SP4
Sunlight System
Product Manual

PARANS——Leading natural sunlight

SP4 Sunlight Systems_V2025-03.01

Parans Sunlight System

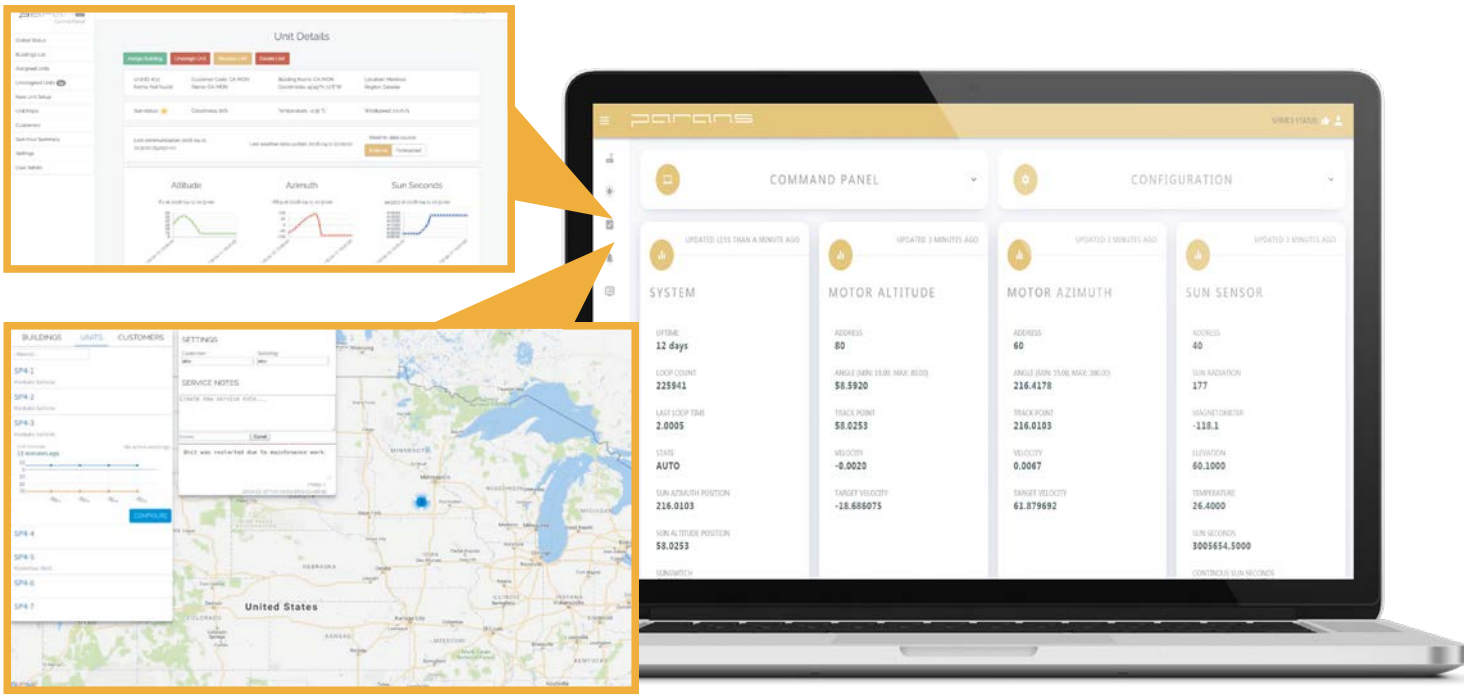
Parans delivers zero-carbon natural sunlight to indoor environments and buildings through industry-leading fiber optic light guiding and solar tracking technology. The system captures and directs natural sunlight into and through the home - deep into the building and away from the windows - and spreads the light in a way that creates an unforgettable experience that improves and enhances the living environment.

SP4 Series

- Highest quality genuine natural sunlight;
- Customizable fiber/cable lengths of up to 300 meters;
- Modular daylighting units: 16-80 units of 100mm diameter; light-collecting lenses and 16-80 core energy fibers
- Optional full spectrum or visible spectrum natural sunlight;
- Connects to Parans Cloud for remote installation, debugging,-fault diagnosis, and operational data collection.

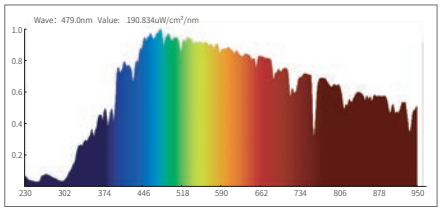
The SP4 series is specifically designed for large commercial enterprises, consisting of five models: SP4-8.2, SP4-12.2, SP4-16.2, SP4-24.2, and SP4-40.2. The SP4-40.2 model features 80 units of 100mm diameter light-collecting lenses, capable of delivering up to 60,000 lumens of visible spectrum natural sunlight and 600 watts of full spectrum natural sunlight per unit. Additionally, it integrates with the Parans Cloud big data operations platform, making it highly suitable for large commercial enterprises.

Parans Cloud O&M Platform
makes remote installation, debugging, diagnostics, and maintenance services exceptionally simple



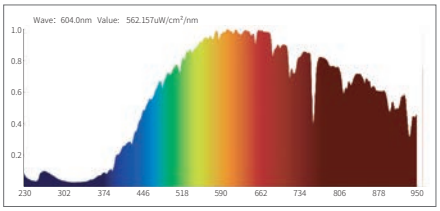
Parans sunlight is entirely derived from natural sunlight, collected and transmitted through Parans' high-fidelity optical system, essentially retaining all spectral components of natural sunlight. It's genuine natural sunlight! This is unparalleled by semiconductor LED sources or any other traditional electrical light sources!

Spectrogram



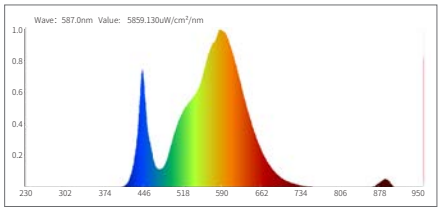
a.Natural sunlight

Spectrogram



b.Parans sunlight

Spectrogram



c.LED light source

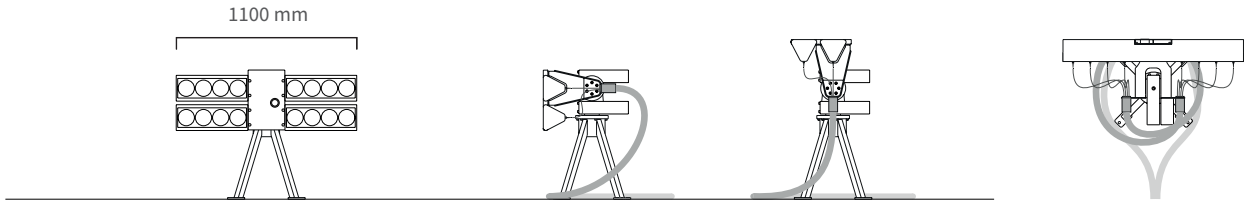
Technical Specifications

Type	SP4-8.2	SP4-12.2	SP4-16.2	SP4-24.2	SP4-40.2	Memo
L * W * H (mm)	1100*850*820	1100*850*940	1950*1000*820	1950*1000*840	1950*1000*1120	
Weight (Kg)	60	65	75	85	95	
Quantity of fibers/lenses (pcs)	16	24	32	48	80	
Output solar power (W)	107 ~ 132	160 ~ 198	213 ~ 265	320 ~ 397	533 ~ 663	
Output visible flux (lm)	7200 ~ 10400	10800 ~ 15600	14400 ~ 20800	21600 ~ 31200	36000 ~ 52000	
Output wavelength (nm)	glass fiber：150nm ~ 2000nm plastic fiber：425nm ~ 700nm					Selectable spectrum range
Fiber core diameter and numerical aperture	glass fiber：OD = 1.2mm, NA = 0.48 plastic fiber：OD = 2.0mm, NA = 0.50					
Max. fiber length (m)	glass fiber：500m plastic fiber：50m					Attenuation loss confined
Minimum bend radius of the fiber (mm)	glass fiber：180mm plastic fiber：20mm					
Power supply & consumption	AC 110 ~ 250V, 50 ~ 60Hz; 0 ~ 12W					
Operating temperature (°C)	-40 ~ +60					
Relative humidity (%RH)	0 ~ 85%RH					
Material	Aluminum, Steel, Glass, PMMA					
IP rating(electronics)	IP66					
Connection (Optional)	Network interface (WiFI/5G/4G/GPRS)					
Debugging and maintenance	AI Big Data Maintenance Platform					Parans Cloud
Sunlight luminaires	Point light, Zoom light, Ceiling light，Flat pannel light, Hybrid light, etc.					Accepts custom design

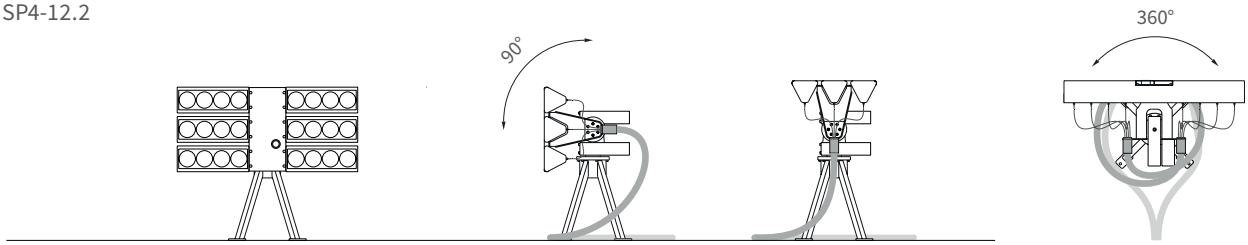
*All values are based on: 1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

1.Sunlight Collectors

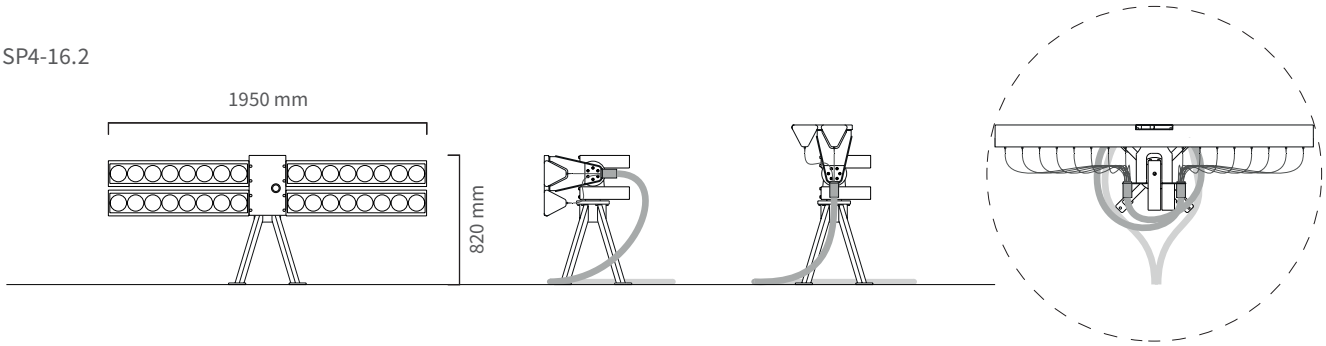
SP4-8.2



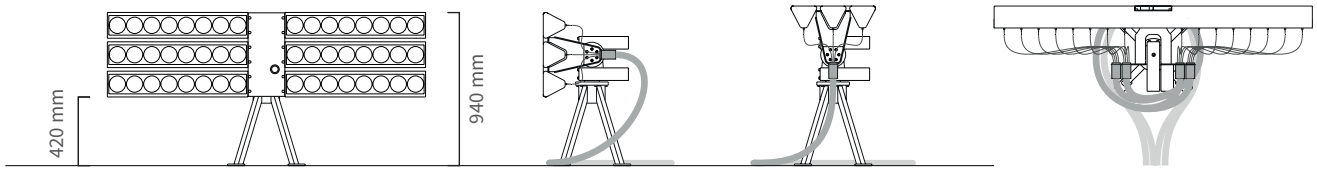
SP4-12.2



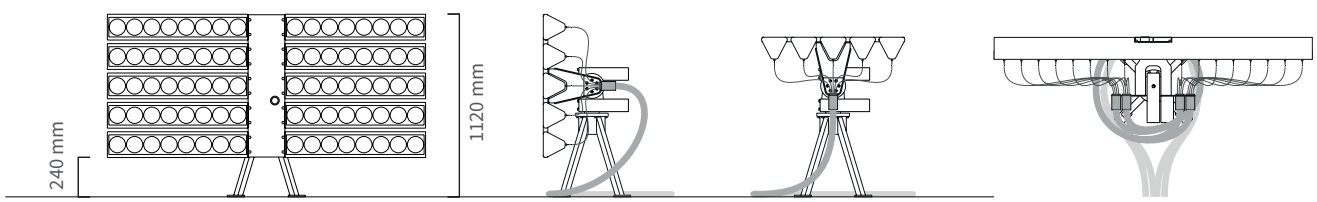
SP4-16.2



SP4-24.2



SP4-40.2



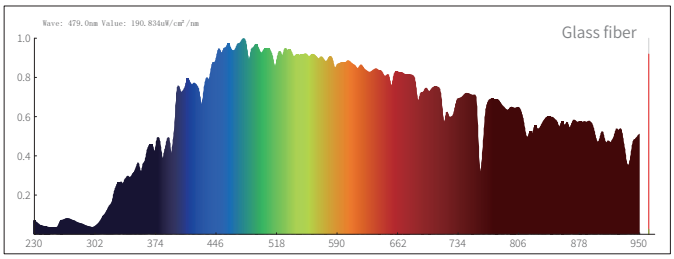
2.Energy Optical Fibers

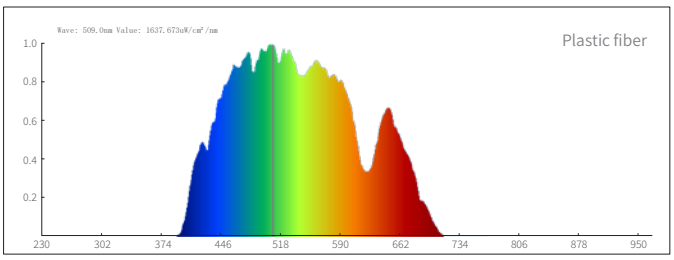
2.1 Glass Optical Fiber & Plastic Optical Fiber

• Fiber Optic Technical Specifications

Characteristics	Glass fibers	Plastic fibers
Fiber structure	Step index	Step index
Numerical aperture	0.48+/-0.02	0.50+/-0.02
Core material	Glass	PMMA
Core OD (mm)	1.2	2
Attenuation Loss	0.01dB/m@600nm	0.1dB/m@600nm
Bending radius (mm)	>180	>20
Operating temperature (°C)	-65 to +140	-50 to +70
Output Light spectrum band(nm)	150 to 3000	425 to 700
Cost	High	Low
Cladding layer	Hard polymer	N/A
Standard buffer	Tefzel	Black polyethylene

• Comparison of Spectral Characteristics

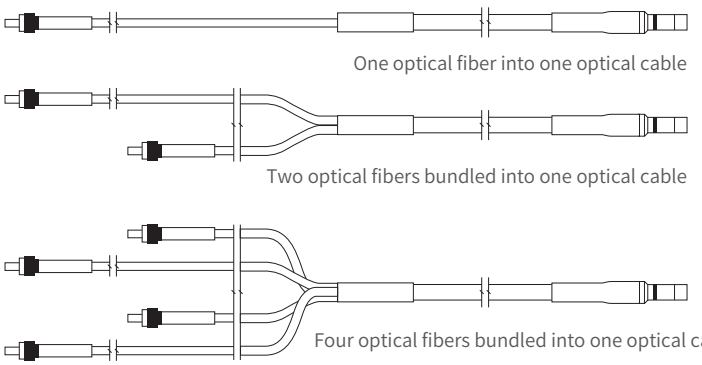




*Glass optical fibers excel in light transmission performance (spectrum range and attenuation) but cost several times more than plastic fibers. Specifically, in short-range visible light applications, plastic fibers offer a better cost-to-performance ratio.

Fiber Optic Connector

• Fiber Optic Jumper/Transmission Network



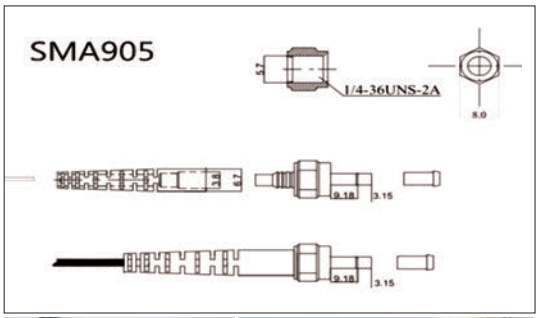
One optical fiber into one optical cable

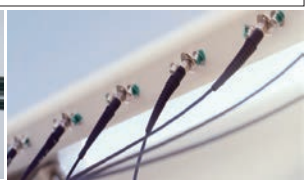
Two optical fibers bundled into one optical cable

Four optical fibers bundled into one optical cable

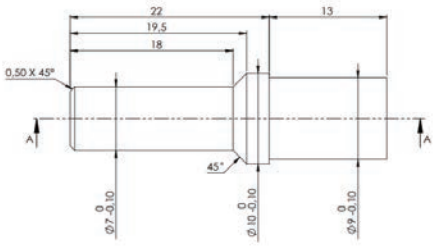
Similarly, eight or sixteen optical fibers are inserted into a single fiber optic cable.

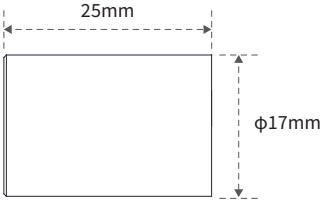
• Inlet Fiber Connector: SMA905 (Industry Standard)





• Output Fiber Connector: 2-core / 4-core / 8-core / 16-core fiber optic connection (Parans standard)

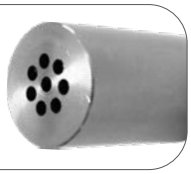




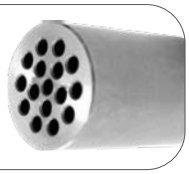
PS-OC02

PS-OC04

PS-OC08



PS-OC16



3.Sunlight Luminaires

3.1Floor-mounted Sunlight Projector

Luminaire Type	Sunlight Projector	Remarks
Model	LDTG01	
Size (mm)	545~1600	
Weight (Kg)	2	
Material	Aluminum/Plastic	
Central axis diameter (mm)	ϕ15/25	
Storage height (mm)	60	
Connected optical fibers (pcs)	8， 16	
Light output per fiber (lm)	450 ~ 650	Glass/Plastic Fiber
Light power per fiber (W)	10	Glass Fiber / Full-spectrum
Divergent angle	15 ~ 60°	
Tilt	60°	
Rotate	360°	
Protection rating	IP44	
Mounting	Floor-standing and mobile	
Color	Black	

*All values are based on:
1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

3.2 Zoom Sunlight Projector

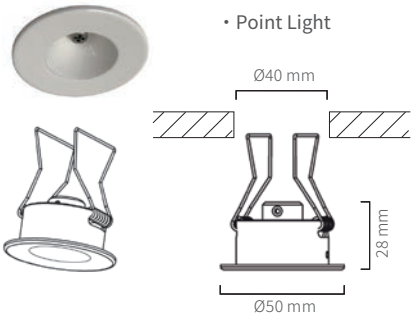
Luminaire Type	Zoom Sunlight Projector	Remarks
Model	ZDSL-100	
Size (mm)	ϕ63*150	
Weight (Kg)	0.3	
Material	Aluminum + PMMA	
Embedding Depth (mm)	250	
Connected optical fibers (pcs)	2 ~ 8	
Light output per fiber (lm)	450 ~ 650	Glass / Plastic Fiber
Light power per fiber (W)	10	Glass Fiber / full-spectrum
Tilt	-60 ~ +60°	
Rotate	360°	
Protection rating	IP44	
Mounting	Track/Surface Mounted with Screws	
Ceiling type	Suspended Ceiling	
Color	White/Black	

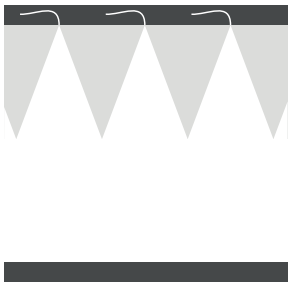
*All values are based on:

1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

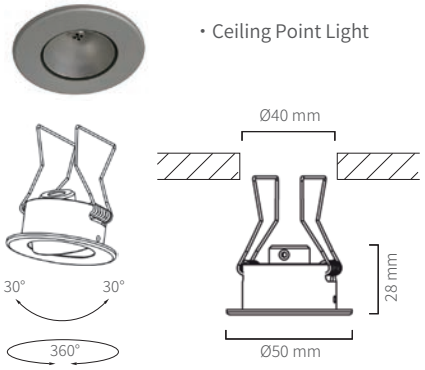
3.3 Point Light-I

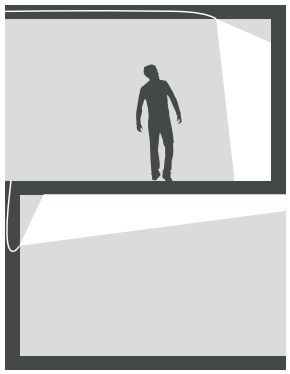
• Point Light





• Ceiling Point Light



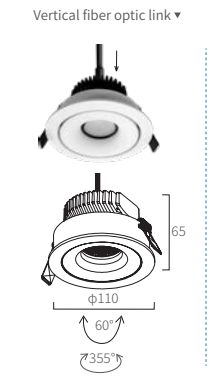


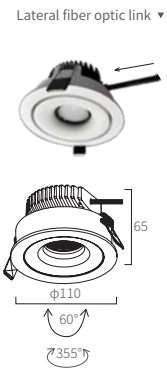
Luminaire Type	Point	Ceiling	Memo
Model	FRSL01	VRSL01	
Size (mm)	ϕ50 * 28	ϕ50 * 28	
Weight (Kg)	< 0.05	0.05	
Material	Aluminum	Aluminum	
Embedding Depth (mm)	210	210	
Connected optical fibers (pcs)	1 ~ 4	1 ~ 4	
Light output per fiber (lm)	450 ~ 650	450 ~ 650	Glass/Plastic Fiber
Light power per fiber (W)	10	10	Glass Fiber/full-spectrum
Divergent angle	58°	58°	Depends on numerical aperture
Tilt	N/A	30°	
Rotate	N/A	360°	
Mounting hole (mm)	40	40	
Mounting	Recessed, with spring	Recessed, with spring	
Ceiling type	Suspended Ceiling	Suspended Ceiling	

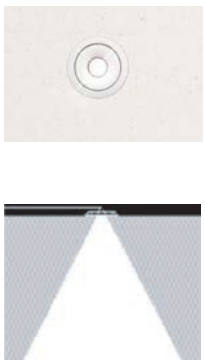
*All values are based on: 1) Standard 30 meters fiber cable ;
2) Solar illuminance of 100000 Lux, sunny day without smog.

3.2 Point Light-II

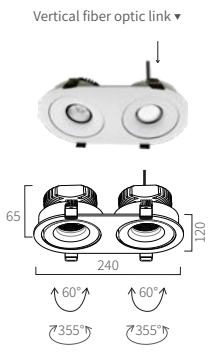
• Pure Point Light

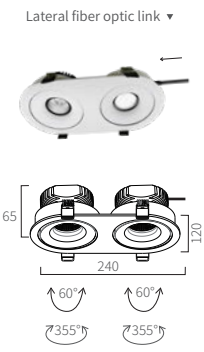


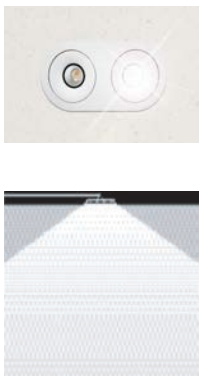




• Hybrid Point Light





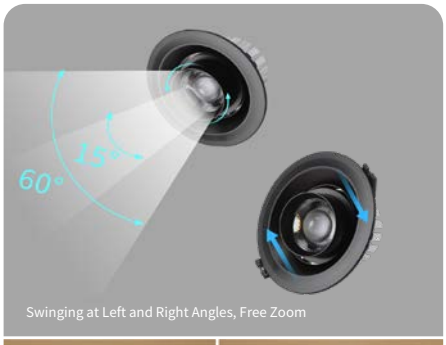


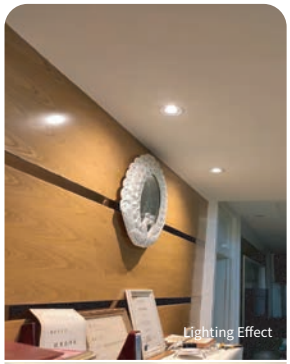
Luminaire Type	Pure Sunlight		Hybrid light		Memo
Model	PRBL01	PRBL02	HRBL01	HRBL02	
Size (mm)	110*110*65		240*120*65		
Weight (Kg)	0.5		0.95		
Material	Aluminum		Aluminum		
Embedding Depth (mm)	250	65	250	65	
Fiber optic input direction	Vertical	Horizontal	Vertical	Horizontal	
Connected optical fibers (pcs)	2 ~ 4		2 ~ 4		
Light output per fiber (lm)	450 ~ 650		450 ~ 650		Glass/ Plastic Fiber
Light power per fiber (W)	10		10		Glass Fiber/ full-spectrum
LED lighting efficacy (lm/W)	N/A		755		
LED power (W)	N/A		12		
Divergent angle	58°		90°		
Tilt	60°		60°		
Rotate	355°		355°		
Protection rating	IP20		IP20		
Mounting hole (mm)	100		2 x 100~110		
Mounting	Recessed, with spring		Recessed, with spring		
Ceiling type	Suspended Ceiling		Suspended Ceiling		
Color	White/grizzly		White/grizzly		

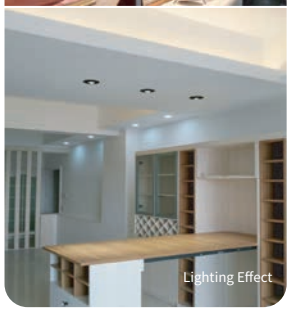
*When natural sunlight is low, LEDs compensate. Manual or smart adjustment with DALI/DSI drivers for intelligent light supplementation.

*All values are based on: 1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

3.3 Zoom Point Light





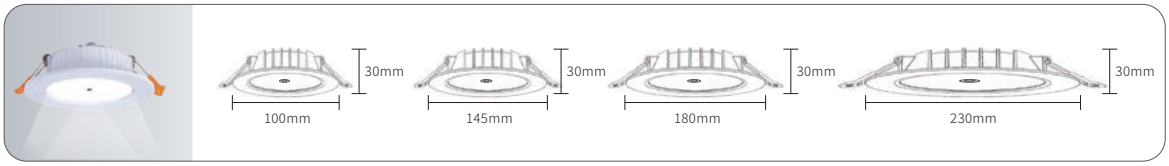


Luminaire Type	Zoom Point Light		Memo
Model	ZCSL01	ZCSL02	
Size (mm)	ϕ75*30	ϕ90*40	
Weight (Kg)	0.12	0.12	
Material	Aluminum	Aluminum	
Embedding Depth (mm)	250	250	
Connected optical fibers (pcs)	2 ~ 4	2 ~ 4	
Light output per fiber (lm)	450 ~ 650	450 ~ 650	Glass/Plastic Fiber
Light power per fiber (W)	10	10	Glass Fiber/full-spectrum
Divergent angle	15 ~ 60°	15 ~ 60°	
Tilt	60°	60°	
Rotate	360°	360°	
Protection rating	IP44	IP44	
Mounting hole (mm)	55 ~ 65	72 ~ 80	
Mounting	Recessed, with spring	Recessed, with spring	
Ceiling type	Suspended Ceiling	Suspended Ceiling	
Color	White/Black	White/Black	

*All values are based on: 1) Standard 30 meters fiber cable ;
2) Solar illuminance of 100000 Lux, sunny day without smog.

3.6 Recessed Downlight Serie-I

• Natural Sunlight

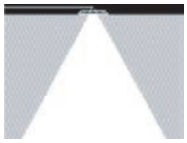


• Mixed Light Sources
(Natural Sunlight+LED)

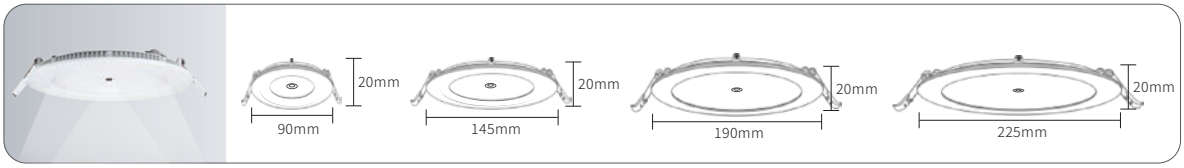
Luminaire Type	2.5" Downlight	4" Downlight	6" Downlight	8" Downlight
Light source	Hybrid light	Hybrid light	Hybrid light	Hybrid light
Model	HRD01	HRD02	HRD03	HRD04
Size (mm)	ϕ100*30	ϕ145*30	ϕ180*30	ϕ230*30
Weight (Kg)	0.2	0.3	0.4	0.5
Material	Aluminum alloy +PC			
Opening Size(mm)	75 ~ 85	110 ~ 135	146 ~ 165	190 ~ 210
Connected optical fibers (pcs)	2		4	
Light output per fiber (lm)	450 ~ 650			
LED lighting efficacy (lm/W)	90 ~ 130	90 ~ 130	90 ~ 130	90 ~ 130
LED power (W)	7	15	24	36
Divergent angle	120°	120°	120°	120°
Protection rating	IP20			
Mounting	Recessing			

*All values are based on: 1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

3.7 Recessed Downlight Series-II



·Pure sunlight



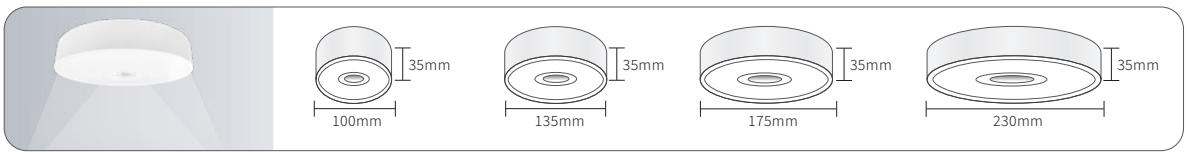
· Hybrid light
(Sunlight+LED)

Luminaire Type	2.5" Downlight	4" Downlight	6" Downlight	8" Downlight
Light source	Hybrid light	Hybrid light	Hybrid light	Hybrid light
Model	HRTD01	HRTD02	HRTD03	HRTD04
Size (mm)	ϕ90*20	ϕ145*20	ϕ190*20	ϕ225*20
Weight (Kg)	0.2	0.3	0.31	0.34
Material	Aluminum alloy +PC			
Opening Size(mm)	75	130	170	210
Connected optical fibers (pcs)	2		4	
Light output per fiber (lm)	450 ～ 650			
LED lighting efficacy (lm/W)	90 ~ 130	90 ~ 130	90 ~ 130	90 ~ 130
LED power (W)	3	9	15	18
Divergent angle	120°	120°	120°	120°
Protection rating	IP20			
Mounting	Recessing			

*All values are based on: 1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

3.8 Ceiling-mount Cylinder Light

·Pure sunlight

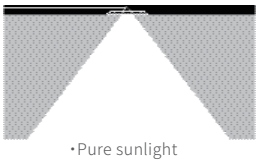


· Hybrid light
(Sunlight+LED)

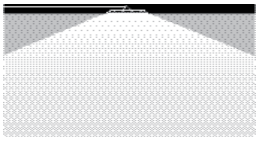
Luminaire Type	7w	12w	18w	24w
Light source	Hybrid light	Hybrid light	Hybrid light	Hybrid light
Model	HRCD01	HRCD02	HRCD03	HRCD04
Size (mm)	ϕ100*35	ϕ135*35	ϕ175*35	ϕ230*35
Weight (Kg)	0.16	0.23	0.35	0.55
Material	Aluminum alloy +PC			
Connected optical fibers (pcs)	2 ~ 4		4 ~ 8	
Light output per fiber (lm)	450 ～ 650			
LED lighting efficacy (lm/W)	90 ~ 130	90 ~ 130	90 ~ 130	90 ~ 130
LED power (W)	7	12	18	24
Divergent angle	120°	120°	120°	120°
Protection rating	IP20			
Mounting	surface mounting			

*All values are based on: 1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

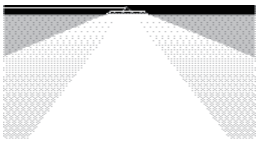
3.11 Anti-Glare Recessed Flat Panel Light



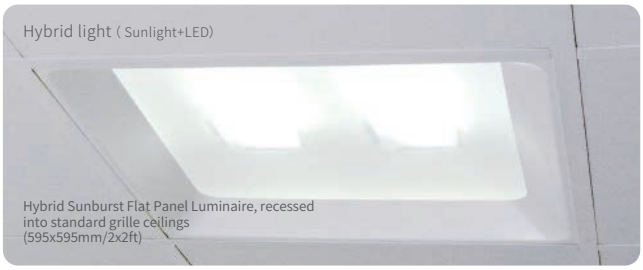
·Pure sunlight

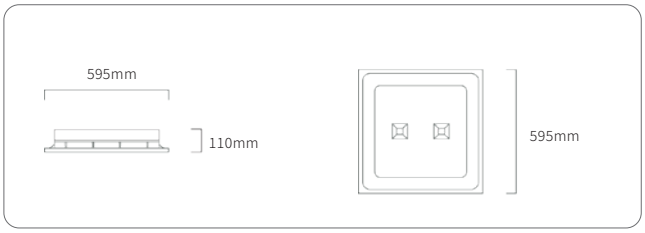


· LED



· Hybrid light
(Sunlight+LED)





*When natural sunlight is low, LEDs compensate. Manual or smart adjustment with DALI/DSI drivers for intelligent light supplementation.

Luminaire Type	Hybrid light	Memo
Model	GFPS-H02	Anti-glare
Size (mm)	595*595*110 mm	
Weight (Kg)	7	
Material	PMMA，PC，Aluminum	
Embedding Depth (mm)	300	Including connectors
Connected optical fibers (pcs)	4 ~ 8	
Light output per fiber (lm)	450 ~ 650	Glass/Plastic Fiber
Full spectrum power per fiber (W)	7 ~ 10	Glass Fiber
LED light output (lm)	990	
LED Power (W)	15	
Mounting	Recessed, replaces grating	
Ceiling type	Suspended Ceiling	

*All values are based on: 1) Standard 30 meters fiber cable ; 2) Solar illuminance of 100000 Lux, sunny day without smog.

Application Scenarios and Cases

1、Application Scenarios

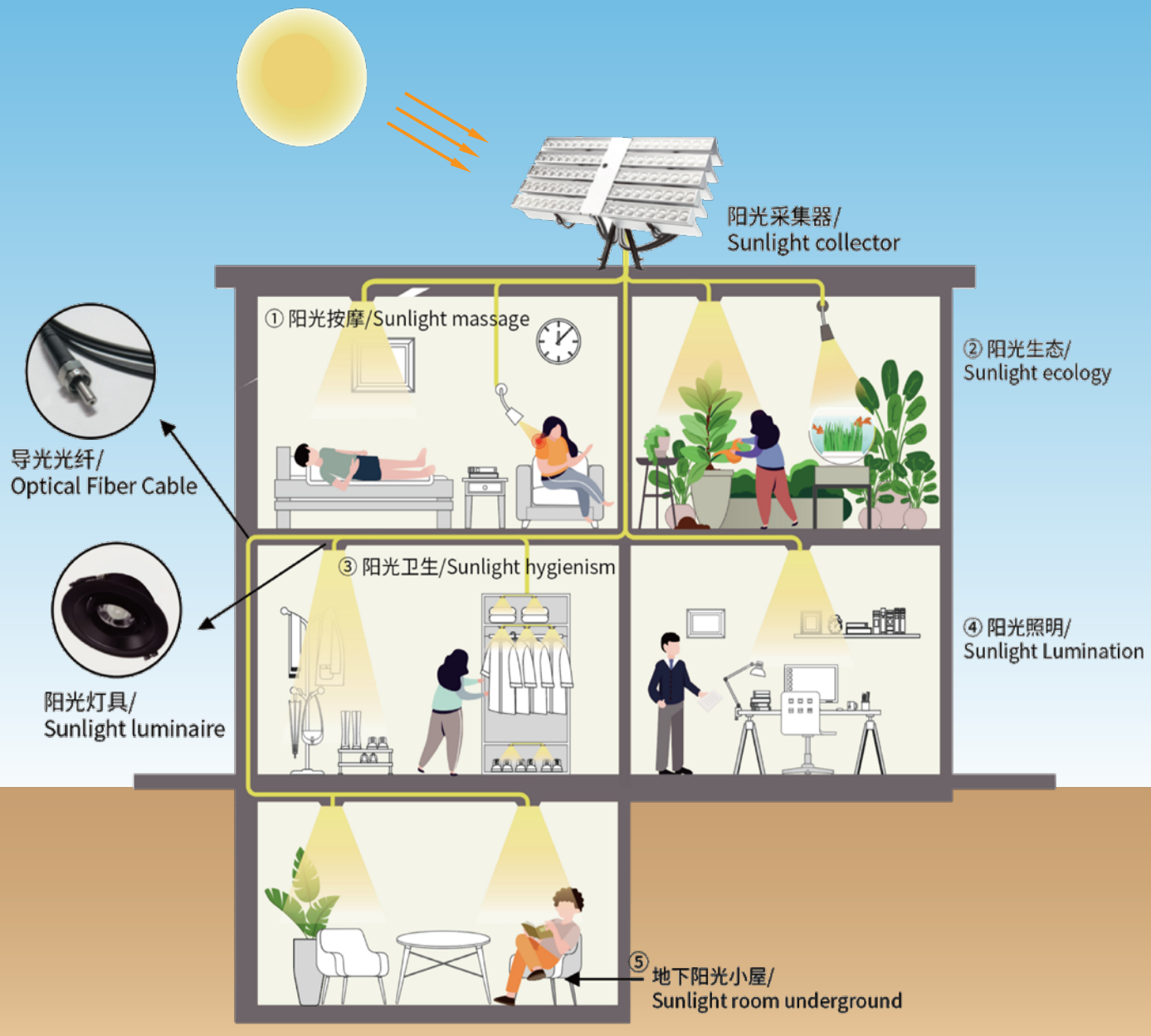
Parans Sunroom consists of four parts: Sunlight Illumination, Sunlight Hygiene，Sunlight Ecology, Sunlight Massage.

Sunlight Illumination

Sunlight Hygiene

Sunlight Ecology

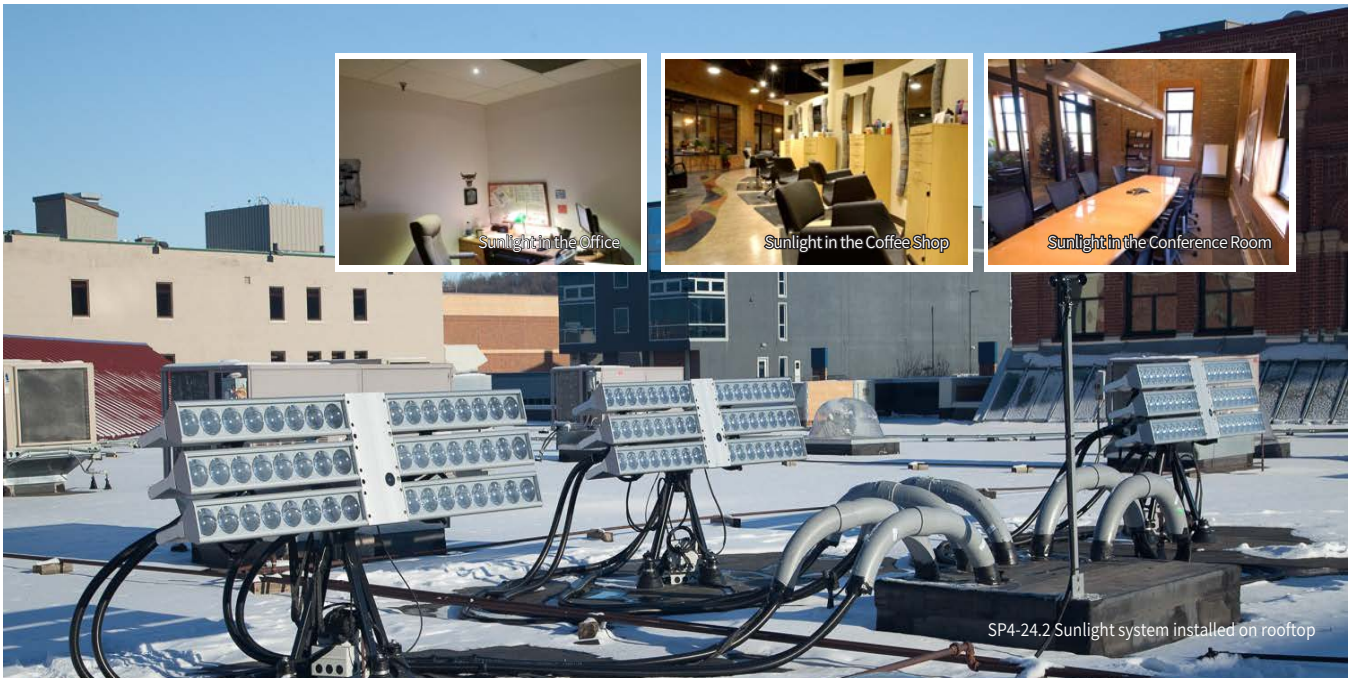
Sunlight Massage



2、Application Cases

2.1 Minnesota Mankato Place Sunlight Project

Mankato Place in the United States installed three Parans SP4-24.2 natural sunlight systems, along with 48-core energy fiber optics and 20 sunlight fixtures. This brought 70,000 lumens of visible light/1400 watts full-spectrum natural sunlight into various spaces such as offices, meeting rooms, restaurants, and entertainment halls. The system not only achieved carbon-neutral green lighting but also provided an exceptional experience for employees and customers, turning it into a popular local attraction.



Combined Lighting Layout with LED and Sunlight Integration

The project employs a dual lighting approach, combining LED general illumination with focused sunlight. Basic lighting is provided by a grid light with three standard LED tubes, while focused lighting comes from a Parans sunlight point source spotlight. Parans natural sunlight is projected at a 58° angle onto employees' desks and chairs, promoting health and happiness during efficient work

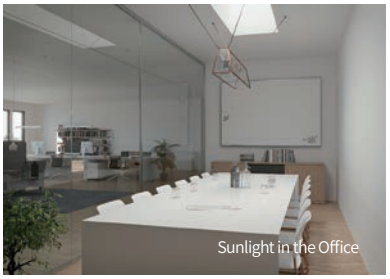
Mankato Commercial Plaza

2.2 UJVN Ltd Headquarters Sunlight Project, North Akhand, India

Five SP4-40.2 Parans sunlight systems installed on the rooftop

UJVN, India's pioneering hydroelectric company, dedicated to sustainable energy, faced challenges at its 36-story headquarters with numerous rooms lacking sunlight. This led to a proportion of employees experiencing low morale and occasional cases of depression. To enhance the work environment, the company purchased and installed 5 SP4-40.2 Parans natural sunlight systems, featuring a total of 400-core energy fiber optics. This setup delivers 250,000 lumens of visible light/3000 watts full-spectrum natural sunlight, covering an area of approximately 1000 square meters and saving 20,000 kWh of lighting electricity annually. In addition, employees responded positively to the warm and comfortable ambiance created by sunlight, resulting in increased work efficiency and a notably positive shift in mood, effectively mitigating depression.

This project at the UJVN Ltd headquarters in North Akhand, India, utilized intelligent hybrid light fixtures. In situations of insufficient or no sunlight, the LED light sources automatically activate to supplement the missing sunlight, ensuring consistent indoor brightness. This innovative approach enhances lighting efficiency and maintains a stable illumination level, contributing to an improved and sustainable lighting solution for the office building



Sunlight in the Office

Sunlight in the Meeting Room

Sunlight in the Office

2.3 The Rijnlands Tunnel Sunlight Project in the Netherlands

Parans Sunlight in the Tunnel

The Rijnlands Tunnel Lighting Project in the Netherlands has successfully completed, with an investment exceeding 1.69 million euros, installing a total of 80 sets of SP4-40.2 Palance natural sunlight illumination systems. The project has been completed smoothly and passed the acceptance inspection.

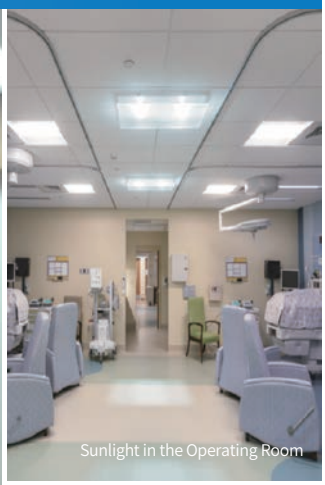
Both entrances of the Rijnlands Tunnel in the Netherlands are illuminated by Parans natural sunlight. Utilizing nearly a hundred Parans sunlight systems in an unprecedented manner, natural sunlight is introduced into the tunnel, minimizing the risk of a 'black hole' effect and ensuring optimal safety for road traffic. Notably, the Rijnlands Tunnel project received the Innovative Design Challenge Award in a nationwide competition in the Netherlands, largely due to the Parans sunlight system's ability to efficiently transport natural sunlight into the deep areas of the tunnel in a carbon-neutral way.

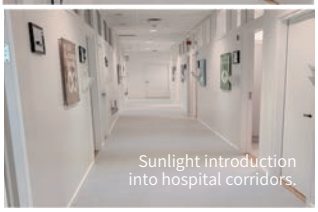
The installation site of 80 SP4-40.2 Parans Natural Sunlight Systems.

Installation site of 80 SP4-40.2 Parans natural sunlight systems

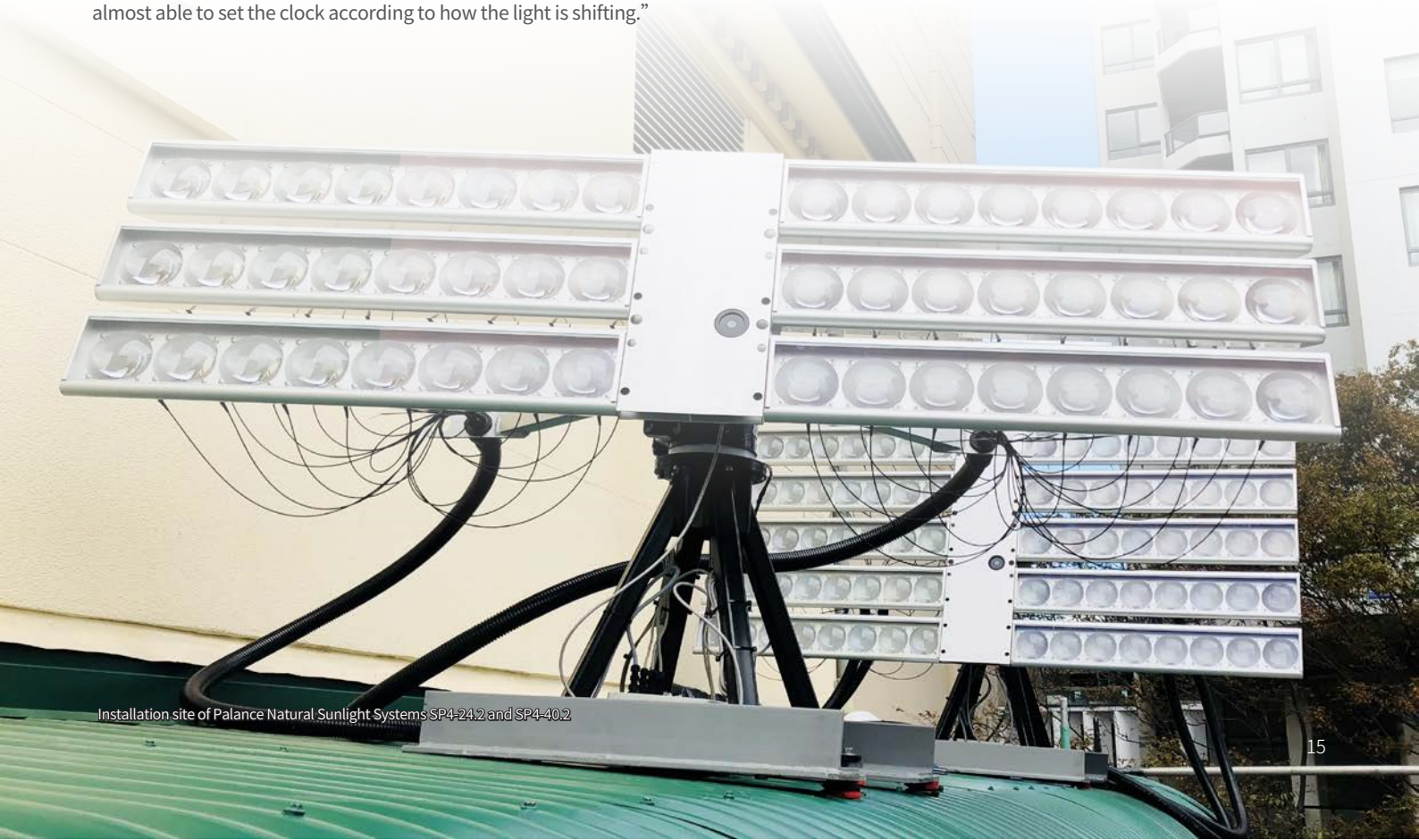
2.4 Helsingborg Hospital Project


Sunlight in the Outpatient Room

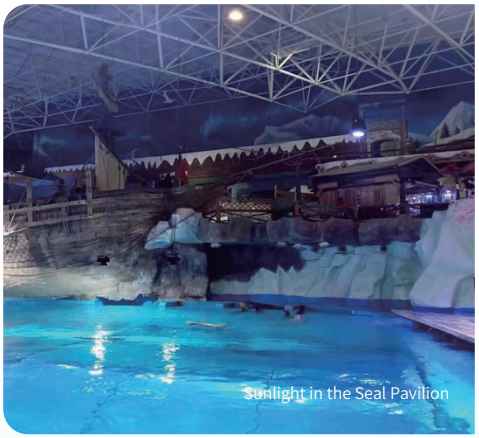

Sunlight in the Operating Room


Sunlight introduction into hospital corridors.

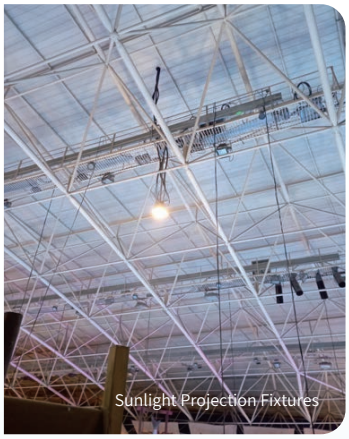
Helsingborg Hospital enhanced the ambiance in outpatient rooms, operating theaters, and corridors by installing a SP4-40.2 and SP4-24.2 Parans real natural sunlight rays Sunlight System. Doctors and patients now experience “We appreciate the sunlight we get through the Parans system” , says Lennart Sandhall, Chief Physician, Helsingborg Hopsital, Sweden, “ It gives us a clear connection to the outside. If the sun is shining, we are almost able to set the clock according to how the light is shifting.”


Installation site of Palance Natural Sunlight Systems SP4-24.2 and SP4-40.2

2.5 Qingdao Polar Ocean World Seal Pavilion Project


Sunlight in the Seal Pavilion


Sunlight in the Seal Pavilion


Sunlight Projection Fixtures

Sunlight is the fundamental condition for the survival of all things in the world. Everything grows relying on sunlight. As an ecological and cyclical biosphere, an aquarium cannot ensure the health and vitality of organisms without sunlight.

Compared to typical artificial lighting sources, sunlight is considered to have the highest light levels required for biological functionality. Sunlight serves as an excellent disinfectant, capable of eliminating many pathogenic microorganisms, including bacteria, fungi, rickettsiae, viruses, and algae, without pollution or side effects. The ultraviolet and infrared segments in sunlight also contribute to sterilizing and disinfecting the skin and fur of furry creatures, providing essential nutrients that play a crucial role in their health. Out of love for marine animals, the Polar Ocean World has chosen to use the Parans sunlight system to provide natural sunlight for them.

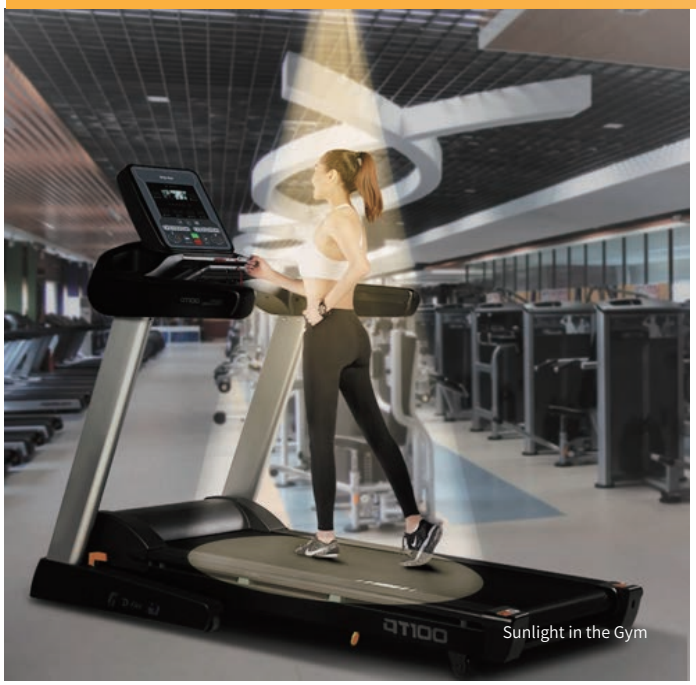
Parans has designed a natural sunlight spectrum for the Polar Ocean World. In this spectrum, ultraviolet light prevents various skin diseases in seals. Specific formula lamps are used as the light source, targeting the skin through the photoelectric, biological, and photochemical effects of light quantum beams of specific wavelengths, reaching the mid-shallow layer of the dermis through the skin. The mechanism for treating skin diseases involves inducing cell apoptosis, particularly immune T cell apoptosis. Through illumination, it significantly inhibits the activity of anti-gen-presenting cells such as epidermal Langerhans cells, reducing epidermal inflammatory reactions. Simultaneously, it enhances the metabolic function and immunity of organisms, achieving therapeutic goals.

Natural light is projected into the seal pool, forming an intense light spot of approximately 15 square meters with a visible light intensity of about 3000 lux, along with rich ultraviolet and infrared light. The project utilizes approximately 10 meters of fiber optic cables to install the SP4-40.2 (80 light points) Parans sunlight system on the museum roof to introduce sunlight.

The Parans sunlight system can offer its unique value solution without being influenced by any structural design of the building, bringing sunlight indoors to enhance indoor comfort and provide ample indoor sunlight. Parans Sunlight, the best light for humanity!


The SP4-40.2 sunlight system is installed above the ceiling

2.6 IMPULSE Fitness Club Ecological Environment Improvement Project


Sunlight in the Gym


Sunlight Ecology


Sunlight Ecology

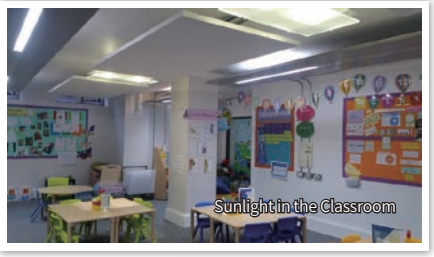
IMSPULSE Fitness Club recently installed the Parans sunlight system. By projecting Parans natural sunlight onto the treadmills in the gym, people can enjoy outdoor natural sunlight while running. Additionally, by projecting Parans natural sunlight onto the plants inside the gym, the air quality has significantly improved through the plants' photosynthesis, removing harmful gases and promoting the generation of fresh air and negative ions.

2.7 Learn & Laugh Kindergarten Sunlight Project in Sydney,Australia

In a kindergarten in Sydney, Australia, natural light is very limited due to the surrounding large office and residential buildings, a common occurrence in big cities. Children play and learn here, spending crucial moments of their day. The challenge was to meet legislative requirements for daylight levels. To introduce natural light and meet daylight requirements, the client chose to install the Parans sunlight system. The contractor was approved to use the Parans system to achieve the required daylight levels. With around 2,500 hours of sunlight annually in Sydney, all these hours of sunshine can be harnessed, allowing natural light to fill the rooms.

After the installation of the Parans natural sunlight system, sunlight penetrates the building. Children bask in natural sunlight, leading to a significant improvement in their learning interest and efficiency, earning high praise from parents.

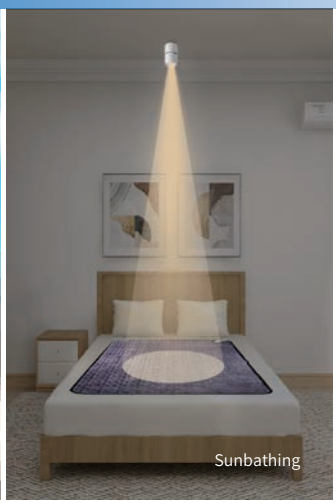

Sunlight in the Indoor

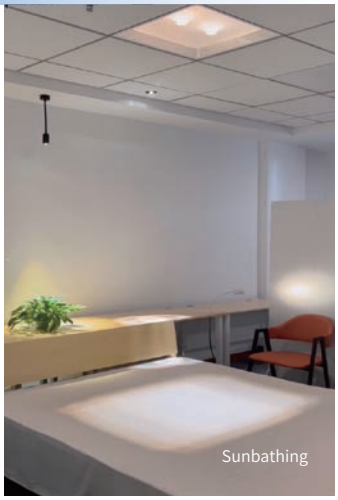

Sunlight in the Classroom


Sunlight in the Indoor

2.8 Auckland Elderly Apartment Sunbathing Project, New Zealand


Auckland Senior Apartments

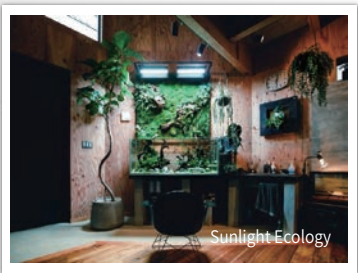

Sunbathing


Sunbathing

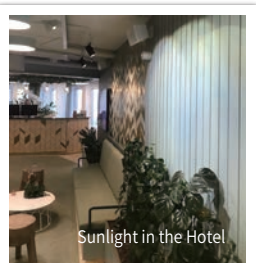
New Market Senior Apartments in New Zealand consist of 80 senior units/beds, each accommodating one elderly individual or a couple. To allow the elderly to sunbathe in bed on sunny days, the client incorporated two SP4-40.2 Parans natural sunlight systems in the design. Each bed is equipped with a sunlight fixture connected to two fiber optic strands, projecting 2000 lumens of visible light/20 watts of full-spectrum natural sunlight energy into a 1-square-meter area, providing sunlight massage for the elderly. As a result, seniors can enjoy sunlight massage (sunbathing) without leaving their homes.

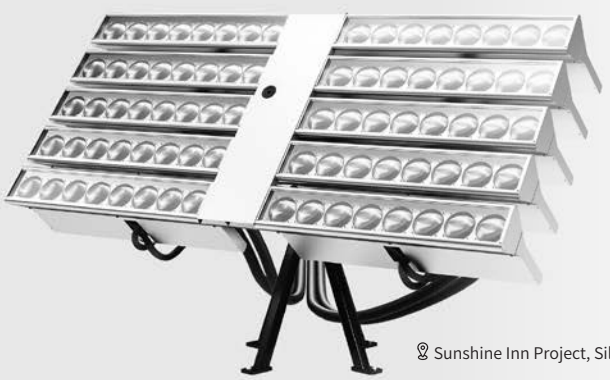
Sunbathing has various health benefits, such as boosting the immune system and reducing the risk of colds. From the perspective of traditional Chinese medicine, improving health involves getting more sunlight to generate clear Yang energy in the body, ultimately achieving the effects of nourishing Yang energy and promoting positive Qi. Adequate Yang energy is essential for the normal functioning of internal organs, enhancing the body's ability to resist diseases. Regular sunbathing helps strengthen the body, improve overall health, and supplement Vitamin D, effectively reducing the risk of common respiratory diseases and flu viruses. For elderly individuals who may have mobility challenges or cannot leave their beds, 'sunbathing' becomes an unattainable activity. Parans sunlight collection and transmission technology precisely addresses this challenge, bringing sunshine into the lives of the elderly in their later years!

2.9 Sunlight Hotel Project in Silicon Valley, India


Sunlight Ecology


Sunlight Ecology


Sunlight in the Hotel



Sunshine Inn Project, Silicon Valley, India

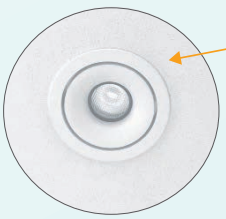
A hotel located in the Silicon Valley of India chose 2 SP4-40.2 Parans sunlight systems to provide natural sunlight for 50 landscape plants, promoting photosynthesis in plants. This process results in the daily production of 5,000 liters of oxygen, a daily reduction of 5,000 liters of carbon dioxide, and the removal of over a hundred harmful gases. This significantly improves and enhances the air quality within the hotel, transforming it into a completely carbon-neutral ecological balance system. The hotel not only sustains its oxygen needs but also produces a surplus, making it a truly self-sufficient oxygen-rich environment.

Installation of the Parans Natural Sunlight System

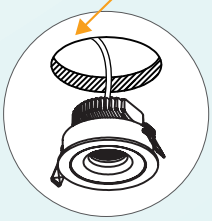
1、Installation of the Sunlight System

Sunlight Collector

Fiber Optic Transmission Network



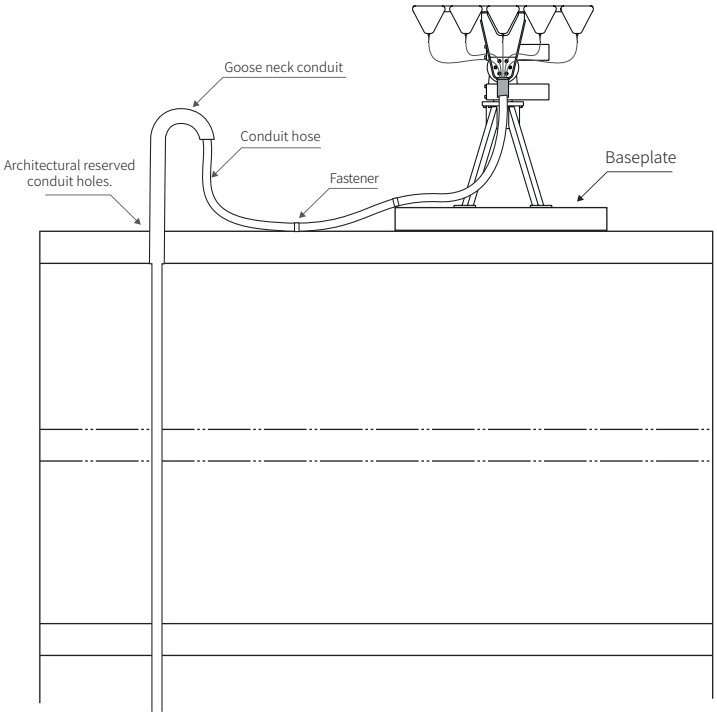
Fiber Optic Luminaire



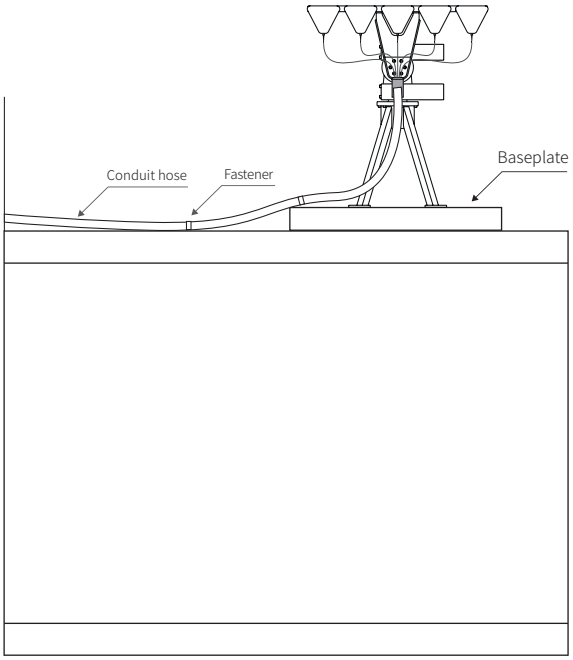
Light Fixture Installation

2、Installation Method of SP4 Series Daylight Collector (Place in Play)

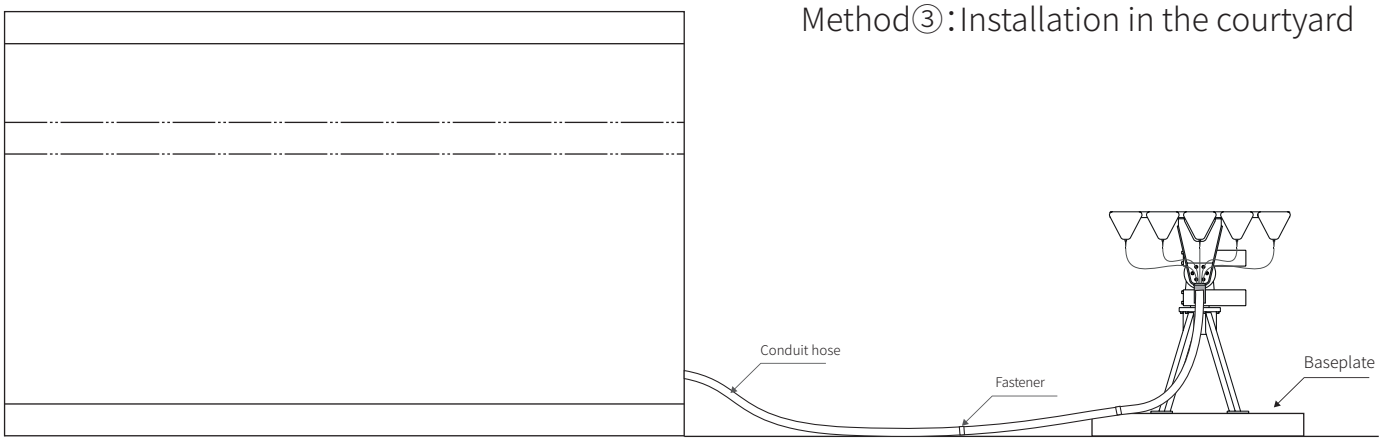
Method ①：Roof installation



Method②：Install on the balcony



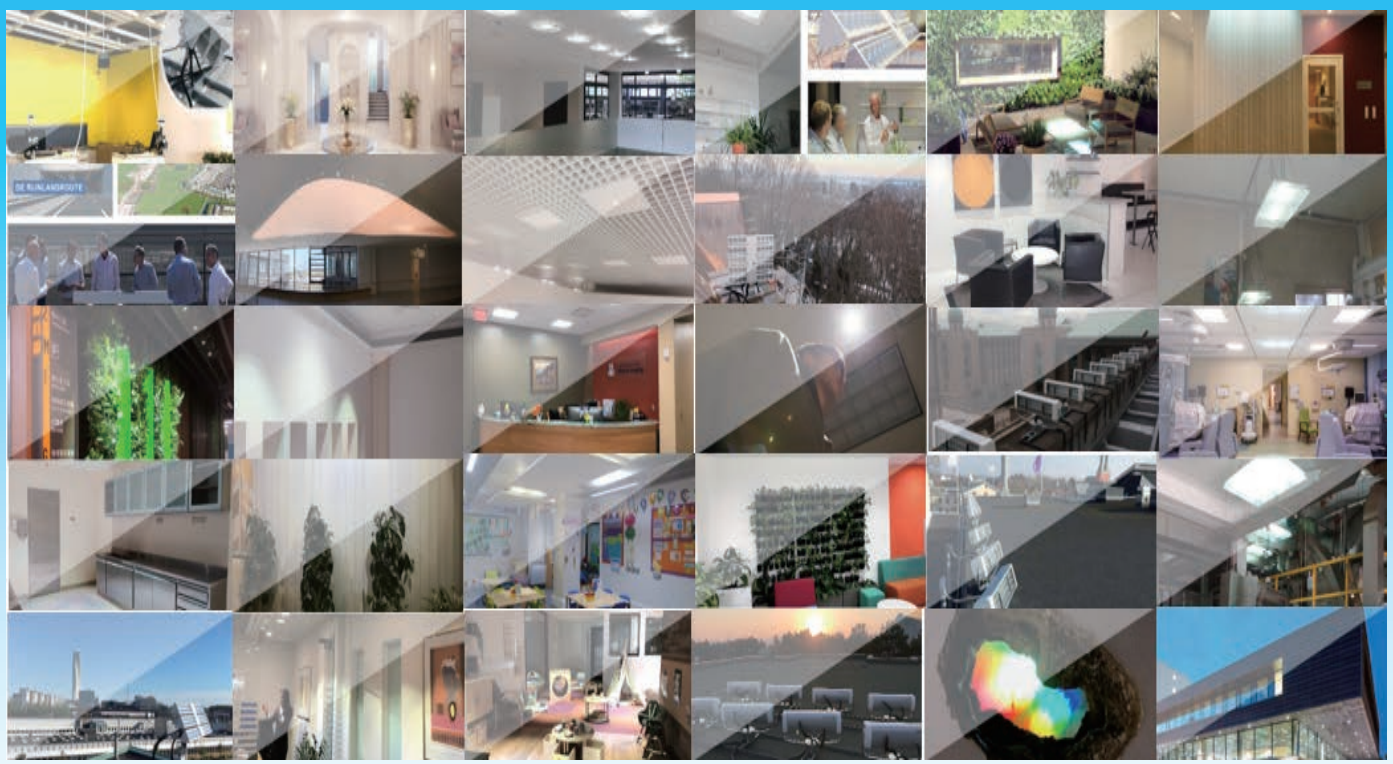
Method③：Installation in the courtyard



Note:

The SP4 series daylight collector has three installation methods, making it easy to plug and play. The first method is installing on the roof, the second is on the balcony, and the third is in the courtyard. To avoid damaging the roof and cope with harsh weather conditions, a transition base should be placed before installation, and the daylight collector should be fixed on it. The dimensions and thickness of the transition base should be adjusted based on actual conditions to ensure a secure and safe installation.Here is a simple diagram. Please refer to the installation instructions for detailed installation procedures.

Parans sunlight systems have been widely applied in various scenarios, including education, healthcare, elderly care, new energy, agriculture, commercial offices, residential areas, public buildings, underground facilities/garages, and more. To date, over 300 top-notch application cases have been successfully implemented globally.



Parans——LEADING SUNLIGHT

PARANS — LEADING NATURAL SUNLIGHT

Parans Light Technology (Qingdao) Co., Ltd

- Add：798 Wangsha Rd. Chengyang, Qingdao Shandong 266107 China
- Website：www.paranslight.com
- Email：sales@paranslight.com

Parans Lighting
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