

LightpipeTM -Solar Lighting system with lighting controllers

Specifications:

The LightpipeTM Solar lighting system constitutes the following components:

1. Sun Light Collection System – Light Collector
2. Light Transfer System
3. Light Diffuser
4. Roof Kerb
5. Fixing Accessories

1. Sun Light Collection System – Light Collector:

The Light Collection System has two components.

- **Sun Light Collector Cover :**

The Transparent, Clear dome allows light to be collected across the sky from all directions.

Shape: It should be moulded, Single Piece, dome shaped.

Material: UV film Coextruded, clear transparent polycarbonate for non yellowing.

Thickness: To be formed out of 4mm/3mm thick clear polycarbonate sheet.

4mm for 750mm & 530mm diameter.

3mm for 530mm & 300mm diameter.

- **Sun (Light + Heat) management System:**

Inside the light collector cover are the light deflection, variable light transmission property panels. The light admission into the collector varies with sun elevation angle. The system is designed to collect and deflect sun light into the reflective pipe during early morning and evening (low sun elevation angles) and partially reject solar radiation admission during peak afternoon time, reducing the heat transfer during peak noon time.

Material of light deflection system-4mm thick, clear acrylic, cast grade.

2. Light Transfer System:

Diameter: 750 mm/530 mm/400 mm/300 mm

Shape: Cylindrical Shape

Material: Aluminum

Total Reflectivity: Not Less than 95%.

Material Thickness: Not less than 0.4 mm.

The Pipes should be crimped circumferentially to slip one into another and along the vertical length for overlap jointing of not less than 25mm. Pipes to be joined with aluminum Riveting and closed with Aluminum tape of 50mm width and 50 microns thickness.

Protection Film: PE foil not UV Resistant

3. Light Diffuser: -

Shape: It should be moulded, single piece flat Dome Shape (like a flat bowl) for better distribution of light.

Material: Polycarbonate.

Thickness: To be formed out of 2mm Thick sheet.

Light Transmission: Not less than 80%.

Diffuser Ring: Injection molded ABA plastic ring.

4. Roof kerb:

Roof kerb made of 0.5mm bare galvalume sheet of 240 MPA.

Box type, universal roof kerb that can be installed over any metal roofing sheet.

Roof kerb to be installed with butyl sealant tape as primary water proofing seal and dow corning 688 or equivalent water proof seal.

Lumen Output: 22000 lumens on clear sky condition of 1, 00,000 LUX.

Light output test to be done with 1.0m x 1.0m x 1.0m light box as per standard test procedure in lab.

Warranty: Product warranty of 5 years.

5. Fixing Accessories:

Light Collector dome fixing gasket: 2mm thick EPDM gasket.

Aluminum Tape: 50mm width to cover all circumference joints and longitudinal joints of pipes.

Rivets: Aluminum

Flashing plate to roof screws: Self driving screws with EPDM gasket washer or aluminum riveting.

Day 360 ON/OFF lighting controller for daylight harvesting:

[Specifications]

Description: On/off lighting controller with daylight sensor for daylight harvesting devices like light pipes & skylights. The daylight sensor measures ambient sunlight directly above the roof and switches on/off the lighting systems connected as per daylight sufficiency.

Required features:-

- Automatic on/off at desired lighting illuminance at task level called light set point.
- Light set point to be adjustable in steps on lower or higher side on the controller.
- Load protection at over current & over voltage.
- The daylight sensor should work on the daylight measuring control system [i.e should measure the ambient light of sky and not work plane].
- **On/off control:** The lighting controller to switch on lighting load when illuminance reduces below the set point without any delay. The lights turn off when illuminance is above the set point after a delay time of 3-5 minutes. The delay time to prevent system from cycling.
- Control system to run with line voltage.
- Controlling lighting load should be maximum of 20 amps. For beyond 20 amps lighting load, electrical contractor to be provided.