

The image shows a large, bright gallery space with a high ceiling featuring a complex, multi-layered lighting fixture. The walls are white, and the floor is a light grey. Several artworks are displayed on the walls, including a large red and yellow abstract piece and a smaller colorful abstract work. A person is sitting on a low wooden bench on the left, and another person is lying on the floor in a glass display case in the foreground. The overall atmosphere is clean, modern, and well-lit.

**PHILIPS**

Museum lighting

Case study

# Showing art the way it was intended

Museum Boijmans Van Beuningen, Rotterdam

# Enjoying colors as if viewed in daylight

Many works of art are created in natural daylight. This means that they also deserve to be viewed in daylight. That makes sense, right? However, only a handful of museums put their collections on display in such a way. Using lighting from Philips Lighting in the classical section of the Rotterdam-based Museum Boijmans Van Beuningen makes a clear statement. “The colors of the paintings really show true in this light.”

“About eight years ago, we started a process to improve the lighting in our museum,” Cathy Jacob, Head of Exhibitions at the Museum Boijmans Van Beuningen in Rotterdam, explains. “Our aim was to recreate daylight quality by using artificial lighting. We ended up with a combination of two different types of fluorescent lighting – warm and cold – in combination with a daylight halogen spotlight. We were reasonably satisfied with the result until the halogen bulb was phased out and we had to switch to LED lighting. Since LED lighting was not available with the quality we wanted, a LED spotlight had to be specially developed for us.”

## You hardly notice that the paintings are illuminated

Of course other requirements also had to be taken into account, such as the preservation and protection of the artworks, pleasant lighting without glare for the visitors, and sustainability. But to us, one thing was most important: the artworks had to be shown the way they were intended by the artist.”

The museum asked visual artist Peter Struycken to advise them in choosing the new lighting. He had been critical in the past about the way museums illuminate their artworks. Jacob: “We had to take a large step forward with our lighting and Peter Struycken had a clear vision for that. Particularly on achieving excellent color rendering when recreating daylight.”

### Daylight museum

Museum Boijmans Van Beuningen is one of the few museums in the Netherlands to have been specifically designed as a daylight museum. The basic premise was and still is that art should be viewed in daylight. Why? “Because daylight simply offers the best color rendering,” Jacob says. In the past, daylight entered through skylights in the roof, and was filtered and directed so there were no shadows and all the rooms were evenly lit. This type of lighting is no longer recommended for works of art because of excessive exposure to UV light and poor control over the amount of light. That is why the museum is currently using fluorescent lighting for general purposes – retaining the feeling of daylight lighting with even illumination for the rooms. Jacob: “In combination with the new spotlights, we want our visitors to view the paintings without really noticing that they are illuminated. Peter Struycken confirmed that vision. And he has taught us valuable lessons in how to achieve it.”





**Cathy Jacob**  
Head of Exhibitions,  
Museum Boijmans Van Beuningen,  
Rotterdam

## Museum Boijmans Van Beuningen

Rotterdam-based Museum Boijmans Van Beuningen is one of the oldest museums in the Netherlands. The museum has a unique collection of paintings, sculptures and utensils that provide an overview from the early Middle Ages right up to the 21st century. The collection includes masterpieces by Bosch, Rembrandt and Van Gogh all the way to Dalí, along with contemporary design. The monumental building (the oldest sections were designed by architect Ad van der Steur) has been constructed so that the art collection can be displayed in daylight.





Photos: Walter Herfst

Test installation with artificial light on the left and daylight on the right.  
 Left: Halogen spotlight without fluorescent ambient light: red haze.  
 Center: Philips StyliD PerfectBeam Variable Spot without fluorescent ambient light: too much emphasis on the lighting.  
 Right: Philips StyliD PerfectBeam Variable Spot in combination with fluorescent ambient light: the best effect.

**Inspiring moment**

What was Struycken’s approach in finding the perfect LED lighting? The answer was surprisingly simple. He designed a test installation in which a work of art was illuminated by daylight on one side, and artificial LED light in combination with fluorescent lighting on the other side. Various LED lights were subjected to extensive visual tests to bring the two sides as close as possible. “Philips produced a number of LED spotlights which showed a strongly improved color rendering in conjunction with the museum’s fluorescent lighting. That was an inspiring moment,” Struycken says. Over various intermediate stages, the Philips LED spotlight was upgraded from 4,500 K (too low) to 6,000 K (too high); a color temperature of 5,700 K finally proved to be ideal.

**Artificial light  
 and daylight  
 converge**



## P. Struycken

In 1980, the Dutch visual artist Peter Struycken became well known in the Netherlands with his design for the postage stamp of Queen Beatrix, which depicted the Queen's portrait in a pointillist style. Color, categorization and structure are key principles in Struycken's work. Since 1969, he has been using computers in his art. Struycken uses dynamically changing colored LED lights in his stage scenery for dance performances, as well as in lighting designs for buildings and public spaces. Based on the composition ...explosante fixe... (1971 - 1993) by Pierre Boulez, he created a spatially positioned five-screen projection in the Groninger Museum in 2007.

### StyliD PerfectBeam Variable Spot

The Philips StyliD PerfectBeam Variable Spot, specifically customized for Museum Boijmans Van Beuningen, replaced the halogen lighting. The spotlight is hardly noticeable against the white ceiling due to its matte white finish. In combination with fluorescent lighting (Philips TL-D 965 and TL-D 940), it provides the most natural color rendering for the artworks. In addition to the very high color temperature, the spotlight offers several other benefits:

- The zoom lens can give the exact beam size to fit each object, and ensures that the artwork is free from any disturbing halos.
- The spotlight can be easily dimmed without changing color, as would happen with traditional halogen lighting.
- LED light contains no IR or UV light, ensuring that the aging process will not be accelerated.
- And the spotlight is much more sustainable. It has a long life span and low energy consumption, saving over 50% energy, at 21W compared to 50W halogen lighting.

‘Now we can finally see the artwork the way the artist intended it’

### Compliments

Without announcing it, the StyliD PerfectBeam Variable Spot was first used in a pilot during the exhibition entitled ‘Mad About Surrealism’. Jacob: “We were surprised that visitors started giving us unsolicited compliments about the light and the natural looking colors. Those compliments varied from ‘such beautiful colors’ to ‘now we can finally see the artwork the way the artist intended it’. International delegations of other museums also praised the colors of the artworks.”

### Retaining authenticity

Cathy Jacob and her colleagues look back on this project with great satisfaction. “Finally, we have lighting which fits the vision of our museum. A place where works of art retain their colors and thus their authenticity. For the other rooms in the museum, as well as for the soon to be built ‘Depot’, we want to achieve at least the same quality of light.” Peter Struycken: “The colors of the paintings really show true with this type of light. The precision with which this LED spotlight has been developed gives me the impression that Philips Lighting is capable of even more.”

The multitude of positive reactions regarding this installation and the technical advancements in LEDs that proved possible within a short time frame have strengthened Philips Lighting's determination to continue optimizing its LED lighting to reproduce the effect of daylight even more closely.





## Fast facts

### Customer

Museum Boijmans Van Beuningen

### Location

Rotterdam, The Netherlands

### Products

- Philips StyliD PerfectBeam Variable Spot, 5,700 K
- Philips TL-D 965, 6,500 K
- Philips TL-D 940, 4,000 K



