# VIENNA, A TRADITION OF LIGHT

The upper part of the exterior façade of the Schönbrunn Palace is illuminated by Terra floodlights equipped with 35W metal halide lamps, and its lower part by the Noctis Maxi fitted with six white high-power LEDs.

Vienna, the capital of Austria, is also the capital of music, waltzing between 19th century tunes and contemporary electronic music. Vienna also continues the tradition of cafés where time stood still when Sissi was Empress. Vienna, the headquarters of OPEC and the OSCE, is an international political centre.
In the collective imagination, Vienna is all of these things. But Vienna is also Central Europe's city of light. Most of the historical buildings, bridges and works of art are lit up at night. Nearly 150,000 luminaires guide, mark out, light up and provide a feeling of security to the users of this city crossed by the mythical Danube, Europe's most important river.

## Lighting for the benefit of all

Vienna has always had a particular interest in public lighting with the intention of having it present throughout the city, both in its historical heart and in the more peripheral areas. The objective of comfort and safety at night for all while respecting the high-quality lighting criteria and standards is not new. Is this the reason why Vienna has a level of crime that is relatively low for Europe?

## A lighting plan for Vienna

In 2006, the Municipal Department of Public Lighting, the MA33, drew up the recently published lighting plan for Vienna, in collaboration with the MA19 Municipal Department of Architecture. Lighting designers Iris and Michael Podgorschek from PodPod Design and the consultants of FCP (traffic planning consultants) established the guidelines for Vienna's urban lighting for the years to come.

In April 2008, the Vienna lighting plan came into being. This document, published by the city authorities, sets out all of the criteria that guided the two authors and that will feature in the definition of the Viennese lighting of tomorrow. Technical and aesthetic aspects, providing districts with a sense of security through lighting, energy savings, visual comfort, tackling light pollution and the harmful influence of lighting on biodiversity; all of these criteria are listed, explained and analysed in the lighting plan.

## Topography of the city

Iris and Michael Podgorschek then carried out a topography-based inventory of the various sites, districts and buildings of the city by allocating their specific role and the type of lighting that is associated with them.
Alongside this lighting plan, typical products were listed in a catalogue in order to make all of the involved actors and decision-makers aware of the good aesthetic harmony of luminaires with their architectural environment as well as their mechanical and photometric qualities.
Luminaires from both Schréder group companies in Austria, Schréder and AE Austria, feature extensively in this catalogue.

Noctis floodlights fitted with white LEDs guide the steps and eyes of visitors towards the entrance of Schönbrunn Palace, the summer residence of Emperor Franz Joseph I of Austria who married the illustrious Sissi, whose memory lives on at this magnificent site.

**In 2006, the city of Vienna took the initiative of requesting the creation of a lighting master plan. This project was entrusted to PodPod Design office, which is built on the partnership of brother and sister Iris and Michael Podgorschek, specialists in city lighting.**

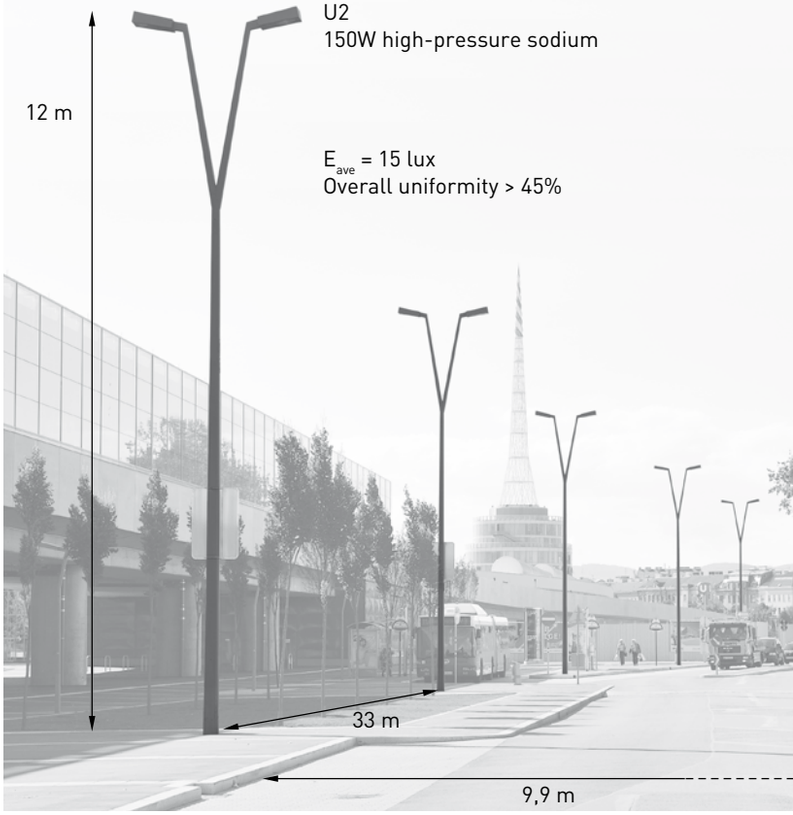
**How was this lighting plan created?**
Iris Podgorschek: *The Vienna Department of Public Lighting – called MA33 – had the initiative in 2006 and contacted our office. They considered that there was a need to draw up guidelines for lighting roads and buildings for the next 10 to 15 years.*
Michael Podgorschek: *But this lighting plan is not a fixed document. It will and must evolve. It will be adapted according to new products on the market, new technologies, and of course according to the city's urban development.*

**What objectives were pursued?**
M.P.: *We did a lot of work on the topography of the city: the districts, the roads, the buildings, the public parks; all of these structures have their own hierarchy in the daytime, which also needed to be transposed at night. It was necessary to define a clear structure of the city's nocturnal landscape by determining the most appropriate type of lighting for each space.*
I.P.: *In spaces dedicated to pedestrians, warm white light is necessary because facial recognition is essential there. On the other hand, the vehicle traffic routes can very well be lit in yellow high-pressure sodium light. For monuments and buildings, white light is a logical choice but the levels must not be the same, whether for a prestige building or a more ordinary site.*

**How did you identify the criteria needed for quality lighting and organise them into a hierarchy?**
M.P.: *Lighting plays several roles. And certain criteria are vital. Safety for example, is an essential parameter. Vienna has a tradition of quality lighting meeting high standards throughout the city, both in the centre and the more remote districts. I think that lighting is a key element in the fact that Vienna is one of the safest western metropolises, with a level of crime that is markedly lower than in comparable cities in Europe. Lighting at night is not a luxury. It has to reassure all users of the city, including the elderly, children and people with reduced mobility.*

**How do you feel about lighting in the city?**
I.P.: *Lighting is a significant factor in giving a city or a district its identity. The lighting that lights up a building or a road gives the pedestrian information and reference points.*
*A small local church will not be lit up in the same way as a cathedral or opera house in the heart of the city. Lighting makes it possible to organise monuments into a hierarchy so as to make them more comprehensible for people. It really makes it possible to understand and "read" the city at night.*
M.P.: *Lighting is also involved in orientation. A person out for a walk in Vienna at night will pick up the signals given to them by the city's differentiated lighting to get their bearings and find their way around. Public lighting and illuminations are a little bit like the stars; they help you to find your way at night and to decide on the direction you want to take!*

The U2 luminaires, manufactured by Schréder, were designed by the City of Vienna. The city wanted a contemporary design adapted to the architectural environment around the Messe Wien exhibition centre and the large Ernst Happel stadium, which recently hosted the final of the football European Championship. The U2 luminaires exist in two sizes, one for main roads, the other for pavements and pedestrian spaces.




The minimalist design of the U2 luminaires is perfectly adapted to this modern environment at the foot of the exhibition centre's new tower and the overhead railway.

**What part did concern for the environment play in the Vienna lighting plan?**

I.P.: *Concern for the environment means first of all looking for efficient luminaires that consume less energy. It also involves preventing the light from dispersing into the sky, but this closely overlaps the concern for quality lighting that directs light effectively to where it is needed and desired.*

M.P.: *In the Vienna lighting plan and its catalogue of recommended products, the city clearly opted for luminaires that provide better lighting with less energy, without calling into question the aesthetic choices stemming from Vienna's history and tradition. We argued, for example, when the historic luminaires come into play, in favour of keeping very old luminaires at historical sites because it was possible to make them more efficient by integrating a new generation optical compartment into them, enabling energy savings to be made and the light distribution to be optimised.*

*In most cases we also recommended direct lighting rather than indirect lighting.*

*For the illumination of façades, we favoured the use of floodlights discreetly integrated in the architecture, not only because it saves more energy than distance lighting, but also for reasons of the rendering quality, aesthetics and respect for the architectural nuances of the buildings.*

**Concern for the environment, is also respect for biodiversity…**

M.P.: *Light can actually influence the biodiversity in the urban environment. In order to take this aspect into account, the MA33 also consulted environmental protection organisations. In this respect, the City of Vienna ordered a study regarding the impact of lighting on the reproductive cycle of certain insects and butterflies. Contrary to preconceived ideas, white light, such as metal halide, is no more harmful than yellow light, such as sodium. On the other hand, the use of mercury lamps is not advised, due to the UV rays. These lamps are in any case due to be phased out entirely.*

In this district near Schönbrunn Palace, a housing development with resolutely avant-garde architecture was recently built on the site of a former cable manufacturing plant, perfectly combining architectural prowess and living comfort. This new district is lit up with the Neos 2 giving a pleasant light that is both reassuring and enables the pursuit of nocturnal social activities in this user-friendly space.

The Neos 1 floodlights are installed directly on the walls of the banks, or on four-metre-high lighting columns.

# Ambiance on the Danube

**The MA33, in collaboration with Iris and Michael Podgorschek, designed the lighting of the banks of the Donaukanal (Danube Canal) - a branch of the Danube that crosses the historical centre of the Austrian capital.**

Iris Podgorschek: *The Donaukanal is situated at the heart of the city and constitutes its soul. In the past it was a place for bathing. The Viennese have taken over this branch of the Danube because it is rooted in their most distant memories. Each bridge is attributed its own identity, which has its own rich tale to tell. We wanted the three post-war concrete bridges to be lit up with state-of-the-art RGB LEDs in a specific colour relating to the name and the place – an image that simplifies recognition and orientation.*

*The promenade along the Donaukanal has always been a place for walking and relaxation. But it got so that this wonderful site could not be visited at night because it was poorly lit or not lit at all. I do not know if it was actually dangerous to go there but, in any case, the site looked sinister and unsafe. We wanted to create a space of light that extends as a strip along the river in order to prolong the presence of day in the darkness. We opted for the small Neos 1 model fitted with a 35W or 70W metal halide lamp providing a warm white light that also ensures facial recognition, a key factor in giving the users of this space a feeling of security. The floodlights are installed directly on the walls that line the banks to create an illuminated guide along the river. We placed additional Neos 1 floodlights on low-level lighting columns where the space widens.*

*Today, the Donaukanal promenade has re-attained a quality nocturnal ambiance where restaurants and bars have established themselves while enabling the inhabitants to go jogging or for a bike ride in the evening.*

A place for a nice walk in the daytime, the Donaukanal, recently lit up with the Neos 1, has again become a spot where it is enjoyable to relax, even at night.

**Susanne Lettner is the Director of the City of Vienna's Department of Public Lighting (MA33).**

**What was your aim in launching this lighting plan project?**
*Following my appointment as Head of this Department in 2004, I had the opportunity to establish contacts with cities such as Lyon, Zurich and Hamburg. Their lighting plans convinced me that strategic guidelines for public lighting were also important for Vienna. Comprehensible strategic criteria constitute an effective working basis on which our city's elected politicians can make decisions. The goal of the lighting plan is to convince the decision-makers of the advantages of quality lighting for the city and its inhabitants.*
*I hope that the decision-makers will continue to have faith and take an interest in the development of public lighting in Vienna and that there will be even more investment in this area in the future.*

**The Vienna lighting plan was published in April 2008. What will happen now?**
*This lighting plan covers the next 10 to 15 years. The lighting plan is a reference and a basis for decision-making for all of the actors and decision-makers. They know that we have developed a plan together and that we will do our best to execute it. Of course, the lighting plan must not limit creativity. There is always scope for special projects. But I think that 90% of the public lighting actors will work within the framework established by the lighting plan.*

**Is energy saving a key factor in this lighting plan?**
*Yes, of course. Reducing energy costs generated by public lighting is as important as increasing residents' feeling of safety with first class lighting. The products set out in the catalogue of luminaires that constitutes part of the lighting plan are clearly products that offer excellent results in terms of electricity consumption and efficiency. Moreover, the Vienna Department of Public Lighting is committing itself to reducing its electricity consumption by 5% from the 2005 level by 2015.*

## A few facts and figures...

- 150,000 luminaires
- 51,000 MWh per year (2006)
- 5% reduction in energy consumption by 2015
- 1,710 tonnes of reduced $CO_2$ emissions by 2016

Vienna's Big Wheel constitutes one of the symbols of the Austrian capital. Erected in 1897, it remains a must-see attraction for visitors. Today, it is equipped with MY1 floodlights that intensify its magical, fairytale appearance in Vienna's nocturnal landscape.

In the centre of Vienna, the Hestia luminaires - available in Mini and Midi versions depending on the height of installation - are particularly appreciated for their photometric performance and for their compact and light design.

This period lamppost in the Schönbrunn Gardens perfectly illustrates Vienna's attachment to its past while opting for technological performance. Schréder fitted these lampposts with a photometrically effective optical compartment, while keeping the incandescent light bulb, a purely decorative relic of the past that is now without function.

**Gerhard Weninger is a Technical Manager with the City of Vienna's Department of Public Lighting (MA33).**


**What was your role in putting together the Vienna lighting plan?**
*I was involved in choosing products for the lighting plan catalogue. Only products that met precise technical criteria were chosen. Energy consumption, photometric performance, mechanical robustness, operating life, ease of maintenance, and of course price. Particular importance was given to the ecological aspect. This is why most of the luminaires proposed offer direct lighting. Indirect lighting was only kept for historical reasons.*

**What do you think of the new technologies for public lighting?**
*We are very cautious concerning the introduction of new technologies. I am thinking in particular about LEDs and other new light sources. These technologies need to be more efficient than the traditional ones. I think that it is too early for LEDs because they are not yet up to the standard of traditional sources for public lighting. On the other hand, they are perfectly suited to specific projects. Maintenance also needs to be considered. We manage 150,000 luminaires in Vienna. We cannot afford to increase the types of sources, but this does not mean we are not open to new light sources. We are conducting tests on a few installations in Vienna.*
*If these are satisfactory, these new technologies will be gradually included in the lighting master plan since it is anticipated that it will be updated regularly.*

This lamppost, another witness to the past, lights up the promenade along the Wien River in the Stadtpark in the heart of Vienna. Our Austrian company – AE Austria – fitted these period lanterns with an optical compartment providing indirect lighting. This perfectly controlled indirect lighting ensures excellent visual comfort while avoiding the propagation of fluxes towards the sky, a source of light pollution.

These spherical luminaires in the heart of Vienna, developed by AE Austria, light up the large boulevard encircling the city, in front of the famous opera house.