# Concord
by **SYLVANIA** Group

**LumiNature**

# *NATURAL LIGHT RECREATED*

*Real Human Centric Lighting*

Digital | Lighting | Solutions

# Living in natural light

## Driven by the Sun

Humans have thrived over 200'000 years under natural sunlight. Our brain activity is linked to the rhythm of the Sun.

## Time indoors

Due to modern lifestyle, 90% of our time is spent indoors. When our cognitive activity is at its strongest, we are most often subjected to artificially lit environments.

## Lighting plays a major role

It has a significant impact on how people feel and how they perform.
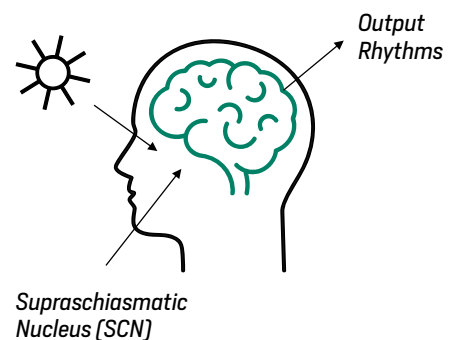
## Circadian rhythm

Circadian rhythms are physical, mental and behavioural changes that follow roughly a 24-hour cycle responding primarily to light and darkness in an organism's environment. They can influence important bodily functions, sleep/wake cycles, hormone releases and more.
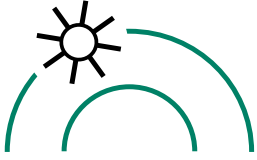
## Physiological response

Light regulates so much more than what we see – beyond visible light. Natural-like light can impact:

- Your mood
- Your behaviour
- Your cognitive functions
- Your motivation levels
- Your sleep/wake cycles

Output Rhythms
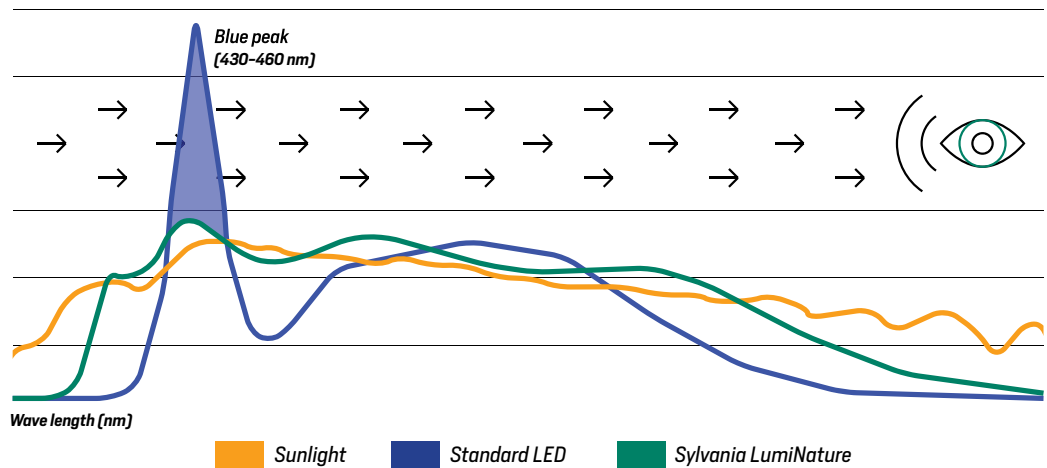
Suprachiasmatic Nucleus (SCN)

# LumiNature

## Fuller, richer, more natural light - no blue peak

Our LumiNature lighting delivers a complete and balanced spectral distribution with all colours of light more evenly represented while eliminating the blue peak. This produces a natural, full-spectrum artificial light which enriches the colour of its surroundings and removes a major contributor to disturbed health cycles. Combine this with class-leading low glare optical solutions of Sylvania and Concord luminaires with exceptional low flicker rates for enhanced occupant comfort.

Blue peak
(430–460 nm)

Wave length (nm)
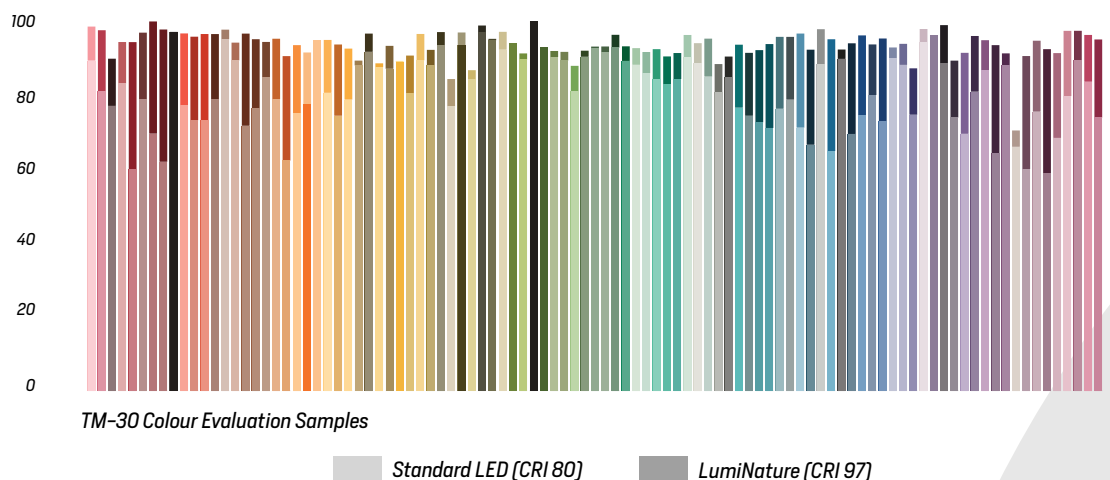
Sunlight    Standard LED    Sylvania LumiNature

## Excellent colour rendering - ideal for many applications

Get the most natural and truest colour reproduction in your spaces thanks to our exceptional colour rendering and colour fidelity across all colour temperatures. Enjoy all the benefits of more depth of colour and contrast without ultra-violet or infrared.

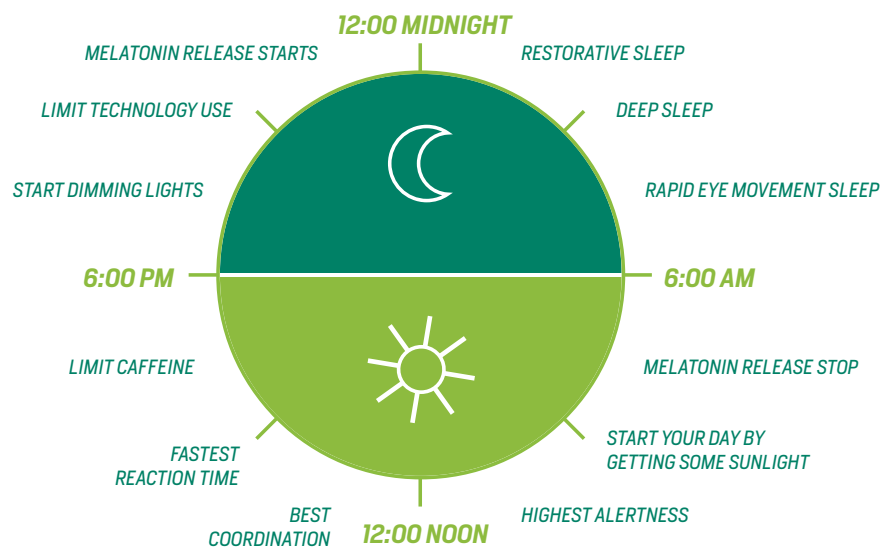LumiNature provides high CRI97+ from all colour temperatures, including the truest reds (R9>90).

100

80

60

40

20

0

TM-30 Colour Evaluation Samples

Standard LED (CRI 80)    LumiNature (CRI 97)

# ...bringing the sunlight indoors

## Dynamic light - 100% adapted to the circadian rhythm

Our intelligent, wireless SylSmart system enables dimmable, auto-adjusting tunable white light, that respects the circadian rhythm of the Sun while also enabling full optimisation, automation, personalised control and flexibility. All installed with minimum effort and 100% programmed using the SylSmart mobile app.

The human body clock (circadian rhythm) and the role of melatonin

12:00 MIDNIGHT

MELATONIN RELEASE STARTS

RESTORATIVE SLEEP

LIMIT TECHNOLOGY USE

DEEP SLEEP

START DIMMING LIGHTS

RAPID EYE MOVEMENT SLEEP

6:00 PM

6:00 AM

LIMIT CAFFEINE

MELATONIN RELEASE STOP

FASTEST REACTION TIME

START YOUR DAY BY GETTING SOME SUNLIGHT

BEST COORDINATION

12:00 NOON

HIGHEST ALERTNESS

## Rich and energising light – the role of melatonin

Melatonin is often referred to as a sleep hormone that regulates our chronobiological rhythms. Furthermore it is an anti-oxidant as well as an anti-aging hormone that can support the fight against cancer. Melatonin is vital to the wellbeing of humans. Melatonin production is heavily influenced by the right kind of light at the right time of the day which the Sun delivers effortlessly. Too much time under standard artificial light reduces the body's ability to regulate the level of this unique hormone.

LumiNature ignites your body's healthy cycle for improved sleep, stronger productivity, and better health. Working in conjunction with your biological clock, it regulates a beneficial melanopic ratio throughout the day.

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# The real Human Centric Lighting

## 1. Full spectrum

Covering the complete visible light spectrum, all wavelengths which are useful for humans. With the truest colours and without the disturbing blue peak of conventional LEDs.

## 2. Colour temperature

Adjustable colour temperature (CCT) between 2700–6500K to match the tone of light for the right time and place.

## 3. Intensity

Providing the adequate light levels at the right place and time, with automated smooth transitions for occupant comfort.

## 4. Time and location

Follow the Sun's behaviour by adapting the colour temperature and the intensity of the light according to the latitude and the time of the season.
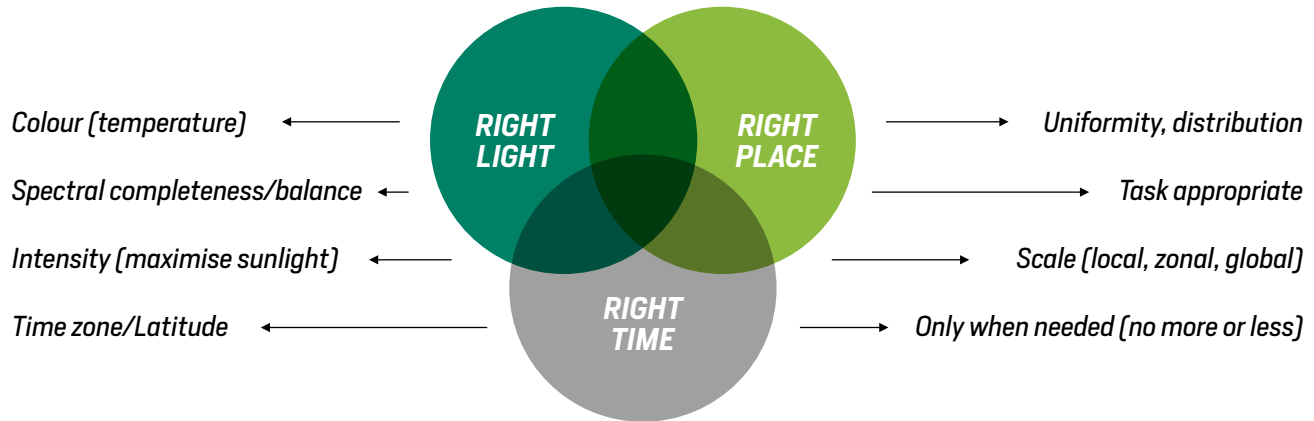
# Optix (LumiNature)

| | Sylvania LumiNature | Lead Competitor | Challenger |
|---|---|---|---|
| Tunable White | YES | YES | YES |
| Full Spectrum Light | YES | NO | NO |
| Colour Rendering | CRI 97 | CRI 90+ | CRI 80+ |
| Low Glare | UGR 16* Optix | UGR 19 | UGR 19 |
| Flickering Rate | Extra low (<5%) | Low (not declared) | Low (not declared) |
| Luminance @65º (cd/m²) | < 200 | < 3000 | < 3000 |
| Circadian Rhythm* | YES | YES | YES with extra hardware |
| Automation (control) | Calibrated daylight / Occupancy / Timer / Scene | Uncalibrated daylight / Occupancy | On-off control / Occupancy |
| Real Human Centric Lighting | YES | NO | NO |

* including CCT & light intensity

LumiNature

# The right light

## The paradigm of lighting control

Lighting controls can be complicated. The main objective is to deliver the right light, in the right place, at the right time. Conventional controls often yield one or two but rarely all three. Intelligent systems such as SylSmart combined with LumiNature HCL deliver all that you need with lower complexity.

Colour (temperature) ← → Uniformity, distribution

Spectral completeness/balance ← → Task appropriate

Intensity (maximise sunlight) ← → Scale (local, zonal, global)

Time zone/Latitude ← → Only when needed (no more or less)

RIGHT LIGHT · RIGHT PLACE · RIGHT TIME

| | LUMINATURE FIXED CCT (3000K/4000K) | | | LUMINATURE HCL TUNABLE WHITE | |
|---|---|---|---|---|---|
| | STD | DALI | SYLSMART | DALI | SYLSMART |
| ON / OFF | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dimming | | ✓✓ | ✓✓ | ✓✓ | ✓✓ |
| Personalised / Dynamic light (addressable) | | ✓✓ | ✓✓ | ✓✓ | ✓✓ |
| CCT Control (physiological response) | | | | ✓✓ | ✓✓ |
| Circadian Rhythm (including light intensity) | | | | ✓✓ | ✓✓ |
| Smart HCL (automation options available) | | | | | ✓✓✓ |

# Simplicity with so much flexibility

## SylSmart Standalone – Few components, many possibilities

**Wireless Luminaire**
Best controls and light
on board plug and play

**Wireless Switch**
Zero maintenance

**Sensor Technology**
Maximise efficiency

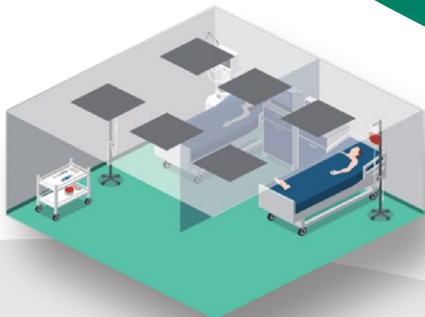**100% app setup**
Intuitive and fast

### Key benefits

Easy setup &
intuitive control

High energy efficiency
& cost effective

Secure &
future-proof

## Small treatment spaces
(no windows)

- Circadian Rhythm –
  Aid recovery – Provide
  sun-like experience

- Automation (Timed scenes) -
  Dim light at night to prevent
  waking patients up

- Enhance energy saving
  motion sensors

## Classrooms

- Circadian Rhythm – Ensure
  alertness and productivity

- Personalised light with
  individual control – ideal
  for presentations

- Enhance energy saving
  with sensors (motion
  and daylight)

## Small office areas

- Circadian Rhythm – Ensure
  alertness and productivity

- Multi-use areas with tailored
  zone control - re-configure
  quickly and easily

- Personalised light with
  individual control – ideal
  for presentations

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# Beneficial in many applications

### TRUEST COLOURS

## Commercial spaces

*Short presence in the environment, emotional lighting*

*- Showroom / High-end fashion / Retail*
*- Cosmetics / Fabrics*
*- Printing house / Paint-control*
*- Food*

## Our solution

*Perfect colour rendering from each colour temperature for the most accurate results mixed with the best light quality for the occupants and workers*

# High productivity

## Workspaces

*Significant presence with partial or missing daylight*

– Meeting room / Board room
– Open space office
– Breakout room
– Laboratory / Quality control

## Our solution

*Full spectrum light with tunable white, lighting control, low glare and low flicker which improves the comfort, learning and creativity of the occupants*

## INCREASED CONCENTRATION

### Education spaces

Significant presence with partial or missing daylight

- School classroom / Seminar rooms
- Auditorium
- Library
- Nursery

### Our solution

Full spectrum light with tunable white, lighting control, low glare and low flicker which enhances concentration, creativity and learning

## People first – always

### End user benefits:

- Well-being and comfort of a natural lit space
- Stress-free, healthy lighting
- Energising and dynamic light

### Management benefits:

- Employer branding
- Health and productivity of staff
- Helps to meet progressive legislative needs such as WELL BUILDING STANDARD

# BETTER HEALTH

## Healthcare & night shift places

*Full cycle presence (day+night) or daylight missing*

- Hospital / Examination rooms
- Dentist / Dermatologist
- Elderly home
- Rooms with no access to daylight

## Our solution

*Sun spectrum light for healthy cycle (including auto adjusting tunable light for circadian rhythm) which enhances the correct physiological response, aids recovery and boosts mood*

# An innovation applied to our best-in-class luminaires

## Typical application:

**LumiNature HCL TW:**

– Hospitality areas, hotels, restaurants, retail
– High-end offices

**LumiNature 3000K/4000K:**

– Small classrooms / Meeting rooms
– Offices / Large classrooms

## Types:

Available in two sizes (150mm and 200mm)
as a recessed luminaire.

– LumiNature HCL Tunable White (2700K–6500K), with
  SylSmart SSC dimmable driver which unveils the lumi-
  naire's full spectrum of possibilities
– LumiNature 3000K/4000K, with DALI dimmable
  and with SylSmart SSC dimmable driver

## Features & benefits:

- Sustainable and efficient downlight,
  available in white housing with a silver
  reflector. All other reflectors colours: white,
  black and gold are available on request

- High visual comfort due to the deep reflector
  design. Low glare (UGR<19) with comfortable
  ambient light

- Colour temperature: 2700–6500K (HCL TW
  version) and 3000K/4000K DALI versions

- High colour rendering LED chips
  of CRI97

# Solstice
*Sustainability and high
visual comfort hand in hand*

**reddot** winner 2023
lighting design

# Equinox

*Inspirational
halo effects*

## Typical application:

**LumiNature HCL TW:**

– *Hospitality areas, hotels, restaurants, retail*
– *High-end offices*

## Types:

**The LumiNature version is available in 165mm size as a recessed luminaire in black and white housing finish.**

– *LumiNature HCL Tunable White (2700K-6500K), with SylSmart SSC driver which unveils the luminaire's full spectrum of possibilities.*

## Features & benefits:

- *Colour temperature: 2700-6500K*

- *High colour rendering LED chips of CRI97*

- *Low glare (UGR<19) with comfortable ambient light*

- *Using QuarkStar's award-winning system of light refraction, which provides functional downwards lighting with a simultaneous upper lighting. The halo effect can be regulated with a unique adjustable optic system*

QuarkStar
A Brighter Idea™

LumiNature

# Optix

## Best–in–class visual comfort

## Typical application:

**LumiNature 4K:**

– Small Classroom / Meeting room
– Personal offices / Larger office / Larger classrooms

**LumiNature HCL TW:**

– Hospitals / Care homes
– Areas of long or night time work hours
– High-end small offices and schools

## Types:

Available in recessed, linear, surface, and suspended structures.

– LumiNature HCL Tunable White DALI (Lumi HCL TW DALI) dimmable or SylSmart capable (SylSmart Standalone)

– LumiNature 4000K (Lumi 4K) switched, DALI dimmable, SylSmart capable (SylSmart Standalone & SylSmart Connected Building)

## Features & benefits Optix:

- High performance architectural modular luminaires with glare-controlled optics – typical UGR<16

- Full consistent light spectrum and SylSmart Standalone – MR > 0.77 @ 4000K, > 1.07 @ 6200K, < 0.52 @ 2800K

- Low flicker (< 5%)

- Luminance (< 200 cd / m² @65°)

**LumiNature**

# SYLVANIA
## Group

sylvania-lighting.com/en-int/luminature-hcl

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sylvania-lighting.com

A Feilo Sylvania Company