CIRALIGHTS





Ciralight Suntracker Smart Skylights



Our Business: Natural Illumination Our Purpose: To Provide the most innovative, brilliant, human-centric, cost effective

Our Purpose: To Provide the most innovative, brilliant, humandaylighting solution on the market.



What is Daylighting?







"Daylighting is the practice of placing windows or other openings and reflective surfaces so that during the day natural light provides effective internal lighting."

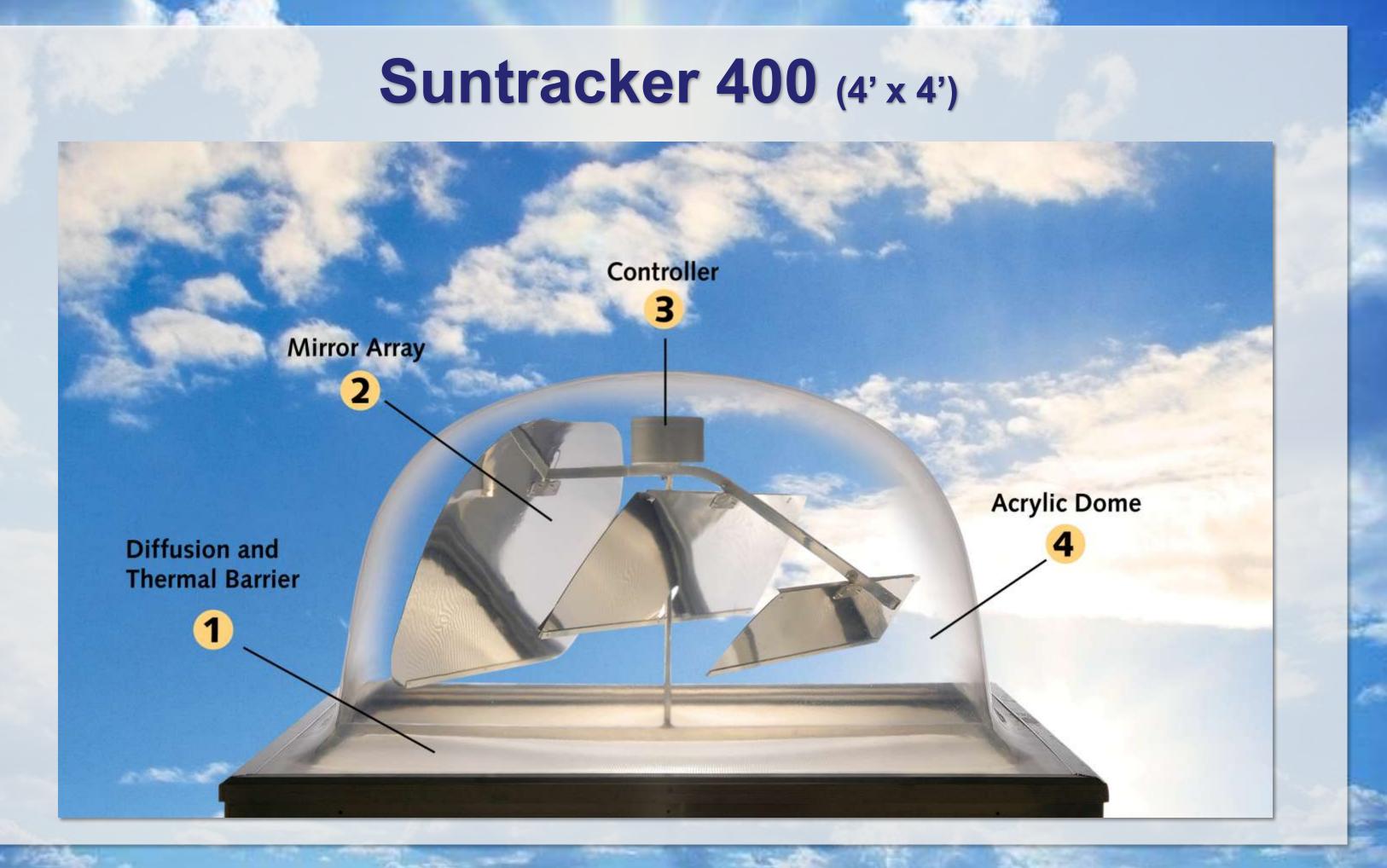
- \checkmark Using natural light from the sun costs nothing.
- People thrive in naturally lit environments. Studies show that shoppers linger longer and buy more; students do better on tests; workers are more productive.
- ✓ Better light quality.
- ✓ Save Energy, Save Money.





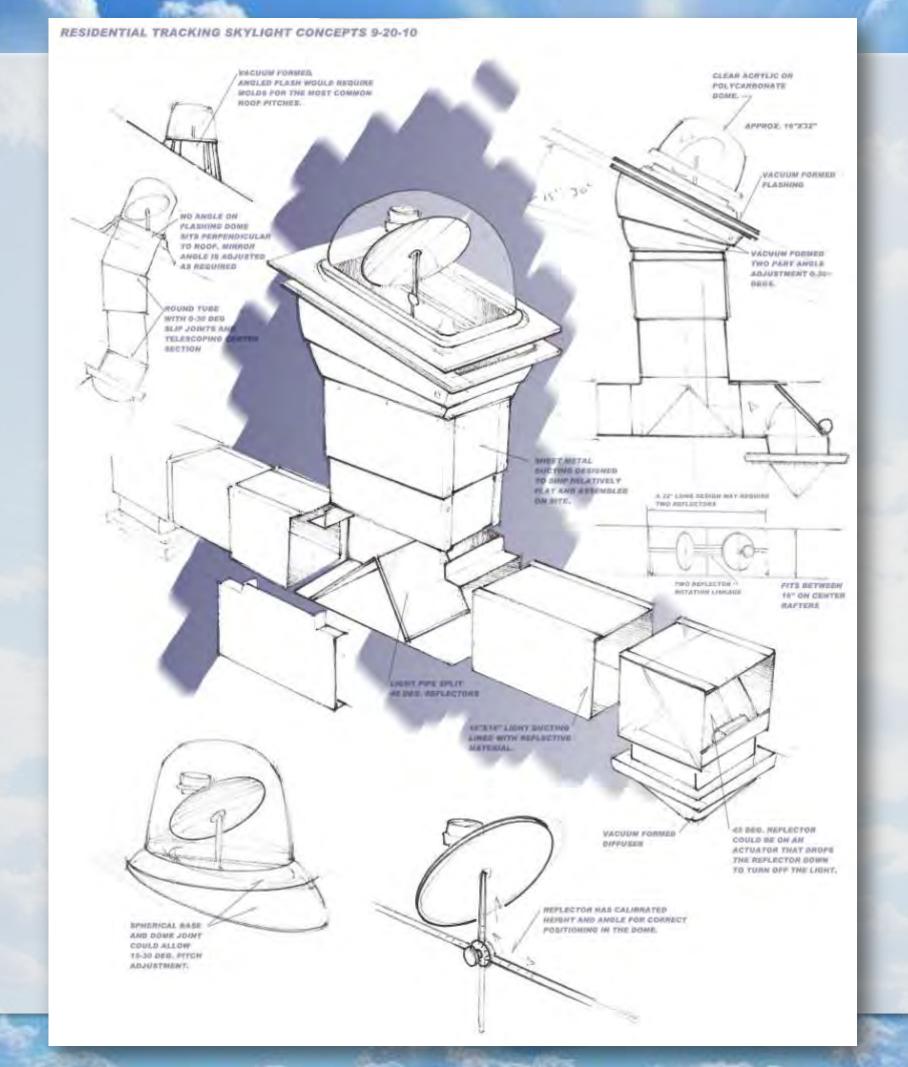
Suntracker Products





Suntracker 800 (8' x 4')

Ciralight Smart Skylight 4' x 8'



Suntracker 200

For Homes & Schools

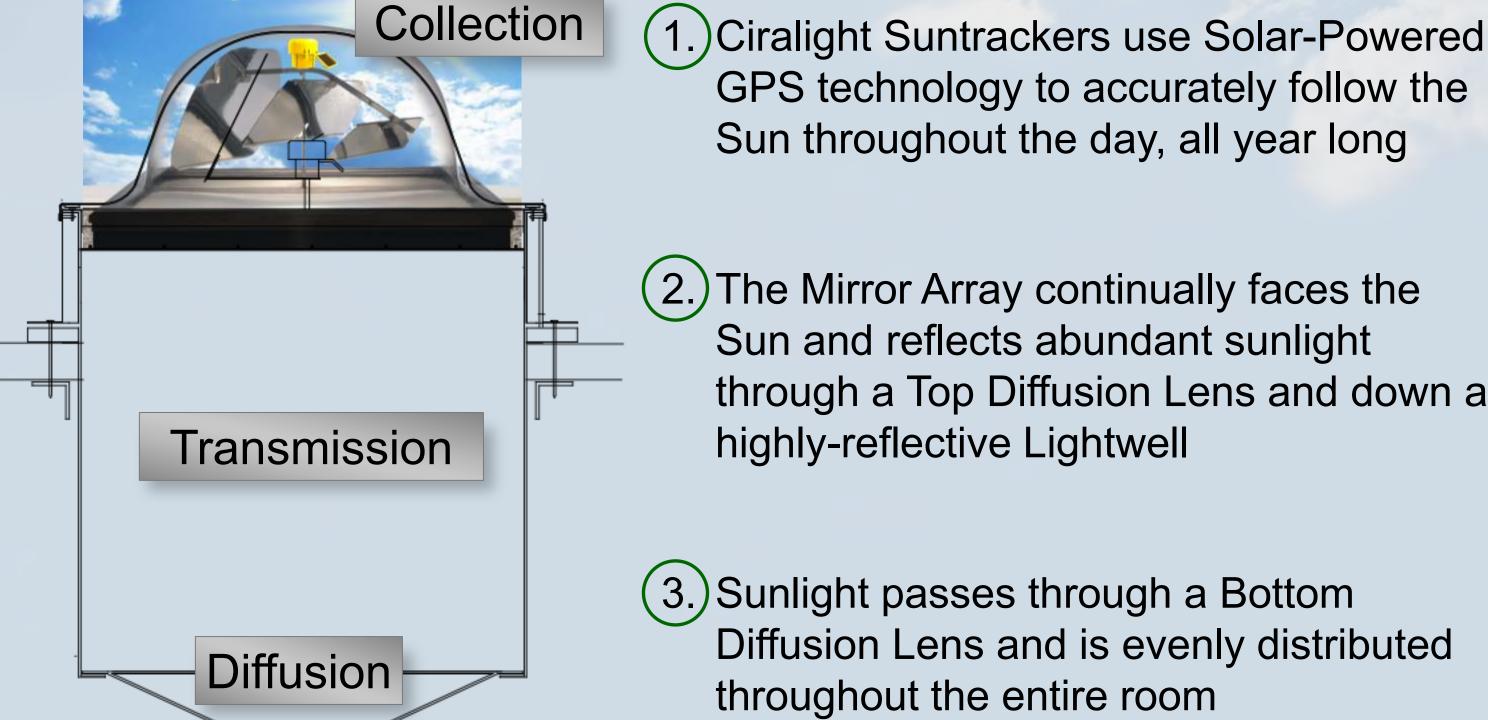
Coming 2012



How Do Ciralight Suntracker Smart Skylights Work?



How Smart Skylights Work



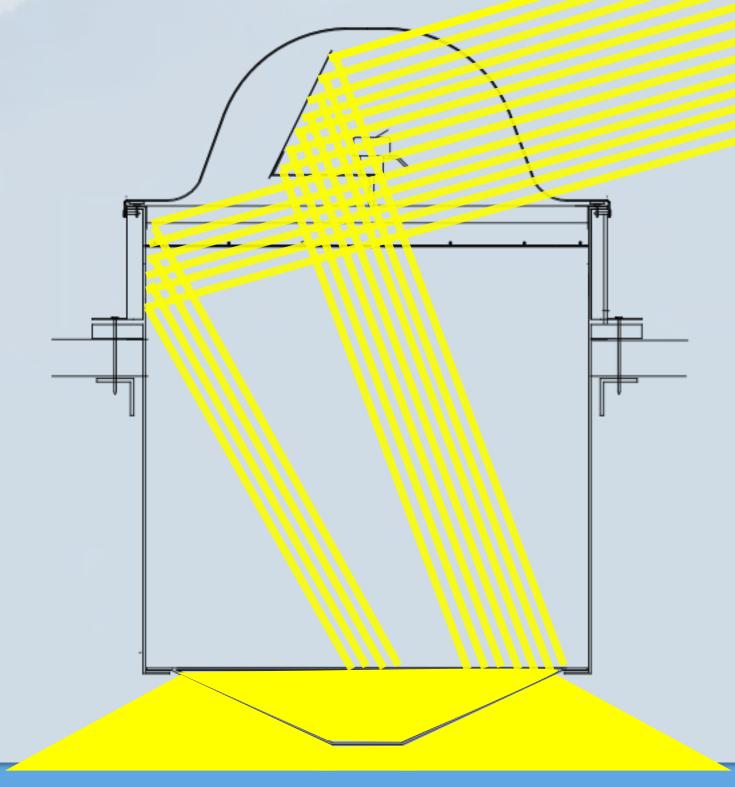


GPS technology to accurately follow the

The Mirror Array continually faces the through a Top Diffusion Lens and down a

Diffusion Lens and is evenly distributed

How Smart Skylights Work





Suntrackers On... **Artificial Lights Off!** 10+ Hours a Day!



CIRALIGHT SMART SKYLIGHTS

The Suntracker Advantage



"High Performance" Ciralight Suntrackers An Idea Whose Time Has Come





Ciralight Smart Skylights™

Diffused, Even Lighting Maximum Light from Sunrise to Sunset GPS Tracking & Solar Powered

Passive Skylight

Low, Uneven Light Heat Gain & Glare Inefficient Control



Animated Demonstration: Smart Skylights vs. Passive Skylights



Click on box to play Video

Light Measurements - Passive vs. Smart Skylights Shown in Footcandles • Location - San Diego, California

	6	7	8	9	10	11	noon	1	2	3	4	5	6
Jan.													
Feb.													
Mar.													
April													
May													
June													
July													
Aug.													
Sept.													
Oct.													
Nov.													
Dec.													

Lights ON

Passive

Smart Skylights



Ciralight Suntrackers: Better Results, Every Category

Skylight Comparative							
Product	VLT	SHGC	U Value				
Ciralight Suntrackers	.91	.3196	.40				
Sola Tube (b)	Not Rated	.34	.43				
Sun Optics (a)	.65	.49	.82				
Normal Skylights (Avg.) (c)	.63	.55	.76				

Visible Light Transmittance (VLT) measures how much light comes through a product. The higher the VLT, the more light is transmitted.

Solar Heat Gain Coefficient (SHGC) measures how well a product blocks heat caused by sunlight. The lower a skylight's solar heat gain coefficient, the less solar heat it transmits in the building.

<u>U-Value</u> measures how well a product prevents heat from escaping. The lower the U-value, the greater a skylight's resistance to heat flow and the better its insulating value.

<u>Notes:</u> a) Source: SunOptics 800MD Product Brochure, b) Source: National Fenestration Rating Council website, c) Source: National Fenestration Rating Council Website.



The Smart Skylight Advantage



Better Light Quality



Reduce Greenhouse Gases



Improved Productivity & Sales



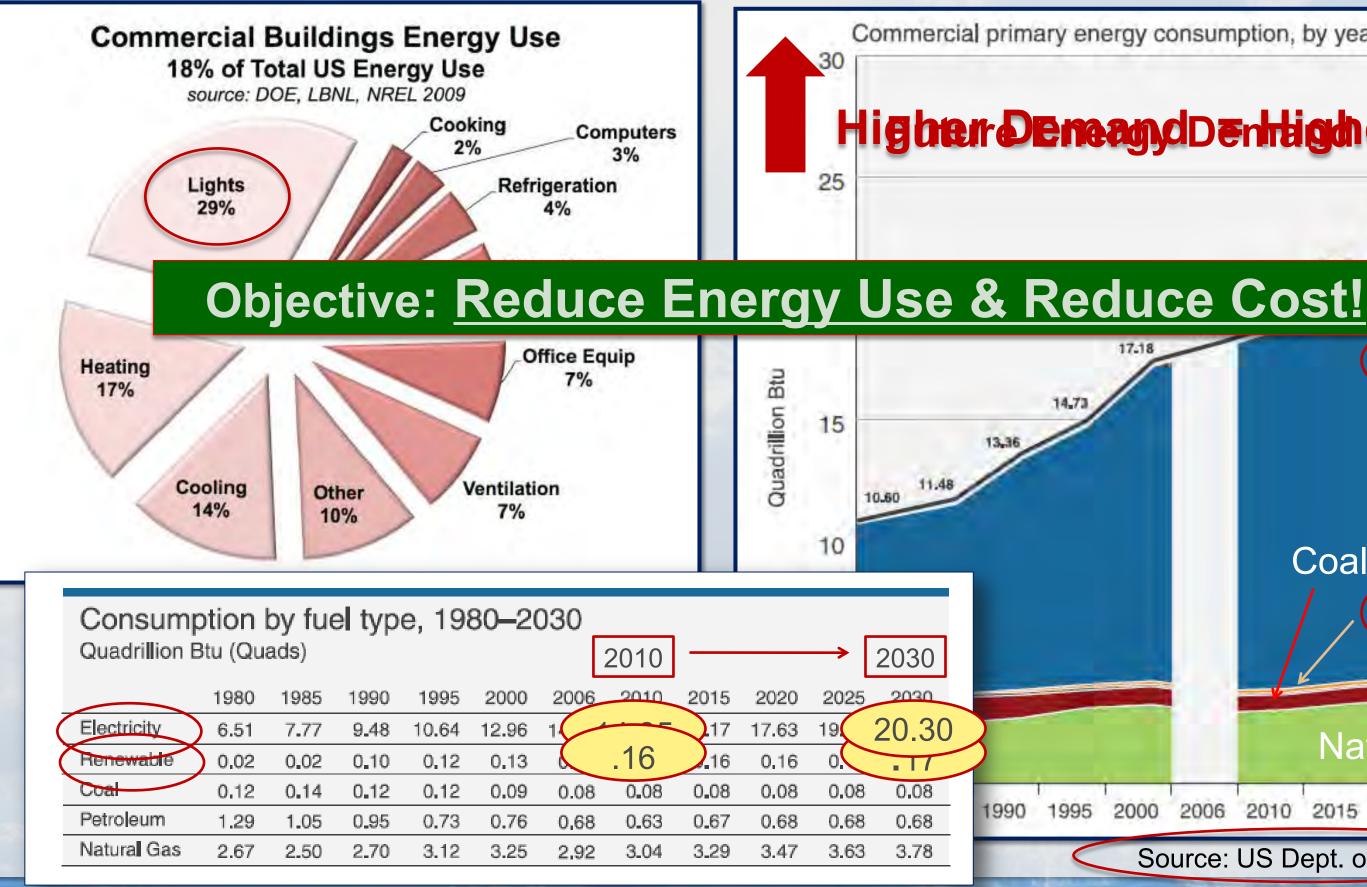




Lights OFF longer hours!

High Levels of FREE Light

Why Energy Saving Daylighting?



Commercial primary energy consumption, by year and fuel type

Higher Deneagyd Den High Eb Goasts 23,58 22,02 Electricity Coal Renewable **Natural Gas** 2006 2010 2015 2000 2020 2025 2030 Source: US Dept. of Energy

Two Ways to Go Green

1. Renewable Energy - Solar, Wind, Geo-Thermal (Expensive) **2. Energy Efficiency** - Eliminate the demand for electricity

A well-designed daylit building is estimated to reduce lighting energy use from 50% to as much as 80% (refer to Sustainable **Building Technical Manual, chapter IV.7 page 90.)**

That's a 100% savings for energy not used





Energy Saving Smart Skylights reduce the demand for electricity and allow users to shut-off electric lights for up to 10.5 hours per day.

Imagine how much energy could be saved if every building used Ciralight Suntrackers.

Savings & Benefits

- Save Energy by shutting of electric lights during daytime hours.
- Save on Air-Conditioning costs by reducing A/C used to offset heat generated from light fixtures and normal skylights.
- Save on maintenance costs associated with artificial lights.
 - Reduce energy usage during peak hours.
- Receive Federal, State & Local Tax credits & Utility incentives as a (5)Green Energy product.











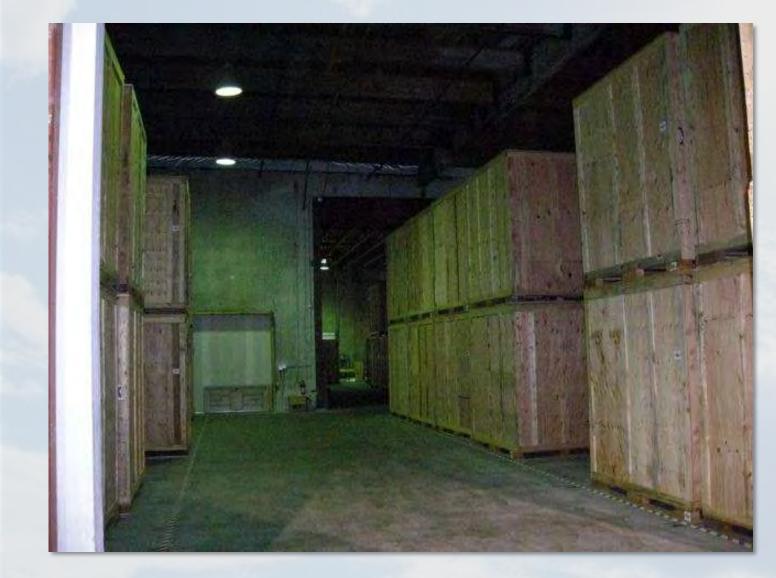


LIGH

collaborative®







Before

After

Warehouse Facility Salt Lake City, Utah

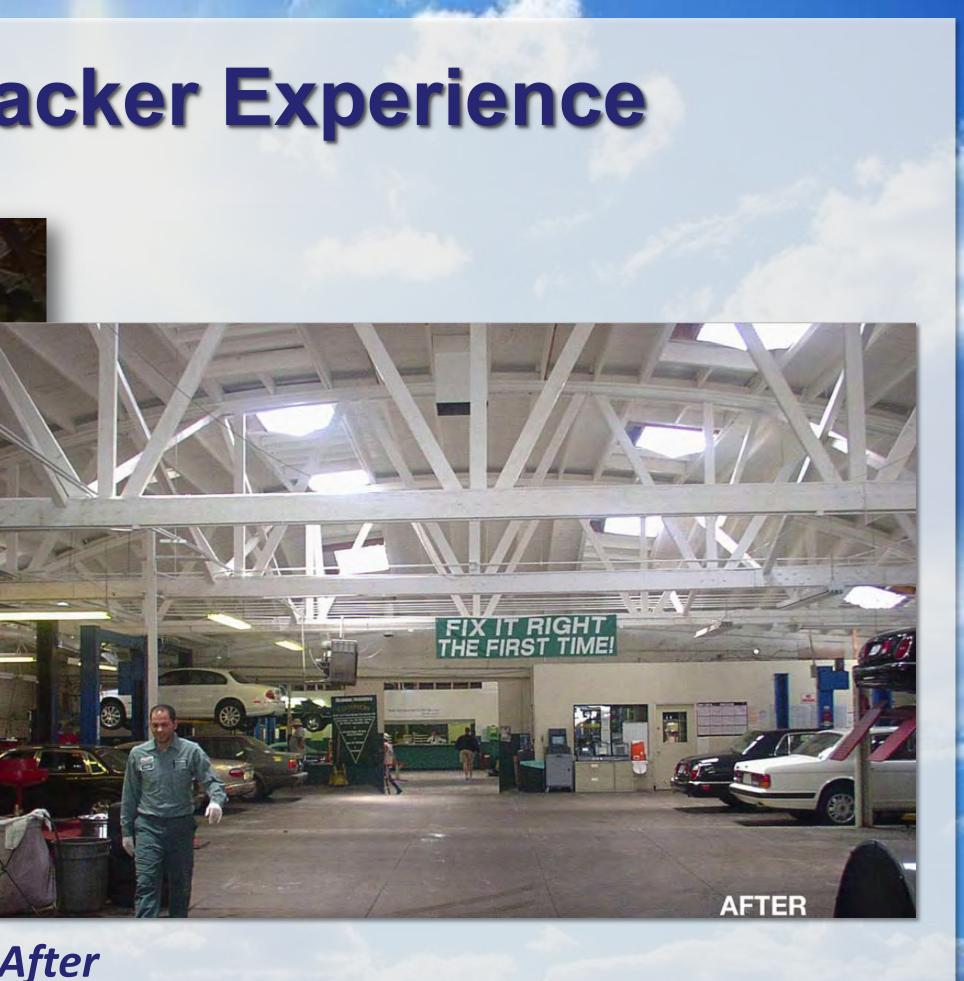






Before

Automotive Repair Shop



After

After

Before

School Gym

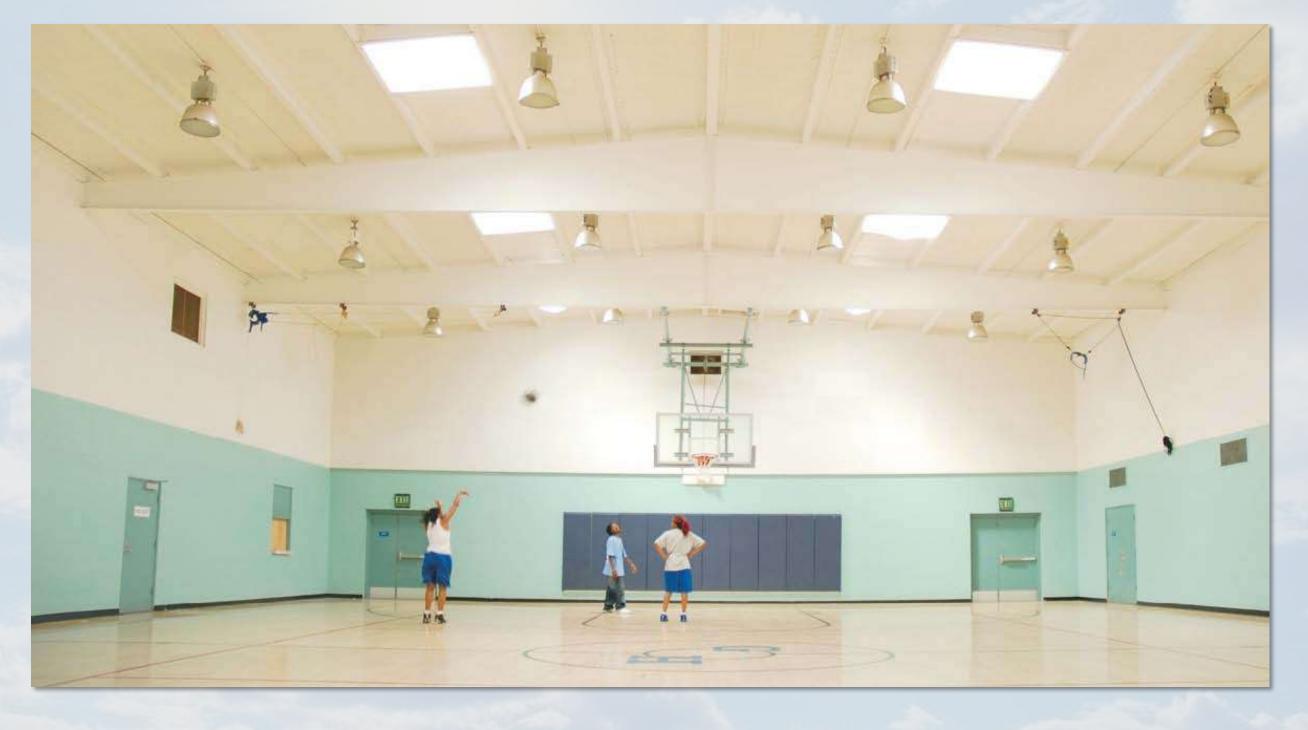


V



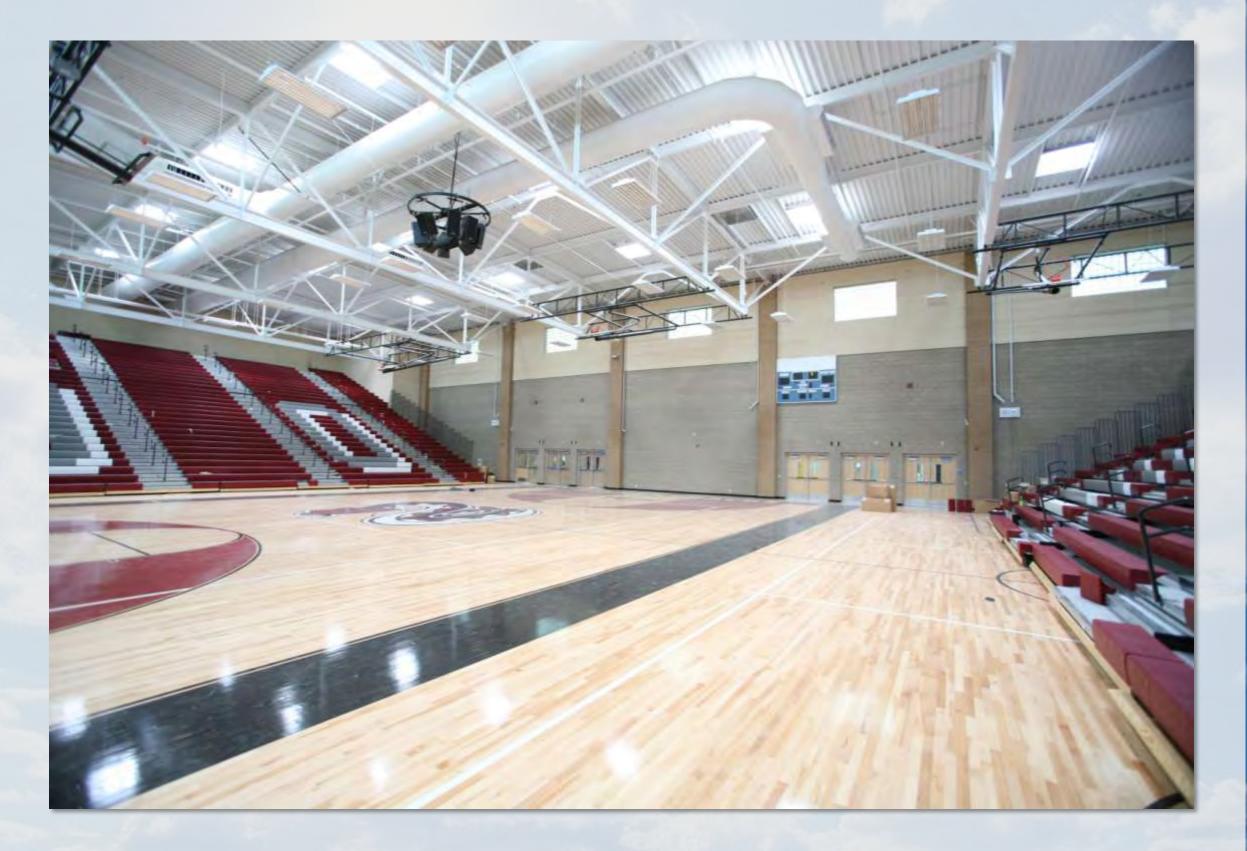
Community Gym San Diego California







Desert Oasis High School Las Vegas, Nevada







Low Ceiling Office Application







Schools







Classrooms













Office

DEPOT



Paper

Copy/Laser/Inkje nvitation

toto/Fine/Special



Office DEPOT - Greensboro, NC Average lighting readings in footcandles throughout store - Winter 2007

8		Scale of the second sec	
Lights On	Lights OFF!	Lights OFF!	Lights OFF!
7:30 AM	9:30 AM	12:30 PM	3:30 PM
123 fc	107 fc	145 fc	114 fc

Sunrise

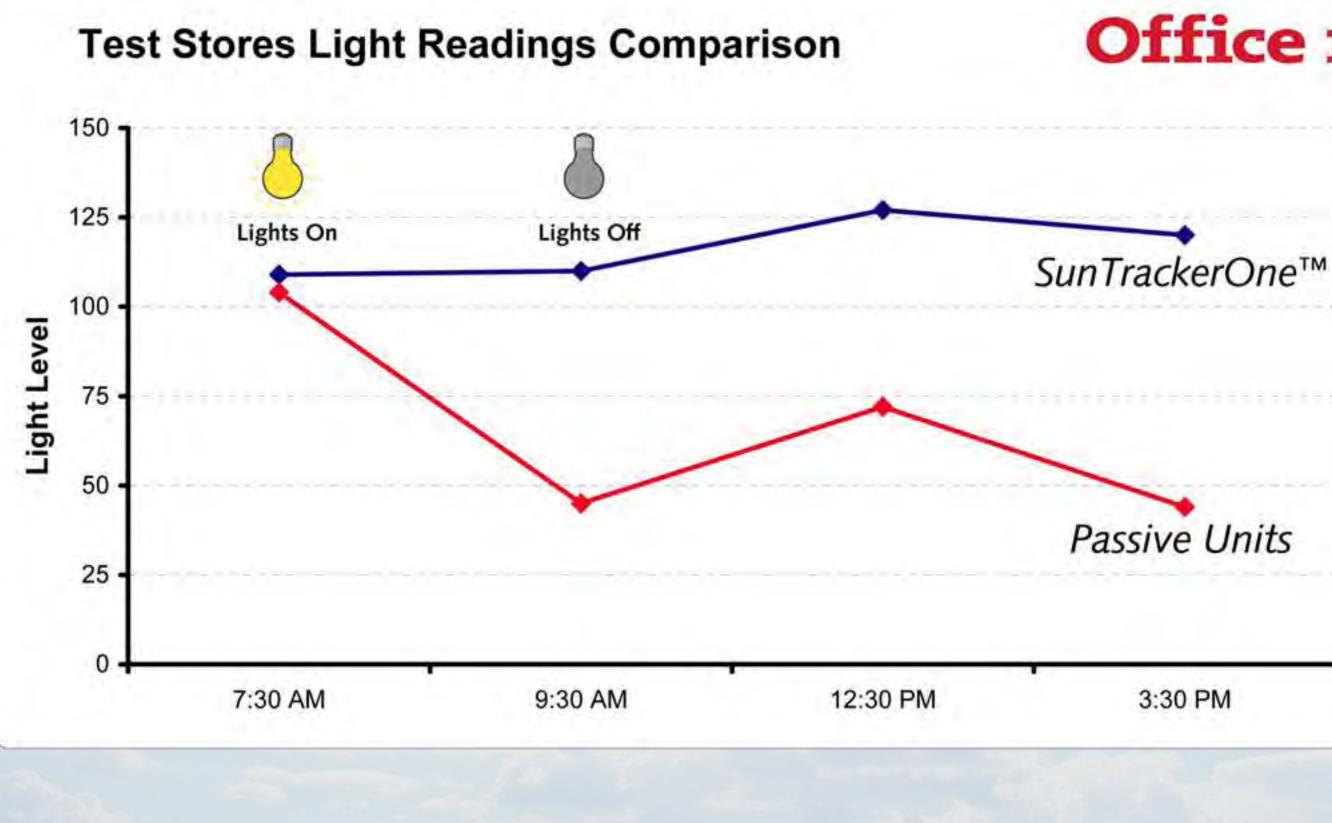


Lights On

7:30 PM

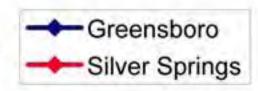
119 fc

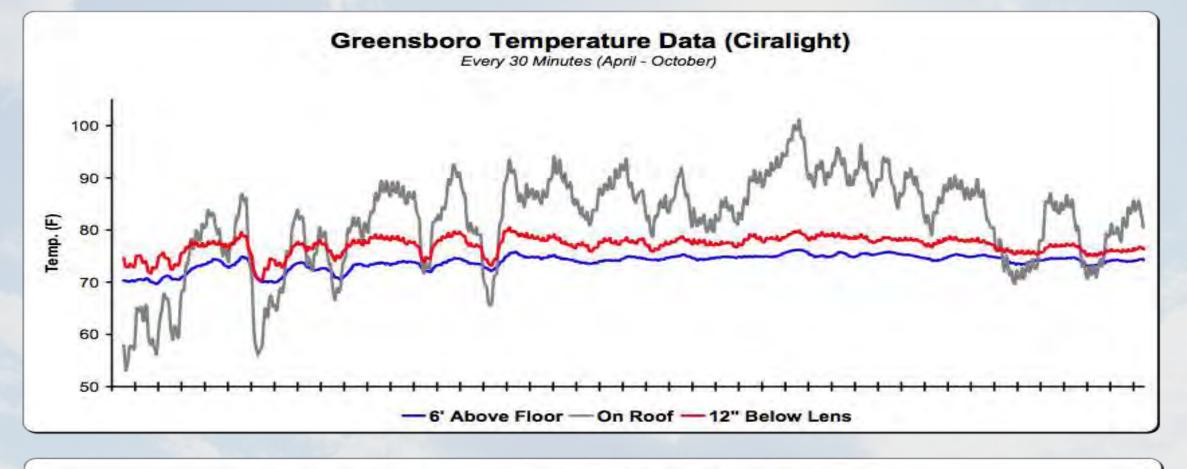
Sunset





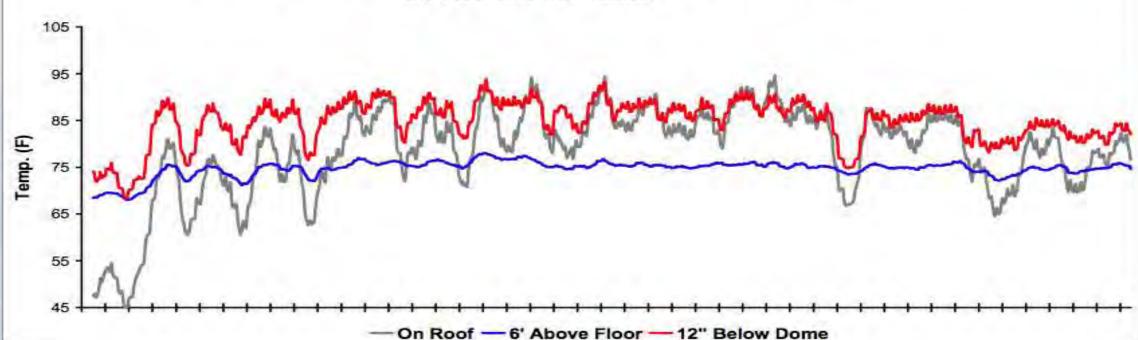
Office DEPOT





Silver Springs Temperature Data (5'x6' Passive Unit)

Every 30 Minutes (April - October)





Ciralight Suntracker **Skylights** let the sun in, but they keep out the heat associated with passive skylights





For Industrial Facility







Warehouse In Indonesia









Suntracker Skylights Light An Industrial facility







Outside

Even on a Cloudy Day!







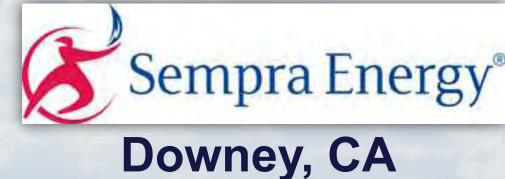
So Cal. Metropolitan Water District – Machine Shops





The Suntracker Experience Even on a Cloudy Day!







Outside

2/28/2011

Even on a Cloudy Day!



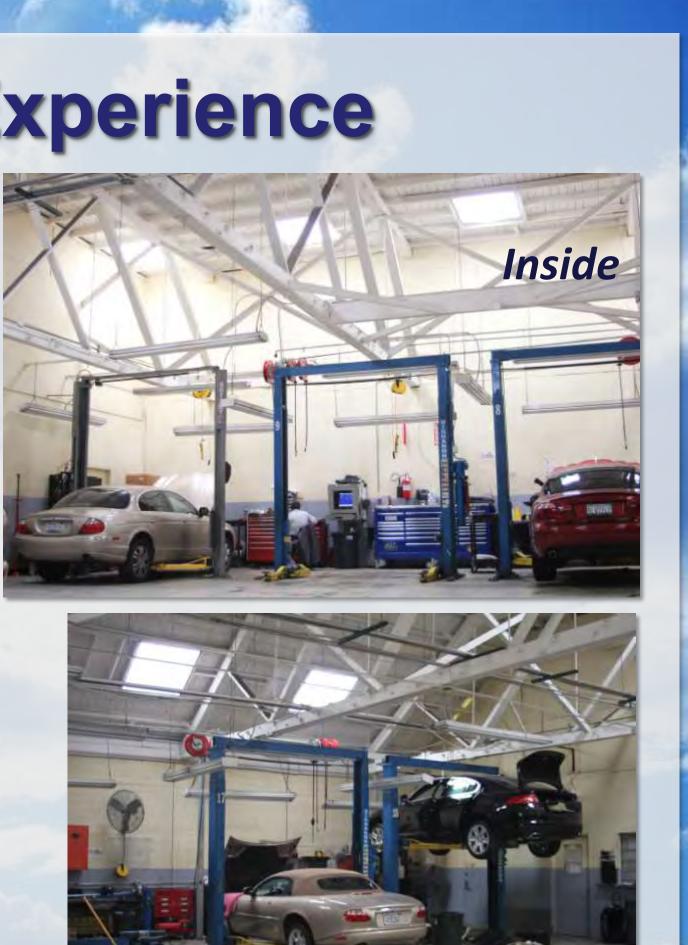


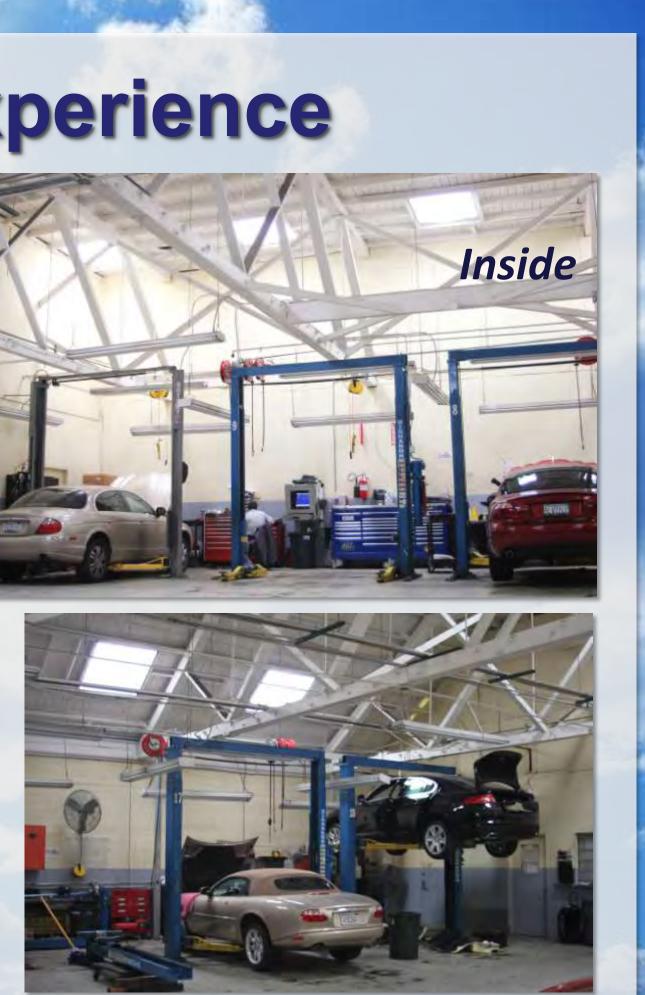


Even on a Cloudy Day!



Pasadena, CA











How to Use Ciralight Suntrackers?





How to Use Ciralight Suntrackers

Three Methods of Using Daylight from the SunTrackerOne



Lights On No Lighting Controls Lights On With Lighting Controls

Daylight is supplementary. May improve sales. No energy use reduction. Controls allow certain lightbanks to be turned off or dimmed using high-tech ballasts. Daylight can be dominant light source Light intensity allows Lights to be OFF for the majority of a 12 hour retail day. (9.2 hrs. avg.) Best ROI and impact on sales.



CIRALIGHT SMART SKYLIGHTS



Lights OFF! With Lighting Controls

Suntracker **Photometric** Table

24' x 24' =

CERTIFIED TEST REPORT NO. LSI 22966

1unit/576 sq ft. CIRALIGHT INC., CAT# SUN TRACKER ONE 4 ft. x 4 ft. Skylight w/ clear roof dome and square prismatic cone ceiling diffuser_ Tested in Sun City, CA on June 21, 2007. LUMEN RATING = 57691 LMS Mirror Tracking System adjusts for Sun movement every 10 minutes.

				AVERAGE			DOTCAND	LE) DATA				
Ceiling	SPACING (FT.)											
<u>Ht. (FT.)</u>	<u>20X20</u>	<u>22X22</u>	24X24	<u>26X26</u>	<u>28X28</u>	<u>30X30</u>	32X32	<u>34X34</u>	<u>36X36</u>	<u>38X38</u>	<u>40X40</u>	
8	161	129	110	90	77	71	58	52	45	39	39	
10	158	126	107	88	76	69	57	50	44	38	38	
12	154	123	105	86	74	68	55	49	43	37	37	
14	151	120	102	84	72	66	54	48	42	36	36	
16	147	118	100	83	71	65	53	47	41	35	35	
18	144	115	98	81	69	63	52	46	40	35	35	
20	141	113	96	79	68	62	51	45	39	34	34	
22	138	110	94	77	66	61	50	44	39	33	33	
24	135	108	92	76	65	59	49	43	38	32	32	
26	132	106	90	74	64	58	48	42	37	32	32	
28	130	104	88	73	62	57	47	42	36	31	31	
30	127	102	87	71	61	56	46	41	36	31	31	
32	125	100	85	70	60	55	45	40	35	30	30	
34	123	98	83	69	59	54	44	39	34	29	29	
36	121	96	82	67	58	53	43	39	34	29	29	
38	118	95	81	66	57	52	43	38	33	28	28	
40	116	93	79	65	56	51	42	37	33	28	28	
42	114	92	78	64	55	50	41	37	32	27	27	
44	112	90	76	63	54	49	40	36	31	27	27	
46	110	88	75	62	53	49	40	35	31	26	26	
48	108	87	74	61	52	48	39	35	30	26	26	
50	106	85	72	60	51	47	38	34	30	26	26	

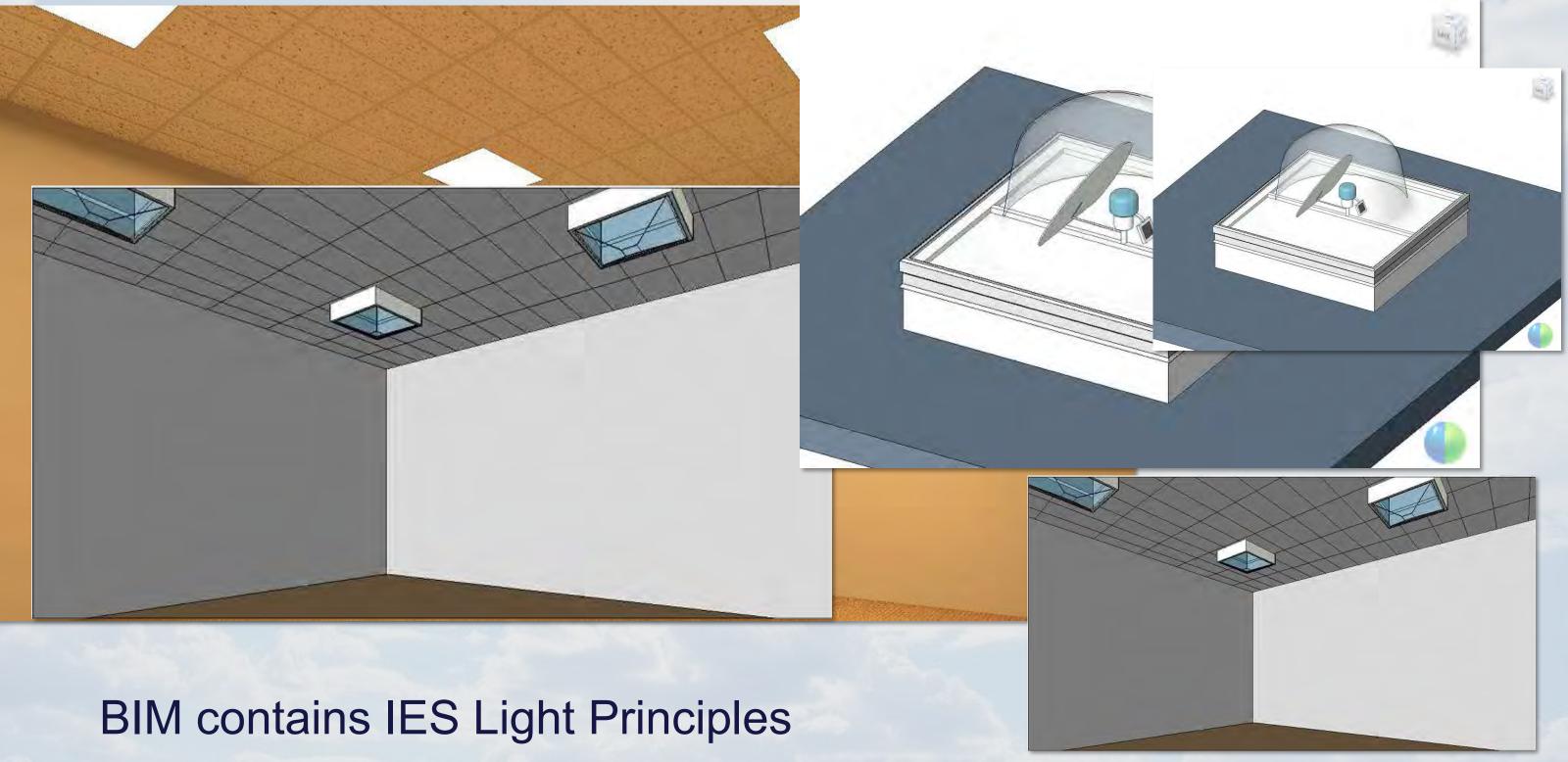


CIRALIGHT SMART SKYLIGHTS

32' x 32' = 1unit/1024 sq ft.

AVERAGE ILLUMINANCE (FOOTCANDLEVOATA

Suntracker BIM Object







Ciralight's Contribution to LEED Certification

Here are examples of LEED credits that Ciralight's Smart Skylight will contribute to achieving these credits:

Energy and Atmosphere:

- EA Prerequisite 2: Minimum Energy Performance: To establish the minimum level of energy efficiency for the proposed building and systems to reduce environmental and economic impacts associated with excessive energy use
- EA Credit 1: Optimize Energy Performance Credit: (1-10 points) To achieve points for this credit, a project must demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 (without amendments). by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard. Ciralight Relevance: Due to its ability to channel daylight into buildings, Ciralight's Suntracker One may be able to provide desired light levels while maintaining a lower skylight to floor space ratio. This may be of significant value when considering the heat gain or loss often attributed to passive daylighting. In addition, since the Suntracker incorporates thermal barriers to minimize heat gain/ heat loss and further, may provide sufficient lighting longer each day than other skylights, the use of the active system could significantly reduce the amount of electricity required to light a building.

Materials & Resources:

MR Credit 5.1- 5.2: Regional Materials: 10%/ 20% Extracted, processed & Manufactured Regionally (1-2 points) Credits are available for projects which use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/ harvested/ recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value). Ciralight Relevance: Relative to Ciralight's Suntracker, this credit is relevant for projects within 500 miles of Texas zip codes 75074, 75002, 75042, Arizona zip code 85726 and California zip code 91761

Indoor Environment Quality:

- EQ Credit 6.1: Controllability of Systems: Lighting: (1 point) This credit gives a point for individual lighting controls for 90% (minimum) of the building occupants to enable adjustment to suit individual task needs and preferences and provides lighting system controllability for all shared multi-occupant spaces to enable lighting adjustment that meets the group needs and preferences. Ciralight Relevance: Ciralight could be beneficial to achieving this credit if used in conjunction with our recommended lighting control system
- EQ Credit 8.1: Daylight and Views: Daylight 75% of Spaces: (1 point) In order to qualify for this point, the project must achieve a minimum daylight factor of 2% in a minimum of 75% of all regularly occupied areas Ciralight Relevance: When designing with skylights, it may become necessary to increase the daylight factor in order to achieve the desired light levels. Due to its ability to channel daylight into buildings, Ciralight's Suntracker can maximize interior day lighting, which will connect building occupants with natural lighting.

Innovation & Design Process:

ID 1.1: Innovation in Design(1 point) Create an education program to teach and provide awareness around the benefits of natural lighting to the interiors space, and why it is important for your occupant to understand the value of having natural lighting in their working environment. Ciralight will not only channel natural lighting into the space but will maximize the amount of natural lighting through it's solar tracking system

Please Note: USGBC and/or the LEED program do not certify, promote, or endorse products and services of individual companies, products and services. LEED credits requirements cover the performance of materials in aggregate not the performance of individual products or brands. Therefore, products that meet the LEED performance criteria can only contribute toward earning points needed for certification, they cannot earn points individually. For more information on LEED, visit www.usgbc.org

Leading the Daylighting Revolution





Ciralight - LEED Contribution Chart

The chart below gives you an idea of where Ciralight product can potentially contribute into each LEED prerequisites and credits in the different LEED rating systems. For more information about the LEED rating system, please visit USGBC website at www.usgbc.org.

LEED Rating Systems:

- LEED for New Construction: LEED-NC 2009
- . LEED for Core and Shell: LEED-CS 2009
- LEED for Schools: LEED-S 2009
- LEED for Commercial Interiors: LEED-CI 2009
- LEED for Existing Buildings: LEED-EBOM 2009
- LEED for Homes: LEED-H 2008
- LEED for Retail Commercial Interiors Pilot: LEED-R-CI
- LEED for Retail New Construction Pilot: LEED-R-NC
- LEED for Healthcare Pilot: LEED-HC (GGHC v2 2)

		LEED RATING SYSTEM								
Cira	Light - LEED Guidance Chart	NC 2009	CS 2009	S 2009	EBOM 2009	LEED-H 2008	LEED-R- NC	LEED - HC	CI 2009	
Sustainab	le Siles	-	-							
SS 8 1	Light Pollution Reduction	x	×	x	×	1	x	×	x	
Energy &	Atmosphere	1		-					100	
Prereq 2	Minimum Energy Performance	x	x	x	×	x	x	x	x	
EA 1	Optimize Energy Performance	×	×	×	×	×	×	×	×	
EA 4	Windows		1.000				1	×	1	
Materials	& Resources					-				
Credit 5.1	Regional Materials, 10% Extracted, Processed, & Manufactured Regionally	×							×	
Credit 5.2	Regional Materials, 20% Extracted, Processed, & Manufactured Regionally	x	1						x	
Indoor En	vironmental Quality		-	-		-		-	(
Credit 6	Controllability of Systems, Lighting & Thermal Comfort	×	×	×			×	x	x	
Credit 8.1	Daylight & Views, Daylight 75% of Spaces	×	x	x	x		×	×	x	
Credit 8.2	Daylight & Views, Views for 90% of Spaces	×	×	x	x		×	×	×	
Innovatio	i & Design Progess	15			-	-			-	
Credit 1.1	Innovation in Design: Exemplary Credit	x	×	x	×		×	×	x	
Credit 1.2	Innovation in Design: Education	×		×			×			
Total p	ossible contribution for each rating system:	10	7	8	6	2	8	8		

Certified 40-49 points Silver 50-59points Gold 60-79 points Platinum 80 & Above points







Leading the Daylighting Revolution





Ciralight Warranty

10 Year Warranty

Set'em & Forget'em



CIRALIGHT SMART SKYLIGHT DAYLIGHTING SYSTEM

MANUFACTURER'S LIMITED WARRANTY Ciralight Global, Inc, ("CGI"), is pleased to offer a limited warranty on the SunTrackerOne and SunTrackerTwo Ciralight Smart Skylights as more specifically outlined below ("Products"), Ciralight Global, Inc. warrants its products and parts against defects in, materials, workmanship including failure to operate within its indicated specifications i.e. failure of its mirrors to face the sun at +/- 10 degrees at any time during daylight. In addition, CGI warrants the skylight against leaking as part of the Dome warranty provided that the lightwells and curbs, if not acquired from CGI, meet with CGI's approval, and further provided that the products are installed in accordance with CGI's written specifications. The parts under warranty and details thereof are as follows:

Acrylic Dome & Frame Mirror Assembly GPS Controller Flat Lens Bottom Lens

Types of Warranty

Manufacturer's Defect Manufacturer's Defect Manufacturer's Defect Manufacturer's Defect Manufacturer's Defect

Ciralight Global, Inc. will repair or replace (at its option) any product and/or any of its parts, or, at CGI' selection, give credit for the original purchase price. Any such repair or replacement shall be made by CGI, within 60 (sixty) days of the receipt from the Distributor or the end user of notification and description of the defect and prompt verification thereof by CGI or for valid claims made under Warranty, CGI shall bear all normal transportation and/or shipment costs from and to the Distributor or the customer, as the case may be, including but not limited to costs of installation of the replaced product, or its parts, at the facilities of the Distributor or the end user whichever applies. Each of the warranty periods set forth above commences on the date the Product has been shipped by In the event the seal to the GPS Controller Unit case is broken, the warranty on the GPS Controller Unit

Rev. 3/20/2010

Leading the Daylighting Revolution

Duration

10 years 10 years 10 years

Ciralight Suntrackers: Tested Tough

- Lifecycle tested up to 30 years under extreme environmental conditions (minus 20 degrees to + 200 degrees)
- AAMA A440-05 Certified standard/Specification for skylights
- Wind tested up to 105 miles per hour
- Rain Tested up to 4 inches of rain per hour with winds of 70mph.
- Fall Protection up to 1200 lbs dropped from 6 feet.
- Temperature stability does not result in the heat gain associated with normal skylights.
- Lumination provides up to 3x's the light of normal skylights.
- Performance Rating VLT = 91%, SHGC = .3196, U-Value = .35



Daylighting in Schools

An Investigation into the Relationship Between **Daylighting and Human Performance**

Condensed Report



August 20, 1999

Submitted to:

George Loisos The Pacific Gas and Electric Company on behalf of the California Board for Energy Efficiency Third Party Program







Figure 2: Type A Skylight (left) and Type B Skylight (right)

- a. "The classrooms with the most amount of daylighting are seen to be associated with a 20% to 26% faster learning rate."
- b. "The classrooms with the Skylight Type A are seen to be associated with a 19% to 20% faster improvement when compared to classrooms with no skylights."
- c. "The classrooms with the Skylight Type B are seen to be associated with a 21% decrease for reading tests, and no significant result for math tests."



HESCHONG MAHONE

Study of Daylighting in Schools



Figure 2: Type A Skylight (left) and Type B Skylight (right)

"Skylight Type A had the most even light distribution of the five skylight types, fully diffused without any potential for direct sunlight to enter the room."

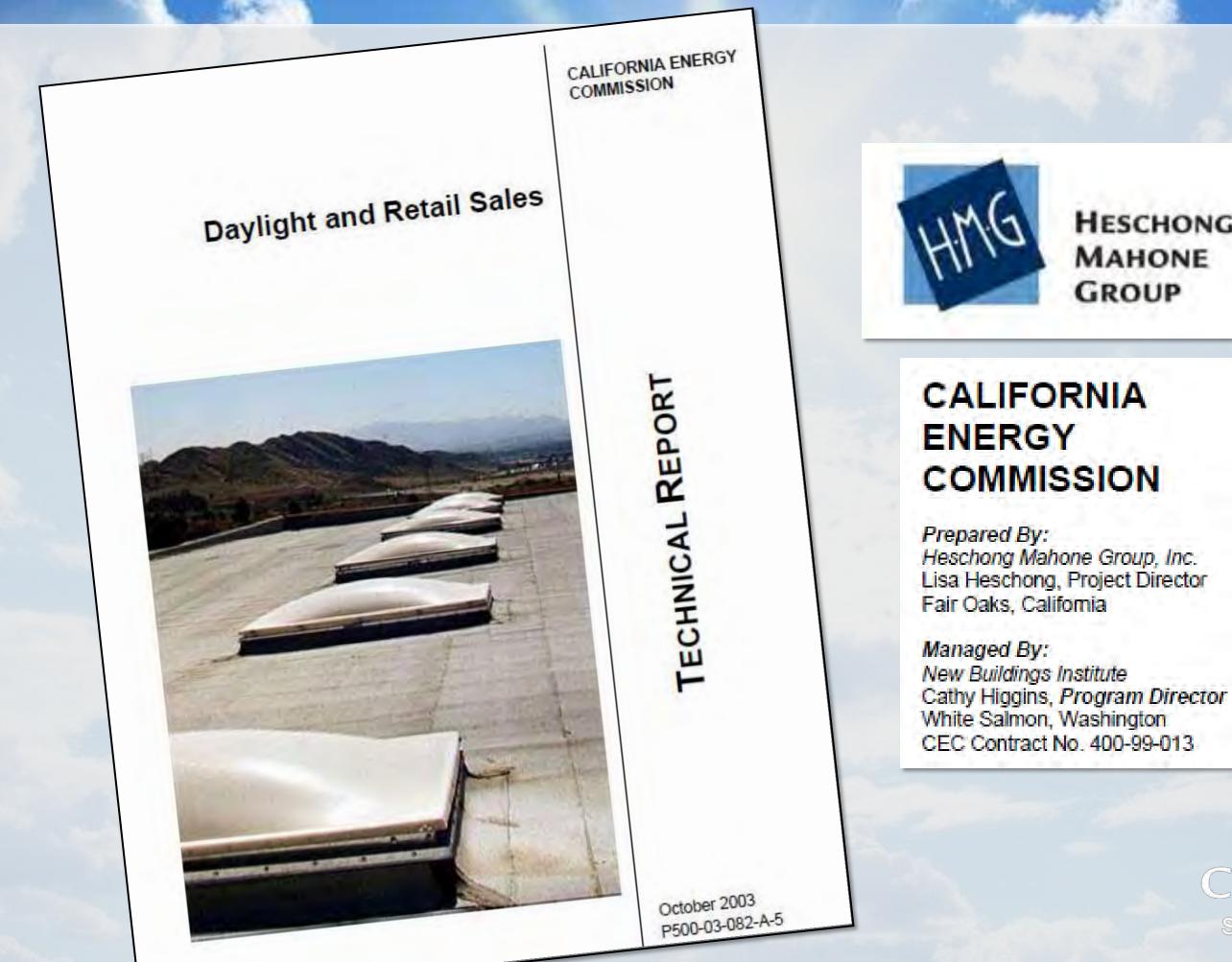
Conclusions;

✓ Improved visibility due to higher illumination levels.
✓ Improved visibility due to improved light quality
✓ Better distribution of light, better color rendition
✓ Improved health, Improved mood



HESCHONG MAHONE GROUP

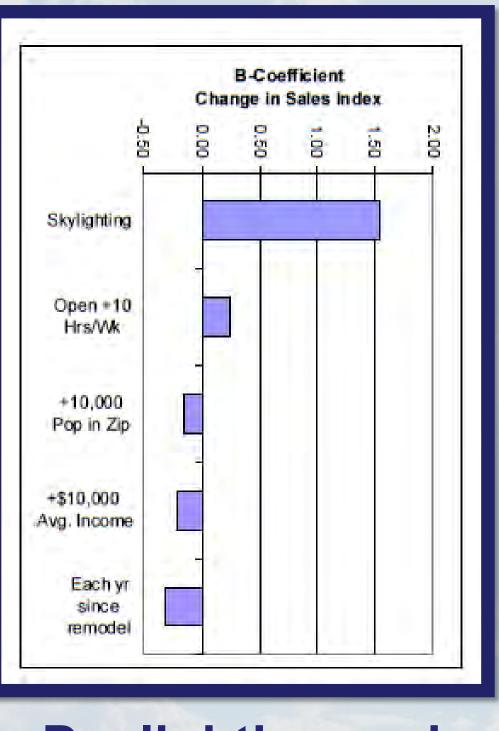
Study of Daylighting in Schools



HESCHONG MAHONE GROUP



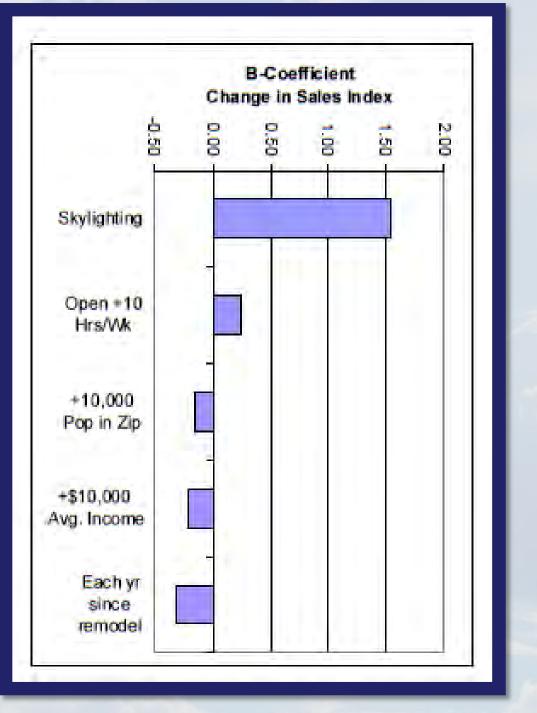
CIRALIGHT



Daylighting and Retail Sales

- The lighting energy savings from skylights and a. photo-control operation tend to run from about 20% to 30% and up to three times more using state of art Daylighting systems.
- Adding sky-lighting to the average non-skylit b. store would be likely to improve its performance by 6% or for individual stores by up to 40%.
- A dose/response relationship was found, C. whereby more hours of useful daylight in a store are associated with a greater daylight effect on sales.
- The value of the energy savings from d. daylighting is far overshadowed by the value of the increase in sales due to daylighting, by the most conservative estimate of at least 19 times and more likely by 45 to 100 times.

Conclusions



Daylighting and Retail Sales

- Greater Customer Loyalty
- More Relaxed Customers
- Higher Ticket Sales
- More Sale Transactions
- Higher Illumination Levels
- Improved Lighting Quality
- More Attractive Products
- Connection to the Outdoors
- Favorable Biological Effects
- Less Employee Absenteeism & Turnover
- Increased Employee Moral
- More daylight hours equals greater sales

Summary of Suntracker Advantages

- Captures sun light when the sun is as low 10 degrees in the sky.
- Lights off for longer hours of the day.
- Provides high levels of illumination, evenly distributed.
- Not the heat gain associated with normal skylights.
- Better color rendition, absence of flicker.
- Natural light provides a more productive work environment.
- Less absenteeism in work place. Improved student performance.
- Enhanced sales in retail environments.
- Reduces utilitity costs.
- LEED points toward LEED Certification.
- Solar powered entitled to tax and utility incentives.
- Provides a bright abundant, quiet, healthy natural light, just as nature intended for up to 10.5 hours a day.

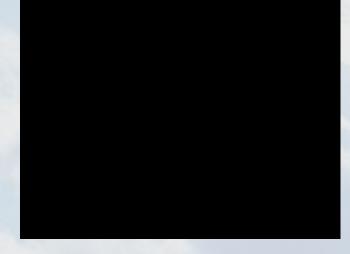




Testimonials & Feature Reports







Ace Hardware Owner - Bill Wygal **Bill's Ace Hardware, Martinez CA**

Click on box to play Video





Click on box to play Video

A-1 Cold Storage Los Angeles, CA

Saving the Planet One Building at a time



Brighten you day! With Ciralight Smart Skylights

CIRALIGHT SMART SKYLIGHTS

