



Lighting Design 照明設計。

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# The Bremerhaven Harbour

## Project | 不來梅哈芬港口項目 | pfarré lighting design

#### 德國不來梅哈芬舊/新港口項目

Latz + Partner公司 (德國克蘭兹堡) 的景觀設計師如此描述:"港口基地的復興涉及空間、生態、技術方面,是新城區的核心。項目突破傳統元素,采用了新策略。設計以原有城市布局爲基石,旨在確保港口的長期使用和開發"。

#### Latz + Partner公司的照明總體規劃方案

濱水港口開發的擴張及其與城市的關系是照明設計的背景。舊/新港口項目象征着結構的變化和不來梅哈芬的復興。

整個項目采用了三個照明等級:

- 最高亮度, 用于具有重要價值的歷史建築和結構
- 中等亮度, 用于具有較高價值的廣場和區域
- 最低亮度, 用于其他區域

多功能桅杆上的藍燈框出了港灣的景色,增加了這一大型項目的維度;同時,這些燈光還勾勒出一座新城區。桅杆頂端的藍燈倒影在水中,更加突顯了港口岸綫的長度。桅杆上的燈具减弱了令人眩目的光綫,港灣沿岸的照明采用同一等級。游客將不受眩目光的影響,可以清楚地看到空間的延伸方向,以及往來的人和發生的事情。

#### 歷史建築和結構的照明設計

業主BEAN是不來梅哈芬市本土的港口開發公司,項目的設計團隊在與另一個照明設計團隊的競争中勝出。項目設計包括舊燈塔的照明設計、滚動式竪旋橋及其三間機房的設計、歷史海事辦公樓外立面的設計。業主、景觀設計師和照明設計師的合作卓有成效,因此,照明設計的理念早已整合進Latz + Partner公司的照明總體規劃方案裏。

#### 西蒙-洛申燈塔

西蒙-洛申燈塔,又名"舊燈塔",是以設計燈塔的不來梅建築師的名字命名的。燈塔建于1894年,高約40米,紅磚構築,呈現典型的北日耳曼哥特風格。如今仍爲人們作爲港口燈塔使用,它或許是不來梅哈芬最爲著名的地標了。夜景背后的設計理念:雍容華貴的裝潢以及燈塔浮雕外墙的精致肌理必須在夜間也能如同白天一般大放异彩。避免諸如"糖晶"之類的人造效果,盡可能保留外立面的完整,這是十分重要的一點。燈塔外墙不能裝置燈具。然而,照明設計的基本目標在于,吸引人們關注燈塔的日落之景。照明設計理念在于美化燈塔的夜景形象,具體采用建築底端向上射的均匀亮度的光以及燈塔三樓窗户的背光式光源。營造出的三維效果既顯著又低調,

#### 突顯了光影的交互效果。

西蒙-洛申燈塔的六個照明原理:

- 統一外立面的照明, 在地面安裝嵌入式洗墻燈, 向上投的光均匀分布, 投 光距離約25米
- 雕塑投影鏡頭發出狹長的、散開角度的投影, 光源分布範圍從20米至35米左右。横梁用作支撑投影機, 使其固定在四個照明桅杆以及塔四周其他多功能桅杆之上
- 塔高層的三層樓的樓面安裝熒光燈管, 背光燈間接照射着高層的窗户
- 户外階梯的照明采用石墻整合地面布光燈
- 突顯屋頂; 住宅照明采用專門定制的LED燈
- 突顯頂部: 6° 散開角度的聚光燈安裝在鐵架塔末端, 以此突顯塔尖的風力風向信號

地面嵌入式燈具發出向上投的光,同時配套强光投影機和雕塑投影鏡頭, 照亮了塔附近的一些樹木。所有的照明都采用暖色調的金鹵燈泡,以此突 顯紅磚。紅色光綫美化了塔的夜景,爲其增添了魅力。最重要的是:采用前 述技術后的總耗電量僅爲1 200瓦;從生態的角度出發,40米高的塔的耗 電量相當于一個電吹風的耗電量。

#### 滚動式竪旋橋

滚動式竪旋橋建于20世紀20年代,一直沿用至今。作爲完整的歷史建築群,它們在港口入口區扮演了關鍵性的角色。與舊燈塔的照明理念相類似,橋的照明設計也盡量減少過多的效果或裝飾,使其不產生光污染。

將專門定制的LED燈安裝在兩座橋作爲突顯效果之用,在側翼發出兩種不同的顏色:大體量鋼結構的外側采用"氣燈"綠色濾光片來使其在夜間仍



■ **030** Topic International New Landscape



能保持緑色。内側和行人區域采用暖色調3000開爾文色温的白光作爲照明。

三間機房外墻的照明設計以莊重的風格、不產生眩目光、高度節能的照明設計手法爲基礎。嵌入式洗墻燈還是采用暖色調燈泡來美化紅磚建築。

機房內部、主建築頂樓的橋梁控制中心都采用間接熒光燈照明,營造莊重且與衆不同的氛圍。照明設計理念圍繞這一構思來提升建築和橋梁在夜間的維度和體量,橋梁人行道也設計了照明效果。得益于當地政府部門,所有的燈具都接入了公共照明系統,從歷史地標建築移除了桅杆或燈籠。在藍燈的視界裏,橋梁照明在整個港口復興項目裏展現了令人驚嘆的"細部"設計。

#### 海事辦公樓

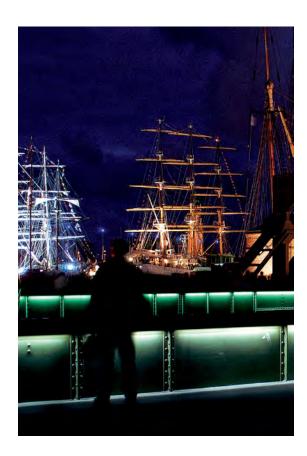
海事辦公樓的照明也采用嵌入式洗墙燈。入口大廳的照明采用經典吊燈,電路電源安裝在室外。所有外立面的洗墙燈燈具都采用35瓦金鹵燈泡,爲這個城市項目注入高度節約功率的元素。

#### Old/New Harbour project, Bremerhaven, Germany

"The spatial, ecological and technical renewal of the harbour site becomes the core of a new town quarter. The project follows the strategy of a metamorphosis out of traditional elements. It refers to the existing urban pattern to guarantee a long-term use and development". (Latz + Partner, landscape architects, Kranzberg, Germany)

#### The lighting masterplan of Latz + Partner

The larger developments of the harbours along the river and their relations to the city have been seen in a context to each other. The Old/New Harbour project symbolizes the structural change and renewal of Bremerhaven.





Three lighting levels have been defined for the entire project:

- The highest illuminance level for historical buildings and structures with a significant value
- A medium lighting level for squares and areas with a high significance
- Lower illuminances have been used for all other areas

The bluelights on top of the multifunctional poles frame the harbour basins and enhance the dimension of this huge project; moreover, these lights define the new town quarter. With their mirrored reflections in the water, the blue tips of the poles underline the long perspectives dramatically. Glare-reduced lighting fixtures, mounted at the poles, create an evenly distributed illumination level along the edges of the harbour basin. Without irritating points of glare, one can clearly understand the extension of the space, the ways to go and the things to see.

### The Lighting Design for Selected Historical Buildings and Structures

After competing with another lighting design team, our firm has been chosen by the BEAN, (the local harbour development company for the city of Bremerhaven) to design the lighting for the old lighthouse, the roll-bascule bridges with three engine rooms, and the facades of the historical maritime office building. In a fruitful collaboration between client, landscape architects and lighting designers, our ideas have been embedded in the master plan of Latz + Partner.

#### The Simon Loschen Tower

The Simon Loschen Tower, or "Old Lighthouse", is named after the architect from Bremen who designed the tower in 1894. It is approx. 40 meters high, built with red bricks in the typical North-Germanic gothic style. Still in use as the harbour's lighthouse, it is probably the most famous landmark of Bremerhaven.

The concept behind the nocturnal image has been dominated by the idea that the rich decoration, ornaments and structure of the tower's relief facade should be highlighted with the same emphasis as during the daytime. It was important to avoid an artificial kind of "sugar frosting" effect, and to leave the facades as intact as possible. No lighting fixtures have been installed at the tower's facades. However, a fundamental objective was to draw attention to the tower's considerable plasticity after sunset. The lighting concept was to enhance the tower's night time image with the evenly distributed intensity of light from the bottom of the building upwards, and backlighting the windows of the upper third of the tower. The result is a strong but decent three dimensional effect, a deliberate interplay of light and shadow.

Six principles of illumination have been used for the Simon Loschen Tower:

- Uniform lighting of the facades using recessed wall washers placed flush in the ground, distributing the light to a height of approx. 25 m
- Narrow beam-angle projectors with sculpture lenses, distributing the light from a height of 20m to approx 35 m. Traverses have been used to mount the projectors to four lighting poles and multifunctional poles surrounding the tower

- Fluorescent tubes, installed on the floors of three upper tower levels, to backlight the windows in the upper section with indirect lighting
- Lighting the external stairway with flush "floor" washers integrated into the stone wall
- Accentuating the roofing; the housing is illuminated by a custommade LED profile
- Accentuating the top; the wind signal on the tip is emphasized with a 6° narrow beam angle spotlight, installed at the end of the cast-iron derrick

Recessed uplights in the ground, equipped with integrated glare protectors and sculpture lenses, illuminate selected trees in the direct vicinity of the tower. Warm toned metal-halide lightbulbs have been used in all lights for emphasizing the red bricks. The amount of red in the light warms and enhances the evocative power of the tower's nocturnal image. Last but not least: the total electric power consumption for all techniques mentioned above is 1,200 W only; from a sustainable point of view, we illuminated a 40 m high tower with the energy of a hairdryer.

#### The Roll-Bascule Bridges

Built in the 1920ties of the last century, the roll-bascule bridges have been in use ever since. As an intact historical ensemble, their presence play a key role for the harbour's entrance. Similar to the lighting ideas for the old lighthouse, we did not want produce excessive effects or decorations, no light pollution at all.

The two bridges have been underlined with custom-made LED profiles, washing their flanks in two different colours: the outer sides of the massive steel structure are illuminated with "gas-light" green filters to emphasize their green colour also at night. The inner sides and pedestrian areas have been lit in a warm white of 3,000 K. The lighting design for the facades of the three engine rooms is based on decent, glare-free and highly economical lighting techniques. Again, warm-toned light bulbs in flush recessed wall washers enhance the red brick architecture.

Inside the engine rooms and in the bridges control centre on top of the main building, indirect fluorescent lighting provides a decent but distinguished atmosphere. The lighting concept follows the idea to enhance the buildings' and bridges' dimensions and volumes at night, and to illuminate the walkway of the bridges. Thanks to the local authoritites, all lighting fixtures are switched with the public lighting system, and poles or lanterns have been taken out from the vicinty of this historical landmark. Seen in the perspectives with the blue lights, the illuminated bridges offer a stunning "detai" within the renewal of the harbour.

#### The Maritime Office Building

The Maritime Office Building has been illuminated with recessed wall washers as well. The entrance hall is lit by a classical suspension which is switched with the outdoor circuit. For all facade washing lighting fixtures, 35 W metal-halide bulbs have been used; a highly economical wattage for urban projects.

#### Credits:

Project: Old/New Harbour, Bremerhaven, Germany

Client: BEAN, Bremerhavener Entwicklungsgesellschaft Alter/Neuer Hafen mbh Project Management: BIS Bremerhavener Gesellschaft für Investitionsförderung und Stadt-entwicklung mbh; Volkert Osterloh, Ute Bartels

Lighting Simon Loschen Tower: Bremenports GmbH & Co. KG

Project Management: Bremenports Consult GmbH; Stefan Woltering, Frank Repert Landscape Architects: Latz + Partner, Kranzberg, Germany (Peter Latz, Tilman Latz, Anneliese Latz, Uwe Gehri, Oliver Keil, Peter Bedner, Daniela Strasinsky, Tobias Kramer, Michael Stegmeier, Sabine Kern, Helke Kotzian); Latz Riehl Partner, Kassel, Germany (Wigbert Riehl, Ernst Bauermann, Matthias Dümer, Elisabeth Lücke, Hendrik Pape) Lighting Designers: pfarré lighting design, Munich, Germany (Gerd Pfarré, Katja Möbs); Latz + Partner, Kranzberg, Germany

Area: total surface 20 ha, open space 9.5 ha

Project Time Frame: 2001 - 2005 (phases 1-3), 2008 (phase 4)

Total Cost for Lighting: Master areas / Euro 1,000,000.00; Simon Loschen Tower / Euro 47,000.00; Roll-bascule bridges, Maritime Office / Euro 140,000.00

Photography: Markus Tollhopf, Hamburg, Germany; Christa B. Panick, Kassel, Germany







這座新步行橋起到連接市中心和不來梅哈芬的作用。 平旋橋的旋轉部分長42米, 船只可以從這裏駛進博物館 港灣。整個結構采用間接照

明系統, 完全没有眩目光, 橋面的磨砂玻璃鋪裝部分內置燈具, 照亮了上方的玻璃內殼, 印有啞光白點的圖案折射出柔和的光, 籠罩了整個空間。

The new pedestrian bridge links the city center with the Havenwelten. Designed with a swiveling center part of 42 mtrs, it allows ships the passage to the museum harbor basin. The entire structure is illuminated with an indirect, glare-free lighting system. Integrated in the floor, frosted glass fields illuminate the inner glass shell, which is printed with a pattern of matt white dots - the light reflects smoothly into the space.

#### Credits:

Client: BEAN, Bremerhaven, Entwicklungsgesellschaft, Alter / Neuer hafen mbH & Co KG Length: 100m

Architects: NPS Tchoban Voss, Hamburg Engineers: WTM Engineers GmbH, Hamburg

Lighting Design: pfarré lighting design, Munich

Photography: Markus Tollhopf, Hamburg

Award: European Steel Bridges Award 2010



