

## EcoSlim SkyCeiling With Dimmer Option Installation Instructions

1. Sky Factory 2 x 2\* Light Box
2. Sky Factory 2 x 2\* Elevator
3. Sky Factory 2 x 2\* Graphic SkyTile
4. Retaining Clip

2 x 2\* = ES22 series

ES22 - 2' x 2'

ES22M - 60cm x 60cm

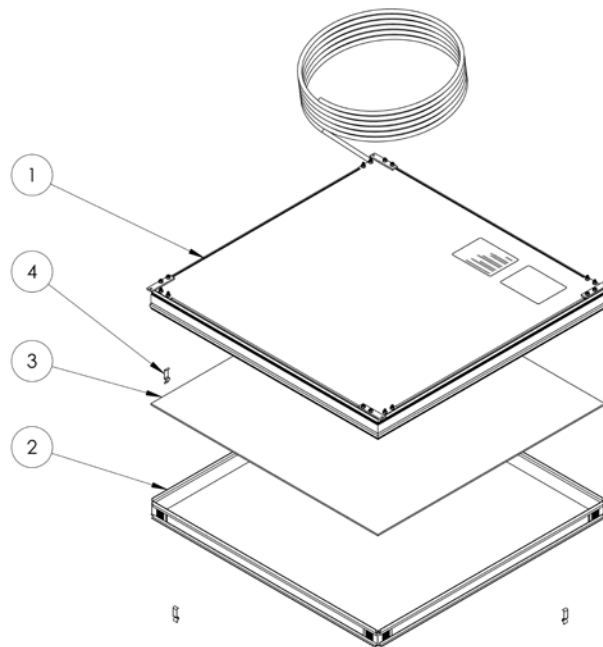
ES22G - 62.5cm x 62.5cm

2 x 4 = ES24 series

ES24 - 2' x 4'

ES24M - 60cm x 120cm

ES24G - 62.5cm x 125cm)



### Installation Packet Includes:

- EcoSlim SkyCeiling With Dimmer Option Installation Instructions
- EcoSlim SkyCeiling With Dimmer Option Drawing Packet  
Wiring Diagrams EL000203, EL000205, EL000206, EL000207, EL000208, EL000209, EL000210, EL000211, EL000364, Dimmer Assembly EL000195, and a Wire Sizing Chart.
- The Sky Factory 24 V DC Power System With Dimmer Option

For technical support at any time during the installation, please call us toll free at 866-759-3228. We want your installation to go as smoothly as possible. Thank you for choosing The Sky Factory.

## Installation in the grid:

- EcoSlim SkyCeilings are designed to integrate with standard 15/16" (24mm) ceiling grid systems with either: ES22 series (2' x 2', 60cm x 60cm, 62.5cm x 62.5cm) or ES24 series (2' x 4', 60cm x 120cm, 62.5cm x 125cm) openings.
  - ES22 series cannot be grouped with ES24 series EcoSlim fixtures.
- Access above ceiling is required.
- Not for use in air handling areas.
- Use only with The Sky Factory 24PS Power System.
- Must have at least 3 1/2" (8.9cm) of clearance from the bottom of the grid to the deck above.
- Be sure grid is installed level and square.
  - Grid Hanger Straps supplied to facilitate installation of EcoSlim fixture. See Step 1.
  - Where possible, support the runners in the middle of 2' (60cm, 62.5cm) or 4' (120cm, 125cm) openings for ease of EcoSlim installation.
- Installation of the EcoSlim fixtures requires one open side above the grid into which they can be temporarily inserted before dropping down into the grid pocket. See Step 3.
- Suspension brackets supplied to hang EcoSlim fixtures from ceiling where required. See Step 4.
- Seismic option available upon request. See Step 5.

## Electrical:

- The Sky Factory 24PS Power System provided converts 115 or 230V AC to 24 V DC. See Steps 6-8.
- Power System must have 12" clearance for air flow. Wall mount recommended.
- Power System must be mounted in dry locations.
- Power System is specified for Sky Factory EcoSlim Fixtures only.
- Maximum fixtures per Non-Dimmable Branch Circuit (without an RF Filter):
  - 10 – ES22 series; 6 – ES24 series.
- Maximum fixtures per Dimmable Branch Circuit (or circuit with an RF Filter):
  - 9 – ES22 series; 6 – ES24 series.
- Maximum of 4 Branch Circuits per Power System.
- Single dimmer control can operate multiple Power Systems.
- RF filter, if used, supplied by shielding company. One filter per power system if wired appropriately. See Step 8.
- Electrical work must be performed by a qualified electrician who is familiar with DC lighting systems.

## Step 1: Installing the Grid Hanger Straps

**Grid Hanger Straps** allow the grid to be supported without the hanger wire interfering with the installation and proper fit of the EcoSlim fixture. Straps are designed to wrap down over the rectangular top bulb of the runner and fasten together through one of the holes in the grid. Bend the strap at the two perforations in the center and fold it over the grid. Use the enclosed 8-32 x 1/4" (6.4mm) undercut flat head machine screws and Keps nuts to secure it. Grid wire goes through the holes in the strap just below the fold.

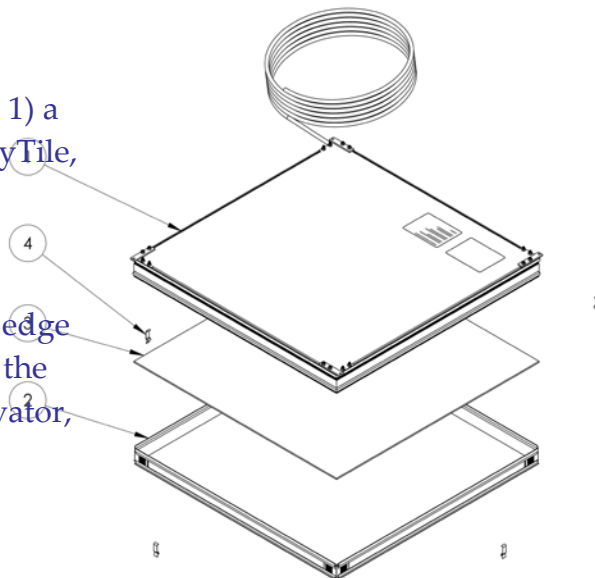
Where possible, support the runners in the middle of 2' x 2' (60cm x 60cm) or 2' x 4' (60cm x 120cm) openings for ease of EcoSlim installation. EcoSlim requires one open side above the grid into which it can be temporarily inserted before dropping into the grid pocket.



## Step 2: Components of the EcoSlim Fixture

The EcoSlim fixture has four components: 1) a light box, 2) a SkyFactory elevator, 3) a SkyTile, and 4) four retaining clips.

The SkyTile fits on the shelf along the top edge of the elevator, the light box sits on top of the SkyTile and inside the top edge of the elevator, and the retaining clips hold the assembly together.



### Step 3: Assembling and Installing the EcoSlim Fixtures in the Grid

The clearance between the ceiling grid and the deck above will determine how the fixture is installed.

#### Option 1: If the clearance is 9 inches (22.8cm) or more —

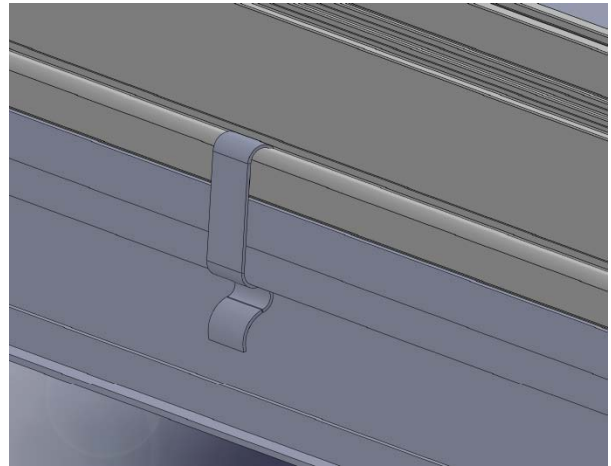
The fixture can be assembled first and then inserted **as one unit** into the grid opening.

#### To pre-assemble the EcoSlim fixture:

1. Set the elevator on a flat surface so the shelf on which the tile sits is up.
2. Set the SkyTile face down on the shelf.

**IMPORTANT:** See "How To Install Luminous SkyTiles" included with the SkyTiles for care and handling during the assembly and installation process.

3. The LED light box has a gasket on the bottom foot. This gasket sits along the perimeter of the SkyTile. Set the light box on the tile so the gasket sits on the perimeter and the outside lip of the light box laps over the top lip of the elevator.
4. Install a retaining clip in the center on each side, as shown in the picture to the right. For 2' x 4' (60cm x 120cm) fixtures, install two clips equally spaced on the long sides.



Once the fixture is assembled, insert it into a grid opening like a standard acoustic ceiling tile.

**IMPORTANT:** EcoSlim fixtures **MUST** be installed so the SkyTiles match the SkyTile Layout Diagram. See "How To Install Luminous SkyTiles" and the "SkyTile Layout" diagram included with the SkyTiles.

## Option 2: If the clearance is less than 9 inches (22.8cm) —

The fixture must be installed **one component at a time**. The ceiling grid must be spread apart in at least one location so the individual components can be inserted into the space between the grid and deck above. Once a component is in this space, it can then be moved horizontally to its specific grid location. The sequence for installing the components is as follows:

### Installing the Elevator:

1. Insert the elevator up through the grid where it has been spread apart.
2. Once the elevator is above the grid, carefully maneuver it into its grid location and then gently but firmly insert the elevator down into the opening until all four sides rest on the horizontal surface of the T-bar.

### Installing the SkyTile:

IMPORTANT: See The Sky Factory's "How To Install Luminous SkyTiles" and the "SkyTile Layout" diagram. Handling and placement of the SkyTiles is critical to proper installation.
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1. Insert the SkyTile up through the grid where it has been spread apart, **being careful not to scratch it**.
2. Once the SkyTile is above the grid, very carefully maneuver it into its grid location **being careful not to scratch it** and then insert it onto the shelf along the top edge of the elevator. Make sure it is fully seated on all four sides.

### Installing the Light Box:

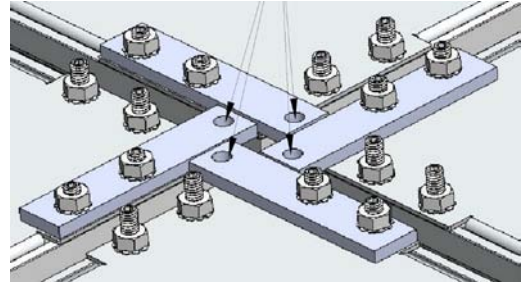
1. Insert the light box up through the grid where it has been spread apart.
2. Once the light box is above the grid, carefully maneuver it into its grid location and drop it down inside the elevator and on top of the SkyTile. Make sure it is centered and the gasket sits firmly on the SkyTile on all four sides. When fully seated, the light box will provide even illumination.

### Installing the tile clips:

1. Once the first three components of the EcoSlim are seated together in a grid opening, install the retaining clips as described in **Option 1, Point 4** on page 4.

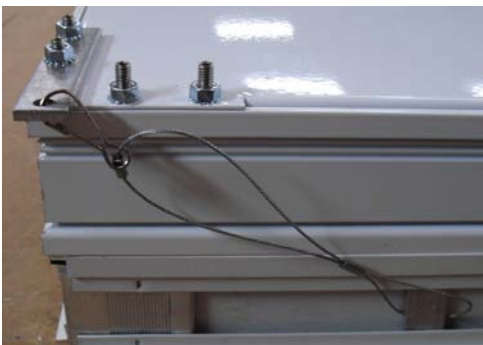
## Step 4: Suspending the EcoSlim SkyCeiling from a Deck

When required, EcoSlim light boxes can be suspended from the ceiling. Attach wires to the holes of at least two opposing suspension brackets provided on the top of each fixture. Use wire size as per applicable local building codes.



## Step 5: Utilizing the Seismic Option

For seismic EcoSlim installations, each elevator comes with four seismic cables pre-attached at the factory.



The spring clip on each seismic cable clips into the hole in a suspension bracket. The seismic cables are easier to install before the hanger wire is attached.



One seismic cable is provided for each suspension bracket on a fixture and all four cables must be clipped.



**In Option 1**, when the EcoSlim fixture can be fully assembled before installing into the grid, clip the seismic cables to the suspension brackets after the light fixture is fully assembled and before it is inserted into the grid.

**In Option 2**, when the EcoSlim fixture must be assembled in the grid, the seismic cables must be clipped to the suspension brackets after the fixture is fully assembled in the grid. The seismic cables will be much easier to install immediately after assembling the fixture and before the hanger wire is inserted through the holes.

## Step 6: Wiring the Light Boxes to the Power System

- See supporting documents **The Sky Factory 24 V DC Power System With Dimmer Option** and **EcoSlim SkyCeiling With Dimmer Option Drawing Packet** (which includes wiring diagrams EL000203, EL000205, EL000206, EL000207, EL000208, EL000209, EL000210, EL000211, EL000364, dimmer assembly EL000195 and a Wire Sizing Chart.)

Lighting System for EcoSlim SkyCeiling Installations				
TSF Model No.	Dimensions: WxLxH	Weight	System Wattage (Max)	Input Current @ 24 Volts DC
ES22	23.75 x 23.75 x 3.1 (inches)	11.3 lb	26.4	1.1 A
ES24	23.75 x 47.75 x 3.1 (inches)	21.6 lb	40.8	1.7 A
ES22M	59.4 x 59.4 x 7.87 (cm)	5.13 kg	26.4	1.1 A
ES24M	59.4 x 119.4 x 7.87 (cm)	9.8 kg	40.8	1.7 A
ES22G	61.9 x 61.9 x 8.9 (cm)	5.35 kg	26.4	1.1 A
ES24G	61.9 x 124.4 x 8.9 (cm)	10.21 kg	40.8	1.7 A

**IMPORTANT:**  
**The LED light fixtures are DC ONLY.**  
**AC voltage by-passing the power supplies**  
**and connected directly to the light fixtures**  
**will destroy the LED's.**

- EcoSlim light boxes are wired together in single or multiple **Branch Circuits**. The light boxes in each branch **may be arranged in rows or clusters**, depending on the installation.
- A **15-foot (4.57m) Power Cable** is attached to each EcoSlim light box.

3. **Power cables are routed to a junction box or boxes, where they are wired together into Branch Circuits.**

**In Non-Dimmable SkyCeilings**, no more than 10 – ES22 series EcoSlim per circuit, or 6 – ES24 series EcoSlim per circuit.

**In Dimmable SkyCeilings and SkyCeilings Requiring an RF Filter**, no more than 9 – ES22 series EcoSlim per circuit, or 6 – ES24 series EcoSlim per circuit.

4. Junction boxes and wire from the boxes to the Power System supplied by others.
5. **Each Power System has up to four Branch Circuits.**
  - a. **In Non-Dimmable SkyCeilings, each branch is 270 Watts Maximum.** See "The Sky Factory 24 V DC Power System With Dimmer Option" and drawings EL000203 and EL000208 included.
  - b. **In Dimmable Systems, each branch is 250 Watts Maximum.** See "The Sky Factory 24 V DC Power System With Dimmer Option" and drawings EL000205 and EL000209 included.
6. For a sample combination of Power Cables and Branch Circuits for **Non-Dimmer Option**, see **drawings EL000203 and EL000208**. For sample combinations of Power Cables and Branch Circuits for **Dimmer Option**, see **drawings EL000205 and EL000209**.
7. Wire from Power Cable junction box to Power System branch circuit is **polarized, brown (+) to (+)** and **blue (-) to (-)**. Voltage drop will occur over long distances. See the attached Wire Sizing Chart for appropriate lengths and gauges.
8. Branch circuit terminal block on Power System accepts wire sizes #10 - #22 AWG.

## Step 7: Wiring the Power System

1. Power System enclosure must have a minimum 12" (30.5cm) clearance for adequate air flow for proper cooling and the screens must be inspected regularly for dust accumulation.
2. **Connect AC line voltage to appropriate terminals on Power System – "L" (Line), "N" (Neutral) and "G" (Ground).** AC terminal block on power system accepts wire sizes #8 - #18 AWG.
3. **External fuse in AC line is required.** When using multiple Power Systems, **each Power System must have a dedicated, fused AC circuit:**

**AC LINE FUSE MUST BE LESS THAN OR EQUAL TO  
INTERNAL POWER SYSTEM FUSE.  
SEE WIRING DIAGRAMS  
EL000203, EL000205, EL000208 AND EL000209 FOR SIZING.**

### 4. For Dimming Systems Only:

- a. Connect dimmer to primary Power System with 16 – 22 AWG low voltage wire. (See drawing EL000195 for dimmer assembly details.)
  - i. Dimmer **BRT**(Bright) to Power System **BRIGHT**
  - ii. Dimmer **COM**(Common) to Power System **WIPER**
  - iii. Dimmer **DIM**(Dimmer) to Power System **DIM**
  - iv. See drawings EL000205 and EL000209 for details.
  - v. See "c." below for multiple Power Systems.
- b. Install the switch/dimmer control in a standard wall box. Wiring and box for the switch/dimmer control provided by others.
- c. **When operating multiple Power Systems with one dimmer:**
  - i. Run **three wires** from dimmer to primary Power System as in "a." above.
  - ii. Run **two wires** from primary Power System to additional Power Systems: **DIM to DIM** and **WIPER to WIPER**.
  - iii. See **EL000364**.

## Step 8: Wiring the Power System in MRI Applications or Applications Requiring an RF Filter

1. Power System must be located outside of shielded room in MRI applications.

<p>IN MRI APPLICATIONS, AN RF FILTER IS REQUIRED AND WILL BE SUPPLIED BY OTHERS.</p>
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2. To use one filter per Power System:

- a. Inside the RF filter and on the Input side:

- i. Connect **all positive**, or "+", legs of the branch circuits from the Power System **to one leg** of the RF filter.
- ii. Connect **all negative**, or "-", legs of the branch circuits from the Power System **to the other leg** of the RF filter.

- b. Inside the RF filter and on the Output side:

- i. Connect **the positive**, or "+", **leg of each branch circuit** from the SkyCeiling **to a 10 amp in-line fuse and then connect them to the leg** of the RF filter **which corresponds to the positive input**.
- ii. Connect **the negative**, or "-", **leg of each branch circuit** from the SkyCeiling **to a 10 amp in-line fuse and then connect them to the leg** of the RF filter **which corresponds to the negative input**.

- c. See drawings EL000206, EL000207, EL000210 and EL000211 for details.

## Step 9: Checking the Polarity

**CHECK** the polarity and **MAKE SURE** that the **Brown wires on the light boxes are connected to the "+" terminals** of the power supply and the **Blue wires on the light boxes are connected to the "-" terminals** of the power supply. If the system is wired backward, it will not light up.