **Mirror Array** towards the sun to charge the capacitor



Dome



1) Remove the **Frame Retainer Cap** from the **Dome Frame**

2) Place the **Plastic Dome** onto the **Dome Frame**, making sure it's evenly distributed over the weather-stripping

3) Place a bead of **Silicone Sealant** along the entire edge of the **Dome**

4) Re-place the **Retainer Cap** over the **Dome**, pressing the top down into the **Silicone**

5) Screw the **Retainer Cap** to the **Dome Frame** using four (4) 8 x 3/4" Hex Washer/ Self Drilling Screws on each side of the **Frame Retainer**, making sure to drill through the middle etching along the **Retainer Cap** sides, applying firm pressure down

Troubleshooting

1) Low Light Levels
2) Dome Frame Doesn't Rest on the Curb
3) GPS Not Turning
4) Weather-Proofing
5) Dirt/ Debris Inside Suntracker
6) Water Collection in Dome Frame
7) Mirror Hitting Inside of Dome
8) Bent/ Curved Single Mirror
9) Bottom Diffuser Lens Doesn't Sit in Lightwell
10) Crossbar & Screws Rusting

1) Low Light Levels

- Dome:
  - If dirty and needs immediate attention, clean with water and let air dry
  - If covered with snow, allow to melt away. It is not recommended to remove snow from up on roof as conditions may be dangerous
- Mirrors:
  - Mirror's reflective surface may not be facing the sun; if not, turn Mirror(s) around and re-secure
- GPS:
  - If turning:
    - But not facing the Sun, check to see the Post is facing "True" South; NOT "Magnetic" South
    - Contact Ciralight Global
- Dome Frame:
  - Remove debris/dirt from Top Diffuser Lens, then check Sponges and Weather-Stripping to ensure future protection from outdoor elements (see "Weather-Proofing: Dome Frame" for details)

2) Dome Frame Doesn't Rest on Curb

- Curb:
  - Size of Curb not proper for Dome Frame; must resize Curb and reflash for proper installation

3) GPS Not Turning

- GPS:
  - May not be charged; allow for 15 minutes of direct sunlight and observe
  - If this is immediately after installing the GPS unit, give the GPS Controller one (1) full day to charge before deeming unit ineffective
  - Contact Ciralight Global
- Post:
  - Check that the Post, Bolt, and Washer haven't loosened. If loose, the Post begins to spin with the GPS Controller If so, tighten and make sure the post faces True South

4) Weather-Proofing

- Dome:
  - Make sure Dome is evenly centered over the Dome Frame's Weather-Stripping and also under the Dome Frame Retainer
  - Dome Frame Retainer should be pressed firmly down when screwing to the Dome Frame. If not, this could cause gaps/space between Dome, Dome Frame, and Dome Frame Retainer
- Dome Frame:
  - Check that Silicone Sealant is applied correctly between the Dome Frame Retainer and Dome
  - Check that the Weather-Stripping is properly in place between the Dome and the Dome Frame
  - Make sure the Sponges are present and positioned correctly (pointing towards the center)
  - Be sure that the Mid-Tray Lens is thoroughly Sealed with Silicone Sealant around the edges and that no gaps are present
- Curb:
  - Check that Flashing goes up to within 1" of the top of the Curb

5) Dirt/Debris Inside Suntracker

- Dome Frame:
  - Check that Sponges, Weather-Stripping, and Silicone Sealant are all present and properly placed (see "Weather-Proofing: Dome Frame" for details
- Dome:
  - Dome Frame Retainer should be pressed firmly down when screwing to Mid-Tray. If not, could cause gaps/space between Dome, Dome Frame, and Dome Frame Retainer

6) Water Collection in Dome Frame

- Curb:
  - Curb should allow for level positioning of Dome Frame
- Dome Frame:
  - Sponges should point to center of unit, not outward, to allow movement of water out of runoff

7) Mirror Hitting Inside of Dome

- Curb:
  - Curb must be level for proper functioning
- Dome:
  - Dome may not be level; possibly due to missing Weather-Stripping on Dome Frame
  - Dome may not be centered on Dome Frame; must be centered and even over the Weather-Stripping and under the Frame Retainer Cap
- Crossbar:
  - May not be centered over Dome Frame; re-position Crossbar

8) Bent/Curved Single Mirror

- Mirror Bracket:
    - If Single Mirror Bracket Extension isn't used, Mirror may not be properly fortified and could deform slightly. Newer units do not receive Extensions as it is already built in

9) Bottom Lens Doesn't Sit in Lightwell

- Curb:
    - Curb may be too big, thus Lightwell opening is too large
- Lightwell:
    - Each piece of Lightwell should overlap the Vertical Flanges over the Straight Edges and hold into place; if reversed, pieces will be loose
    - Lightwell construct should be square and flush at each edge

10) Crossbar & Screws Rusting

- Crossbar:
    - Some units have been refurbished from a previous 'hang-down' version to include a crossbar made from steel, not aluminum like the rest of the skylight, which may rust

Seasonal Maintenance

- Make sure the GPS Controller is tracking the Sun
    - If not, please consult the Troubleshooting area of the Installation Manual

- Check that the Dome is clean and unobstructed
    - If dirty, rinse off with water (as needed) and a soft cloth
        - Do NOT use a paper towel or paper material as it may scratch the plastic of the Dome
    - If covered with snow, we recommend that you do not go onto the roof to remove the snow (as it may be dangerous). The heat trapped within the unit should be enough to melt the snow quickly.