

# PROFESSIONAL LIGHTING DESIGN



Magazine for  
professional lighting design

## MAIN TOPIC

Light for body and soul

## LIGHTING DESIGN

Forum in Tashkent/UZ

Library in Leipzig/D

Nuestra Señora de la  
Asunción y del Manzano  
Church in Hondarribia/E

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Three churches, three concepts

Daylight design for healthy  
learning environments

## THEORY

Sacred light, secular light

## PROFESSIONAL ISSUES

Who we design for and why

Light doping in schools

Interview with Esther Stiller:  
Lighting design in Brazil

# Out of the dark...

**Preserving and valuing history:**

**Nuestra Señora de la Asunción y del Manzano Church, Hondarribia/E.**

Text: Intervento / Andréa Espirito Santo

Photos and drawings: Intervento

*When we enter old buildings and revisit the past in order to recreate historical facts and features, we sometimes discover beautiful treasures that appear to have lost their value over time. This may be due to lack of aesthetic taste or lack of initiative to properly maintain an old structure with technical equipment which, although belonging to another era, can help safeguard our cultural heritage and enchant the curious eyes of those who seek its origin.*

The municipality of Hondarribia is nestled in Guipuzcoa, in the Basque Country on the east coast of Spain. Its proximity to the French border meant that this small town, blessed with a mild climate and well conserved surroundings, has been subjected to a history similar to that of so many other regions in medieval Europe: war-torn, it was forced to build protective walls over the course of the centuries, even before its official foundation. Its prosperous port in the Bay of Biscay, from where numerous different products from Castile and Navarra were shipped to other European ports, represented a coveted prize for conquerors.

The importance of the historic centre of Hondarribia was recognised when it was declared a world heritage site for its well conserved medieval architecture and archaeological ruins, such as the Santa María Gate, which provides access to the town centre, and also parts of the wall erected in the 15th century by order of the Catholic monarchs Isabella I of Castile and Ferdinand II of Aragon (the most recent of various walls built to protect the city).

In the historic centre itself, the cobbled streets and buildings with decorative wrought iron balconies lead the visitor on a rich and substantial historical journey all the way to the main attraction, the Church of Nuestra Señora de la Asunción y del Manzano. Built in the midst of political and military upheaval in the region, with the Kingdom of Castile attempting to conquer that of

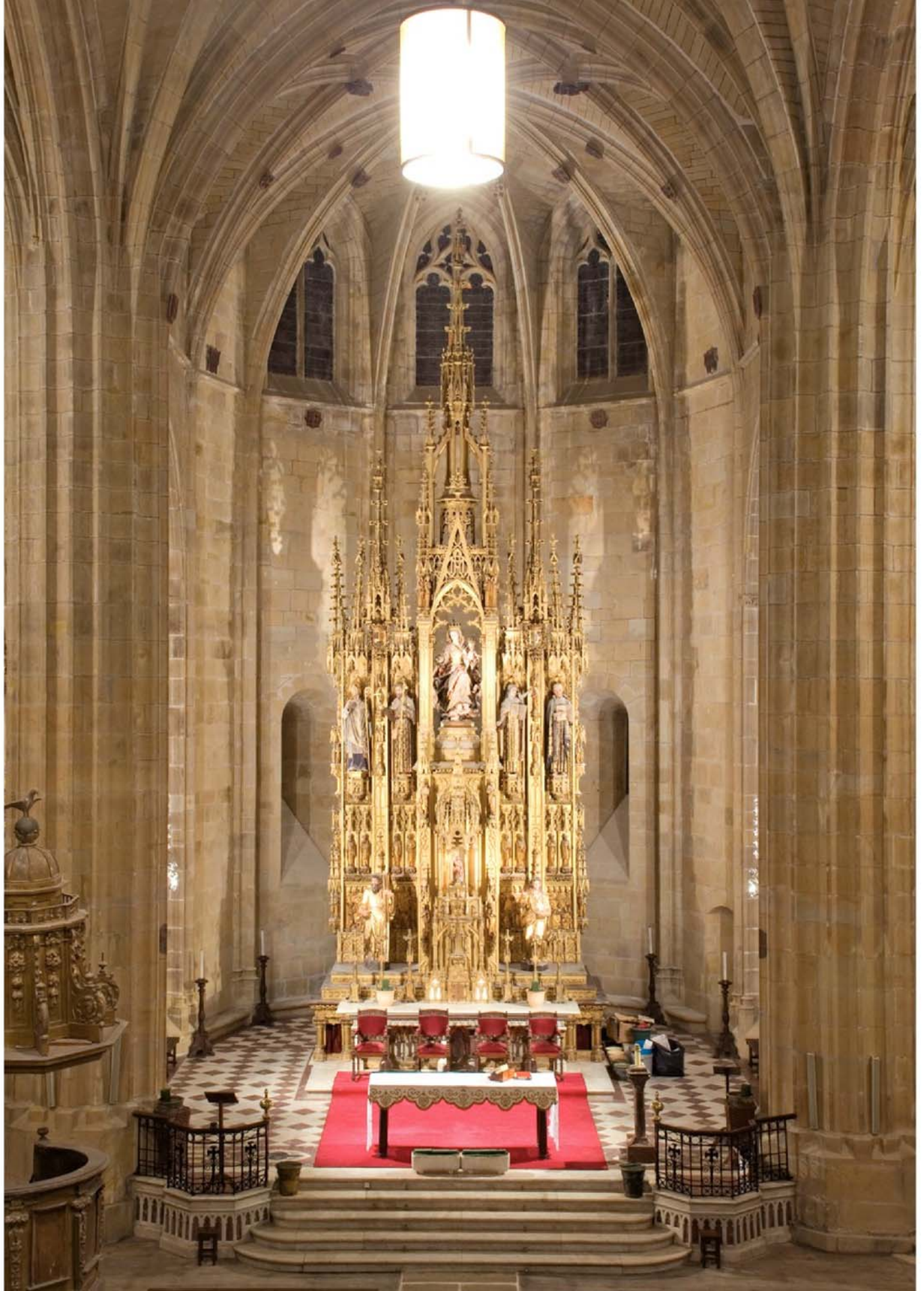
Navarra, this church is a reminder of the strength of Catholicism and the taxation it imposed on its faithful with the promise of relief from their deepest fears.

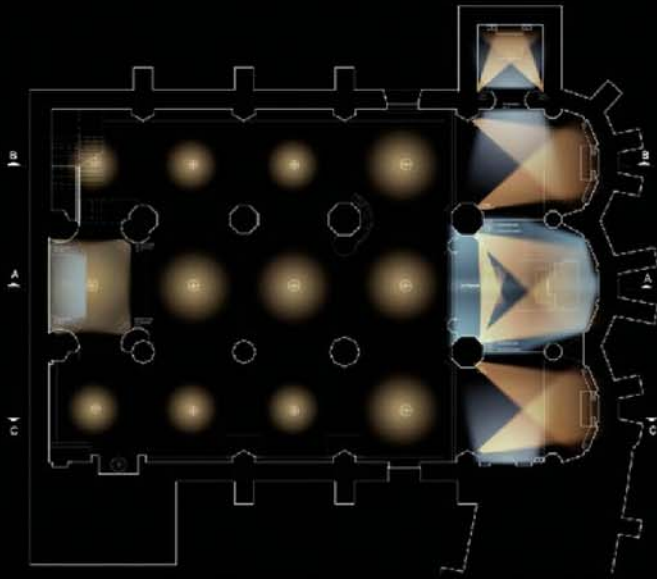
During a restoration project carried out on the church, the client, Teusa SA, identified a threat to the architectural magnificence of the Nuestra Señora de la Asunción y del Manzano Church. Not even the combination of gothic and renaissance styles in addition to a huge baroque style tower (not built until the 18th century) could prevent the silent deterioration of the lighting system installed in the church in the 1980s. The analysis made by the lighting designers from Intervento, an architectural lighting design studio from Madrid, was dramatic: the system was outdated, had deteriorated over time and there were improvised electrical installations throughout the building, which meant the risk of fire compromising the safety of the whole building.

A new lighting design radically changed the setting, from an environment plunged into darkness to one renewed by artificial light. The design was aimed at modernising and re-wiring the electrical installations, using efficient luminaires with a design suited to the architectural style, as well as using lamps and fittings that would breathe new life into this place of worship, which was inaugurated in 1549. In addition to enhancing and restoring value to the medieval relics and treasures stored within the church, the lighting designers drew inspiration from the natural light that floods the interior and

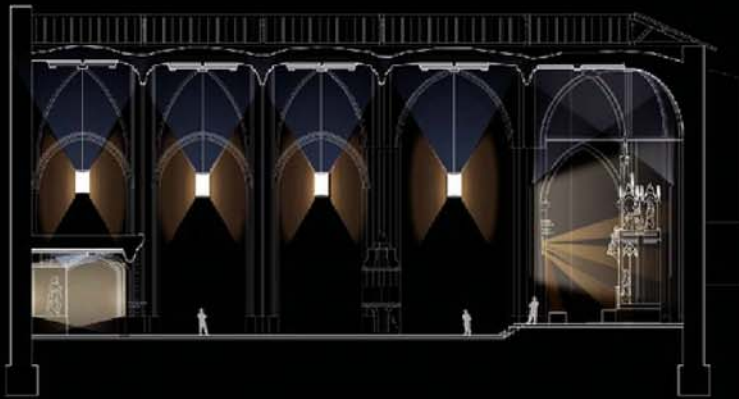
**Nuestra Señora de la Asunción y del Manzano Kirche in Hondarribia/E: the new lighting concept replaces the lighting system installed in the 1980s. The lighting solution now focuses on the nave, the chancel and the retable.**



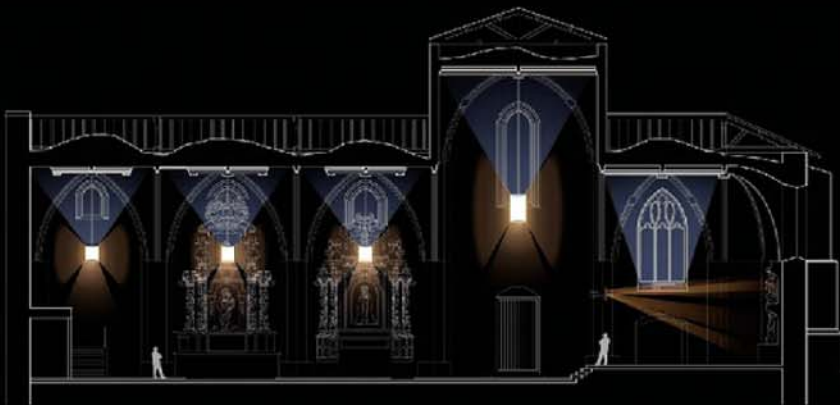




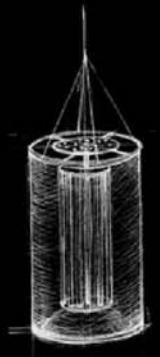
Lighting layout in the main church space, the chancel and the side chapels.



Elevation of the nave.



Elevation of one of the side aisles.



Above and right: concept drawings of the custom pendant with the golden mesh shade.



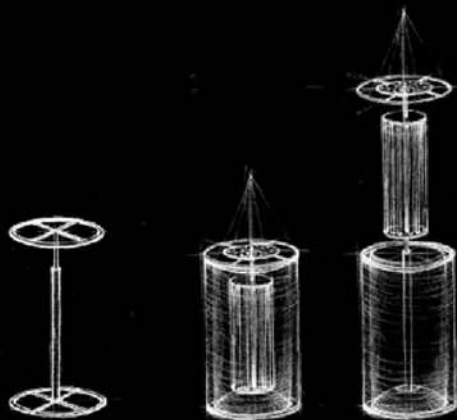


based the project around the principle of recreating an artificially lit environment that produces a similar effect to daylight, in other words, by filling the space with light.

The refurbishment project focussed on the nave, chancel and retable, which express the soul of the building. Parts of the church not open to the public were re-wired for future use only. Priority was given to the installation of equipment that would blend into the historic building without causing any visual interference or irreversible damage, as well as lamps with reduced UV emission levels to avoid damage by light radiation.

#### Logic as the path to highlighting wealth

The cruciform ground plan of Nuestra Señora de la Asunción y del Manzano Church presented a challenge for the lighting designers: the 44-metre long by



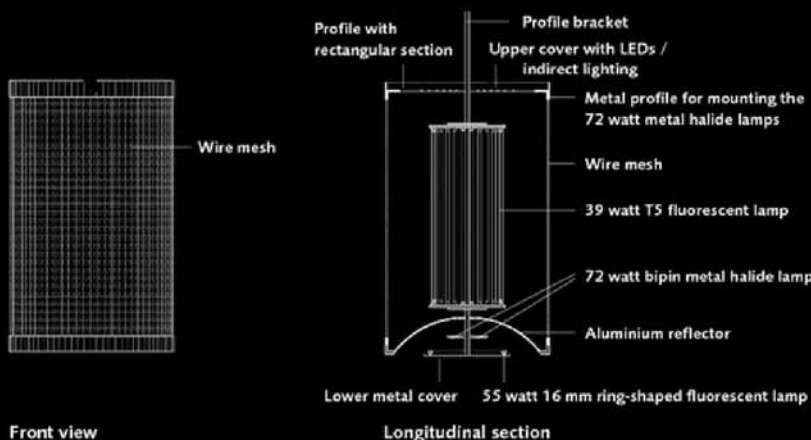
The interior of the church is light and friendly. The custom pendant luminaires meet the functional requirements of the place of worship and reveal the impressive architecture.

28-metre wide building comprises three naves of varying heights, eight columns, three polygonal apses and cross vaults. The lighting design focused on a uniform interpretation of the architecture, without accentuating specific surfaces, and the new, integrated lighting system included dimming control of the individual luminaires.

The existence of a cavity between the vaults and the roof of the church meant that the electrical installations could be implemented without any damage to the architecture, at the same time ensuring reversibility of the system. The same was true of the floor: a cavity under the floor enabled the installation of fittings, including wiring and batteries for the emergency lighting for each sector.

The system for the general lighting of the church was split into four types: direct lighting, indirect lighting, side lighting and emergency lighting. The first three systems, although operating in conjunction, are wired on separate circuits, since they are the most frequently used.

The light sources employed are fluorescent lamps with electronic starters (minimum service life of 10,000 hours)





and LEDs (maximum service life of 50,000 hours) with a colour rendering index of 85 and colour temperature below 3200 K to ensure good visual quality and to comply with energy efficiency regulations. The dimensions of the luminaires vary in proportion to the height of the nave in which they are installed. Those installed in the side aisles and chancel are a different size to those in the central nave and transept. According to lighting designer, Macarena Risso: "The varied use of lighting equipment simultaneously meets the functional requirements of a place of worship and effectively highlights the architecture and artworks contained within."

The Intervento team designed all the luminaires for the Hondarribia project, including the chrome-plated pendant lights, which have received a golden wire mesh shade and are part of the direct lighting component. Thanks to the golden mesh, the luminaire seems to change in appearance depending on the observer's angle of view. The way it catches the light creates the optical effect of a series of rings. At the same time, the observer has a clear view of the rhythmic lines of the gothic vaults and is not disturbed by glare or visible electrical wiring. The luminaires are fitted with 54 watt and 24 watt T5 fluorescent lamps and were designed in two sizes for use in different locations.

The indirect lighting component comprises luminaires equipped with one watt LED sources installed directly over the upper section of the luminaire. The LEDs are equipped with lenses to produce a beam angle of at least 90 degrees.

A linear system with high frequency fluorescent lamps with electronic ballasts forms the larger percentage of the side lighting. The fluorescent lamps have a colour temperature of 3200K and a colour rendering index of more than 95. The light emitted by the linear fluorescent lamps is slightly tinted thanks to the glass diffuser on the fitting.

#### Highlighting the charm of the most distinguished artefacts

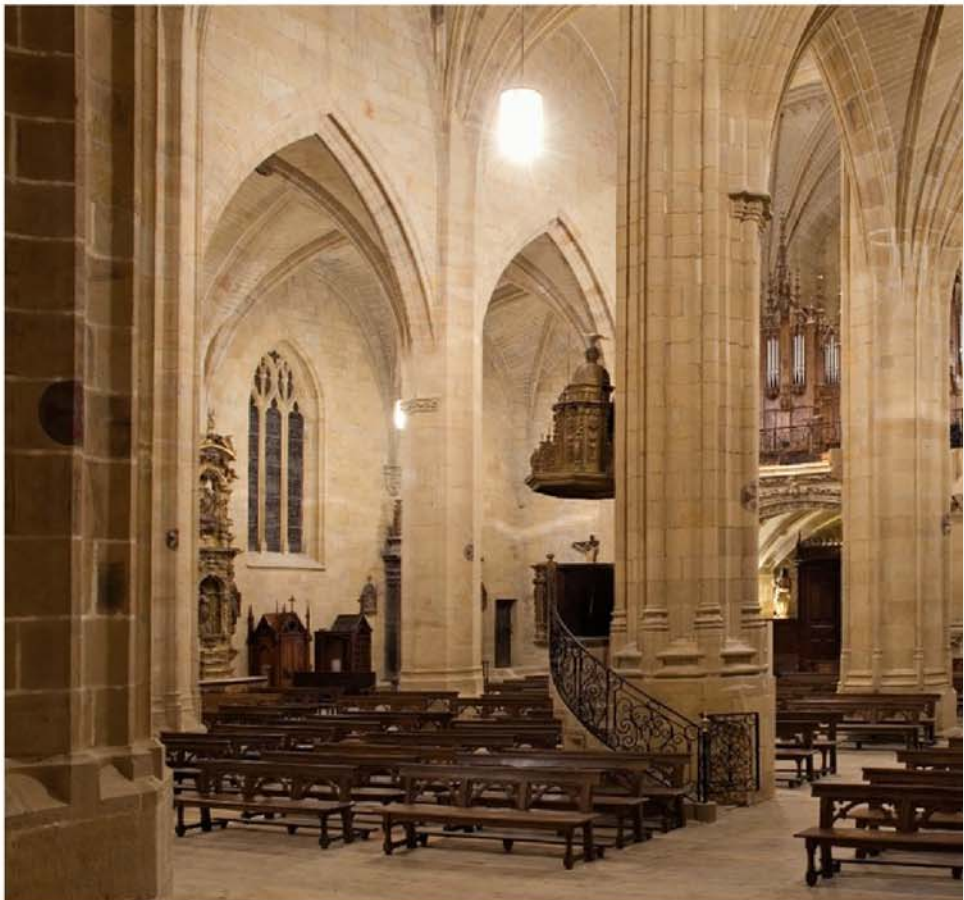
Upon entering the chancel, the heart of the Nuestra Señora de la Asunción y del Manzano Church, visitors approach an immense golden retablo (a panel with various meaningful images and sculptures positioned behind the altar). Multiple focus luminaires equipped with 100 watt QR111 halogen lamps accentuate the vertical qualities of the retablo.

The former lighting system had done nothing to enhance the golden lustre of the retablo, which has undoubtedly become the main feature of the church. Macarena Risso explains: "Two other factors have given the retablo even greater presence: no highlights have been used on the icons of the piece and the area immediately behind the retablo has been kept visually blacked out to provide negative contrast."

To maintain a balance, the shrine is illuminated by 100 watt 8/24° QR111 halogen lamps equipped with Fresnel lenses. The chancel walls and dome are evenly lit by four vertical luminaires equipped with fluorescent lamps, two of which are installed in the columns of the chancel entrance and the other two in the columns in relief that are set back slightly from the retablo. Directional spotlights, each sourced with an AR111 halogen lamp and mounted



The lighting concept comprises direct general lighting and purposefully focussed accent lighting.







Viewing the altar from the pews, the observer is not affected by glare from the luminaires mounted on the columns. This is not the case for the priest, choir and servers.

on a vertical bar, illuminate the vaulted ceiling and the chancel space.

Although as striking as the chancel, the renovation of the side chapels was restricted to the highlighting of the retables. This is because, being open, the chapels are partially lit by the crossed beams. The side chapels thus receive soft, uniform ambient light, with discreet accentuation of the iconographic imagery on the retables.

The area reserved for the learning of the religious canticles is also no longer hidden from the eyes of visitors and churchgoers. A series of ceiling-mounted asymmetric battens equipped with linear fluorescent lamps illuminate the choir so it can be well seen from the nave. On the wall, two luminaires equipped with 21 watt T5 fluorescent lamps put soft light to the sculptures on the side doors, bringing out the texture of the stone and enhancing the perspective. Two steel tubular floor lights are installed in front of the columns that mark the chancel area.

Prior to realisation, the team from Intervento considered maintenance aspects to ensure the designed scheme would perform well over the course of time. As well as using light sources with a long service life, the team designed the lighting to enable maintenance without the need for scaffolding or tall ladders. The equipment installed for the main lighting can be maintained from the ground, while the feature lighting can be maintained using ladders of up to four metres.

#### A different understanding of lighting design

Comment from Joachim Ritter

There are still a variety of interpretations of the meaning of the quality of light in circulation. This is probably the biggest problem lighting people have when they are talking about lighting design. Features that indicate quality, or guidelines that help define it, have yet to be formulated and accepted. Or perhaps it is simply a lack of true understanding of the potentially different points of view. Completed, this project does not reflect the high-quality design ideas that were in evidence in the concept phase.

At first glance, it would appear that the project has been well implemented. The analyses sound plausible enough and the designs come across as convincing and exciting. The designers have structured the space and treated the different zones and sections of the building using different luminous colours, and realised the goal of accentuating specific details and, of course, the magnificent retable. This is a sound approach, although there is undoubtedly room for development.

The project descriptions also make sense. But the lighting technology does not seem to be quite in line with what the designers had in mind. Using fluorescent

lamps you can certainly create diffuse illumination, but this is not the best solution for bringing out the texture of the stone walls and pillars, as was clearly hoped.

Maybe the photos have not captured the design approach and the real quality of the space as described by the design team, which I am inclined to believe, even if the lighting designer claims that the images do indeed correspond to reality. To sum up: what we have here is a clean and truly exciting technical (luminaire) solution which has incurred a number of concessions at implementation stage.

#### Project team:

Client: Teusa, SA (Técnicas de Restauración SA)

Lighting design: Intervento, Madrid/E, Pablo Barone, María Gil de Montes, Miguel Ángel Rodríguez, Macarena Riso

Electrical engineering: Juan Carlos Campillo/E

#### Products applied:

General lighting system:

Pendant light with decorative golden mesh shade, Pralibel/Illumarte  
54 watt and 24 watt T5 fluorescent lamps

2 watt LEDs for indirect lighting

55 watt and 40 watt circular tubular lamps for direct lighting and emergency lighting, Osram

70 watt/830 VMHM equipment with electronic ballast, wiring for all controls with independent control.

#### Presbytery:

One-watt LEDs with 90° + lens, Osram

Indirect lighting system with 21 watt lamp and linear system of six-metre long luminaires, Pralibel/Illumarte

100 watt QR111 halogen lamps, Osram

Sanctuary lighting: 100 watt QR111 halogen lamps, Osram

#### Chapels, retable and transept:

Luminaires, Pralibel/Illumarte

100 watt QR111 halogen lamps, Osram

Indirect lighting, lumilux vario 58 W/830, Osram, with adjustable electronic ballast

#### Altar lighting and decorative elements:

100 watt QR111 halogen lamps, Osram

#### Chancel:

Steel tubular floor light, 60 mm high, Pralibel/Illumarte

35 watt T5 lamps, Osram

Niepsche luminaires equipped with 21 watt T5 put soft backlight on the sculptures on the side doors.



The pendant luminaires in the nave are discreet and glare-free.