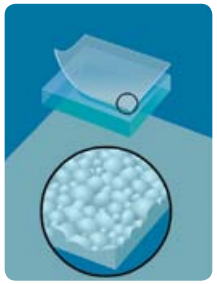
Purify. Control. Sustain.

mesoOptics

Vision friendly, energy efficient
recessed lighting solutions

PHILIPS
LEDALITE

mesoOptics



Optical Nanotechnology

Visual comfort and energy savings.

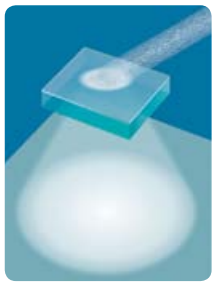
Philips Ledalite MesoOptics technology offers a revolutionary way to purify and control light, allowing for the creation of vision friendly lighting solutions that are exceptionally energy efficient.

PURIFY

Homogenizes light to remove striations.

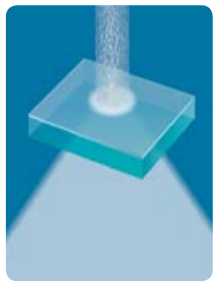
CONTROL

Controls beam dispersion to optimize light distribution.



REDIRECT

Redirects light away from glare angles.



SUSTAIN

95% transmission efficiency.

Inspired by nature. Butterfly wings consist of three-dimensional crystal nanostructures which selectively curve and scatter light.

PERFECTLY BALANCED BRIGHTNESS, CONTROL AND ENERGY EFFICIENCY

MesoOptics technology allows recessed lighting to have the best possible combination of lighting control and brightness with efficiencies that are almost 20% higher than traditional recessed products.

In many cases, this can result in a typical space consuming up to 35% less energy for lighting. A small amount of controlled brightness is introduced to the walls and ceiling, creating a brighter, more pleasant environment without causing unwanted glare.

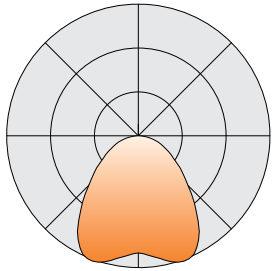
Vision-friendly lighting solution

MesoOptics is a true innovation in lighting technology that creates spaces which are bright, uniformly lit and pleasant.

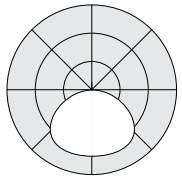
Save energy without compromise

MesoOptics is highly efficient and optimizes the distribution of light in the space. It minimizes energy consumption and decreases the number of fixtures in a space while creating an exceptional luminous environment.

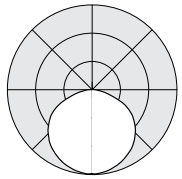
A visible difference



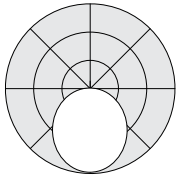
MesoOptics recessed fixtures create an optimal batwing distribution which provides high angle glare control and less light intensity directly below the fixture while increasing brightness throughout the space for exceptional visual comfort.



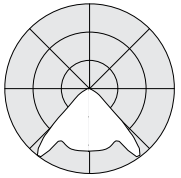
Micro Diffuser



Indirect Basket



Opal Acrylic



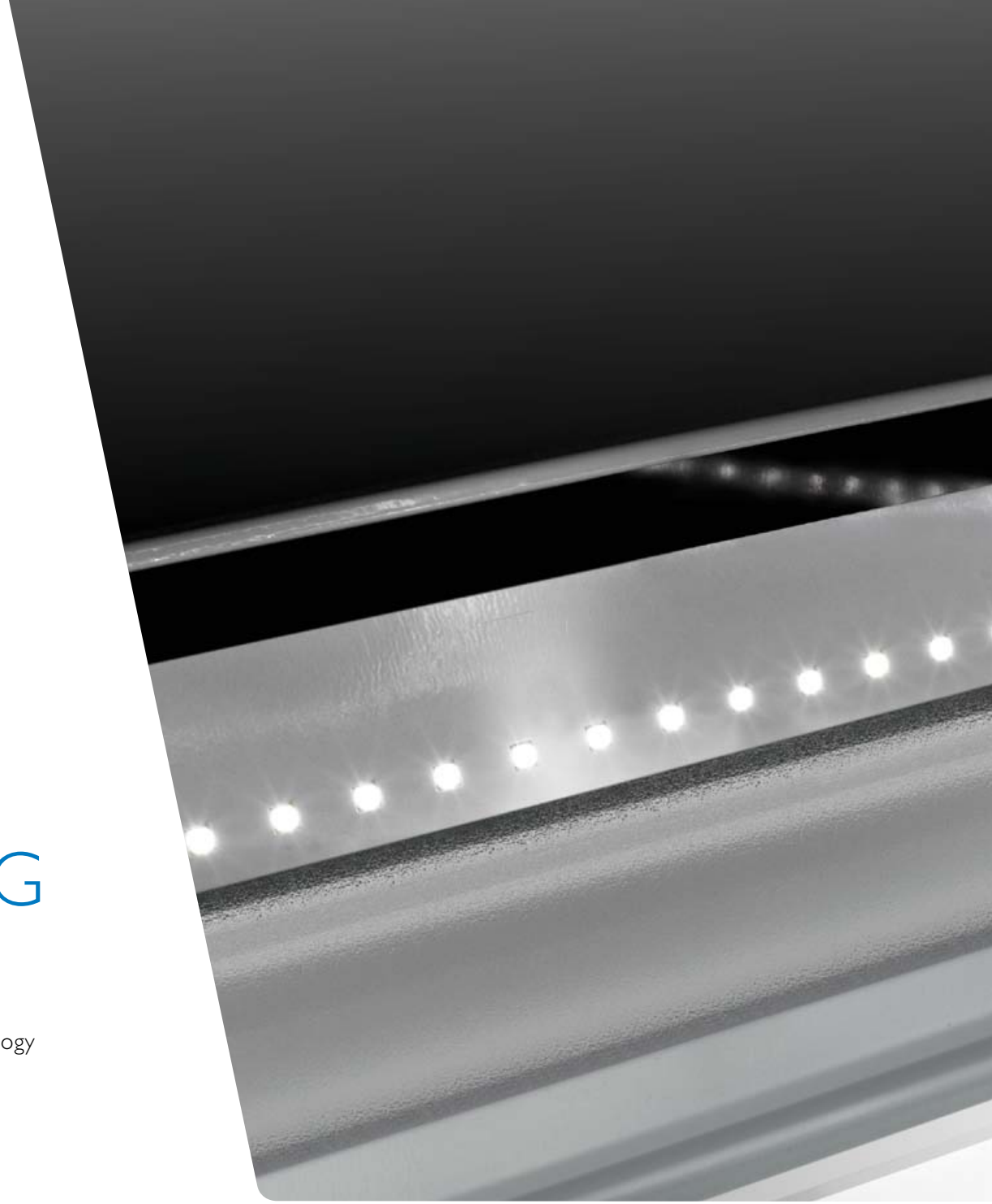
Parabolic Louver

A typical recessed parabolic fixture offers decent glare control at some angles, but it creates a dark, cave-like environment with harsh shadows and dark walls.

Luminaires with MesoOptics offer excellent glare control from all angles, and increase brightness levels throughout the space. This leads to softer shadows and a brighter space that is still visually comfortable.

ALWAYS MOVING FORWARD

Philips Ledalite's recessed families with MesoOptics technology are now available in both fluorescent and LED sources.




ARCFORM
PIQUE
VOICE
PURE FX
VECTRA

ARCFORM

Soft, subtle and sophisticated,
a natural fit for any space.

PIQUE

A clean and crisp profile that creates a subtle presence in contemporary spaces.

VOICE

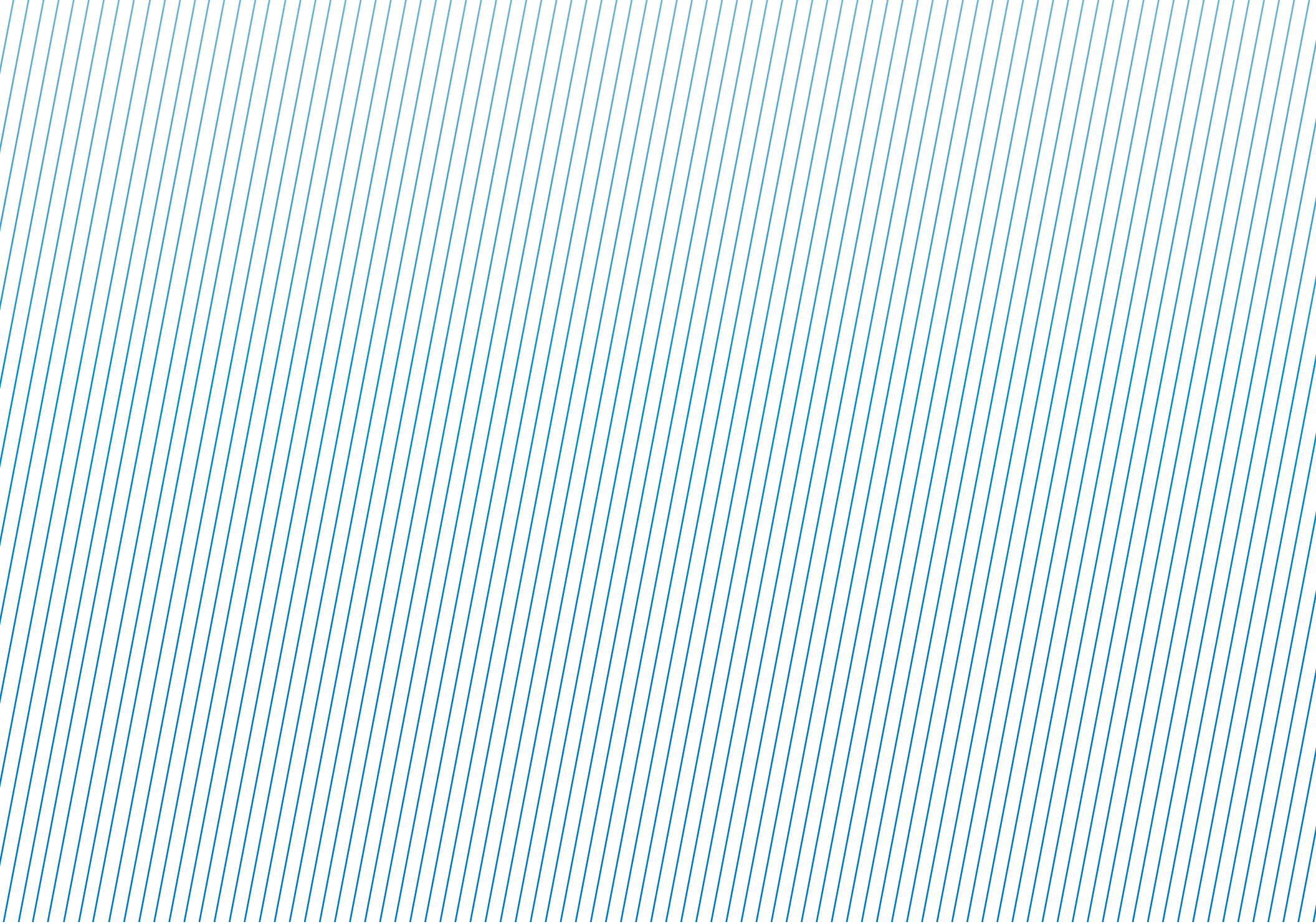
A low-profile, modern aesthetic that blends in with style.

PURE FX

A beautiful, sculpted shape for a natural, luminous environment.

VECTRA

A refined aesthetic for modern architectural spaces.



APPLICATIONS

Philips Ledalite recessed luminaires with MesoOptics technology achieve brighter, more natural luminous environments while saving energy.

PRIVATE OFFICE

A variety of contemporary aesthetic options deliver pleasant, visually comfortable office environments with maximum energy savings.

	2x28W T5	LED 3600 lm
Light Level	43 fc	41 fc
Energy Density	0.95W/ft^2	0.63W/ft^2
System Efficacy	58.2 lm/W	83.7 lm/W

Voice 1'x4' | 16'L x 16'W x 8'H | 7'x8' o.c.


Yard House

BOARDROOM

Luminaires can be integrated with Airwave Wireless Controls and standard dimming equipment for maximum flexibility and energy performance in boardrooms.

	1x40W TT5	LED 3600 lm
Light Level	31 fc	45 fc
Energy Density	0.71W/ft^2	0.72W/ft^2
System Efficacy	63.6 lm/W	86.0 lm/W

Pique 2'x2' | 20'L x 14'W x 9.5'H | 8'x10' o.c.

OPEN OFFICE

Luminaires designed for wider spacing means fewer luminaires and less energy consumption, with perfect light levels and excellent uniformity—ideal for large open plan areas.

	3x32W T8
Light Level	45 fc
Energy Density	0.76W/ft^2
System Efficacy	67.8 lm/W

Vectra 2'x4' | 120'L x 32'W x 11'H | 10'x12' o.c.


DELL

HEALTHCARE

Refined aesthetics and quality lighting create comfortable spaces for patients and medical professionals.

	1x40W T5	LED 3600 lm
Light Level	41 fc	55 fc
Energy Density	0.81 W/ft^2	0.74W/ft^2
System Efficacy	65.2 lm/W	86.0 lm/W

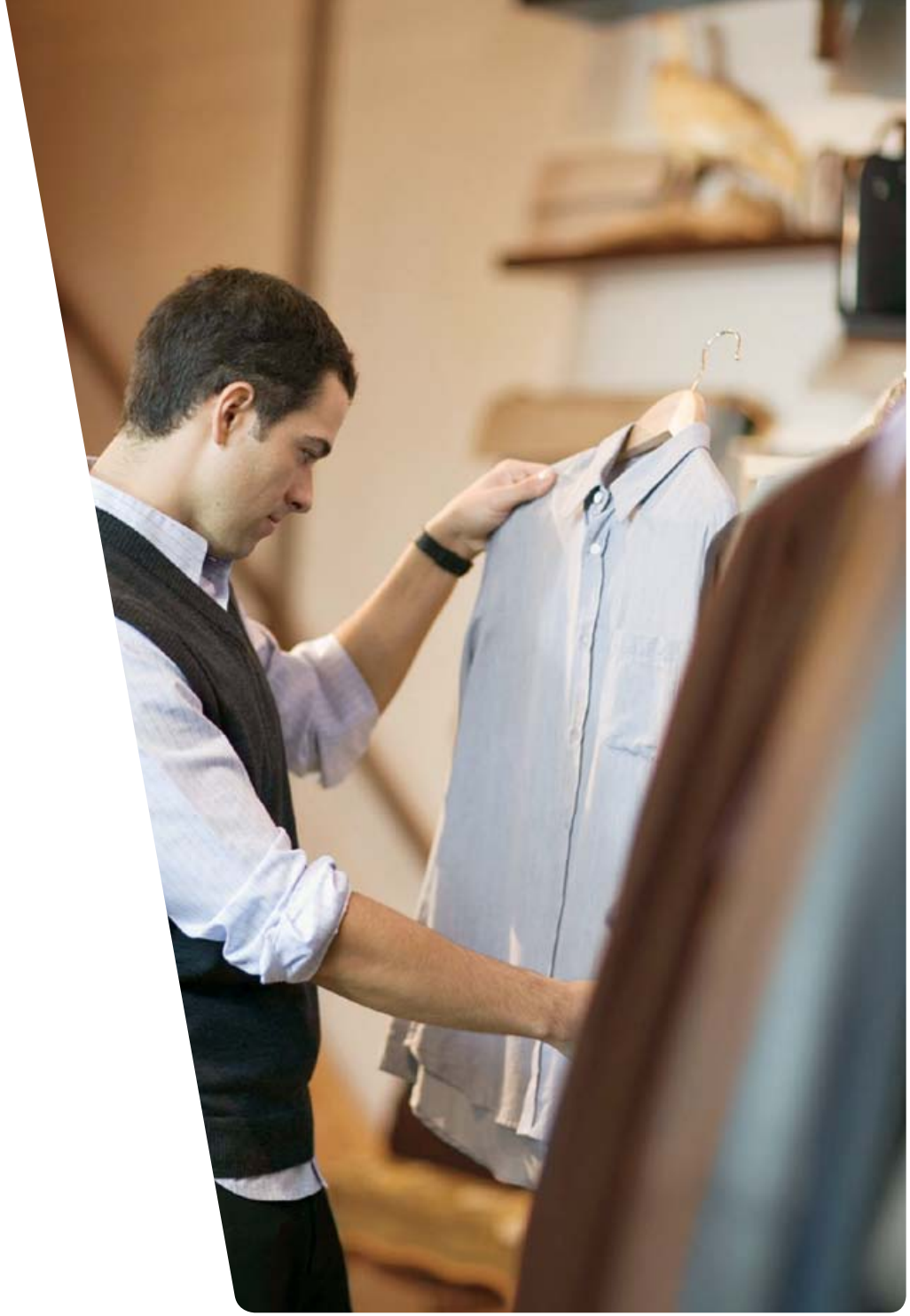
PureFX 2'x2' | 24'L x 12'W x 7.5'H | 6' o.c.

RETAIL

The right lighting helps attract customers and creates relaxed environments where people are comfortable and energized, while minimizing the environmental footprint.

	1x54W T5HO	LED 3600 lm
Light Level	45 fc	43 fc
Energy Density	1.05W/ft^2	0.75W/ft^2
System Efficacy	60.3 lm/W	83.7 lm/W

Pique 1'x4' | 40'L x 36'W x 11.5'H | 8'x10' o.c.




PING
Calvin Klein


Fire exit
Two little eyes

CLASSROOM

Whether it's a primary school or a university lecture theater, fewer fixtures, lower energy densities, and visually comfortable surroundings enhance the learning environment.

	2x25W TT5	LED 4400 lm
Light Level	50 fc	51 fc
Energy Density	0.69W/ft^2	0.61W/ft^2
System Efficacy	72.0 lm/W	83.0 lm/W

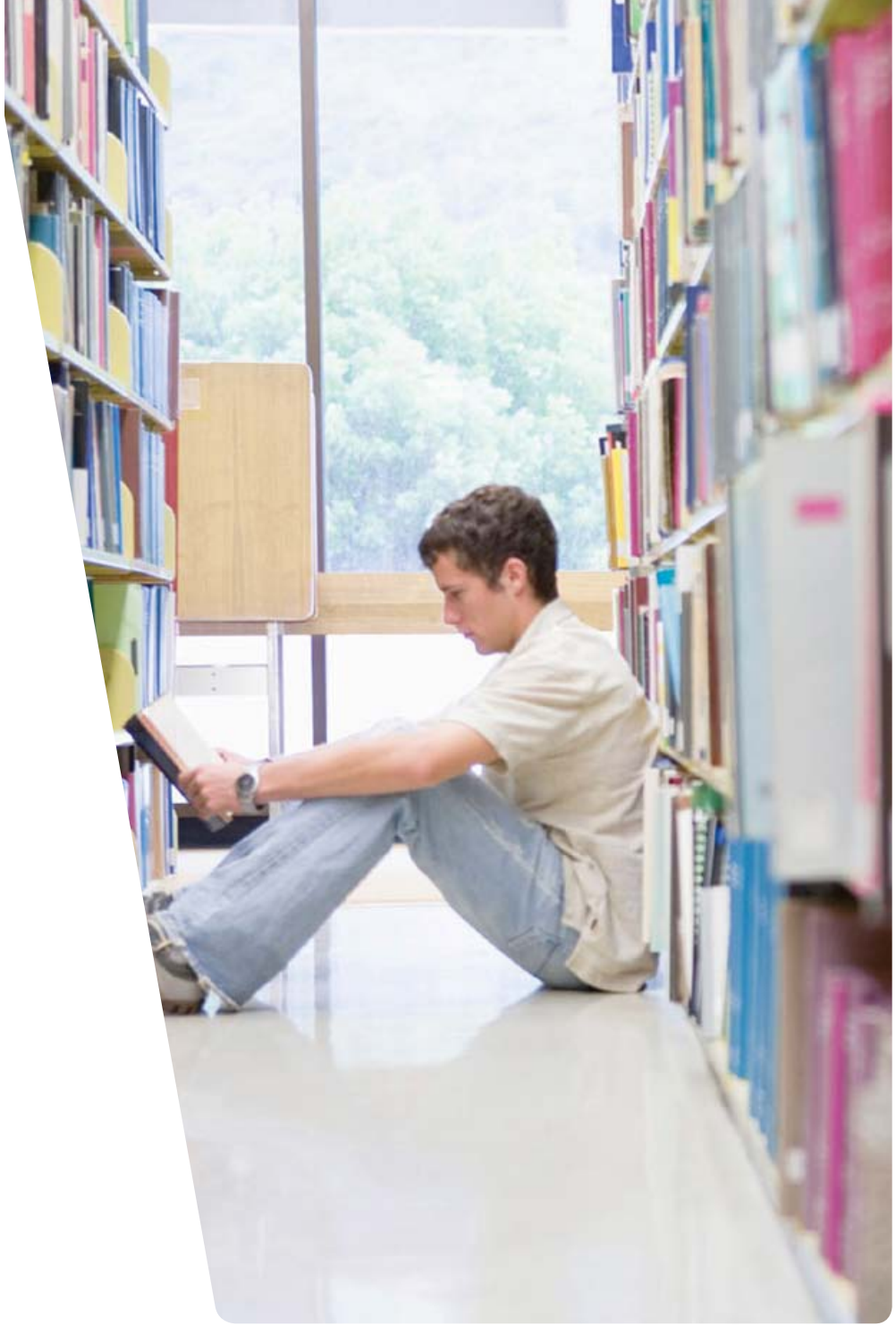
Vectra 2'x2' | 36'L x 20'W x 9'H | 8'x10' o.c.

LIBRARY

In library and study environments, Philips Ledalite luminaires with MesoOptics technology are simple, effective solutions which create bright, natural spaces with minimal energy consumption.

	2x25W TT5	LED 4400 lm
Light Level	28 fc	29 fc
Energy Density	0.51W/ft^2	0.46W/ft^2
System Efficacy	67.9 lm/W	83.0 lm/W

Voice 2'x2' | 32'L x 32'W x 12'H | 10'x10' o.c.

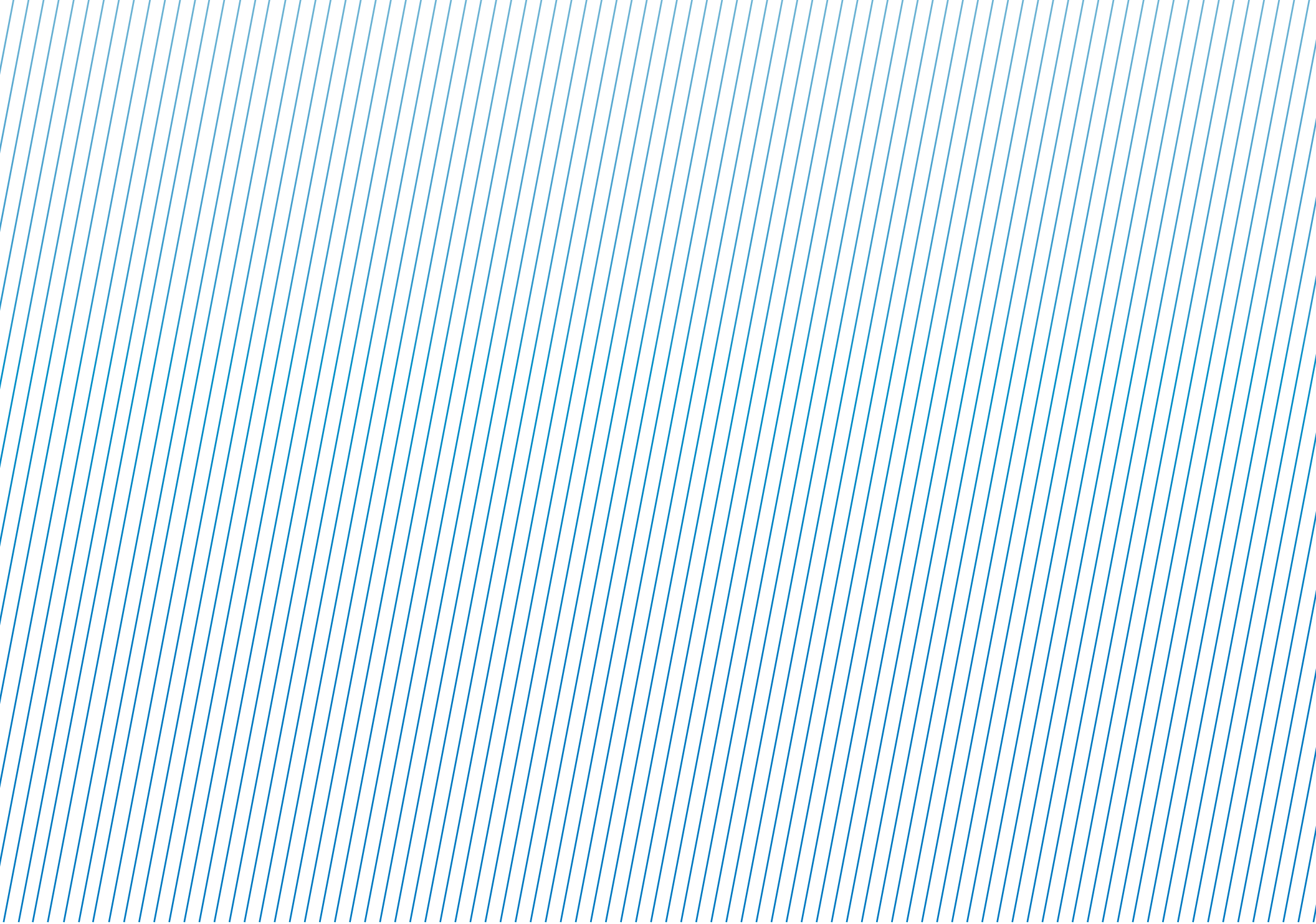


CAFETERIA

With fixture integrated controls like Response daylight harvesting sensors, energy savings are maximized in spaces that provide organic light.

	LED 3600 lm
Light Level	39 fc
Energy Density	0.47W/ft^2
System Efficacy	91.2 lm/W

ArcForm 2'x2' | 60'L x 46'W x 9'H | 10'x10' o.c.



VERSIONS

Available in an extensive range of sizes and versions, MesoOptics recessed fixtures are an ideal solution for a wide variety of lighting applications.

Voice 2'x2' | LED 4400 lm | 8'x9' o.c. | 49 fc | 0.67W/ft^2

2 x 2 RECESSED

Exceptional lighting performance and styling makes this an ideal product for creating distinct architectural rhythm. Since it blends in well with most ceiling types, the 2'x2' is ideal for offices, schools, healthcare facilities and other public spaces.

QuickShip

AVAILABLE WITH:

ARCFORM* | PIQUE | VOICE | PURE FX | VECTRA

LIGHT SOURCES:

LED† - 3600 lm, 4400 lm

T8 - 2, 3 lamp

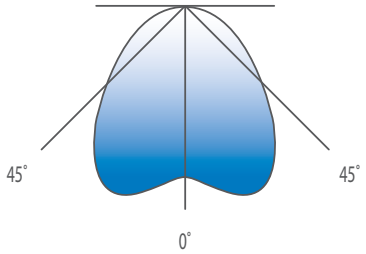
TT5 1, 2 lamp

T5/T5HO - 2, 3 lamp

*ArcForm available in LED only.

† Nominal values

PHOTOMETRIC CURVE:



TECHNOLOGIES:

mesoOptics | LEDLOGIQ | airwave | RESPONSE

2 x 4 RECESSED

This common size is also one of the most energy efficient. With its multitude of lamping, wiring and ballast choices, the 2'x4' provides wide fixture spacing and optimized performance in commercial spaces, schools and healthcare environments.

QuickShip

AVAILABLE WITH:

PIQUE VOICE PURE FX VECTRA

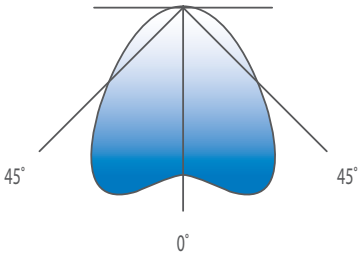
LIGHT SOURCES:

T8 - 2, 3 lamp

T5 - 2 lamp

T5HO - 1, 2, 3 lamp

PHOTOMETRIC CURVE:



TECHNOLOGIES:

mesoOptics | airwave | RESPONSE

PureFX 2'x4' | 3 x 32W T8 | 12'x12' o.c. | 40 fc | 0.64W/ft^2

Pique 1'x4' | LED 4400 lm | 9' o.c. | 33 fc | 0.48W/ft^2

1 x 4 RECESSED

Sleek and sophisticated, perfect for creating elongated rhythmic patterns for installation in continuous rows to create clean lines throughout a space.

AVAILABLE WITH:

ARCFORM* | PIQUE | VOICE | PURE FX | VECTRA

LIGHT SOURCES:

LED† - 3600 lm, 4400 lm

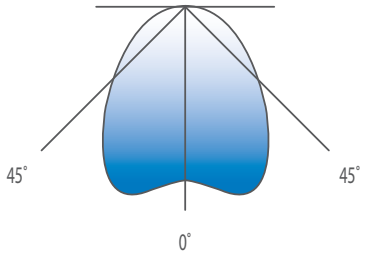
T8 - 1, 2 lamp

T5/T5HO - 1, 2 lamp

*ArcForm available in LED only.

† Nominal values

PHOTOMETRIC CURVE:



TECHNOLOGIES:

mesoOptics | LEDLOGIQ | airwave | RESPONSE

SURFACE MOUNT

Available in 1'x4', 2'x2' and 2'x4' sizes and with the same exceptional lighting performance and styling as the recessed designs, surface mount versions provide an excellent alternative for non-accessible ceilings.

AVAILABLE WITH:

PIQUE | VOICE | PURE FX | VECTRA

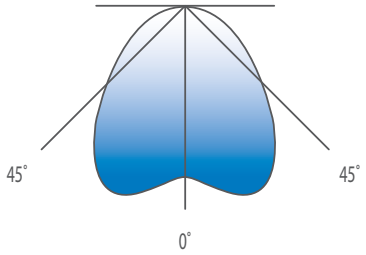
LIGHT SOURCES:

T8 - 1, 2, 3 lamp

T5/T5HO - 1, 2, 3 lamp

TT5 - 1, 2 lamp

PHOTOMETRIC CURVE:



2'x2' curve shown

TECHNOLOGIES:

mesoOptics | airwave | RESPONSE

Pique 2'x2' | 2 x 25W TT5 | 8'x10'o.c. | 49 fc | 1 0.78W/ft^2

20" SERIES

The 20" wide series is offered in two sizes, 20"x2' and 20"x4', and numerous lamping configurations to accommodate 5'x5' ceiling grids. Optional filler plates are available to infill the grid and/or provide air return to the plenum.

AVAILABLE WITH:

PIQUE | VOICE | PURE FX | VECTRA

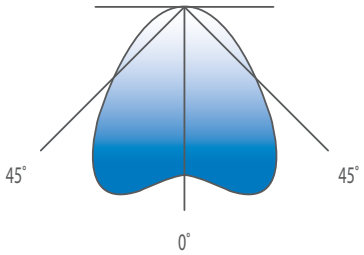
LIGHT SOURCES:

T8 - 2, 3 lamp

T5/T5HO - 1, 2, 3 lamp

TT5 - 1, 2 lamp

PHOTOMETRIC CURVE:



20"x2' curve shown

TECHNOLOGIES:

mesoOptics | airwave | RESPONSE

Vectra 20"x2' | 2 x 25W TT5 | 6' o.c. | 52 fc | 0.97W/ft^2

1 x 1 MICRO SERIES

The 1'x1' Micro versions can be used to bring aesthetic continuity to installations that include other versions of the same family or as an independent design feature.

AVAILABLE WITH:

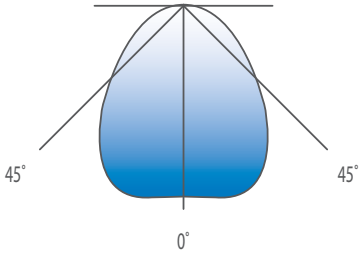
PIQUE PURE FX VECTRA

LIGHT SOURCES:

TT5 - 1, 2 lamp

CFL - 1, 2 lamp

PHOTOMETRIC CURVE:



TECHNOLOGIES:

mesoOptics | airwave | RESPONSE

Vectra 1'x1' | 1 x 32W CFL | 8' o.c. | 16 fc | 0.55W/ft^2

6" SERIES

Excellent performance and crisp, clean styling make the 6" version a truly unique option for a wide range of applications.

AVAILABLE WITH:

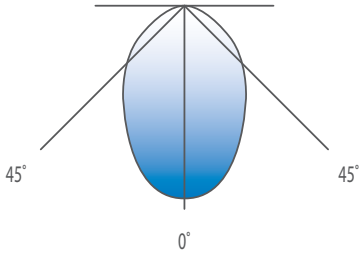
PURE FX

LIGHT SOURCES:

T8 - 1 lamp

T5/T5HO - 1 lamp

PHOTOMETRIC CURVE:



TECHNOLOGIES:

mesoOptics | airwave | RESPONSE

PureFX 6"x4' | 1 x 54W T5HO | 26 fc | 0.94W/ft^2

APPLICATION GUIDE

Philips Ledalite recessed luminaures come in a range of sizes and lamping options to suit a wide variety of lighting and energy efficiency needs. This chart illustrates some of the options and their typical results.

*Indicates ArcForm application results. All other application examples are representative of LED and fluorescent results from Pique, PureFX, Voice or Vectra.

Lighting power density and illuminance information are average maintained values based on predictive engineering analyses for a 625 ft^2 calculation grid at 2'6" AFF; centered in an open plan area measuring 50' W x 50' L x 9'0" H; with room reflectances of ρ^c 80/ρ^w 50/ρ^f 20; and LDD of 0.95 in all cases. Changes to fixture mounting and/or workplane heights affect uniformity, but have no significant impact on energy performance or light levels. All application results have been calculated using real luminaire photometric test data and OEM published lamp-ballast system specifications for Philips Ledalite factory standard components at the time of publication. Modifications to architectural conditions, luminaire components, and calculation parameters will yield different results. Stated LED lumens are nominal values and results are based on 4000K color temperature.

2x2

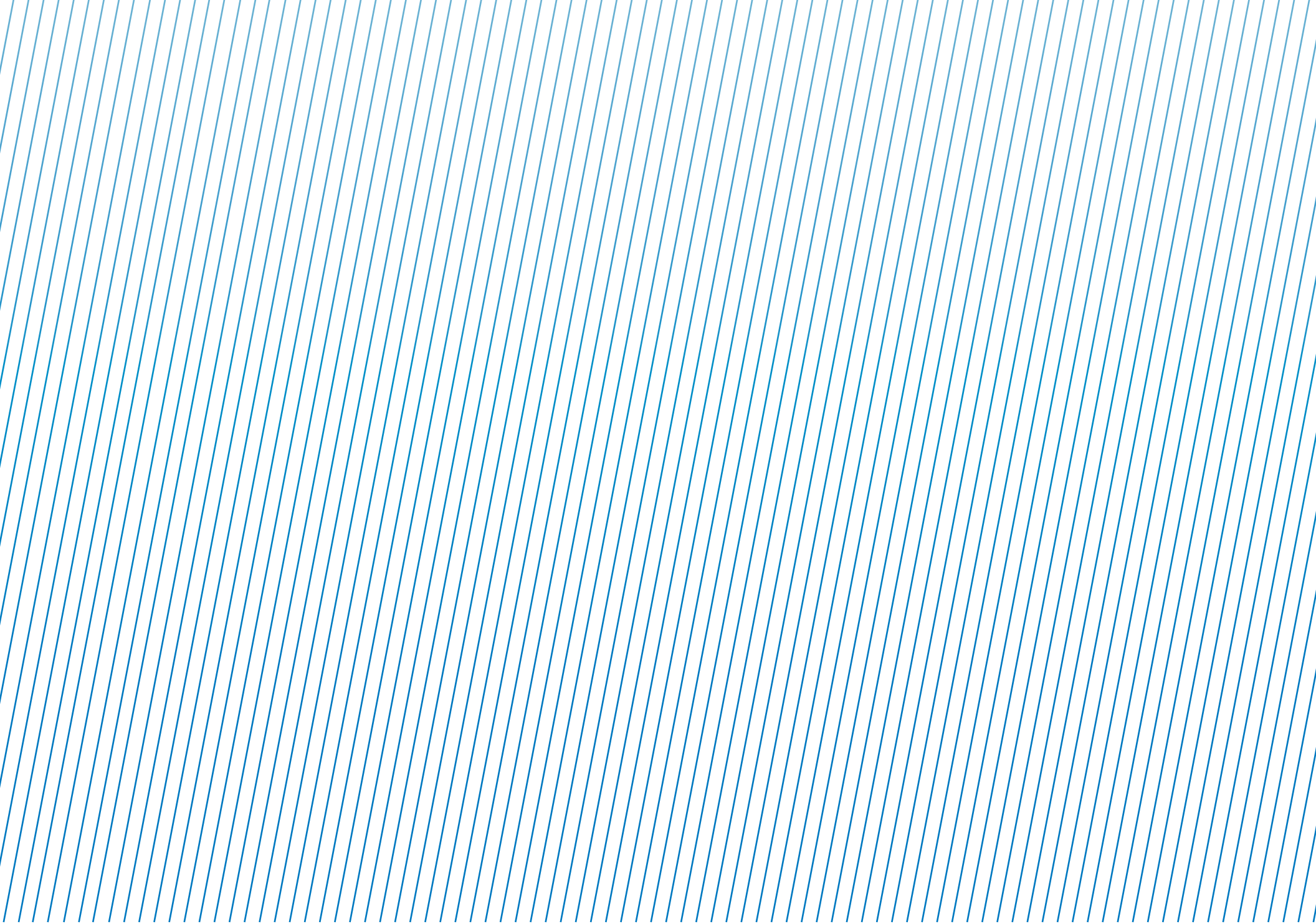
	Source	Light	Energy	Uniformity
8x8	LED 3600 lm	54 fc	0.62W/ft^2	1.14
	LED 3600 lm*	54 fc	0.58W/ft^2	1.17
	1 TT5 (40W)	31 fc	0.55W/ft^2	1.21
	1 TT5 (55W)	48 fc	0.79W/ft^2	1.21
8x10	LED 4400 lm*	54 fc	0.62W/ft^2	1.19
	LED 4400 lm	54 fc	0.66W/ft^2	1.12
	LED 3600 lm*	44 fc	0.49W/ft^2	1.19
	LED 3600 lm	44 fc	0.52W/ft^2	1.12
	1 TT5 (55W)	39 fc	0.66W/ft^2	1.32
	2 TT5 (25W)	54 fc	0.66W/ft^2	1.34
	2 TT5 (40W)	50 fc	0.79W/ft^2	1.33
10x10	LED 4400 lm*	44 fc	0.52W/ft^2	1.19
	LED 4400 lm	44 fc	0.55W/ft^2	1.25
	LED 3600 lm*	35 fc	0.40W/ft^2	1.19
	LED 3600 lm	36 fc	0.43W/ft^2	1.25
	1 TT5 (55W)	32 fc	0.55W/ft^2	1.54
	2 TT5 (25W)	44 fc	0.55W/ft^2	1.57
	2 TT5 (40W)	41 fc	0.66W/ft^2	1.56
10x12	LED 4400 lm	36 fc	0.44W/ft^2	1.46
	LED 4400 lm*	36 fc	0.41W/ft^2	1.46

1x4

	Source	Light	Energy	Uniformity
8x8	LED 3600 lm	53 fc	0.62W/ft^2	1.14
	LED 3600 lm*	50 fc	0.58W/ft^2	1.13
	2 T8 (32W)	52 fc	0.78W/ft^2	1.24
8x10	LED 4400 lm*	54 fc	0.62W/ft^2	1.24
	LED 4400 lm	52 fc	0.66W/ft^2	1.20
	LED 3600 lm*	40 fc	0.49W/ft^2	1.27
	LED 3600 lm	43 fc	0.52W/ft^2	1.20
	1 T5HO (54W)	44 fc	0.70W/ft^2	1.39
	2 T8 (32W)	43 fc	0.65W/ft^2	1.43
10x10	LED 4400 lm*	44 fc	0.51W/ft^2	1.42
	LED 4400 lm	43 fc	0.55W/ft^2	1.37
	LED 3600 lm*	33 fc	0.41W/ft^2	1.30
	LED 3600 lm	35 fc	0.43W/ft^2	1.37
	1 T5HO (54W)	36 fc	0.58W/ft^2	1.61
10x12	LED 4400 lm	35 fc	0.44W/ft^2	1.64
	LED 4400 lm*	37 fc	0.41W/ft^2	1.43

2x4

	Source	Light	Energy	Uniformity
8x8	1 T5HO (54W)	57 fc	0.81W/ft^2	1.17
	2 T8 (32W)	59 fc	0.79W/ft^2	1.19
8x10	1 T5HO (54W)	48 fc	0.67W/ft^2	1.32
	2 T8 (32W)	48 fc	0.66W/ft^2	1.36
	2 T5 (28W)	56 fc	0.79W/ft^2	1.32
10x10	1 T5HO (54W)	40 fc	0.56W/ft^2	1.54
	2 T8 (32W)	40 fc	0.55W/ft^2	1.58
	2 T5 (28W)	46 fc	0.66W/ft^2	1.56
10x12	2 T5HO (54W)	53 fc	0.87W/ft^2	1.89
	3 T8 (32W)	45 fc	0.64W/ft^2	1.97
	3 T5 (28W)	53 fc	0.76W/ft^2	1.95



TECHNOLOGY

Philips Ledalite's recessed MesoOptics luminaires are fully integrated with innovative technologies for maximum control, performance, and energy savings.

DESIGN INTELLIGENCE

LEDLOGIQ is a comprehensive design approach that integrates emerging LED platforms with advanced optical, mechanical, electronic, industrial, and thermal engineering to deliver optimal lighting distribution, consistent color and exceptional system performance.

L LONGEVITY
Futureproof Global Platform | Thermal Management

O OPTICS
Optimized for LED | High Efficacy | Performance Distributions

G GUARANTEE
5 Year Total System Warranty | Philips Ledalite Support | Easy Maintenance

I INTEGRATION
0-10V Dimming | Response Daylight Harvesting | Airwave Wireless Controls

Q QUALITY
U.S. DOE Lighting Facts Partner | UL and CSA | IES LM-79 & LM-80 Tested

Always Moving Forward

As a leader in research, design and development, Philips Ledalite is continually advancing our LED solutions to ensure the best performance. Visit ledalite.com for the most up-to-date LED application data.

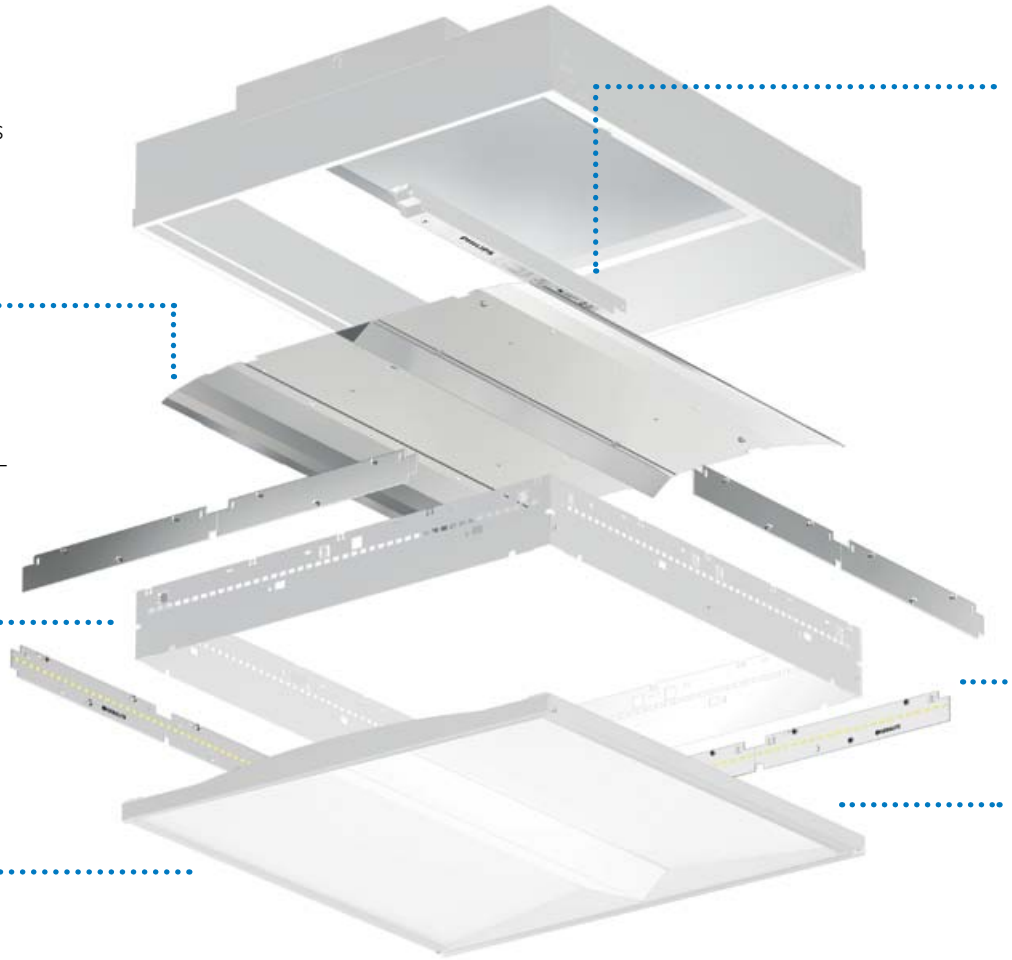
HOW IT WORKS

Light emitted from highly efficacious LED arrays is reflected by 98% efficient upper reflectors and microcellular PET perimeter reflectors. Light mixes inside the optical cavity, passes through MesoOptics film and emerges from the lens in a precisely controlled batwing distribution.

UPPER REFLECTOR
98% efficient Miro Silver reflects light out of the fixture.

PERIMETER REFLECTORS
Highly efficient microcellular PET material mixes light within the optical cavity.

LENS FRAME
Elegant architectural aesthetic and easy access to the inside of the fixture.



LED DRIVER
Multiple lumen packages, 0-10V dimming, battery pack options, and accessible from below for easy maintenance.

LED ARRAYS
Highly efficacious Philips platform LED arrays available in 3 color temperatures.

mesoOptics

Controls light to create a precise batwing distribution.

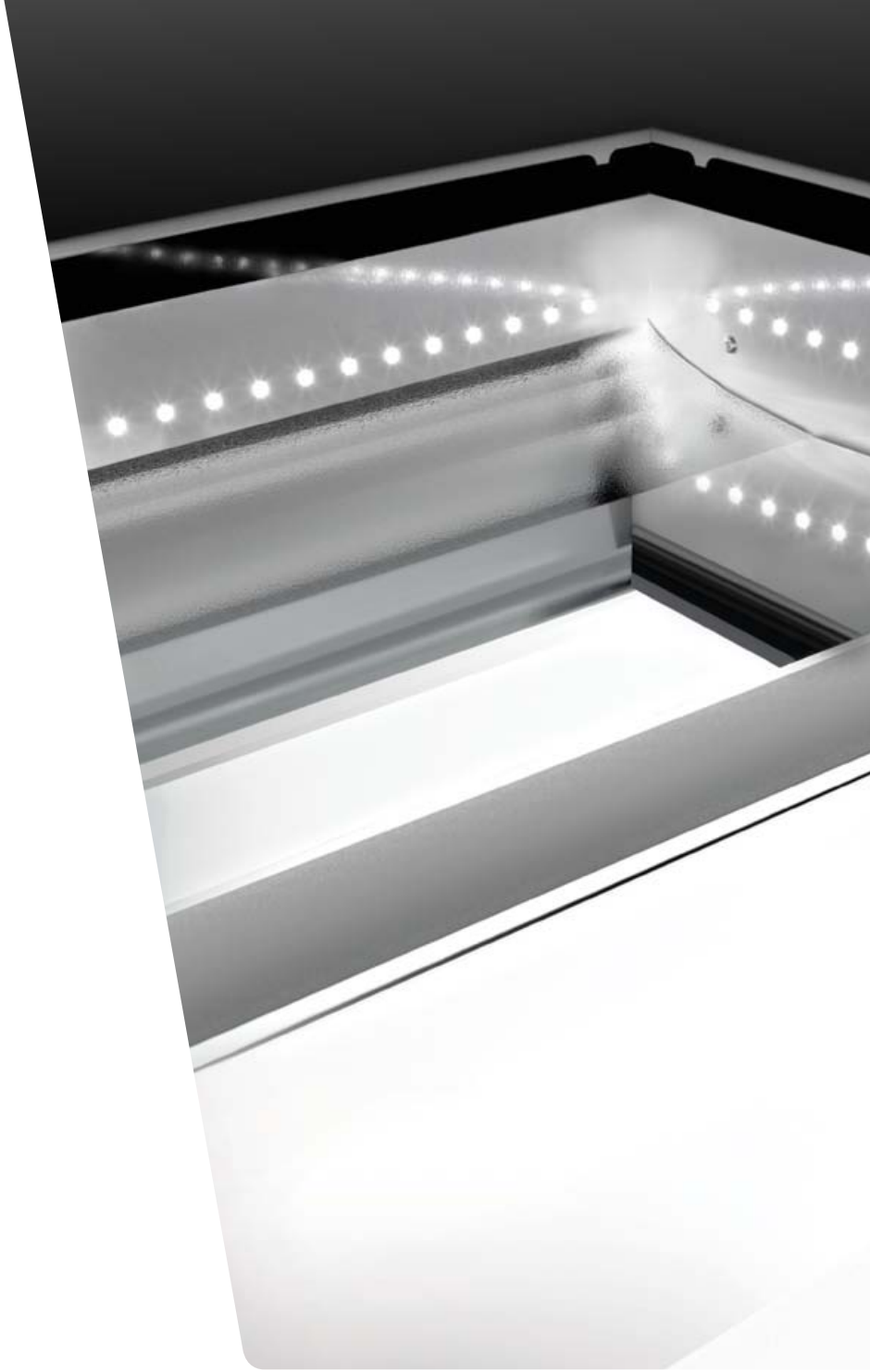
5 YEAR TOTAL SYSTEM WARRANTY

All recessed LED luminaires come with a 5 year total system warranty, that covers the entire luminaire—including the LED board, driver and all fixture components—with world class support backed by Philips Ledalite.

PHILIPS LEDALITE | 5 YEAR SYSTEM WARRANTY
Fixture + LED + Driver

FUTUREPROOF

LEDLOGIQ solutions are field upgradable to stay current with the latest advancements in solid state lighting technology. LED luminaires are designed with a simple plug and play platform so that field replacement and maintenance are quick and hassle-free. As a partner with the world's leading LED component suppliers, Philips Ledalite provides high quality, top performing products, and a commitment to ongoing research and development.



A PARTNER YOU CAN TRUST

Today's rapid state of technology transformation demands an innovation partner you can trust.

Philips Ledalite is a partner of the U.S. Department of Energy's Lighting Facts Program. As a part of this program, LED configurations are independently tested to industry standards to validate their performance. The Lighting Facts label provides key product performance data to ensure LED products perform as expected.

lighting facts
LED Product Partner

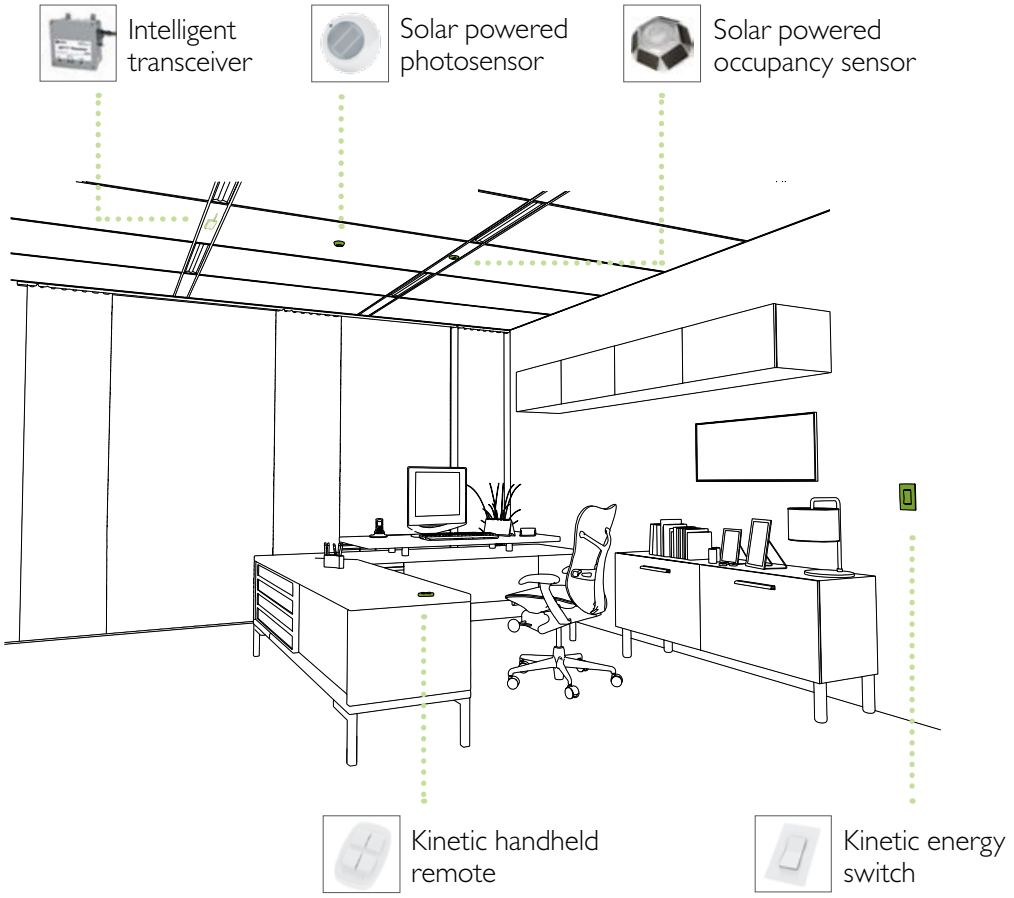
WIRELESS CONTROLS

Wireless. Batteryless. Limitless.

Airwave wireless controls represent a quantum leap forward in flexibility and sustainability.

Using organic sources of renewable kinetic and solar energy, Airwave delivers wireless individual personal control, daylight harvesting, occupancy sensing, and full range dimming for spaces where the ability to control energy and lighting are essential. The simple flick of a batteryless, wireless switch creates enough kinetic energy for simple ON/OFF control or dimming. Solar powered Airwave sensors monitor ambient daylight levels or occupancy, and wirelessly signal luminaires to adjust output and save energy.

ledalite.com/airwave

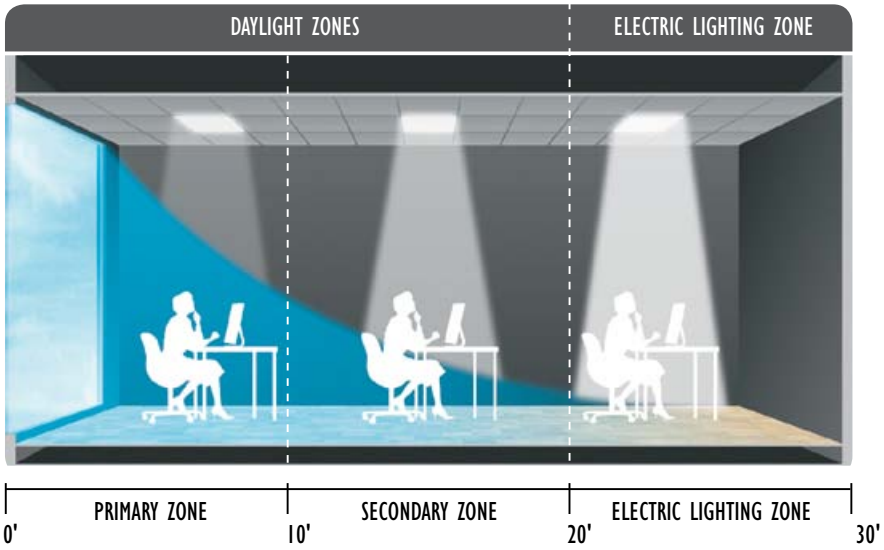


RESPONSE

DAYLIGHT HARVESTING

No wiring. No commissioning.

Response daylight harvesting sensors can provide 30-35% energy savings in window adjacent locations—helping to reduce operating expenses and comply with new energy codes.



Response Daylight sensors are factory pre-calibrated and ready to use right out of the box. Just plug in the fixture—no power packs, standalone sensors or low-voltage wiring schemes required. The sensors adjust light output gradually with minimal distraction for occupants.

A built-in delay prevents disruptions from passing clouds and occasional shadows.

ledalite.com/response

In this example, two control zones have been created where there is ample daylight contribution, and one uncontrolled zone where daylight is minimal. As daylight contribution increases, sensors automatically and gradually reduce electric light output to save energy.

MAINTENANCE MADE EASY

LED LUMINAIRES

Push in the end corners of the fixture where the hinges are located.

To access the driver compartment, remove the screws on the upper reflector.

Gently lower the upper reflector and remove the LED driver.

FLUORESCENT LUMINAIRES

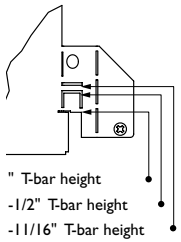
Push in the end corners of the fixture where the hinges are located.

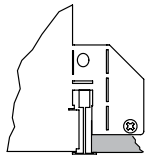
Gently lower the door using the hinge system to access the lamp and ballast compartment.

Remove and replace the lamp or ballast.

CEILING INTEGRATION

D1 STANDARD T-GRID

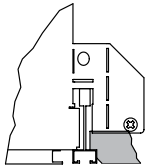




D1 Standard T-Grid

Option D1 works with 9/16" and 15/16" flat T-grid ceilings. It can also be used with slot T-grid ceilings, but it will not sit flush with the bottom of the T-bar.

D2 SLOT T-GRID

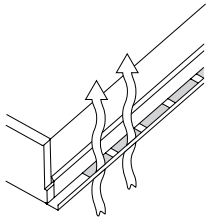


D2 Slot t-Grid

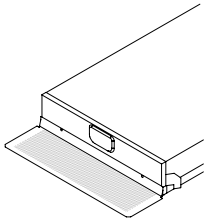
Option D2 is designed to sit flush with slot T-grid ceilings and some tegular tile ceiling types.

AIR RETURN VERSIONS

2'x2' / 2'x 4' AIR RETURN



20"x 4' AIR RETURN



ORDER GUIDE

SERIES

Family	Size
36 ArcForm	**11** 1' x 1'
91 Pique	**14** 1' x 4'
94 PureFX	**22** 2' x 2'
97 Vectra	**24** 2' x 4'
98 Voice	**64** 6" x 4'
	52 20" x 2'
	54 20" x 4'

VERSION

Version	Configuration
D1 Standard T-Grid	**ST** Standalone
D2 Tegular / Slot T-Grid	**SMS** Standalone Master/Satellite
A1 Air Return Standard T-Grid	**CR** Continuous Row
A2 Air Return Slot T-Grid	**CMS** Continuous Row Master/Satellite
S1 Surface Mount	

LIGHT SOURCE

Source	Color Temp	Lumens*
L LED	**A** 4000K	**36** 3600 lumens
	B 3500K	**44** 4400 lumens
	C 3000K	* Nominal Values

Source	Lamp Count	Wattage
B T5	**1** 1 Lamp	**14** 14 Watt
T T8	**2** 2 Lamp	**17** 17 Watt
H T5HO	**3** 3 Lamp	**24** 24 Watt
F T5		**25** 25 Watt
		28 28 Watt
		32 32 Watt
		40 40 Watt
		54 54 Watt
		55 55 Watt
		80 80 Watt

HOUSING

Housing Type
S Standard
C Chicago
T Standard w/frame restraint

ELECTRICAL

Wiring Type	Voltage	Ballast / Driver
1 1 cct	**1** 120	**E** Standard
5 1 cct w/battery pack	**2** 277	
7 1 cct dimming	**3** 347	

NOTES: LED available in 1'x 4' and 2' x 2' configurations only. Some options may not be available for each configuration. Consult factory for details.

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All application performance results have been calculated using real luminaire photometric test data and OEM published lamp-ballast system specifications for Ledalite factory standard components at the time of publication. Illuminance information as published are average maintained footcandle values based on predictive analyses with calculation grids centered in the respective rooms. Changes to luminaire mounting and/or workplane heights affect uniformity but have no significant impact on energy performance or light levels. Modifications to architectural conditions, luminaire components, and calculation parameters will yield different results. For further information or custom analysis for your project, please contact the Ledalite Applications Engineering Department. All other product or service names are the property of their respective owners. Luminaires use fluorescent lamps that contain small amounts of mercury. Such lamps are labeled "Contains Mercury" and/or with the symbol "Hg." Lamps that contain mercury must be disposed of in accordance with local requirements. Information regarding lamp recycling and disposal can be found at www.lamprecycle.org.