

IntelaSun® — Controlled Daylighting

Advanced Technology for Green Designs



The Daylighting Dilemma:

How do you receive the exact daylighting you want—no more, no less?

How do you avoid unwanted solar heat gain?

How do you control daylighting glare?

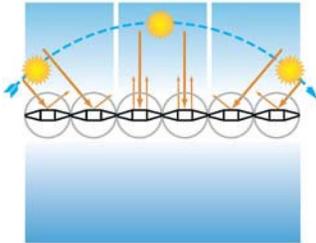
The Problem:

- Sunlight transmits solar heat and glare through the glazing.
- Solar heat inside the space is generally correlated to light transmission, glazing performance, Solar Heat Gain Coefficient (SHGC) values, and the size of the glazing area in relation to the space.
- Many traditional PASSIVE skylight designs are compromises—resulting in failure to maximize daylighting benefits.
- **Passive** skylight designs deliver too much solar heat on hot sunny days and during peak sunlight hours or too little light on dark gloomy days.
- **Passive** skylight designs provide no control over glare, sun-shading, and high energy costs.

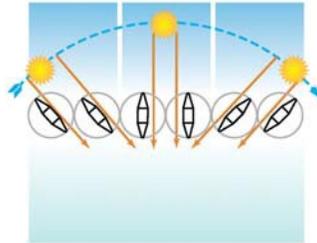
The Solution:

IntelaSun® - Controlled daylighting deliver the exact daylight amount you want – no more, no less. Intelligent SolaBlades® within the glazing panels gauge the sun’s position in the sky, and then dynamically manage the desired sunlight, solar heat, and sun-shading inside the space. IntelaSun - Controlled Daylighting Systems provide more daylight in the winter, morning, late afternoon and on dark gloomy days, and less daylight in the summer and peak sunlight hours.

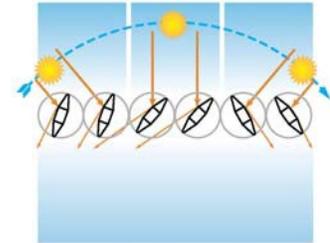
SolaBlade® Sun Tracking Options



Minimum light transmission and solar heat gain

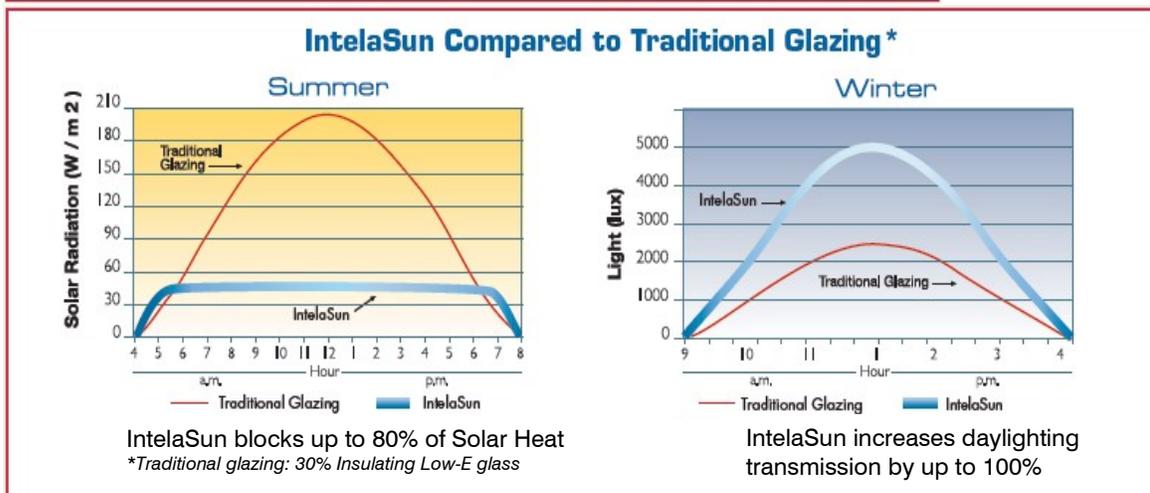
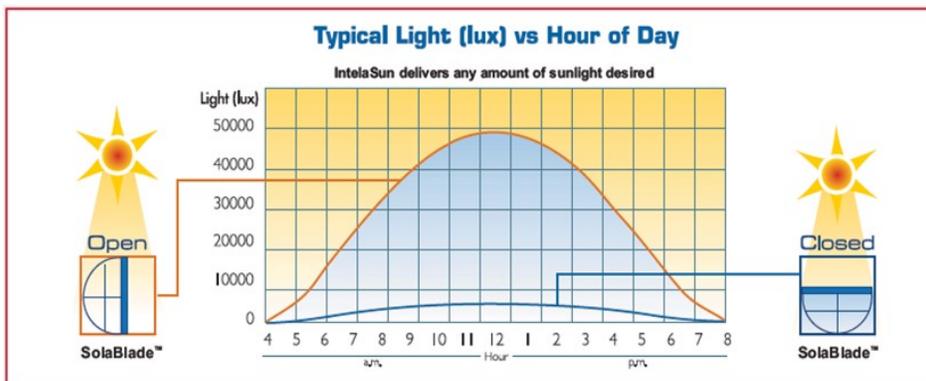


Maximum light transmission regardless of the sun's angle



Angled to diffuse light transmission to suit user preference

The SolaBlades can be set to deliver direct or diffused sunlight. By angling the sunlight that penetrates the space, the SolaBlades make use of the physical fact that light hitting at an angle delivers less energy per square foot than direct sunlight. A sun-tracking sensor also allows alignment of the SolaBlades to an optimal position in relation to the sun’s position in the sky, to harvest daylight that would otherwise be lost due to the low incident angle of the sun early and late in the day.



Controlled Daylighting—the Design Strategy:

What extra design strategies do CPI's IntelaSun® Systems use so that they can provide preferred levels of *both* light transmission and solar heat?

- **Oversize & Shade**
 - Design strategy allows for **oversized** daylighting area to harvest maximum daylight in the morning, evening and on dark gloomy days.
 - The IntelaSun Controlled Daylighting System design **undersizes** the daylighting area during hot sunny days and peak sunlight hours by dynamically **shading** the oversized daylighting area.
- **Sun's Position in the Sky**
 - Innovative sun sensor gauges the sun's position in relation to the skylight, allowing delivery of the exact preferred daylighting mix—no more, no less.
- **Angling the Sunlight**
 - Design strategy allows setting the IntelaSun SolaBlade to deliver direct or diffused sunlight.
 - By angling the sunlight that penetrates the space, the solar blades make use of the physical fact that light hitting at an angle delivers less energy per square foot than direct sunlight.
- **Low-Angle Sunlight Harvesting:**
 - Controlled Daylighting sun-tracking sensor also allows optimal position alignment of the SolaBlade.
 - Harvests daylight that would otherwise be lost due to the low incident angle of the sun early and late in the day.
- **Diffused Daylighting**
 - Can deliver direct or diffused daylighting with effective glare control.

Controlled Daylighting—the Benefits:

How do IntelaSun Controlled Daylighting Systems foster a comfortable/productive indoor environment year round? How do IntelaSun Controlled Daylighting Systems benefit the architect and owners' creation of the space?

Solar Control

- Maintains the perfect balance between light transmission, sun-shading and thermal performance.

Energy Savings

- Provides savings on energy costs due to reduced energy consumption during hot summer months.
- Reducing solar heat gain at peak demand provides upfront savings on capital expenses for HVAC systems.
- Can be integrated with artificial lighting controls for energy savings.

Green Construction

- Helps green construction projects earn LEED Certification through a variety of credits.



Light Pollution Control:

- Dynamically or manually **reduces light pollution** at night.
- **Reflects artificial light back** into the space.

Design Control:

- **Empowers architects** with the flexibility to design large glazed openings.
- **Avoids potential design mistakes** related to the glazing selection or the size of the glazing area.