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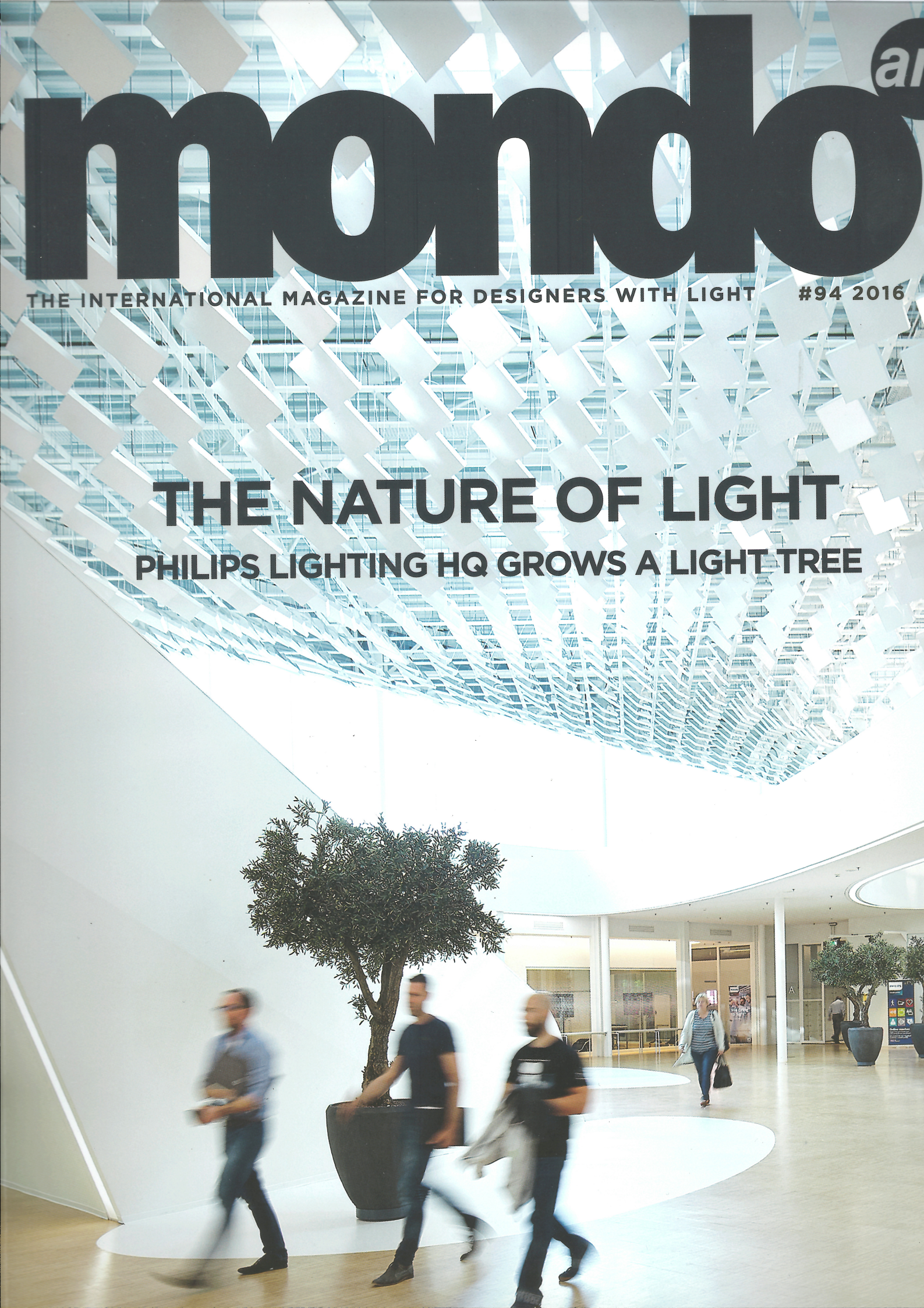
THE NATURE OF LIGHT

PHILIPS LIGHTING HQ GROWS A LIGHT TREE



ROOT AND BRANCH

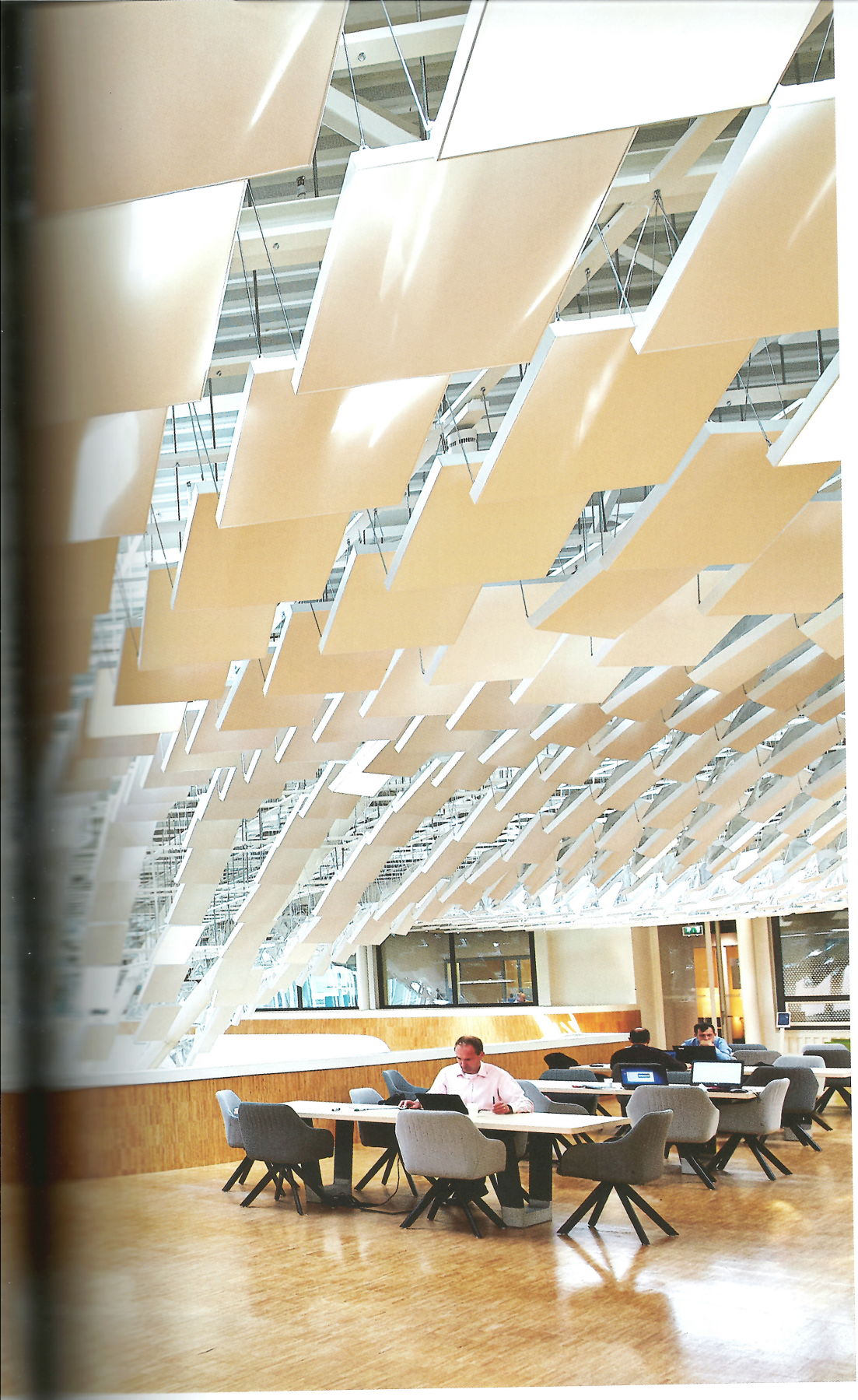
Standing outside the unassuming, modernist building named HTC48 - the Philips Lighting headquarters at the High Tech Campus in Eindhoven - you would be hard pushed to imagine what lies inside. But when you walk in, the sight before you takes your breath away. The spacious atrium contains a magnificent lighting sculpture that appears to be an organic mass, flickering and communicating in an apparently random manner.

In close cooperation with Philips Lighting, LAVA (along with partners INBO and JHK)

called the *Light Tree*, a parametrically designed sculpture containing 1,500 'leaves', hanging panels that cover the whole atrium. The aim was to design a space that both embraces the innovation and core values of the brand. The design features an inspiring and healthy work environment for the Philips employees. Asked why Philips Lighting decided to create the atrium space and sculpture, Guillaume Galloy, Design Consultancy Director of Philips Lighting, comments, "The lighting industry is going through a huge

change the way we work. But at the heart of it all remains human communication. This is what the atrium fosters - the fact that people from different departments wi unexpectedly meet and talk to each other. It might be said that the *Light Tree* signifie the root and branch of the Philips Lighting organisation and its philosophy.

For this reason LAVA conceived a network o 'attractors' throughout the building, where people need to go for specific uses. These spaces were designed to encourage inform 'accidental' interactions, known to be a ke



The parametrically designed *Light Tree* containing 1,500 hanging panels covering the whole atrium demonstrates the behavior of light, both natural and artificial. A pyramid shaped reflector on the back of each panel creates a play of light and shadow while 500 Philips Ecophon Soundlight Comfort light emitting panels provide light scenarios that change across the day. 50 Philips Selecon RAMA LED fixtures placed in the centre of the space shine on the back of the panels creating the 'Golden Light', the enchanting feeling we experience with sunlight when enjoying light sparkles on water for example or the dramatic play of colour, light and shadow at dusk and dawn.

activation," states Nuno Galvao, senior architect at LAVA. "It's a different approach than just looking at luminaires. It's a search for the original meaning and natural understanding of light."

The giant tree demonstrates the behaviour of light, both natural and artificial. During the day 500 Philips Ecophon Soundlight Comfort light emitting panels (an integral product that consists of comfortable LED lighting with sound absorption in an integrated light and acoustic ceiling sculpture which create the 'Golden Light'. The idea of sunlight, light sparkles on water, or the dramatic play of colour, light and shadow at dusk and dawn.

Juliette Nielsen of Beersnielsen explains, "We tried to capture the different moments of daylight into the building like the sunlight that falls through the trees, for example. We created reflective cones that sit behind the panels and scatter the light creating beautiful patterns of light and shadow."

the atrium side windows and skylights. Because of this giant tree the light in the atrium transforms automatically, totally random from alluring light to refreshing or even energising light. To enhance the quality of the *Light Tree*, LAVA developed a light control application that allows individual control over each of the 500 panels and LED fixtures. It uses low-level artificial intelligence to derive daily light scenarios in an organic and non-repetitive way. Scenarios respond to the seasons,

and intelligent light control creates an innovative space-light office ecosystem.

"The atrium, originally the central courtyard of the 1950s building, was designed as a place of welcome, way finding, branding and staff interaction, and therefore had to be strong spatially," says LAVA director Alexander Rieck.

The atrium also brings people together by congregating core activities such as exhibitions, meeting rooms, coffee bar, public talks and staff meetings, and is also the entrance to the new Philips Lighting Application Centre.

Covering the whole atrium ceiling the sculpture demonstrates the behaviour of light, both natural and artificial: reflection, diffusion and emission.

"Light was obviously the main driver but LAVA's design goes beyond just showcasing technical solutions - it explores a deeper understanding of the nature of light. Light is only visible to the human eye when it reflects on something, so the sculpture gives shape and visibility to light," adds Rieck.

Rieck explains, "The sun gives our sense of time. Working in an office means people miss the subtle light changes during the

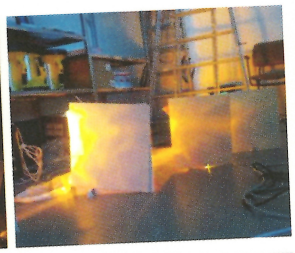
How can we make the golden light feeling?

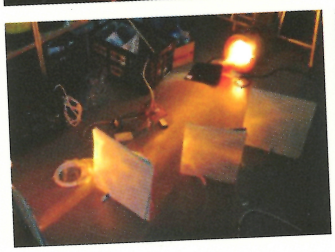
Shadows, Sparkles, Reflections.

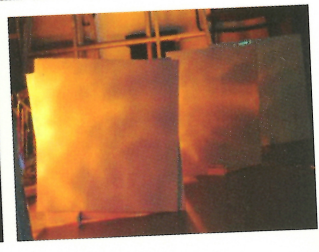
Can the light come from behind the panels?

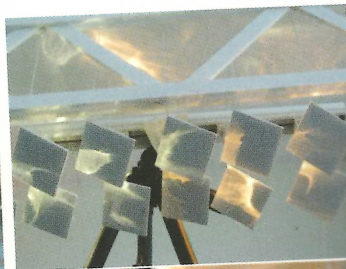
First testing
Sodium fixtures
Filters
Dichroic filters
2d mirrors

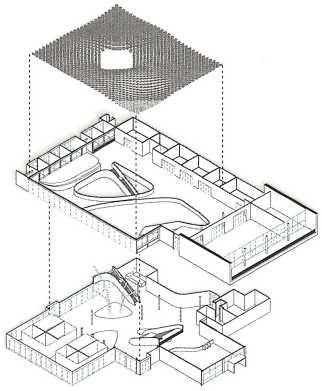
Golden light
Golden reflections

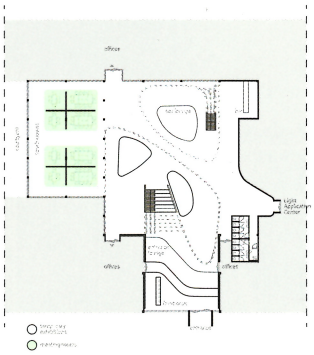




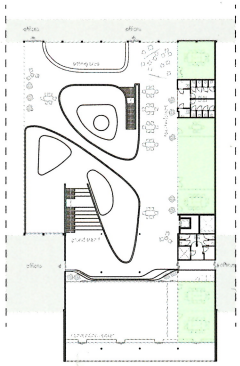




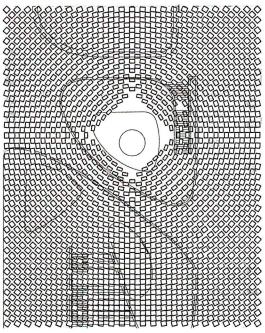




Ground floor

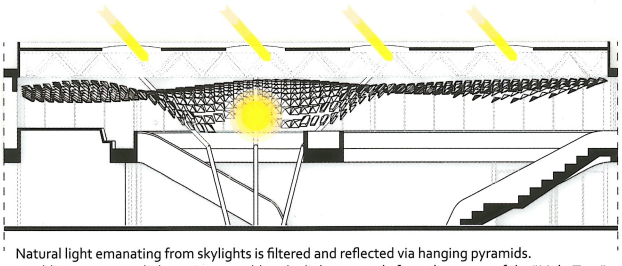


Level 1



Active panels (LED)
Ecophon SOUNDLIGHTCOMFORT

Sculpture ceiling data:
Length x Width: 44 x 40 m
Total amount of panels: 1475
Active panels (LED): 475
Panel dimensions: 600x600 mm



Natural light emanating from skylights is filtered and reflected via hanging pyramids.
In addition, 50 warm light projectors add to the light spectacle from the center of the "Light Tree".

LAVA created lighting control software inspired by the natural phenomenon of flocking like birds or fish. Aesthetics derived out of it was translated into organic and non-repetitive light scenes. These respond to different seasons, times of the day, and architectural layout of the atrium space, and are used to activate or relax the users throughout the day. The various scenes act like a minor ecosystem, with light effects turning golden, for example, as an energy boost in the morning.

The patterns are never the same. Scenarios respond to different seasons, times of the day and the architectural layout of the atrium space and are used to activate or relax the users throughout the day.
"It's a bit like an ecosystem, with light effects turning golden, for example, as an energy boost in the morning.
"We know from Fraunhofer Institute research that generating different lighting effects is a cost effective way to bring variety and productivity to the lives of workers who quickly become oblivious to their surroundings, no matter how attractive."
"The iconic design not only gives visitors an amazing experience and a transition from the entrance to offices and the Lighting Application Center, but also reflects this innovative and forward-thinking company," he adds.
The offices were designed to foster to encourage informal 'accidental' interactions, known to be a key enhancer of success in R&D businesses.
Special environments were created for different work situations - from concentration to communication, activation to relaxation.
Other factors such as variable visual fields, perceived security, acoustics, smell, lighting, materials and textures contribute to an effective and harmonious work environment, which meets the highest standards of the innovative workspace layout WPI (work place innovation).
The design was developed using the latest workspace research and Philips experience with recent fit-out experiments plus an intensive cycle of interviews and design meetings involving the end users and building management.
www.l-a-v-a.net
www.beersnielsen.nl

PROJECT DETAILS

Philips Lighting Headquarters, High Tech Campus (HTC48), Eindhoven, Netherlands
Client: Philips Lighting
Architects: LAVA with JHK and INBO
Lighting Design: Beersnielsen / LAVA

LIGHTING SPECIFIED

Philips Ecophon Soundlight Comfort 4000K (DMX driver)
Philips RAMA LED zoom 90W, 3000K