PLACES OF WORSHIP MONUMENTS AND MUSEUMS

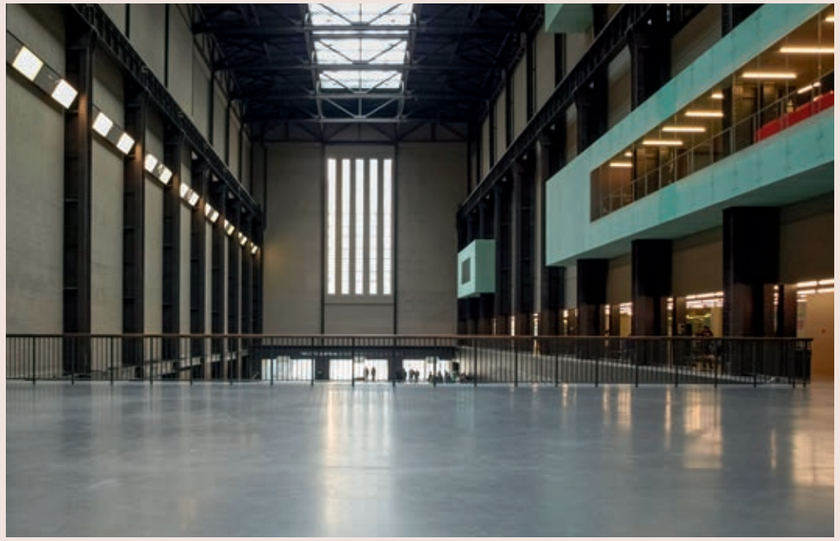
LIGHT, MATERIAL AND CULTURE

lumenpulse™ lumenalpha™ eXenia | lumenpulse™ GROUP

CONTENTS

LIGHT, MATERIAL AND CULTURE

LUMENPULSE GROUP

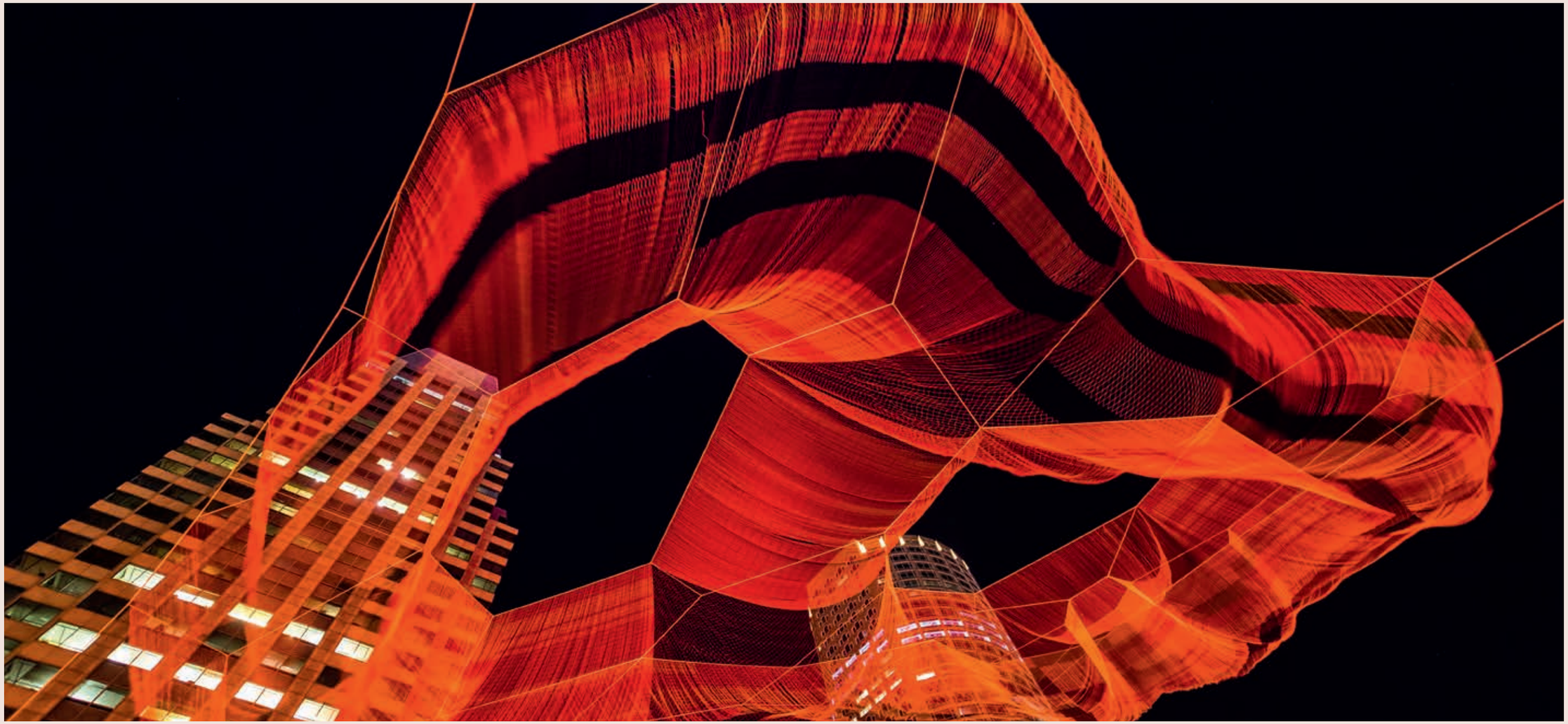


An essential aspect of a quality lighting design is that it is coherent and respectful of the elements that define the identity of a space.

Whether natural or artificial, light illuminates space, configures it, shapes and transforms it, and ultimately modifies our perception. With architecture, light imposes itself as a vibrant element that helps defines a structure, emphasising, narrating, and preserving the space. Lighting can do this in a number of ways, in a variety of different spaces. In spaces that are more unique, there is more at stake than just visibility, often comfort, energy savings and the lighting design itself are of singular or simultaneous importance.

We don't always realise it, but often, when we find ourselves inside an ancient building or crossing the threshold of a church, or moving through a museum's rooms, our experience is intensified and made more gratifying because the use of the lighting. This occurs because the aesthetics and function of the luminaires seamlessly compliment the space. The luminaires are often hidden and speak through a harmony with the architecture, the building materials, and the works of art. They speak in beauty. Lumenpulse Group creates light of the highest quality with an elegant, technologically advanced approach that enlivens our lives and visions.

The encounter between light and matter is a magic that occurs on the border between perception and emotion. It is, as James Turrel aptly defines, "Feeling with the eyes".



Arup used Lumenbeam Grande RGBW luminaires to increase the colourful, night-time presence of Boston's monumental Echelman sculpture. Photography: Roberto Farren.

Respecting history, art and faith. All three of these elements intersect and play a part in forming the whole of a space. The Lumenpulse Group provides solutions that respect the essential elements of the identity of each space, enabling you with the ability to create a coherent and respectful lighting design.

Advanced technological solutions. Our goal is to provide luminaires that are sophisticated in design and performance; fixtures that are able to illuminate a space without disrespecting it, while also creating a presence that showcases and pays homage to the original intention of the space, its artwork, architecture, and historical context.

Tailored to be original. No setting is the same, especially historical spaces. The Lumenpulse Group provides solutions for lighting designers through highly flexible luminaires, luminaires that can be individually calibrated to the objectives of each project and the specific features of each space's intended use.

We have years of experience in orchestrating harmonies between light and space. The selection of projects showcased herein are a testimony to our passion for light.

PLACES OF WORSHIP
BETWEEN EARTH AND SKY

The Basilica of San Miniato al Monte
Respecting shadows

Strasbourg Cathedral
A step to the sky

Cathedral of Madonna della Bruna and Sant'Eustachio
An accent on beauty

The Crypt of SS. Nicolò and Domenico
Mystic atmospheric

Saint Maria OF Palomba
Ease of perception

Church of Santo Tomás
Emboldened details

Basilica of San Biagio
The value of discretion

Saint James Cathedral
Upright lighting

Church of San Gaetano Catanoso
Magnificent virtue

BETWEEN EARTH AND SKY
PLACES OF WORSHIP

Regardless of the religion, light is essential in helping to create an atmosphere of contemplation and worship.

Within many places of worship, the symbolic power of light becomes something tangible, it takes on a shape that fills the space in a way that's almost touchable. In many religions, light represents the divine, the good. It is an element to be celebrated and worshipped in itself.

An historical and cultural attitude towards light makes Christian churches, in particular, environments where light, even before fulfilling common functions, embodies transcendent meanings that lighting designers must consider. For this reason, one of the first steps is to study and understand the context and the environment when developing a new lighting strategy. The era in which the structure was built, subsequent renovations and additions, the most important architectural details, the works of art preserved there, the quantity of natural light — all of these are fundamental elements for a designer to consider.

Architectural proportions and details, such as frescoes and symbols of the liturgy in Christian churches, are a multi-faceted challenge for every lighting designer to balance.

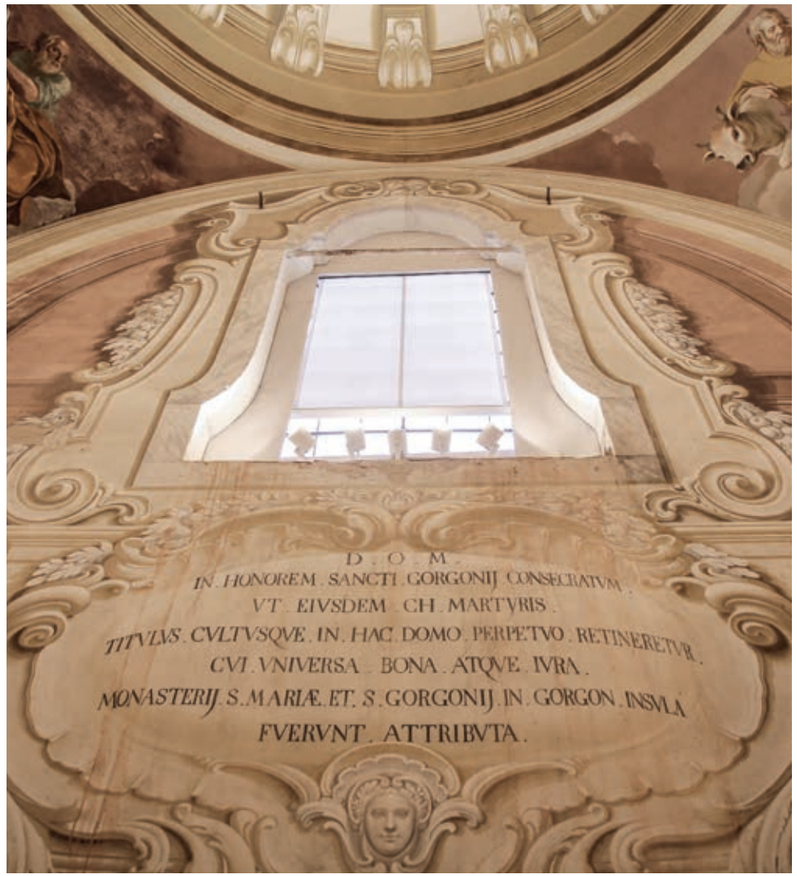
"If I had to choose a dominant "quality" that marks a successful lighting design for a place of worship, I would say that it must illuminate the essential essence of the place. It must include not only the space in which artworks are contemplated, but it must also unravel the historical and stylistic connotations of the surrounding splendour of the place itself." **Alessandro Grassia**

There are many other aspects to keep in mind given that many places of worship are multi-faceted and simultaneously dedicated to prayer, meditation, as well as cultural performances and tourism, etc.

What initially attracts visitors is the "vessel," the architecture as a work of art, followed by the "content"; the frescoes, paintings, sculptures and all the decorations that give such great importance and culture to churches, synagogues, temples and mosques. Light must make all these aspects perceptible and enjoyable, enhancing proportions and colours without compromising the integrity of the building, while also helping to conserve the structure and its contents through design choices that are respectful of the materials and history.

In this sense, technology and design have interesting implications and play a key role, not only in preservation, but also in energy savings and managing cost effectiveness. The use of advanced LED sources offers choices and opportunities that were unthinkable only a few years ago: the prevention and protection of painted surfaces, the true realisation of original colours, the reduction of consumption and maintenance costs, all of which are progressing thanks to the high performance of new optics that have been developed for LEDs.

The design of lighting fixtures is another consideration when lighting places of worship. Essential shapes and compact dimensions allow the end user to conceal lighting sources within the architecture without distorting the architecture's original aesthetic. More than light, the architectural elements that light gives voice to, the details it amplifies, the memory it spurs, and the atmospheres that the designer, with the right tools, creates can evoke emotion.



LED technology offers unimaginable opportunities for control enhancement, conservation and energy savings.

THE BASILICA OF SAN MINIATO AL MONTE

RESPECTING SHADOWS

The Basilica of San Miniato al Monte, in Florence, is an absolute jewel. Not only because of its outer beauty, but also due to the masterpieces of visual art kept within its walls. The structure's mystical atmosphere conjures up the past and has created a unique historic relationship with the city, a city that loves and cherishes it. Although it is a much sought after tourist destination, the basilica is kept somewhat away from the more chaotic tourist circuits, attracting only the most attentive and intrepid visitors.

Commissioning for the renovation of the Basilica of San Miniato was made possible through the patronage of the Ministry for Cultural Heritage and Activities | Lighting Design: Massimo Iarussi | Electrical Installation: SIEF 2000 | Photography: Matteo Trentanove, Matteo Bencini

Built between the 11th and 13th Centuries, the Basilica of San Miniato al Monte is considered one of the greatest examples of Romantic Florentine architecture.

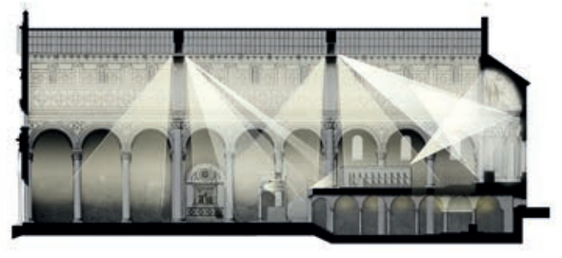
A lighting designer's work, when it is done well, privileges discretion. Good illumination should not impose itself, but rather appear to be inherent to the space. This principal is especially true for San Miniato. It was almost unthinkable to add any elements to this already perfect space. It was for this reason that the lighting design proceeded with kid-gloves, it had to help visitors, while keeping the essence of the space in place.

A subtle rejuvenation underlining the contrast between external natural light and the dim light of the interior, preserving the fascinating mystery of the space.

Upon entering the basilica, one is struck by the contrast between the natural outdoor light, which can often be blinding, and the darkness of the interior. It is this darkness that holds part of the charm of the place. On their own, the shadows fall naturally throughout the architecture. The idea behind the new lighting scheme focused on respecting this dark, this “silence for the eyes.”

The lighting design’s focus is an exercise in balancing the natural and the artificial light. The architectural elements are thinly illuminated, this light is at such a gradient so as to balance the hierarchy of the architectural elements. What occurs is, the eye is guided effortlessly towards the presbytery, then towards the apsidal basin and its marvellous mosaic, which is the focal point of the basilica and the fulcrum of its religious symbolism.

Longitudinal section
Previous lighting design



Longitudinal section
New lighting design

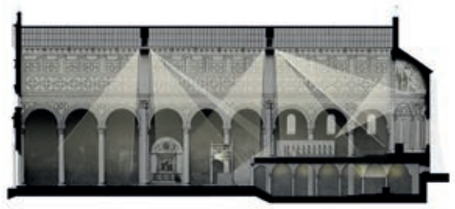
Although discrete, the illumination of the basilica establishes a precise hierarchy of space and symbol.

All lighting fixtures were unobtrusively positioned so as not to pollute the space or affect the sightlines of visitors. The light precisely strikes the architectural elements and frescoes without spilling onto nearby surfaces.

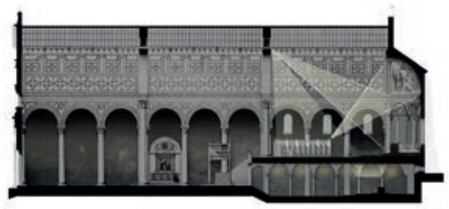
The richly symbolic marble inlays of the floor are illuminated by fixtures mounted on the trusses. The luminaires were customised to evoke traditional lanterns and are equipped with precision optics to make each of the tiles stand out clearly.

The light reaches the targeted areas with extreme precision and with minimal spill onto adjacent surfaces.

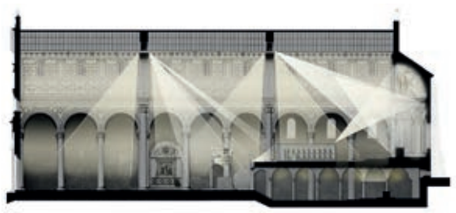
The entire lighting design is digitally controlled. The use of an innovative new technology has made it unnecessary to install additional data wiring, therefore preserving the architecture. Differentiated bright scenarios reflect the intense daily life of light in the basilica: it accompanies the friars in their recollection, it guides tourists and visitors, it welcomes the faithful and adds to celebrations.



Scene 1
Daily religious functions



Scene 2
Chorus functions

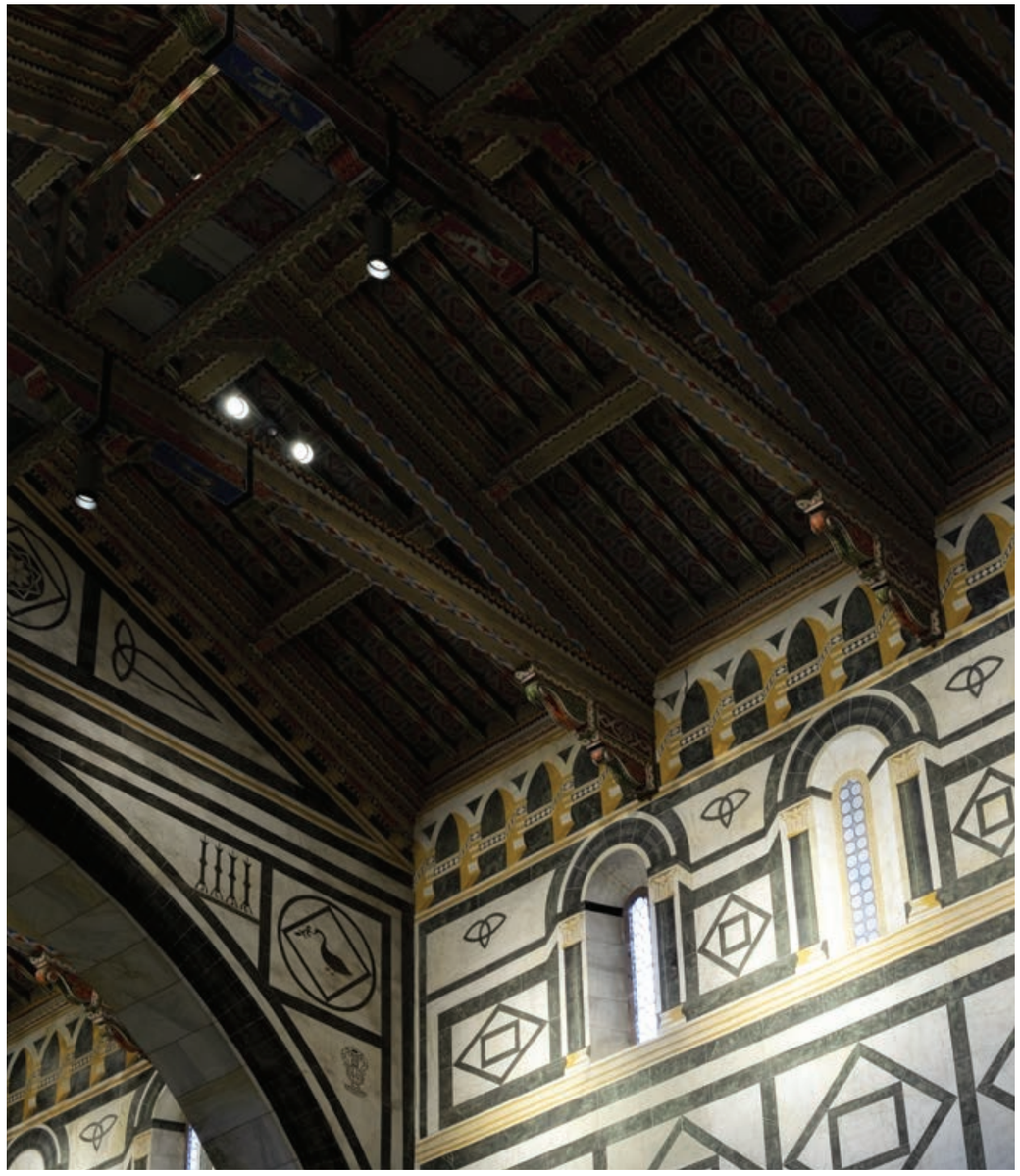


Scene 3
Solemn functions

Scene 4
Greater contrast for concerts

Scene 5
Highlighting architectural elements

Scene 6
Functional lighting for services



Scene 4
Greater contrast for concerts

Scene 1
Daily religious functions

Scene 5
Highlighting architectural elements

LUMENPULSE PRODUCTS

In order to emphasise the architectural details from a great distance, the lighting design of the Basilica of San Miniato required the use of projectors from the Lumeniris and Lumenbeam family. These projectors allow for beams as narrow as 6° which allows for extremely precise lighting over great distances, in the case of San Miniato over 20m.

The Lumeniris with its base mount or pendant mount design was the ideal product to light the main areas of the church, highlighting the ceiling and isle. The Lumenbeam with its yolk mount, was used to light the dome at the back of the church.

EXENIA PRODUCTS

In some cases, the basilica's architecture required softer floodlighting, with optics of 40° and 3000-3500 lumens. The most compact solution possible proved to be the Museo Compact projector with a colour temperature of 2700K.

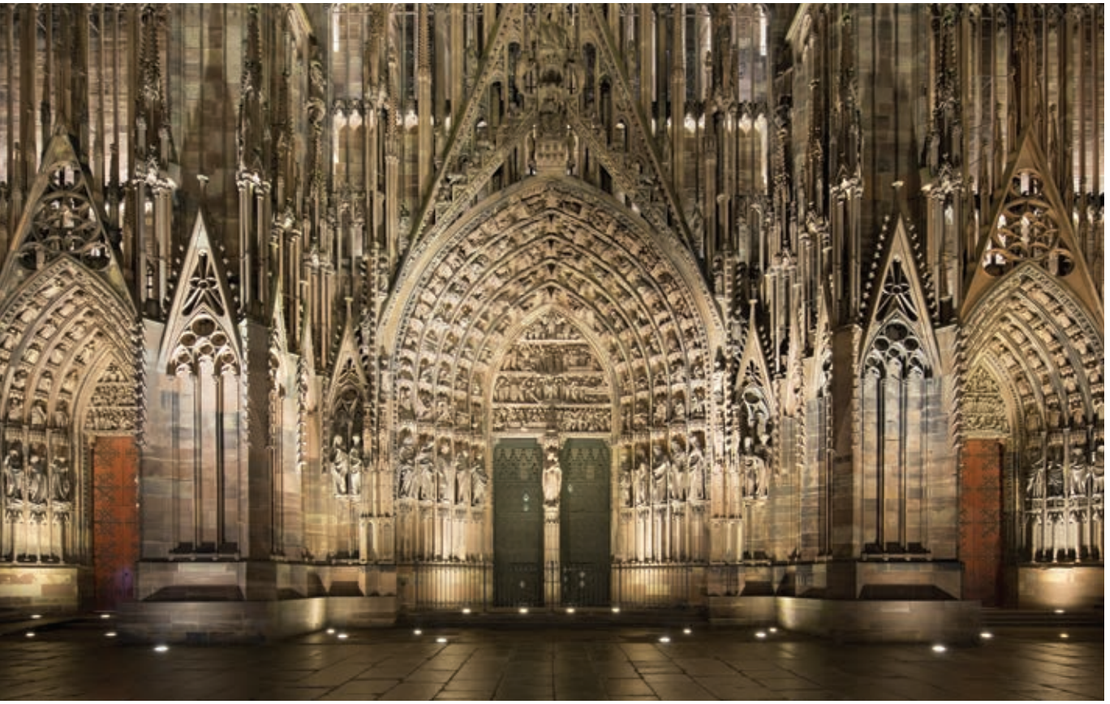
The application constraints and the delicacy of the context required the development of a special plug-and-play module that could handle opposing, independent optics, while interfering as little as possible with installation times and liturgical activities. The Lumentalk control protocol singularly managed all optical groups and is completely invisible by virtue of the particular positioning of the sources.

The side aisles are illuminated by dimmable pairs of Museo Small equipped with different optics to create a differentiated effect. The excellent relationship between dimensions and performance and textured rust finish enhance their mimetic properties, the ability to merge to perfection architecture.

The dimensional and performance variables of the Museo range have found, in the complexity of San Miniato, an extraordinary place to show off their abilities. In the Ciborium of Michelozzo, two Museo Micros were used with differentiated triple optics and are independently dimmable thanks to the control protocol, Lumentalk.

STRASBOURG CATHEDRAL

A STEP TO THE SKY



Lighting Design: L'Acte Lumière | Architect: L'Atelier JCBA
Photography: Xavier Boymond

The appearance of one of Europe's most important cathedrals has been transformed with an extraordinary new lighting design. The Strasbourg Cathedral is a symbol that is as religious as it is artistic and cultural. The project — part of a unified lighting plan for the city — uses approximately 400 luminaires from Lumenpulse.

A sublime lighting design for an iconic place of art and faith.

L'Acte Lumière's design emphasises the soaring silhouette of the cathedral and the consistency and colours of the materials in which it was made.

The new lighting design is intended to bring out the splendour of the Gothic architecture: the distinctive colours of the sandstone, its intricate stonework and incredible height.

The cathedral's lighting design required over 400 LED projectors.

The project was developed using approximately 400 technologically advanced LED luminaires carefully concealed from view within the structure. Many of the luminaires were also custom painted so as to be less conspicuous. An important feature of the lighting is the ability to fine-tune the colour temperature of each luminaire to precisely match the colours of the stonework.

At night, the lighting dims to provide an overview of the complex, simultaneously minimising the dispersion of light into the night sky.

The luminaires turn on gradually at twilight, highlighting each successive layer of the architecture with light that grows progressively warmer towards the centre. After 22:00 the lighting changes to give a more unified view of the whole edifice at its full height. After 01:00, only the top part of the cathedral is lit, minimising light pollution and spill onto nearby buildings.

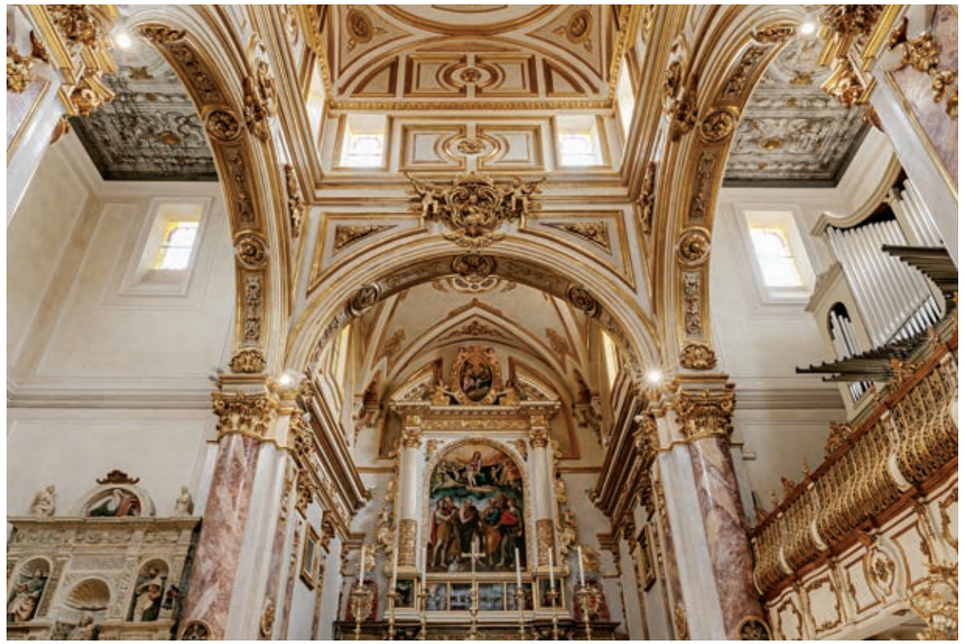
PRODUCTS USED

Lumenpulse: Lumenbeam Small and Large, Dynamic White and Lumenfacade luminaires.

CATHEDRAL OF MADONNA DELLA BRUNA AND OF SANT'EUSTACHIO

AN ACCENT ON BEAUTY

The 13th Century Cathedral of the Madonna della Bruna and Sant'Eustachio is the principal place of Catholic worship in Matera and is a splendid architectural synthesis of art and faith. The Civita is built in the Romanesque/Pugliese style on the top of the hill that divides the two districts of Sasso Barisano and Sasso Caveoso. Its interior preserves precious frescoes as well as numerous altars used in the past by noble families. After a 10-year restoration process, on March 5, 2016, the cathedral reopened, welcoming back its congregation and the many tourists who crowd the city of Sassi every year.



Lighting Design: Francesco Logallo and Loredana Mobilia of Garofoli S.p.A.
Installation: Impresa Lupo Michele | Photography: Pierangelo Laterza

Curated by the Superintendence for Architectural Heritage and Landscaping of Basilica, the lighting project was meant, first and foremost, to emphasise the symbols and importance of the liturgy. This was achieved through a series of projectors, with both narrow and medium beams, which were placed on the altar, the apse, and the Celebrant's Seat. The fixtures were placed artfully on the cornices, at a height of about 6m, this solution did not alter the visual continuity of the architecture and also avoided the creation of uncomfortable glare.

In the Crib Chapel, the uniform lighting of the vault heightens the appreciation of the vivid colours.

A second design involved the chapel, which houses the nativity scene stone sculpture completed by the artists Altobello Persio and Sannazzaro di Alessano. The lighting design is a combination of the uniform lighting of the ceiling, which is richly adorned with icons of the prophets exalting the nativity, and the proclamation of Christ's descent to Earth, while also accent lighting the nativity scene statues and holy family. In particular, emphases was created using the skilful alternation of wide and narrow beam optics.

Floodlights with alternating wide and narrow beam optics emphasise the hard stone figures of the crib.

PRODUCTS USED

Exenia: Museo and Museo Small (Spot, Medium and Wide optics, CRI 85 - 3000K).

THE CRYPT OF SS. NICOLÒ AND DOMENICO

MYSTIC ATMOSPHERIC

Lighting Design: Andrea Ingrosso
Photography: Bruno Barillari

A recent restoration of the crypt has brought to light a cycle of frescoes, which had long remained hidden under a thick layer of lime. The underground crypt (hypogeum) was made by Cavallino around the year 1000 CE and is located under the Church of the Santissimi Nicolò and Domenico. The frescoes, added in the 17th Century by the Basilian monks, were being threatened due to the humidity of the environment, an area just over 50m^2 and 2.45m high.

Without altering the existing electrical system, the project team were able to create a lighting system which measures and governs the intensity of light touching the walls and ceiling. This was in order to both conserve and highlight the colours of the frescoes. Besides creating an uncomfortable glare, the previous uplighting distorted the perception of the original colours, preventing an authentic reading of the place and the mysticism which permeates it.

The lighting design for the Crypt of Cavallino fully reveals all its expressive power.

The accent lighting on the altar was achieved by hiding the luminaires in two narrow side niches. The lighting design was developed after a lengthily study in order to recreate a lost atmosphere as well as to preserve the works of art.

The ancient frescoes of the crypt illuminated by recessed fixtures on the ground with a wallwash optic and backlight shield.

PRODUCTS USED

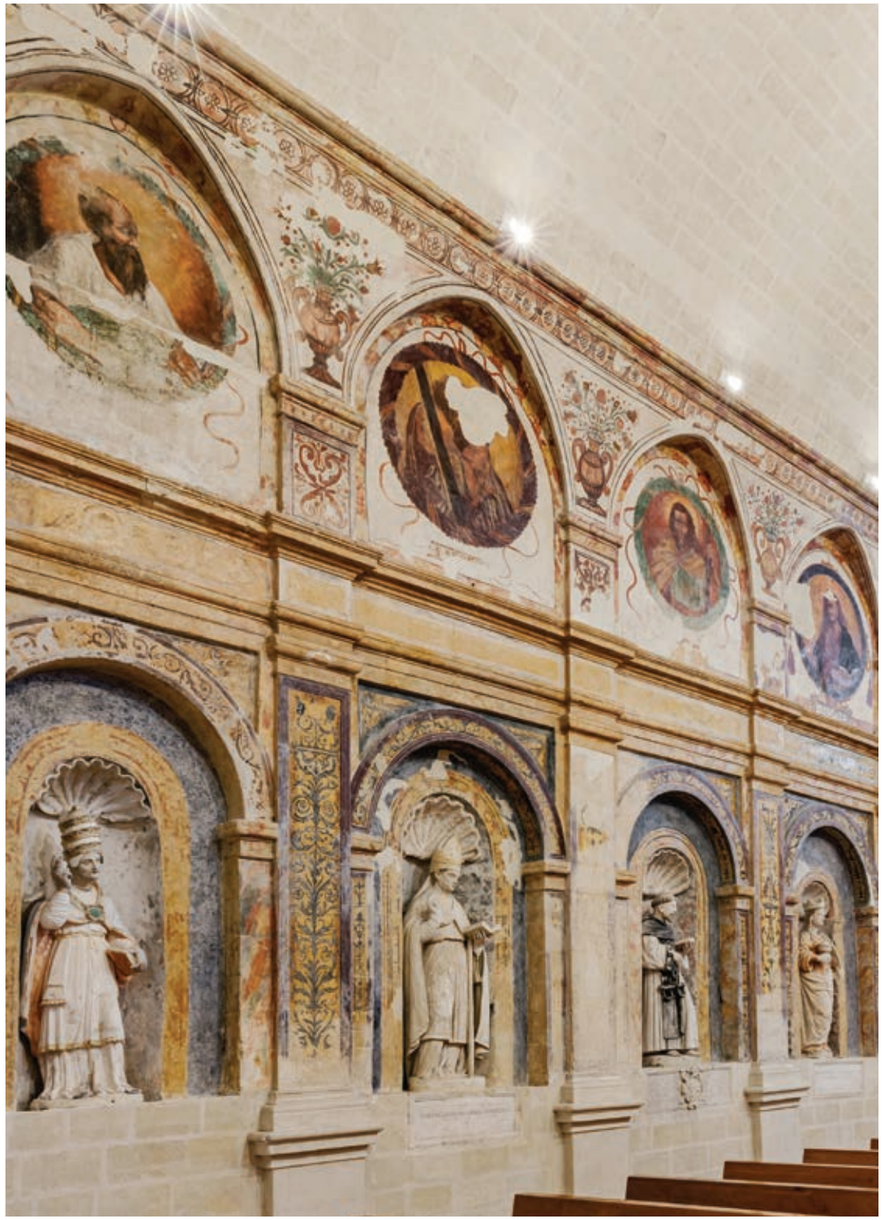
Exenia: Museum Small (Spot optics and Medium, CRI 85 - 3000K).
Lumenpulse: Lumenfacade Inground DWH. Control System: Lumentalk.

SAINT MARIA OF PALOMBA

EASE OF PERCEPTION

Built in the late 16th Century, on the edge of the Gravina di Matera, the Sanctuary of Santa Maria della Palomba is an important place of worship. A much older, stone church occupied this location and has been incorporated into the newer, Romanesque-Renaissance style structure. Its history, which alternates between periods of splendour and of abandonment, is linked to some miraculous events which have apparently occurred while in the presence of an indoor fresco known as “Madonna with Child”.

Lighting Design: Francesco Logallo and Loredana Mobilia of Garofoli S.p.A. | Installation: Ditta Morcinelli Saverio
Photography: Pierangelo Laterza



Double projectors softly light the arches of the single aisle and the vaults.

The church’s facade has numerous carved stone decorative details, the most notable being a work by Giulio Persio, which represents the Holy Family. Entering, along the right wall of the church, some niches house other statues by the same artist.

The lighting design illuminates with a precise uniformity, enhancing the single nave, the presbytery and the important architectural details. Among the objectives of the design, was the wish to also lower energy consumption while simultaneously creating the best combination of light that is comfortable and increases visibility.

The new lighting design focuses on the twofold objective of providing the correct levels of lighting while also lowering energy consumption.

Twin-headed LED projectors (3W per spot) illuminate the unique nave of the church. Wide beams of light underline the vault's back and side frescoes, and statues.

Four large projectors, located on the corner frames of the vault, uplight to emphasise the vaulted ceiling of the presbytery, which houses the altar, the ambo, the Celebrant's Seat and the baptismal font. A number of projectors illuminate the wall at the back of the altar. The lighting is created using a narrow beam optic with a honeycomb louvre.

PRODUCTS USED

Exenia: Museo and Museo Small, equipped Medium and Wide optics (40W CRI 85 - 3000K); M4 projectors on Eurostandard Track, equipped with aiming, locking optics (all are Medium, CRI 85 - 3000K).

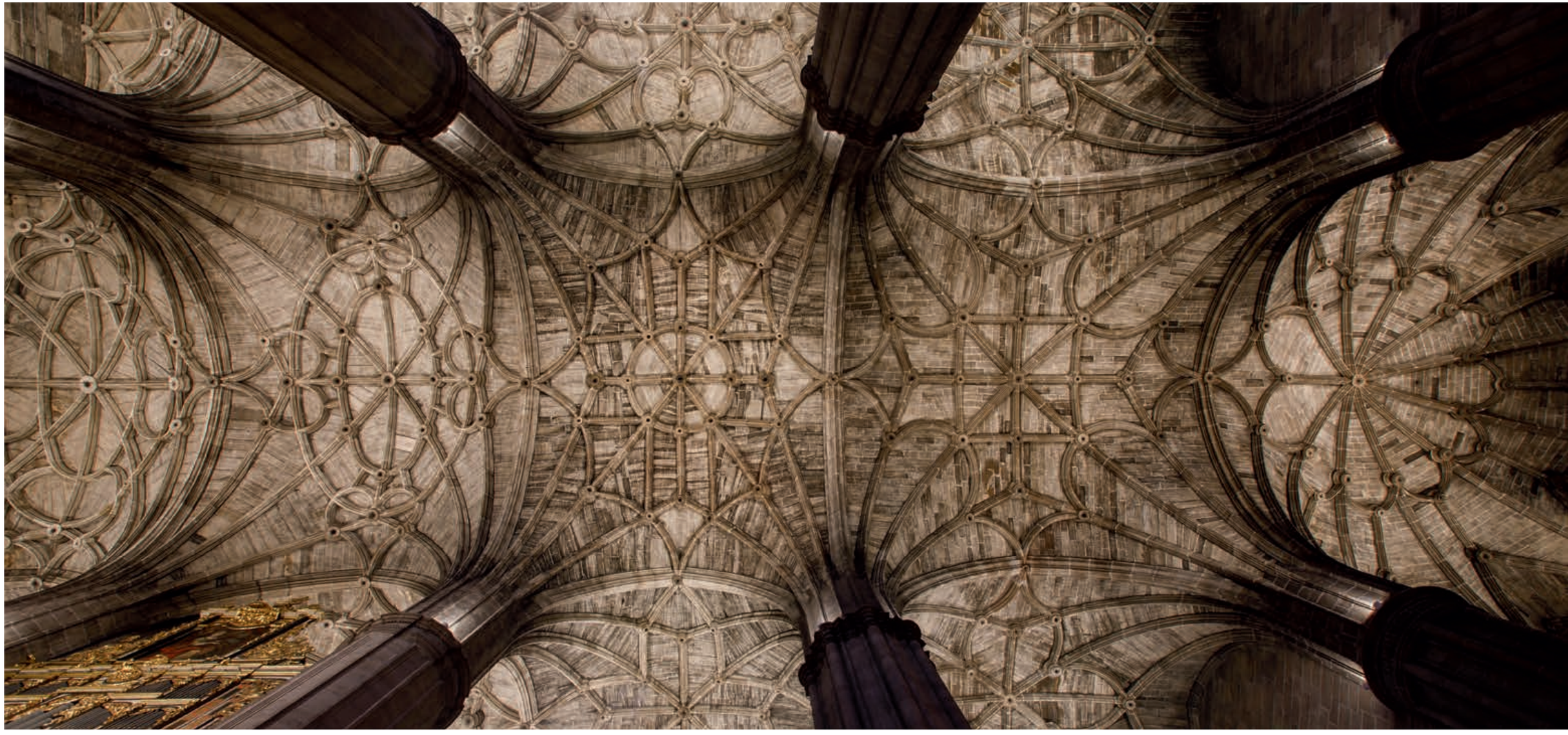
CHURCH OF SANTO TOMÁS
EMBOLDENED DETAILS

The Hallenkirche is an exceptional type of church where the central nave is as high, or higher, than the side aisles. This Gothic and Late Gothic period architectural feature seperates the Hallenkirche from the typical Basilica model. Hallenkirche-type churches are mainly found in Germany.

Project Director: Gaspar Aragón | Lighting Design: Osaba Iluminación | Installation: Imel s.l.
Photography: Jpegestudio

Built between 1512 and 1613, the Church of Santo Tomás, in Haro, Spain, is a rarity, not only for its geographical location, but also for its varying architectural elements. This combination of styles from the Renaissance, Plateresque and Baroque periods, creates a harmonious blend.

"Retablo" is the Spanish term for an architectural shelf or frame that encloses decorated panels or revered objects above and behind an altar. Here, the golden "retablo" of the Church of Santo Tomás is glorified by LED projectors with high colour rendering.



The lighting design perfectly emboldens the impressive stone cobweb of the starry vaults.

Upon entering, one by the vertiginous heights, which are even more spectacular thanks to a double row of pillars that rise and merge into starry vaults and their richly textured supportive ribs.

One goal of the new lighting design was to increase the presence of the ribs, emphasising their decorative function. By placing projectors high on the pillars and the pilasters of the side aisles, they are not visible from below. The projectors embolden the stone embroidery of the ceiling and increase its three-dimensionality.

A second goal was to illuminate the apse and the choir areas. This was accomplished by placing the two areas in contrast with their surrounds, intentionally keeping them in a subdued light, while acutely lighting the golden ornamentation of these Baroque areas.

PRODUCTS USED

Exenia: Museo projectors (Large optics, CRI 95 - 3000K, DALI).

BASILICA OF SAN BIAGIO

THE VALUE OF DISCRETION

Project: Alberto Ferraresi
Photography: Giampaolo Sartori

Located between the provinces of Ferrara, Bologna and Modena, the Basilica of San Biagio in Cento has a history whose roots first took hold in the year 1000 CE. While also possessing late 19th Century decorative painting, the atmosphere for which it is most famous is due to the 18th Century paintings done during the church's refurbishment by the architect Alfonso Torregiani and once again consecrated to worship.

The serious damage caused by the 2012 earthquake in Emilia has spurred a series of new initiatives aimed, not only at improving the seismic response of the structure, but also to review the obsolete lighting design. During the rewiring of the electrical system, all the luminaires were replaced in order to reflect the space's usage and to illuminate the works of art contained within it.

Thanks to tone-on-tone finishes and the high positioning, the lighting fixtures are discretely concealed.

Compact and processing a low profile, the new luminaires were positioned on the frame ledges that run at considerable height along the perimetre of the central nave. Luminaires were hidden above the crowns of the colonnades. This created a discreet lighting presence that matches the tones of the basilica while not altering the perception of the space in any way.

The integration of natural and artificial light contributes to the reduction of energy consumption.

PRODUCTS USED

Exenia: Museo (Medium and Wide optics, 40W, CRI 85 - 3000K).

The lighting design considers the importance of natural light, which filters through the windows oriented to the south in order to ensure that there are adequate levels of brightness throughout the day. The integration of natural and artificial light allows a significant decrease in energy consumption. The intensity of each artificial light source can be adjusted individually, creating light that is measured and planned for the space's different liturgical needs, be they casual or solemn.

SAINT JAMES CATHEDRAL
UPRIGHT LIGHTING

The Renaissance-style Cathedral of Saint James is the main Roman Catholic church of Seattle and home of the local Archdiocese. Built between 1905 and 1907, with subsequent additions in 1916, as well as renovations after the collapse of the dome in 1950, and general changes in 1994. The latest lighting design has returned the cathedral to its role of “lighthouse,” which historically had belonged to the structure as it was visible in the night throughout the city.

Lighting Design: Eluned Lighting | Project Architect: Stephen Lee
Photography: Tom Reese

The cathedral’s exterior has a beautiful frieze facade and a stained-glass triptych between the two impressive towers. The design team focused on the facade, replacing the obsolete fixtures with high-performance LED luminaires which outperform in both energy consumption and maintenance categories. The system can be digitally controlled using the existing electrical infrastructure. This provides a clear cost benefit as new data cables did not have to be installed as well as future advantages should the system ever need to be upgraded.

The “dramatic” lighting of the facade serves to emphasise the height of the cathedral.

To dramatically illuminate the facade, emphasising the height of the towers and other architectural details, two different beam optics were used. The luminaires, with a compact and linear design, are barely visible so as not to interfere with the harmony of the historical structure. Other luminaires are mounted on poles designed specifically for the project, at intervals of 7 and 9m, in the open space in front of the cathedral. The same poles act as support for other fixtures positioned to accent the base of the facade.

Special poles of varying heights were placed in the open space in front of the church to support a series of projectors oriented towards the facade as well as for fixtures directed at the street.

PRODUCTS USED

Lumenpulse: Lumenbeam DWH Small, Medium and Grande; Lumenfacade DWH. Lumetalk control protocol.

CHURCH OF SAN GAETANO CATANOSO

MAGNIFICENT VIRTUE

Lighting Design: Giulio Malatacca and Bò S.r.l.
Photography: Domenico Lòfaro

The new church of San Gaetano Catanoso is the first in Italy to be built on land confiscated from the 'Ndrangheta. After three decades, this symbol of faith and legality was finally able to be built. Its arresting white structure emerges among the anonymous buildings on the outskirts of Gioia Tauro. The church possesses a minimalist, yet powerful architecture, primarily due to the combination of the three large parallelepipeds and a sparse, almost bare interior.

The essential and vibrant architecture of San Gaetano Catanoso, in Gioia Tauro.

For the purposes of the lighting design, the vast interior space, virtually absent of decorative elements , represented the most demanding challenge. The nave of the church is over 40m long and 16m wide and as many metres in height. The two lateral colonnades act as visual anchors, while the apse is illuminated from the bottom by a vertical window. The rest of the natural light comes from a series of skylights in the wooden-trussed ceiling.

To illuminate the central hall, cylindrical luminaires are mounted on the ceiling at intersection between the wooden beams.

To preserve the architectural simplicity, cylindrical LED projectors in Corten finish were developed specifically for the project. A series of 53W and 40W luminaires with 52° optics were installed at the intersecting points of the beams to uniformly illuminate the central hall. The same fixtures, equipped with 15° and 26° optics, illuminate the presbytery area, subtlety emphasising the altar, the ambo and the Celebrant's Seat.

Accent lighting and natural light in the chapel.

For the area of the Baptistery, located near the entrance to the church, a 26W luminaire was used. This same wattage was used to accent the baptismal font. The weekday chapel was illuminated with a similar wattage. Here, artificial light is integrated with daylight and is filtered through two ceiling slots.

PRODUCTS USED

Exenia: Museo projectors, integrated into cylindrical shapes with on-board power supplies. The resulted in low-luminance optics and COB sources with luminous fluxes of 6500 lumens.

MONUMENTS
IDENTITY OF PLACE

The University of Deusto, Paraninfo
A voice of colours

Palacio de Mafra, the Throne Room
Held by the light

Certosa of Calci
Improvised light

The Palais de la Porte Dorée
Brought to life by light

Tozzoni Palace
Memories of lives lived

Bruschi Falgari Palace
The revel is in the details

Gulinelli Palace
Learning by light

Compton Verney
A midsummer light's dream

Quéribus Castle
A fortress in the night-scape

IDENTITY OF PLACE
MONUMENTS

The lighting of the Burnham Building, in Boston, is an example of how light can underline historical architecture, helping to give it a precise and singular identity.

The artistic lighting of monumental historical buildings is a relatively recent development. The belief that valuable architecture should be enjoyed even at night and that artificial light can help to celebrate important buildings and structures as urban symbols is what has fuelled the movement.

Lighting designers can choose any number of strategies to highlight monuments, such as: mimicking the uniformity of daylight throughout the night; highlighting some areas more than others; or, creating specific scenes of dynamic light through the use of colour. Lighting the exterior part of a building requires a series of considerations, namely the constraints and laws regarding light pollution. It is also a good suggestion to not treat the building you're lighting as an isolated element, but as a part of a larger context in which it must be harmoniously integrated through an historical-urban study of the environment and context.

To transform the Boston Harbor Hotel into a shining beacon, recognisable from a distance, the designers opted for a dynamic lighting concept.

Light can take away and add, it can corrupt and enhance. In Warwickshire, a few simple tricks have exalted the classic proportions of a typical English country residence.

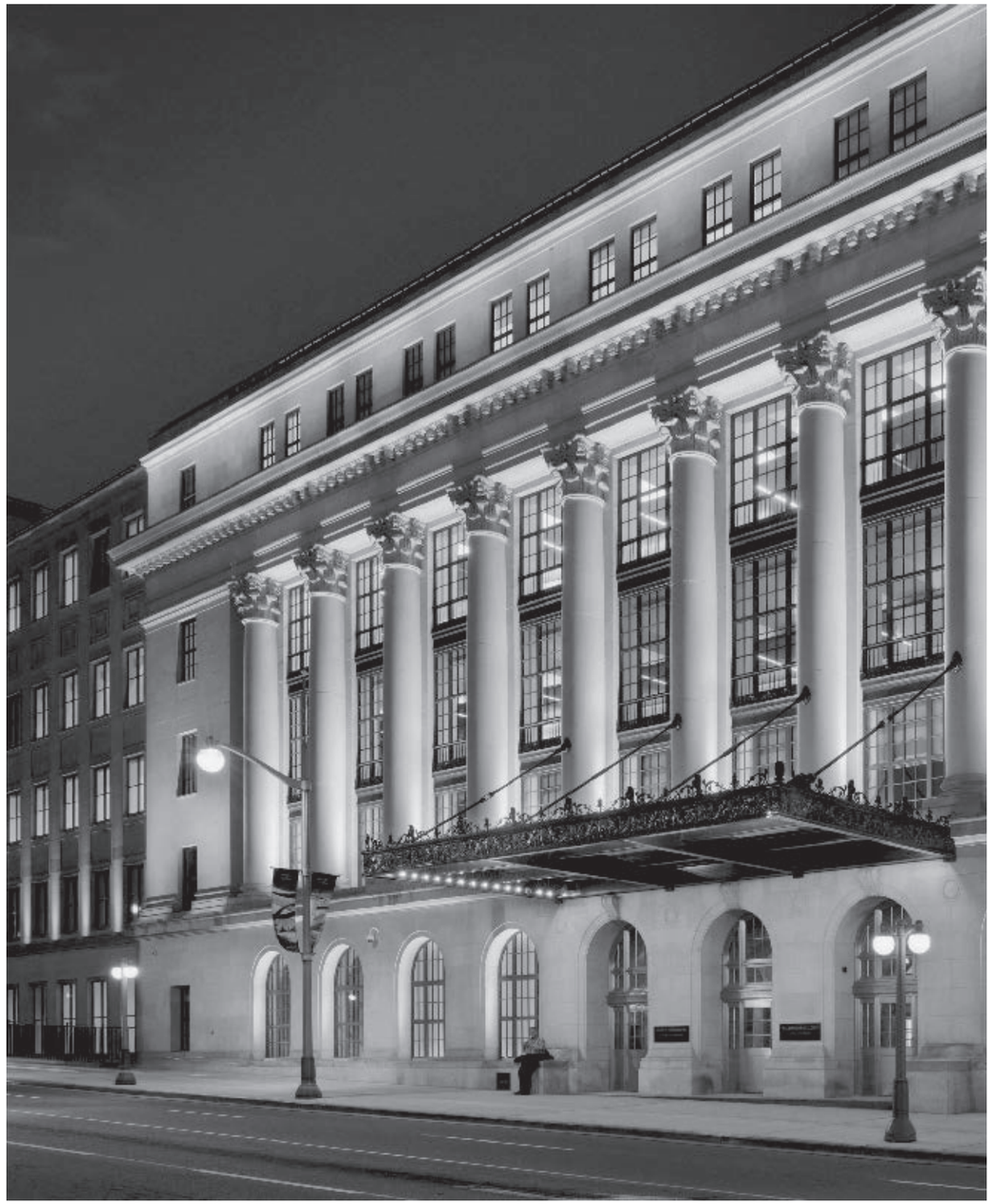
Ultimately, the aim should be to give the building a coherent nightime identity, without excess, while also respecting its historical and functional identity. How old is the building? In which historical and cultural period was it made? What is the main architectural style? What function did it have in the past, what is that function today? The answer to all these questions will inform a designer's technical and aesthetic choices, the use of specific luminaires rather than others, as well as their placement.

"The urban image becomes blurred, it lacks genius loci, that spirit of the place that infused a soul into cities. Light has the power to recreate this lost image, to restore dignity and beauty to spaces." **Emanuela Pulvirenti**

The intention when lighting the exterior of a historic structure, is to protect and maintain the harmony of the whole through non-invasive actions. This includes "hiding" or "camouflaging" luminaires amongst architectural elements, placing them inground to obtain grazing lighting effects — which is ideal for emphasising textured materials — or on the neighbouring buildings and lighting the main building by projection. The most successful projects often use a combination of these solutions: background lighting with low levels of luminance, for example, together with illuminating specific architectural details.

Optic and source innovations have contributed to the success of these approaches. In urban lighting, LED technology has become the prevailing choice, whether it is to highlight individual buildings or to contribute to a town's master plan, while also considering environmental and budgetary needs.

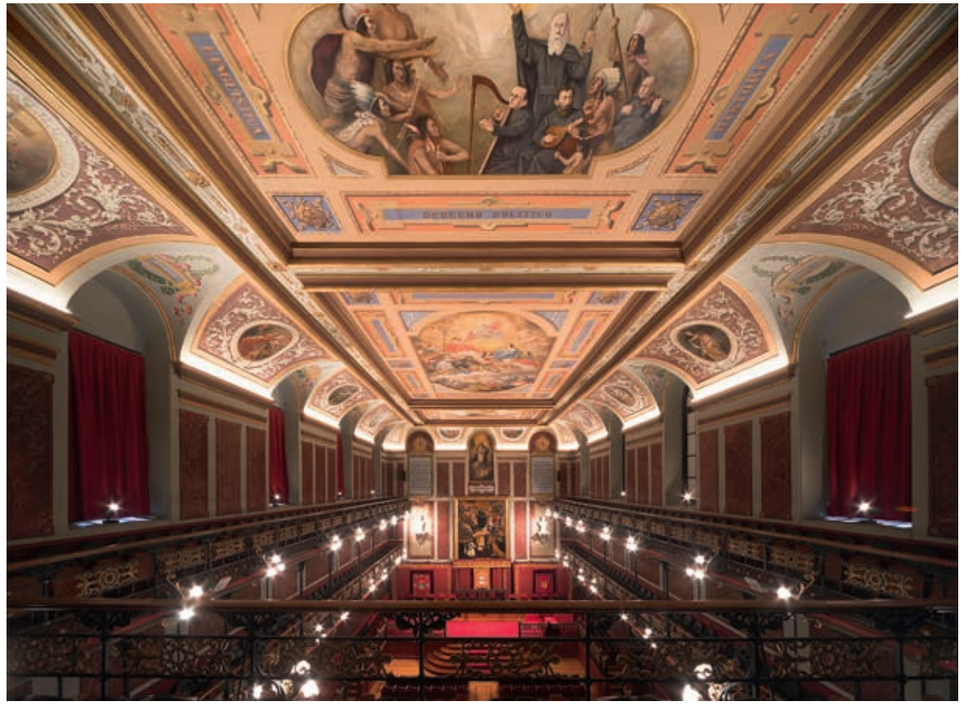
The Beaux Art architecture of the Customs House, in Old Montreal. Lighting skims on the structure not as an element unto itself, but as part of a nearby urban context to which it is visually related.



THE UNIVERSITY OF DEUSTO, PARANINFO

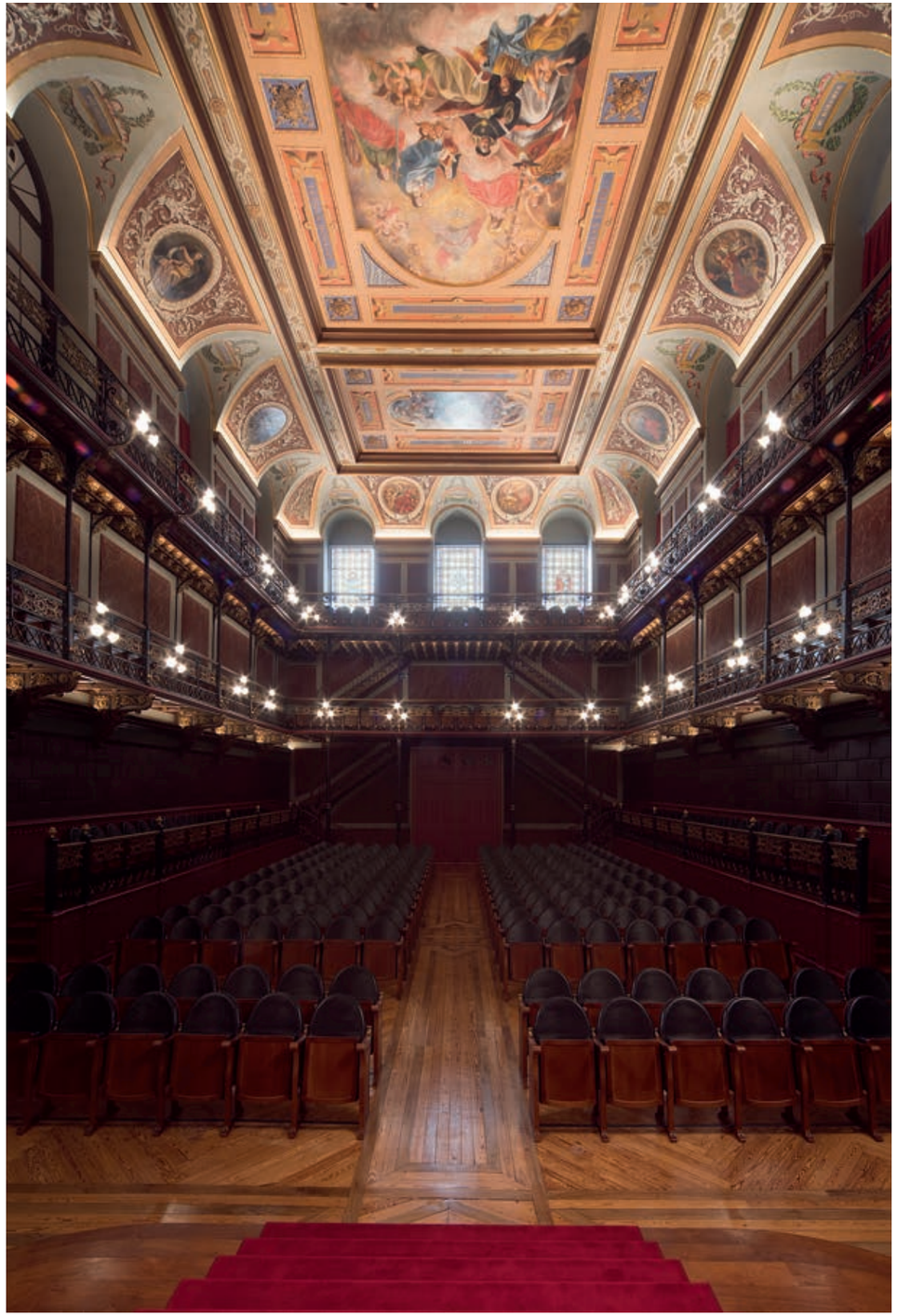
A VOICE OF COLOURS

Founded in 1886 by the Society of Jesus, the University Deusto is the oldest private academic institution in Spain, as well as one of the most prestigious. Paraninfo is the most impressive area of the campus in Bilbao, both because of its beauty and its functionality. In fact, it is a multidisciplinary hall with wooden and iron architectural elements, as well as numerous frescoes of great artistic importance. Traditionally, Paraninfo is where entrance ceremonies are held at the beginning of courses and also where degree theses are defended prior to graduation.



Photography: Ion Ander

The lighting designers focused their design on the splendid frescoed ceilings painted by the artists Murillo and Zurbarán. The innovative technology of the LED projectors and the care of the designers have helped to create an effect that impresses the viewer: the colours of the frescoes stand out in all their authenticity.



Being able to accommodate up to 500 seats, theatrical performances, concerts, congresses and conferences are regularly held in the space. The versatility of the luminaires maximises their usage – making the most of their intensity, uniformity and the colour temperature of the light produced – while minimising their aesthetic impact on the architecture. The harmonious architectural elements are preserved because of the discreet lighting. The proportions and stylistic details of the frescoes are perfectly highlighted and have become the symbols of Paraninfo and the University of Deusto.

The frescoed ceilings of the Paraninfo are artfully lit in order to bring out the compositional colours.

PRODUCTS USED

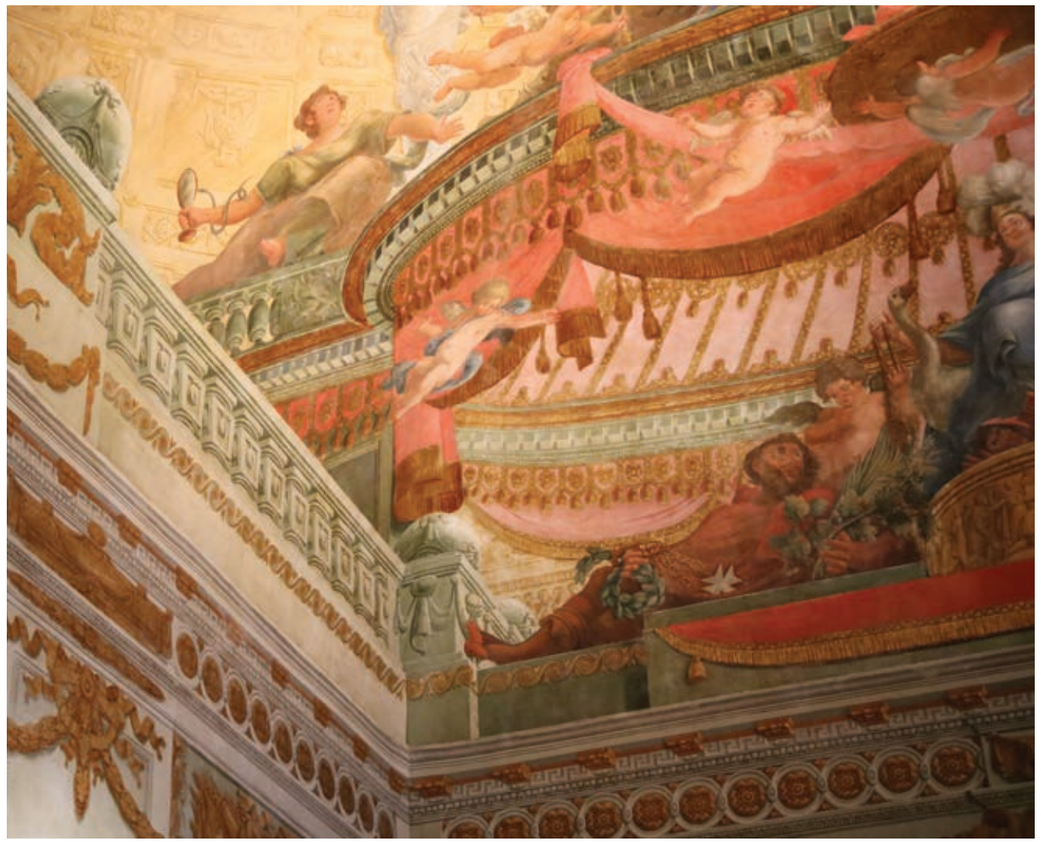
Exenia: Museo 26/40/80W, Large optics, CRI95 - 3000K with honeycomb louvre.

PALACIO DE MAFRA, THE THRONE ROOM

HELD BY THE LIGHT

Mafra is a pretty town, just a few kilometres from Lisbon, known for hosting one of the most colossal and extravagant palaces of Europe, the Palacio de Mafra. Built in the first half of the 18th Century using marble and stone limestone, the complex covers an area of 40000m^2 and includes a monastery, a monumental basilica and a library with over 36000 ancient texts.

Lighting Design: Eclipz
Photography: VistaVerde Lda



An entirely frescoed ceiling makes it difficult to hide the luminaires.

The palace is among the most richly decorated environments in Sala del Trono and is frescoed with works by the artists of Domingos Sequeira's court, while allegorical motifs, painted by Cyrillo Volkmar Machado, embellish the spectacular ceiling.

As the highlight of the recent refurbishment, lighting designers developed and executed an incredible design in spite of the limited budget and conservation concerns.

The low-profile luminaires direct the light only where it is strictly necessary.

The design team focused on using the flexibility of an ultra-compact luminaire, with a maximum power output of 5200 lumens, a high colour rendering index (95) and a large range of optics, to their advantage. A projector with a low invasive base, with articulated locking arms, which allows for on-site assembly and helps to appropriately orient the light was the perfect tool for this project.

Along the walls, accent lighting frames the individual mural portraits and visually differentiates them from the rest of the space.

The absence of protruding frames, or any other architectural elements on which a luminaire could be mounted or hidden, meant that the lighting team had to be inventive. They needed luminaires that were small, but with the same performance of larger fixtures. The ability to accessorise the luminaires with snoots and shapers was a bonus, it allowed the paintings to be grazed while reducing the risk of glare.

PRODUCTS USED

Exenia: Museo Compact equipped with shapers (Medium optics, CRI 95 - 2700K).

CERTOSA OF CALCI

IMPROVISED LIGHT

Photography: Varvara Verbitskaya

As you come into Val Graziosa, don't be surprised by the opulently baroque Certosa of Calci. It is in the contrast of the ornate architecture amongst the surrounding rural area, that its charm lies. A former monastery, now the Museum of Natural History of the University of Pisa, is now even more outstanding due to the new, intelligent architectural lighting design. The lighting design illustrates how good illumination can enhance works of artistic heritage while also respecting the constraints of conservation through the use of a sophisticated LED control system.

Minimalist design and high performances are what distinguish the luminaires used.

The designers retrofitted the most significant architectural details: the white marble facade, the Cloister Grande, the Cloister, the Chapel of the Chapter, and the Court of Honour and Pharmacy. The use of state-of-the-art equipment was fundamental in being able to combine minimal design while minimally disrupting the architecture itself. Many of the luminaires were customised in order to meet the specifications and needs of both the indoor and outdoor areas.

Minimising the visual impact of luminaires used to light the interior frescoes was of utmost importance.

The fountain of the Cloister Grande is lit as if with moonlight.

The light enlivens every element and enriches the space.

Dynamic regulation of variables such as colour temperature, intensity and beam, allow designers to introduce effects that produce great emotional impact, enriching the experience and the perception of the space itself. In Cloister Grande, for example, modulating the colour temperature helps emphasise the cold tones of the travertine or the warm red brick. The central fountain lights up with a slight blue halo, creating a poetic lunar atmosphere.

PRODUCTS USED

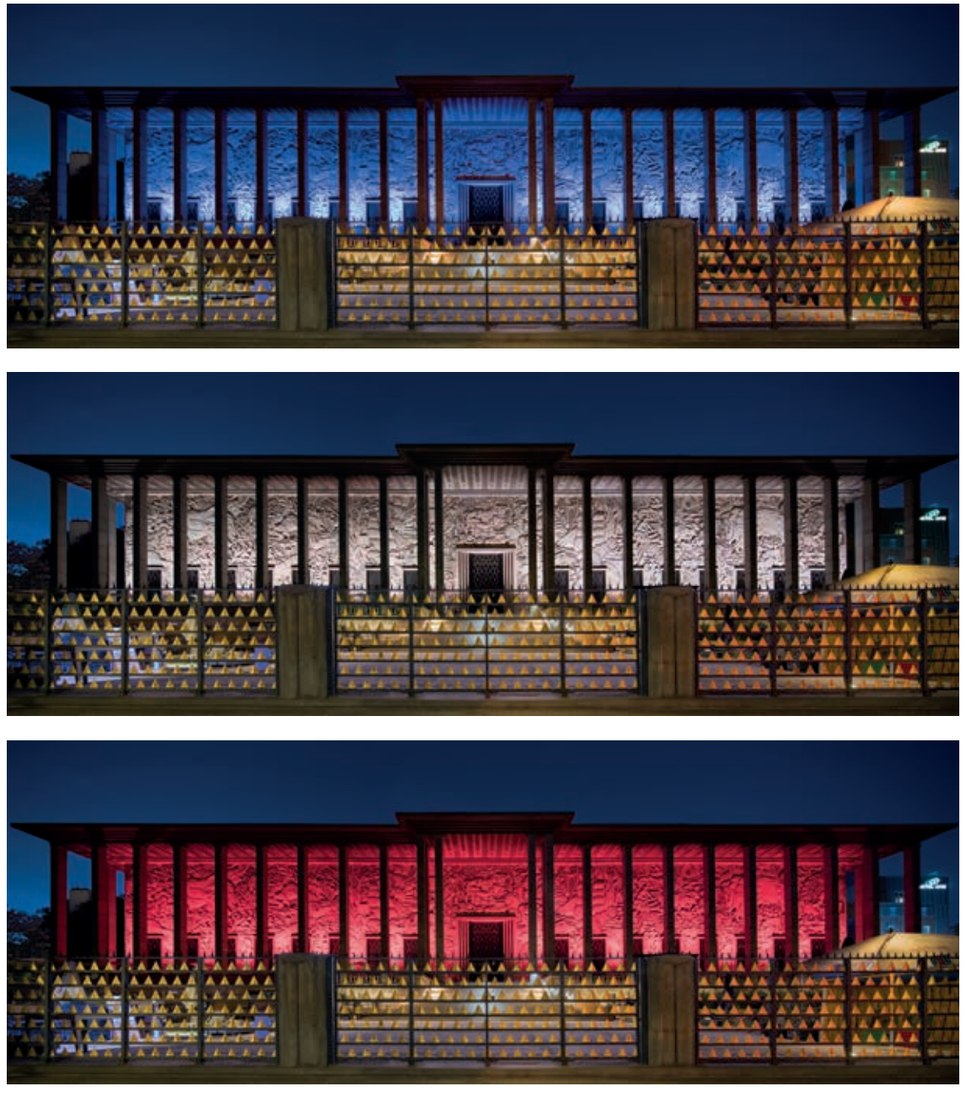
Exenia: Museo (CRI 85 - 3000K); Accademia floor lamp (CRI 85 - 3000K).
Lumenpulse: Lumenbeam Small/Medium (2700K); Lumenfacade Wallwash Dynamic White.

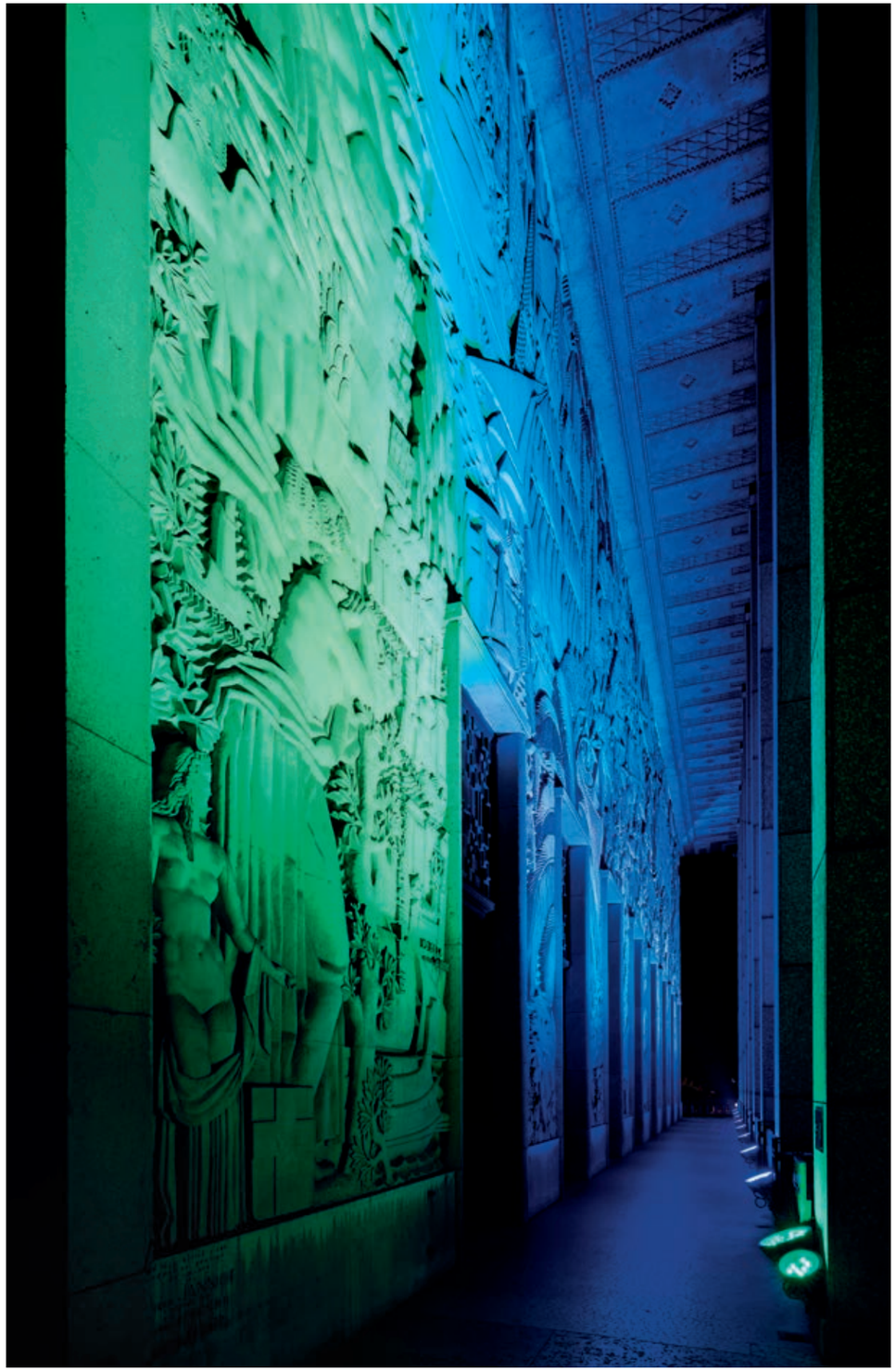
THE PALAIS DE LA PORTE DORÉE
BROUGHT TO LIFE BY LIGHT

Lighting Designer: Xavier Bancquart, The City of Paris
Photography: Xavier Boymond

In 2017, the Palais de la Porte Dorée embraced a new, dynamic lighting design that highlights its heritage while also conserving its historic and ornate architecture. LED projectors were placed in the exact spot where older projectors were mounted in order to lower the impact on the protected structure. The lighting design's primary concept is to showcase the building's famous and gorgeous bas-relief murals that make up its facade, while also supplying the dynamic flexibility to change the lighting strategy to accommodate events.

As an additional aesthetic to celebrations and events held at the palace, the luminaires can be switched from white source uplighting to independently controlled RGBW capabilities. A different colour per event, fast-paced colour changes, or pre-programmed light shows are all possible with this new lighting design.





The dynamic, colour-changing luminaires create a night-time destination, a place of wonder where the art of the bas-reliefs are the stars of the show.

The relief murals come alive at night, whether in RGBW or Dynamic White. Shadows elevate the figures, ships and animals leap from their historical contexts into the evening. Thanks to the new lighting design with dynamic capabilities, the facade of the Palais de la Porte Dorée has become a nighttime destination.

Creating a narrative through colour temperature and colour, the luminaires enliven the bas-reliefs and even seem to animate them.

Vandal-resistant luminaires were a must as the fixtures were placed at the foot of each column and thus within reach of visitors. Now, the Palais de la Porte Dorée can be seen in a new light, one that has attracted new visitors while also lowering energy consumption costs for The City of Paris.

PRODUCTS USED

Lumenpulse: Lumenbeam Large RGBW.

TOZZONI PALACE

MEMORIES OF LIVES LIVED

Originally houses were two separate structures but between 1726 and 1738 they were joined together and transformed into the elegant building you see today. The restorations and subsequent additions were made according to the tastes in vogue over multiple eras.

Lighting Design: Format Design Studio
Photography: Lorenzo Rinella

None of these fashionable changes have corrupted the character of the original architecture: the facade with the imposing door, the living room on the main floor and the spectacular staircase decorated with stucco and embellished with statues, have all remained.

Having now been transformed into a museum house, the Palazzo Tozzoni offers interesting insights into the everyday life during the 17th Century up until 1975, the year in which the last heir of the family donated the palace to the city of Imola along with all its contents.

Paintings, furniture, books and furnishings introduce us to the *modus vivendi* of a noble Tozzoni family. A thoughtful lighting design has revived the importance of the palace by engaging visitors and transporting them back in time.

The old lighting design was mostly uplighting and only lit the sections that refracted light and did not emphasise the finer details. The result, paradoxical for a modern museum concept, is that it was repetitive and devoid of originality.

The lighting designers relied on the precision colour technology of LED technology, integrated into low-profile projectors which reduce the visible impact while maximising performance. The new lighting design is efficient, versatile, multifunctional, and designed for ambient lighting, as well as scenic and accent lighting thanks to the accessories, such as lenses and filters, available for each fixture.

Low-profile LED projectors provide both general lighting as well as scenic and accent lighting.

PRODUCTS USED

Exenia: Museo Compact and Museo Small (Spot, Medium and Wide optics, 13/40W, CRI 85 - 3000K).

BRUSCHI FALGARI PALACE

THE REVEL IS IN THE DETAILS

Project: Sara Massi and Paola Pontani Architect
Photography: Alessandro Galeota

The Public Library of Tarquinia is housed in Bruschi Palace, named after Vincenzo Cardarelli. Built between the 17th and 18th Centuries, its current state is the outcome of years of restructuring and remodelling. The most consistently visible era is the second half of the 19th Century. It is this epoch that produced the Great Hall and the Gallery as we know it full stop, This stunning space was designed by Virginio Vespignani and decorated by Annibale Angelini, according to the neoclassical tastes in vogue at the time.

The lighting of the barrel vault uses modular linear luminaires positioned on the cornices.

In 2017, a substantial loan allowed for the restoration of the first-floor rooms of the palace. This included the restoration of the decorative tempera, the original wooden frames, the terrazzo floors, as well as a complete update of the infrastructure and facilities.

The new lighting design of the Great Hall and the Gallery, in particular, required a considerable amount of sensitivity so as to protect the wealth of important architectural details and decorations, not to mention the overall harmony of the space. The focal point for both the Great Hall and the Gallery is the barrel vault, which was illuminated using linear modular luminaires positioned so as to be concealed on the cornices.

This solution, which is often used for lighting indirect walking surfaces, was integrated along with projectors so as to emphasise the more important architectural elements: the Corinthian capital pilasters that punctuate the longitudinal walls, the statues, the landscape views on the central walls and the still-lifes at the base of the vault. The pictorial surfaces are all lit using a colour temperature of neutral white, 3000K, which is very close to natural lighting.

PRODUCTS USED

Exenia: Museo Compact and Museo Small (Spot, Wide and Large optics, 40/13W, CRI 85 - 3000K).

Lumenpulse: Lumencove Nano (5W/300mm).

GULINELLI PALACE

LEARNING BY LIGHT

The Neo-Renaissance Gulinelli Palace is located in Ferrara, Italy. The recent refurbishing of the 16th Century central axis, by urban redevelopers, was a Herculean feat. Seriously damaged by the 2012 earthquake in Emilia, the restoration, which finished in 2015, included revamping the palace's infrastructure to be environmentally sustainable.

Client Foundation: Opera Don Cipriano | Project Management: Canonici Mattei | Engineering and Architecture: Ecosustainable BINARY LAB of Arch. Cristiano Ferrari | Engineer: Eugenio Artioli | Photographer: Elena Romani

The restoration, primarily aimed at improving the structure with the latest in seismic safety protocols, also required the recovery and use of all the original building material, wherever possible, and the use of recycled insulating materials to help reduce energy consumption.

The design of each luminaire highlights the ornate decor of the environment.

The elementary shape and clean lines of the LED suspension luminaires illuminate the rooms of the palace which have been converted to a school.

On top of the restoration, the reconfiguring of the Palazzo into a school required modern lighting, hence the decision to focus the lighting design on the use of a series of special suspension luminaires with the latest generation of LED technology. These luminaires provide comfortable, diffused light and are distinguished looking with their clean, airy design. In the frescoed rooms, the design of these luminaires echoes the decorative compositions on the ceilings. Elsewhere, the decision was made to use minimal, circular or rectangular shapes.

All suspended luminaires are equipped with both direct and indirect lighting capabilities and provide lux levels suitable for illuminating desks and tables while still emphasising the vaulted ceiling.

PRODUCTS USED

Exenia: Hola and Hola Meeting, direct/indirect distribution (CRI95 - 3000K).

COMPTON VERNEY

A MIDSUMMER LIGHT'S DREAM

Client: Compton Verney | Installation: DeasElec
Photography: James Newton

A splendid 18th Century villa, which is surrounded by the greenery of Warwickshire, in West Midlands County, and known for being the birthplace of William Shakespeare, has a new, spectacular lighting design. The design, involving the large open courtyard overlooking the main hall of the villa, is a coveted location for wedding receptions and other events. After sunset, in the summer, the entertainment often continues outside, so the lighting design had to spark interest while remaining comforable for guests.

The innovative, yet measured lighting design creates a unique atmospheric night-time effect while also perfectly emphasising the architecture of the villa. The lighting system is extremely flexible and can be expanded upon easily. It uses a series of recessed inground luminaires positioned near the columns on the inside of the courtyard and along the facades. Luminaires have been positioned opposite pillars in the colonnade on one side of the courtyard, creating a dramatic silhouette effect.

PRODUCTS USED
Lumenpulse: Lumenfacade Inground RGBW (10° x 30°).

The RGBW luminaires open up endless possibilities for dynamic lighting, allowing one to choose from a number of chromatic combinations suited to each event. A touch screen control panel installed within an external housing column allows easy modifications to the dynamic scheme. Both the intensity and the colour of the light can be adjusted within moments on site.

QUÉRIBUS CASTLE

THE FORTRESS IN THE NIGHT-SCAPE

Lighting Design: Wonderfulight and the Ministry of Culture

The Cathar castle in Quéribus rises over 700m and is in the French region of Languedoc-Roussillon. This symbol of the past and the territory's culture was built in 1907 and is ranked high among the monuments of national historical interest in the area. Its size and its position, overlooking the Grau de Maury pass, make it an important visual reference and it is recognisable from a considerable distance. Originally built in the 10th or 11th Century, the current structure dates back to the 13th Century and partially to the 16th Century, when it was significantly remodelled.

The lighting design gracefully accounted for the scale of the surrounding landscape and the meaningful position of the stronghold within the country's history. Each evening, the castle emerges into the night-scape while simultaneously revealing the silhouette of the mountainous peak on which it sits.

Seen from a distance, Quéribus Castle and its incredible history seems to float in the darkness of the night.

From its position, it dominates the whole plain of Roussillon, from the Corbières to the Pyrenees, and from the sea to the Fénouillède region.

The castle is lit by a cooler colour temperature, a reference to the moonlight so prevalent in the region. The luminaires grazing the exterior walls subtly accentuate the perception of the stronghold's height. The luminaires have easily created a contrast of colder whites and warmer whites on the exterior and interior walls of the castle allows passers-by to see the depth of the castle from far off. In a similar fashion, the blue undertone of the luminaires bathing the castle's mountainous pedestal make it visible from various viewpoints, while still keeping its presence in the night sky subtle and elegant. What is most striking is that the optics allows the natural darkness of the region to be preserved while still emboldening the stronghold.

PRODUCTS USED

Lumenpulse: Lumenbeam 4000K, Flood optics and Wide. Narrow optics for RGB version. Pharos control system.

MUSEUMS
PASSAGE OF LIGHT

Diocesan Museum,
Church of Sant'Agostino
Double identity

Victoria & Albert Museum
of Childhood
Identity recovered

Rotunda for the Charters of Freedom
History illuminated

Cavallerini Lazzaroni Palace
Complementarity opposites

Canadian Museum for Human Rights
The shape of light

Saint Louis Art Museum
High-performance harmonies

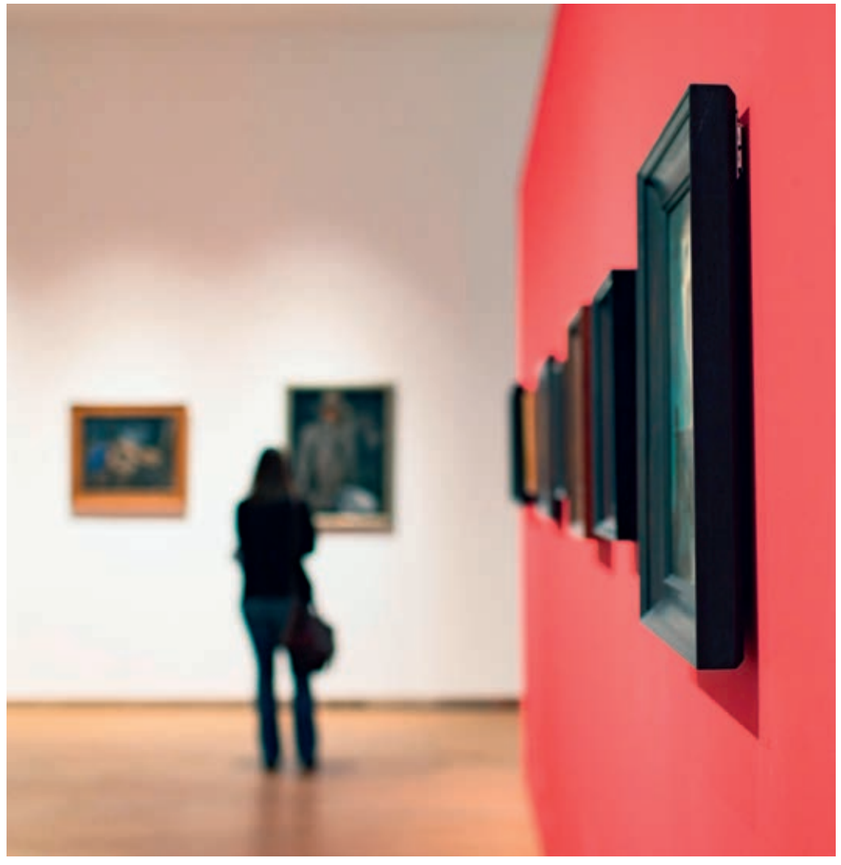
Petersen Automotive Museum
Ribbons of colour and light

Atlantis Shuttle Experience
Learning at the speed of light

Ripley's Aquarium of Canada
Lighting life

Gardens by the Bay
Liquid light

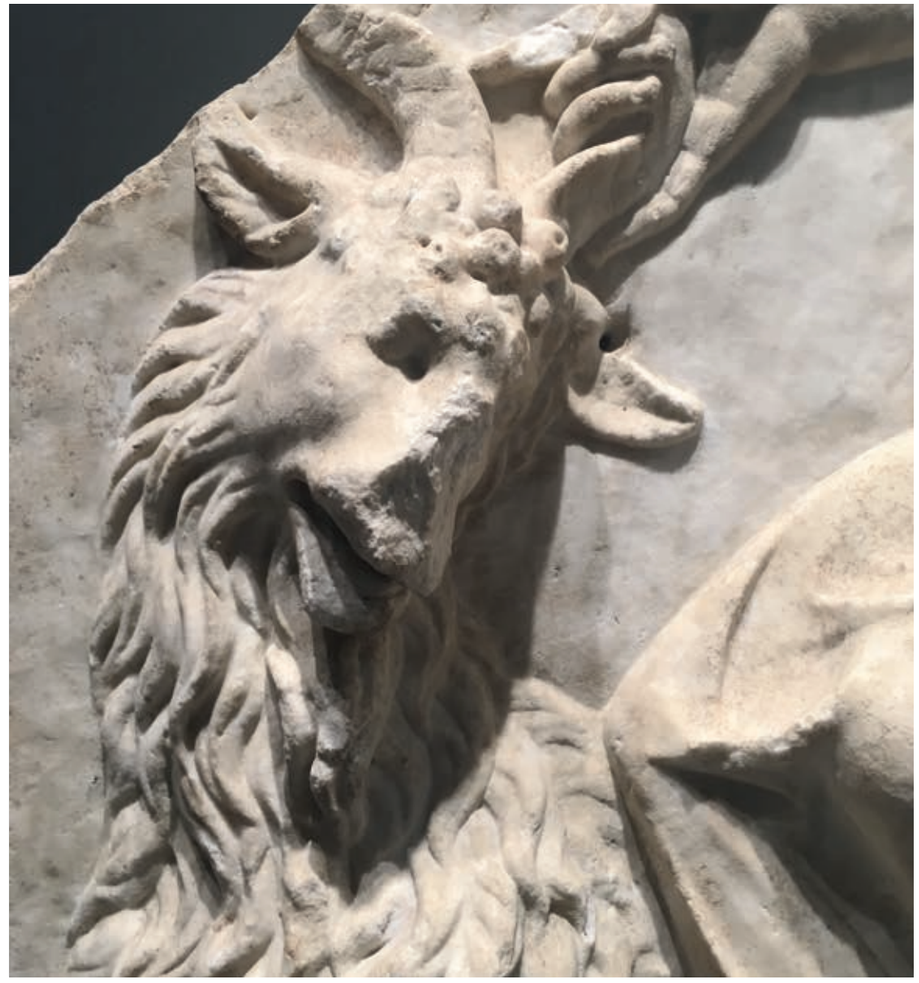
PASSAGE OF LIGHT
MUSEUMS



Flexibility is key in museums and in exhibition spaces where installations are constantly changed and adjusted.

Light has the extraordinary power to increase the bond between humans and art. This power is particularly evident in those spaces that preserve and show the varied extent of human creativity and expression, such as museums and art galleries — from traditional spaces to the avant-garde — light must accentuate not only the significance of each element, but also simultaneously create a coherent narrative thread.

Light becomes an integral part of an exhibition when it increases the visitor experience, following visitors along their path, establishing the needed levels of illumination for each area, not only to move visitors along safely, but also to help guide their attention. The use of accentuated contrasts depends upon the stylistic choices of the design team, but the primary aim will always be to help produce the correct interpretation of the exhibited works, without unwanted shadow cones or other impacts on visual comfort.



"There is the right light for the right visual task. There are no fixed parameters ... I have put together shows in which I've created a voyeuristic atmosphere that forces one to look upon certain objects and not others, using subdued light to create a hierarchy. Every project we deal with is different." **Piero Castiglioni**

But good lighting doesn't just stop here. It must also consider the conservation of the exhibited works, it must help protect them from deterioration. The more photosensitive a material is, the more deterioration occurs during exposure to light. Marble, glass and metals generally have a good resistance to light, while paintings are extremely sensitive. The type of lighting source, or incorrect lighting values, or excessive exposure times can irremediably fade the pigments, breaking the painting down or removing layers of colour and paint. Equally fragile are tapestry fabrics, leather, paper, books and prints.

By effectively eliminating UV and IR emissions, LED technology minimises photosensitivity risks, while offering a plethora of possibilities for lighting designers. Miniaturised, high-performance light sources make it possible to light objects closely, highlighting intricate details, creating lasting, precision effects that can also help reveal the sharpness of photographs and paintings.

LED lighting is versatile and sustainable, each luminaire can be individually programmed to create ever changing lighting scenes and can also be used with sophisticated control systems to enhance signage and wayfinding.

The latest generation LEDs are characterised by high colour rendering guaranteed by the completeness of the electromagnetic spectrum in all wavelengths. Colours are kept in their original state without any risk of damaging the work.

DIOCESAN MUSEUM, CHURCH OF SANT'AGOSTINO

DOUBLE IDENTITY

Exhibition Project: Guicciardini & Magni Architetti Associati | Lighting Design: Massimo Iarussi
Photography: Mario Ciampi

Starting in 2017, the Diocesan Museum of Sacred Art of Volterra has been located in the Church of Sant'Agostino, a 13th Century structure that was completely re-modelled in 1728. Although perfect for the new exhibition's needs, the church still maintains its function as a place of worship that continues to host prayer and liturgical celebrations, in addition to being a structure of historical and architectural interest. The lighting design creates a fluid synthesis between all these interests and focusses on the central platform, which has a red carpet running the length of it to the main altar.

It is in this area where the majority of the art is on display. The lighting design accentuates the interior and creates a perfect balance between the church's different needs: that of guarding and highlighting the sculptures, paintings, and furnishings, as well as the vestments sacred to the collection. It also exalts the continuity between the exhibited objects and the environment that hosts them. In addition to the original role of the church, the exhibition in the new headquarters houses works from the cathedral and, to a small extent, from other churches of the diocese.

The lighting design by Massimo Iarussi has the merit of enhancing the continuity between the objects on display and the exhibition's spacial context.

The illumination of the central nave, which is barely highlighted more than the side aisles, establishes the right emphasis without distorting the perception of the environment and architecture. The main altar is lit frontally, underlining its liturgical function, while the monumental organ and the chorus area act as a natural backdrop. The light creates an optical cone and directs the eye towards the central fulcrum of the church, in a religious as much as architectural sense: the altar. It is through the lighting design that the church and the museum merge together, becoming one.

The linear suspension rods, made specifically for the project, are positioned between the columns that separate the central from the side naves.

To preserve the mysticism of the space and create wayfinding for visitors of the exhibition, the design sided with sober, moderate illumination. The central element of the lighting design is constituted by linear, suspended stem mounted luminaires that serve to make a distinction between the central nave and the side ones. The stems of the luminaires underline the suspension elements and help to present the surrounding historical architectures. The result is that the architecture of the church and its art works are not altered because of the new museum. Instead, they create a neutrality with a coherent and respectful aesthetic that preserves the identity of the space.

PRODUCTS USED

Exenia: the lighting design calculations and the particular choice of installation has allowed the use of miniaturised optical units Museo Mini, CRI 95 - 3000K, 800 lumens, with differentiated optics (24°/30°/60°), controlled DALI in pairs.

VICTORIA & ALBERT MUSEUM OF CHILDHOOD

IDENTITY RECOVERED

Architect: DHA Design
Photography: James Newton

For several years, the Victoria & Albert Museum of Childhood, in London, has relied on a lighting design based on florescent lamps. With the passage of time, however, the need for a more dynamic and flexible design became apparent, a design that would be able to fulfil the special needs of each exhibit and special event.

Suspended rectangular luminaires with direct/indirect RGB colour-changing technology characterises the new lighting scheme of the Victoria & Albert Museum of Childhood.

The lighting designer devised a design that considers, not only wayfinding, but also the 19th Century vaulted ceiling that the previous design literally left in the dark.

The installation consists of luminaires with rectangular profiles featuring direct and indirect lighting, RGB colour-changing technology, as well as several track luminaires. The intensity of the light beam of each individual device can be adjusted separately, as well as the different single colour combinations. The luminous lines are virtually endless and allow the museum to create impactful effects. Among many different functions, the system also supplies emergency lighting.

Games of light and colour are the stars of the 19th Century vaulted ceiling and the "embroidery" of the metal support structure.

Before the new lighting design, the Victoria & Albert Museum of Childhood appeared static and lacking in personality, sometimes there was light, sometimes there was not. The new design has enlivened the museum, expanding the flexibility of the lighting scheme while creating a definitive identity.

PRODUCTS USED

Lumenpulse: Lumenline direct and direct/indirect (3000K, indirect colour-changing) luminaires.

ROTUNDA FOR THE CHARTERS OF FREEDOM

HISTORY ILLUMINATED

Lighting Design: Available Light
Photography: Jay Rosenblatt

The main hall of the National Archives building, known as the Rotunda for the Charters of Freedom, is not your average museum. Three important texts are housed here that are sacred to the history and culture of the United States: The Declaration of Independence, the Constitution, and the Charter of Rights. An innovative lighting design, has replaced the previous one, which was unable to guarantee adequate performances regarding the stringent conservation requirements of the space and the artefacts it houses, as well as concerns for a design that allowed for less energy consumption and maintenance requirements.

The original of the Constitution of the United States of America.

The lighting design had to balance both visitor expectations and the need to preserve the precious documents and paintings that celebrate the birth of a nation. The new design also had to be flexible, allowing users to vary the lighting strategies depending on temporary events or exhibitions.

The new digitally controlled lighting design has reduced energy consumption by over 80%.

The use of digitally controlled LED projectors reduced energy consumption by more than 80% and offer a memorable, comfortable visiting experience. Less than 10 lux illuminates the display cases. The murals of the rotunda are illuminated by five projectors positioned along the frame on opposite sides of the room with a white finish that merges with the background and “disappears” from view. The colour temperatures and the colour rendering indexes have been customised to faithfully restore the paintings while also preserving the integrity of their pigments.

LED spotlights concealed along the frame at the base of the vault illuminate the great pictorial compositions of the rotunda.

PRODUCTS USED

Lumenpulse: Lumenbeam Small/Medium (2700K).

CAVALLERINI LAZZARONI PALACE

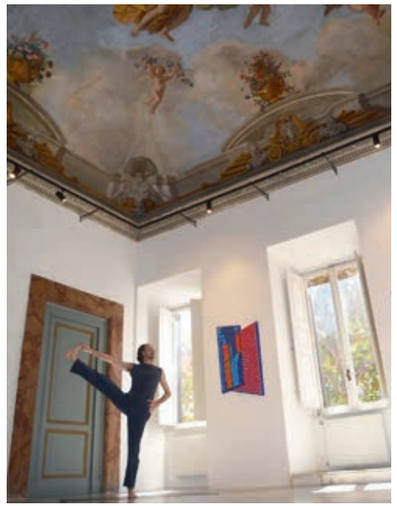
COMPLEMENTARITY OPPOSITES

Between Campo de 'Fiori and Largo di Torre Argentina, in Rome, sits a splendid example of a Baroque Roman estate: The Cavallerini Lazzaroni Palace, which was built in 1676 by the architect Giovanni Antonio De Rossi.

A major renovation has converted the prestigious structure into a contemporary art gallery, which has opened its doors to the city with international exhibitions, showing ephemeral installations and works of design as well as hosting events. The gigantic, four-floor grand staircase was preserved during the renovations. The top floor is the glitziest and includes frescoed *trompe l'oeil* vaults with allegorical scenes done by Giacinto and Ludovico Gimignani.

The new lighting design compliments this context by integrating two opposing and complementary objectives: respecting the art work by preserving delicate pictorial surfaces; as well as being flexible enough to handle the various needs connected to hosting exhibitions and events, which is the specific job of this floor.

The lighting design consists of a series of LED projectors that were track-mounted at the base of the vaults. The tracks were mounted on metal brackets. The projectors are extremely flexible and can be suitably adjusted to handle the frequent alternation of installations, while still illuminating the floor and the more significant details of the 17th Century ceiling frescoes.



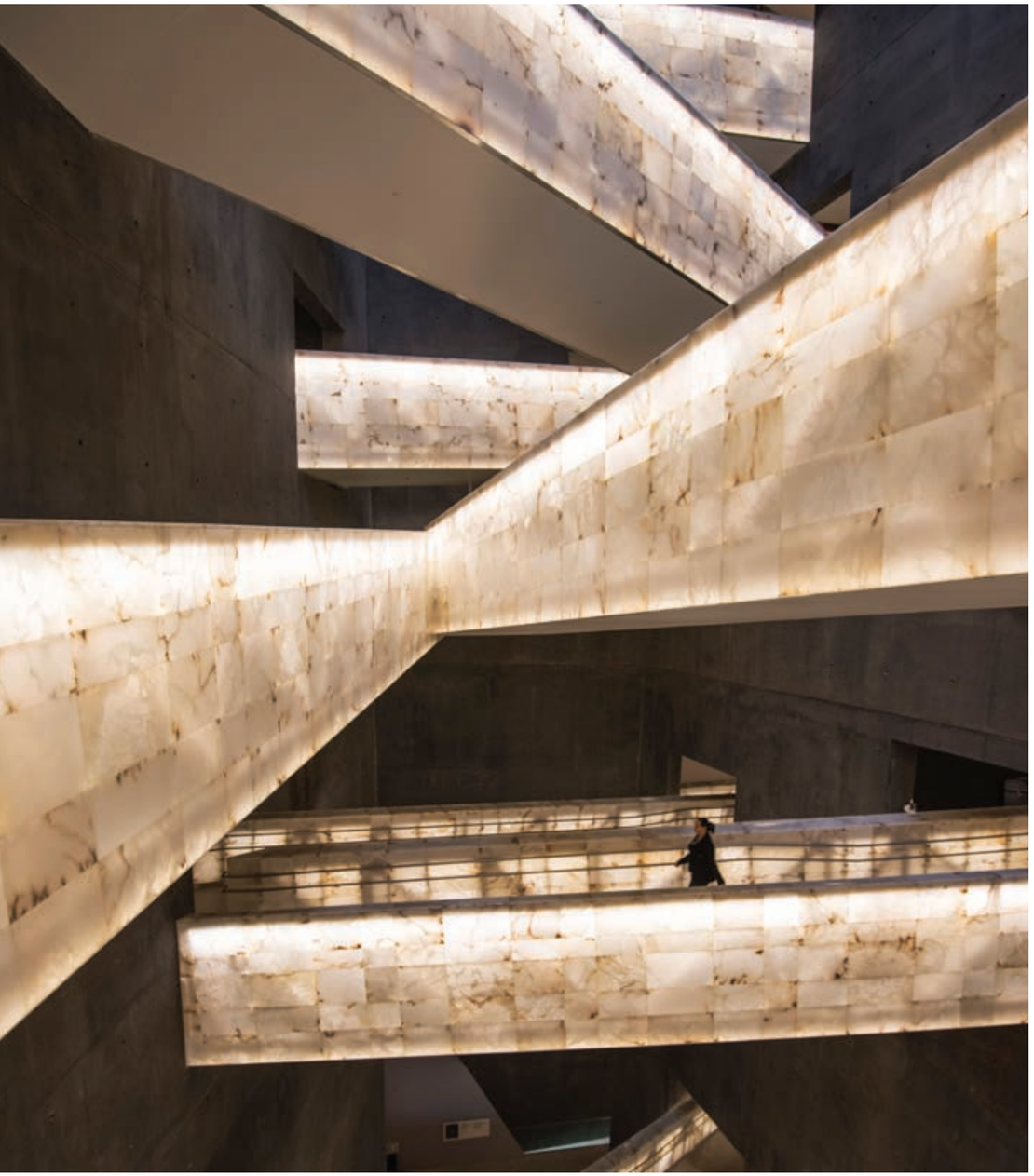
At Palazzo Cavallerini, the ancient and the modern coexist harmoniously thanks to a "tailor-made" lighting design.

PRODUCTS USED

Exenia: M3 and Eurostandard Track (18W, Medium optics, CRI 95 - 2700K).

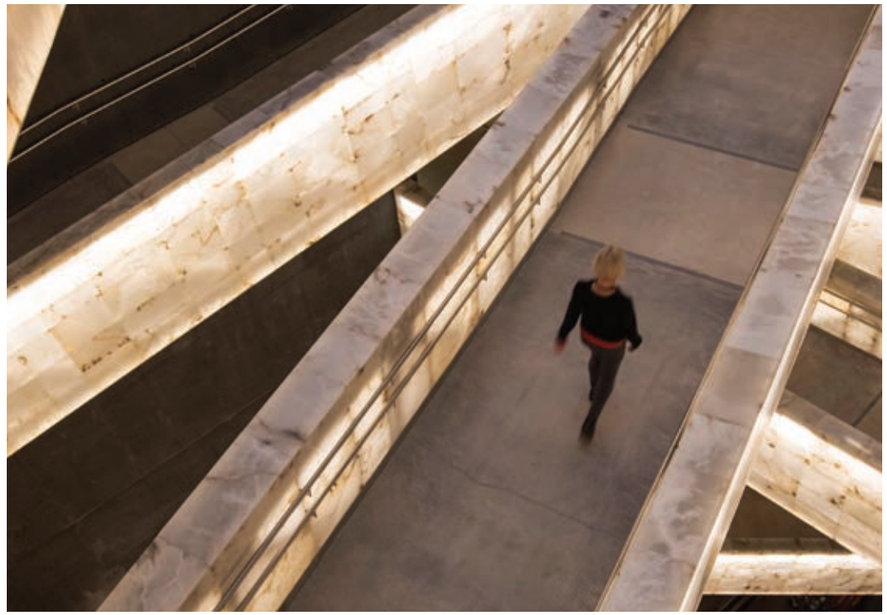
CANADIAN MUSEUM FOR HUMAN RIGHTS

THE SHAPE OF LIGHT



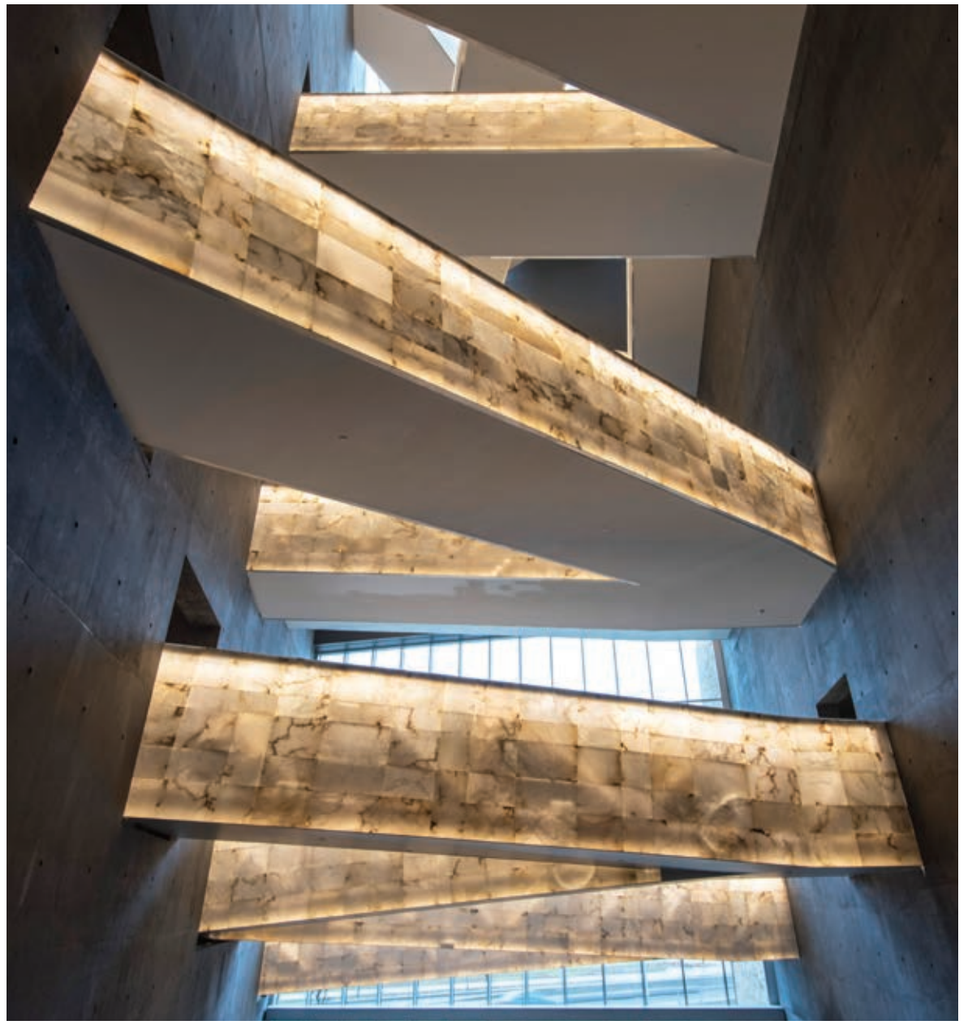
Lighting Design: Mulvey+Banani International | Lighting Concept: Office for Visual Interaction
Project Architect: Antoine Predock | Photography: Alex Fradkin

One of the greatest architectural achievements, and a major attraction, is the Canadian Museum for Human Rights in Winnipeg, Manitoba. The museum's monumental system of ramps that unfold from the ground all the way up to the spire of the building and the light that illuminates from inside the alabaster of these ramps, creates a hard-hitting, highly emotional aesthetic.

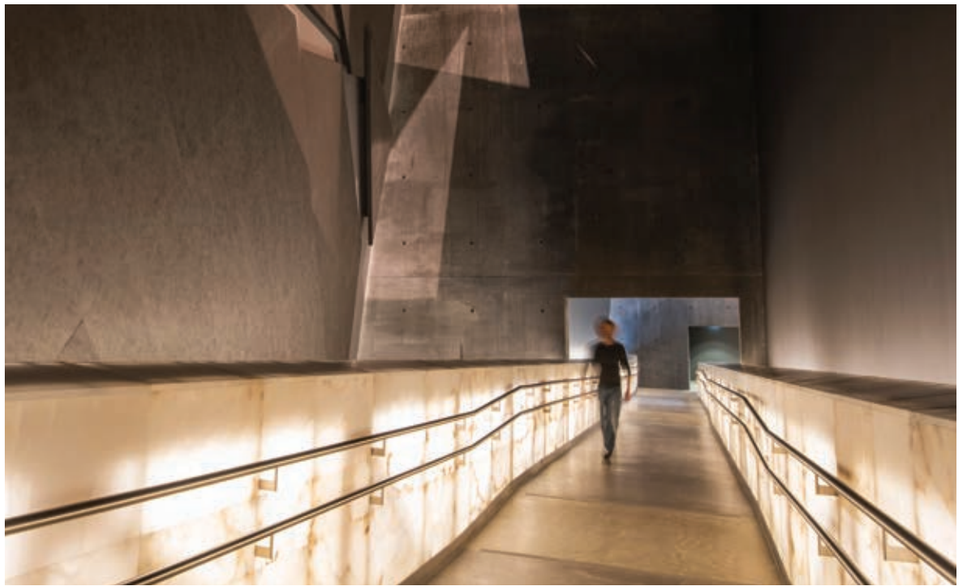


A monumental system of internally lit alabaster ramps spire upwards from the base of the museum.

This visionary project was achieved by a stellar design team who used the contrast between light and the ascension of the ramps, as well as the negative space in the "ramp well", to critical success.



Ultra-compact luminaires are inserted into the alabaster to expose its translucency.



The major challenge of the lighting designer was to find luminaires that were compact enough to be inserted into the cavity that runs along both sides of the ramps. Luminaires that were capable, with high-performances and a phenomenal quality of light, to light through the alabaster of the ramps. The search for the right luminaire took time and a lot of testing, but the result has been astounding and a crowning achievement for the creative team. The Museum for Human Rights is an example of how an ambitious and well-designed lighting design can emphasise and enhance architecture.

PRODUCTS USED

Lumenpulse: Lumenfacade Interior HO 3000K.

SAINT LOUIS ART MUSEUM

HIGH-PERFORMANCE HARMONIES

Originally called the “Palace of Fine Arts”, the Saint Louis Art Museum was built in 1904, by the architect, Cass Gilbert, to coincide with the World’s Fair. Today, the museum’s comprehensive and permanent art collection covers a wide range of cultures and time periods, from pre-Columbian, and ancient China, to late 19th and early 20th-Century European and American art works.

Photography: JJ Lane

Once visitors step inside, they immediately enter the Sculpture Hall, a regal space with 23m-high arched ceilings that were inspired by the Baths of Caracalla in Rome, and that are further enhanced by the natural daylight falling into the space from the large, arched windows.

The museum’s lighting requirements were rigorous; UV emission ad to be kept to a minimum to not damage the art on display and to replace the 500W incandescent lamps with a more energy-efficient solution. Mounted on metal brackets, which were already present at the height of the arches and along the side passages, the state-of-the-art LED luminaires provide efficient general lighting. The light is directed towards the tallest vault so as to accentuate the curvature, while amplifying the feeling of greatness and cleanliness.

PRODUCTS USED

Lumenpulse: Lumenbeam Large (2700K, Narrow 20° and Flood optics).

PETERSEN AUTOMOTIVE MUSEUM

RIBBONS OF COLOUR AND LIGHT

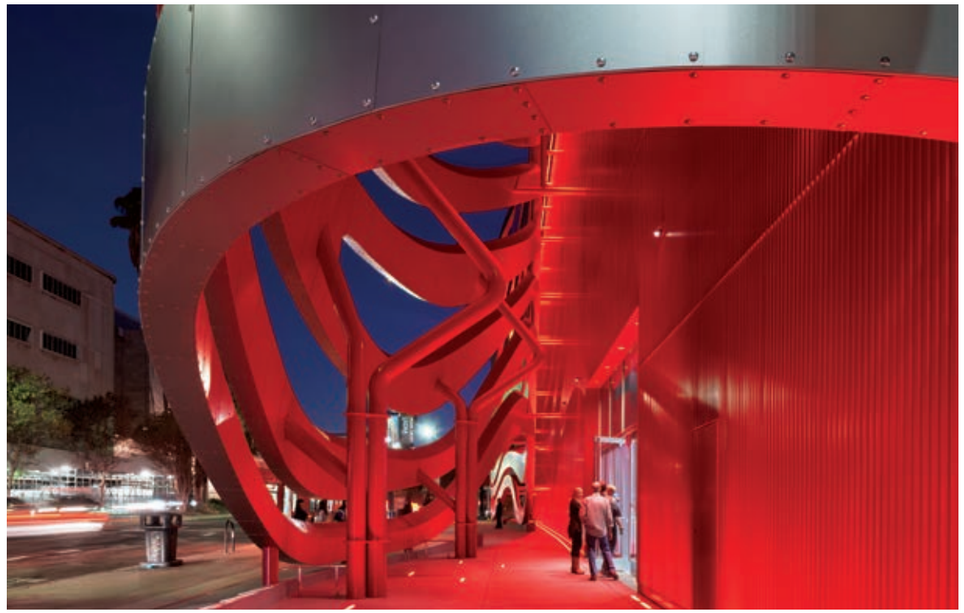
The car, in America, is much more than just a means of transport. It is a symbol of progress, of economic prosperity and freedom. The Petersen Automotive Museum celebrates these values and does so starting with the lighting design of the museum's exterior, which has been lit to enhance the sense of fluidity and movement

Lighting Design: Horton Lees Brogden | Project: House and Robertson Architects
Photography: Raimund Koch

that the design of House and Robertson Architects wished to instil. The building, a complex of four floors, is largely without windows and is wrapped in long steel ribbons held together by structural supports and spacers. A "fabric" with irregular curved lines that lighting design studio Horton Lees Brodgen wanted to emphasise through a sharp contrast of colours: the red nucleus of the building, illuminated at close proximity to ensure maximum uniformity; and the bright silver on the backs of the illuminated ribbons to accentuate its sinuous texture.

Chromed metal and fiery red light sinuously envelop the Petersen Automotive Museum.

To reach the goal, making use of the inter-space between the structure and its envelop, even in its narrowest points, linear, recessed luminaires were used for grazing. The installation also included a series of standalone luminaires and 100W floodlights placed on the roof for direct lighting of the ribbon. The beams coming out of the different devices blend together with a homogeneity and stylistic coherence and the sophisticated LED RGBW technology allows for the creation of different lighting schemes to celebrate special events and occasions.



The external walls are illuminated by linear recessed luminaires with grazing optics, recessed into the ground in the space between the steel ribbons and the structure.

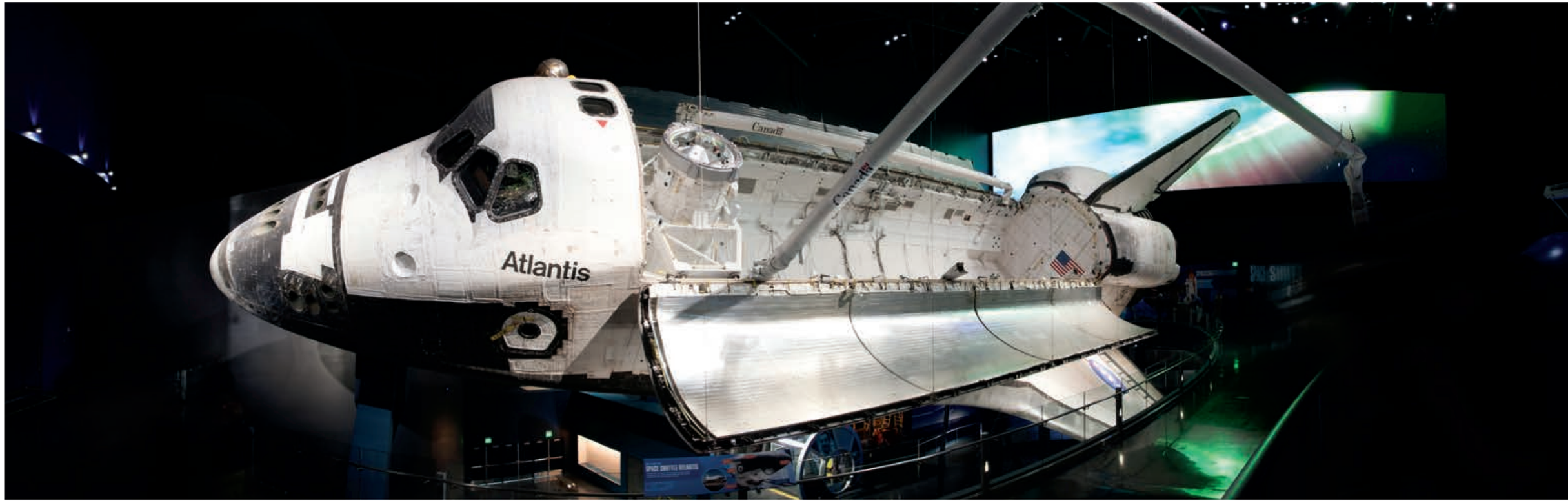
PRODUCTS USED

Lumenpulse: Lumenbeam RGBW (Wide, Flood optics); Lumenfacade and Lumenfacade Inground Colour-Changing with 10° x 10° and 60° x 60° optics.

ATLANTIS SHUTTLE EXPERIENCE

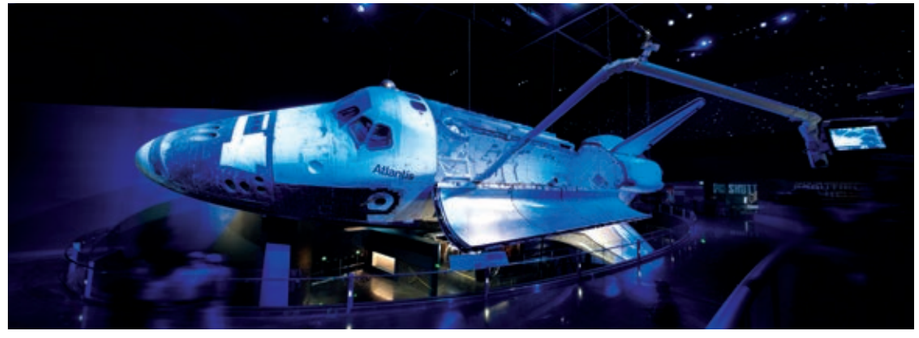
LEARNING AT THE SPEED OF LIGHT

The uniqueness of the Atlantis Shuttle Experience, the new museum at the Kennedy Space Centre in Cape Canaveral, Florida, offers the public the never-seen-before possibility of catching what a space shuttle looks like in flight. It is an exhibition that creates a truly extraordinary sight: suspended in the air at about 9m, the inclined Atlantis really does seem to be moving through space.

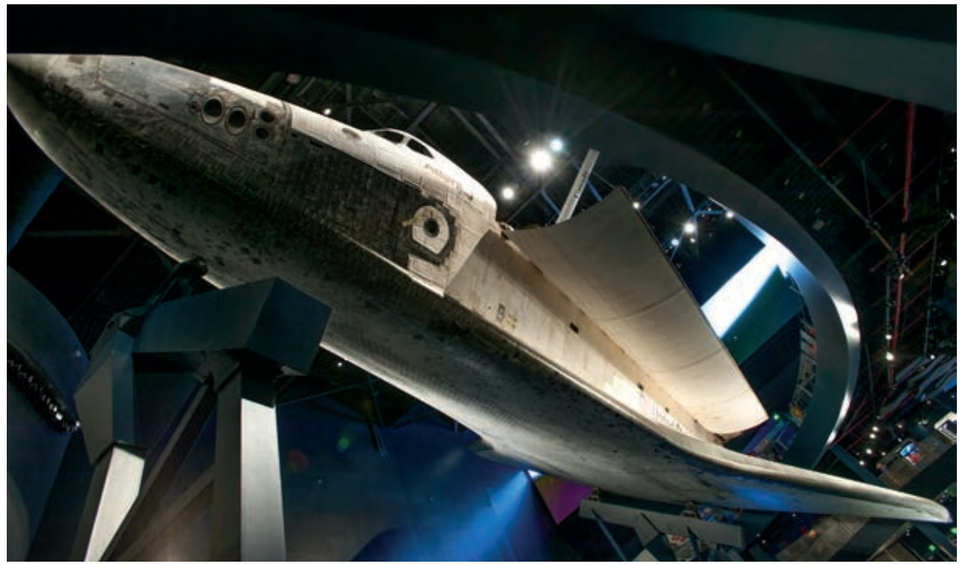


Lighting Design: Fisher Marantz Stone | Architect: PGAV Destinations
Photography: Ben Cooper

The lighting design was created to enhance the shuttle's striking appearance, while also paying homage to its hard-working past. The Space Shuttle looks as if it were disconnecting from the International Space Station, mimicking what would happen in space, with sunlight reflecting off its surface in a dark environment. In the background, a gigantic one LED screen completes the illusion.



Tilted as if it were in flight, and lit as if sunlight was reflecting off its surface. This is how the space shuttle appears to visitors at the Kennedy Space Center in Cape Canaveral.



To achieve this amazing effect, over 250 LED projectors were positioned along the walkways and the museum's observation galleries, where some are aimed towards the wings and the body of the shuttle, with colour temperatures in colour of 2700K, 4000K and 6500K mixing together. To faithfully recreate the unusual lighting conditions in space, custom luminaires were developed to emit blue and amber.

The space shuttle is the undisputed attraction of the museum, but the lighting design had to consider the other objects on display as well, this meant illuminating the exhibition areas and wayfinding that lead to the shuttle without revealing too much of the final surprise. Here, the choice was linear luminaires. The common denominator throughout the design is LED technology, a requirement explicitly requested by the client for reasons of reliability, performance and reduced maintenance costs.

PRODUCTS USED

Lumenpulse: Lumenbeam Medium/Large/XLarge DWH (2700K/4000K/6500K, 6°/ 10°/20°/40°). Lumenfacade Interior RGB and DWH (4000K, 30° x 60°).

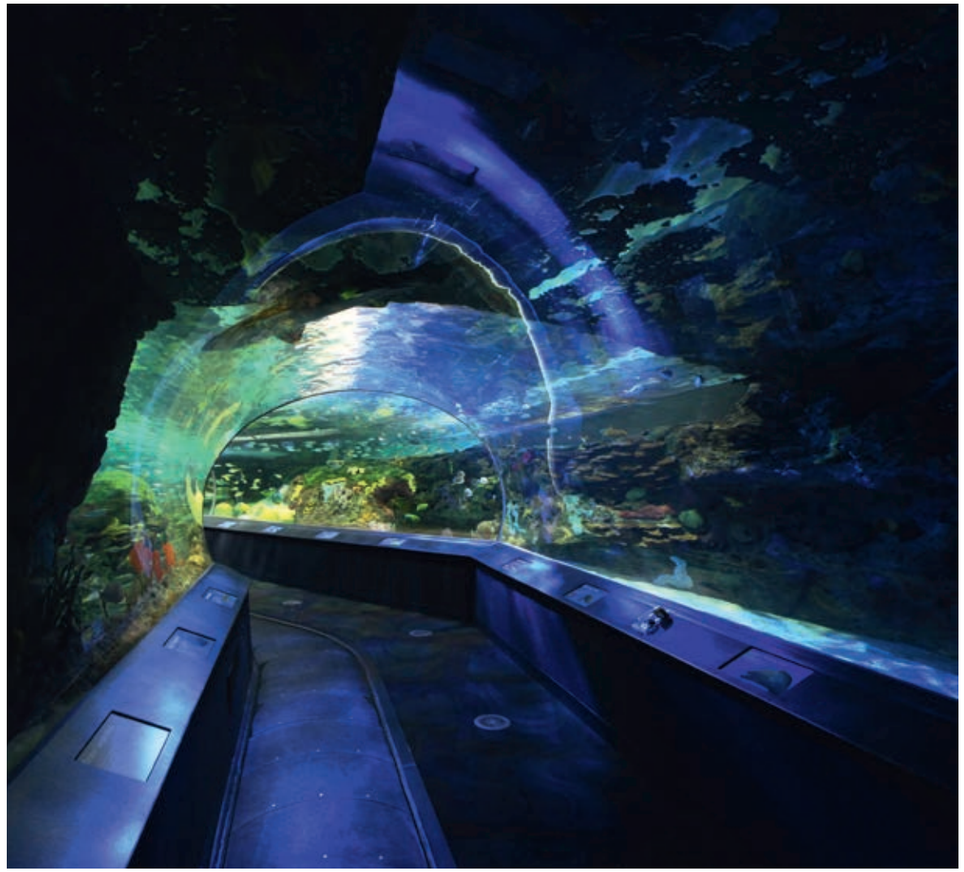
RIPLEY'S AQUARIUM OF CANADA

LIGHTING LIFE

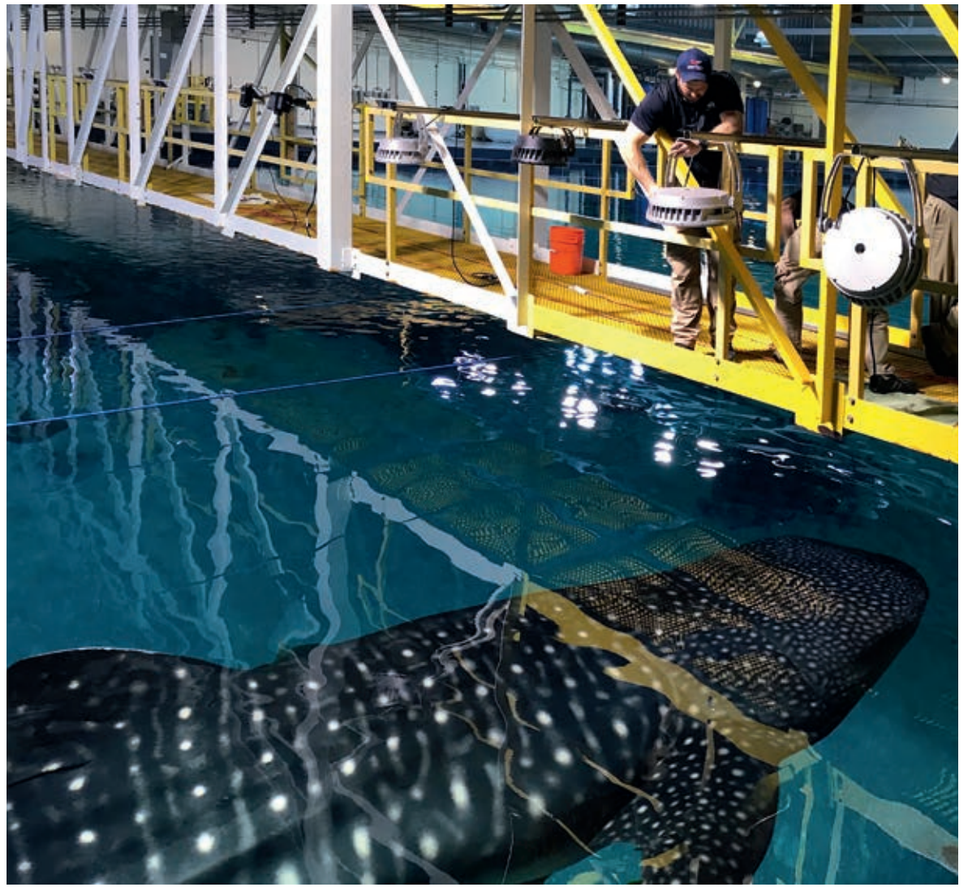
Lighting Design: Mulvey+Banani International Inc. | Project Architects: B+H Architects
Photography: Mulvey+Banani International Inc.

Learning while having fun is not an oxymoron. At Ripley's Toronto Aquarium, an extraordinary tribute to the underwater world in which light plays a fundamental role both teaches and wows. The interior architecture of the aquarium is very dramatic and was developed to offer visitors an almost literal "immersive experience." The lighting design transforms artifice into realism, reproducing the effect of sun rays as they pierce the surface of the water, and recreate conditions of variable brightness that the sea experiences at different times. This can be seen using RGB technology to show how jellyfish react to the stimulus of colours.

More important than the entertainment, are the needs related to the welfare of the thousands of different species, living in Ripley's Aquarium, that need very distinct lighting conditions. All this increased the need for a lighting design that was extremely flexible, one in which each fixtures could be controlled individually including the beam, intensity and colour temperatures, to create effects consistent with the reality of the deep.



The artificial light filters through the water, reproducing the effects of the sun's rays.



One of the most critical needs was to recreate light conditions comparable to those in the natural world.

The LED technology of the luminaires selected for the project included projectors and linear-mounted fixtures, which combine specialised lighting needs, while minimising maintenance costs, all the more important in an environment complicated by the presence of water and life.

The strictly LED lighting design, is structured to minimise consumption and maintenance costs.

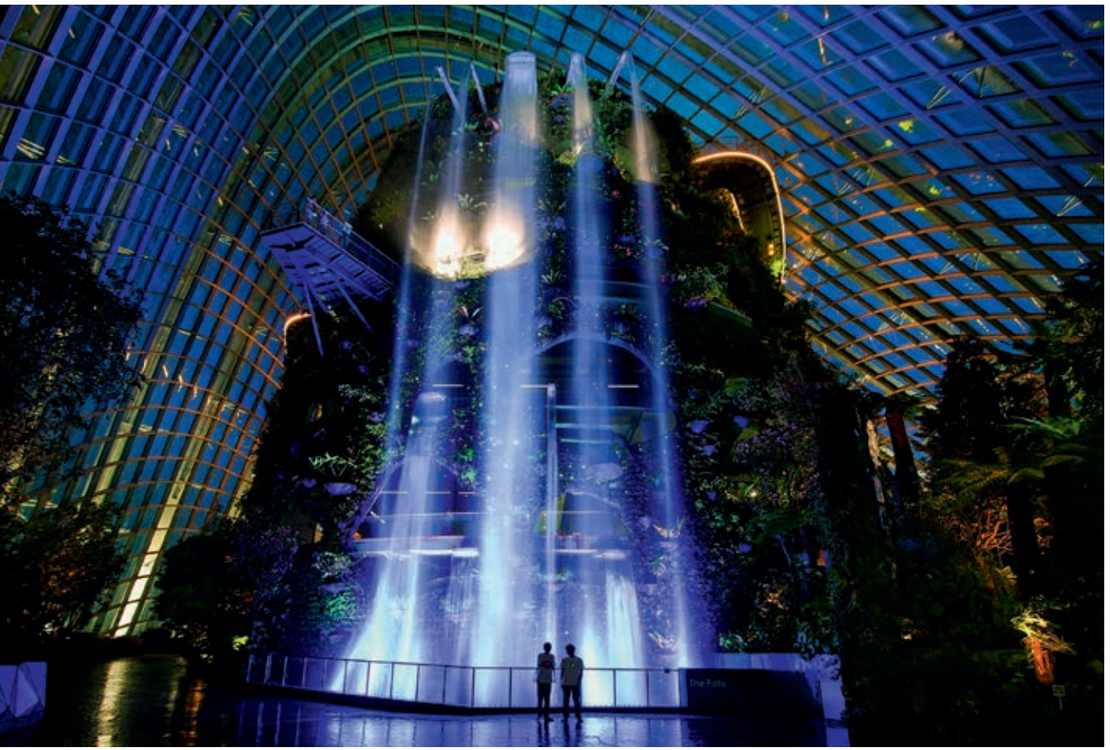
PRODUCTS USED

Lumenpulse: Lumenbeam Large, XLarge RGB (57000K and 8000K); Lumenfacade RGB.

GARDENS BY THE BAY

LIQUID LIGHT

In the ambitious garden city designed by Grant Associates and Wilkinson Eyre Architects at Marina Bay, Singapore, the Cloud Forest Conservatory contains a major attraction: a waterfall of 35m dotted by viewing platforms at various heights and framed by dense tropical vegetation.



Lighting Design: Lighting Planners Associates | Architect: Grant Associates
Project: Wilkinson Eyre | Photography: Toshio Kaneko

The lighting designers have tackled this specific task by using the light to create a dramatic effect by playing with shadow, involving the visitors with interactive lighting, and harmonising artificial light with natural light, all in order to invoke the spirit of a living forest.

The spectacular installation of the Conservatory of Cloud Forest, where tropical plants, water and dynamic light interact, involving visitors in a memorable experience.

The result, at Cloud Forest, is an all-encompassing visitor experience that is capable of transporting the mind into a dimension of dreamy rare plants, liquid surfaces and shadows.

The LED technology emphasises both the power of water in the controlled waterfall, while minimising maintenance costs, as well as the ability to play with colours, creating spectacular effects of dynamic light thanks to the colour-changing function. Projectors designed to combine a high light output with a low-profile that was minimally invasive were used throughout. These luminaires are tough, with an efficient thermal management system to operate in particular humidity conditions.

PRODUCTS USED

Lumenpulse: Lumenbeam LBX Colour-Changing (Very Narrow and Spot optics).

PROJECT PHASES
PRACTISES OF LIGHT

PRODUCTS

Lumepulse
Lumeniris
Lumenfacade Nano
Lumenfacade
Lumenquad
Lumenbeam
Lumencove Nano 2.0

Exenia
Museo
CR-1
Accademia
Bilux
Space
Step

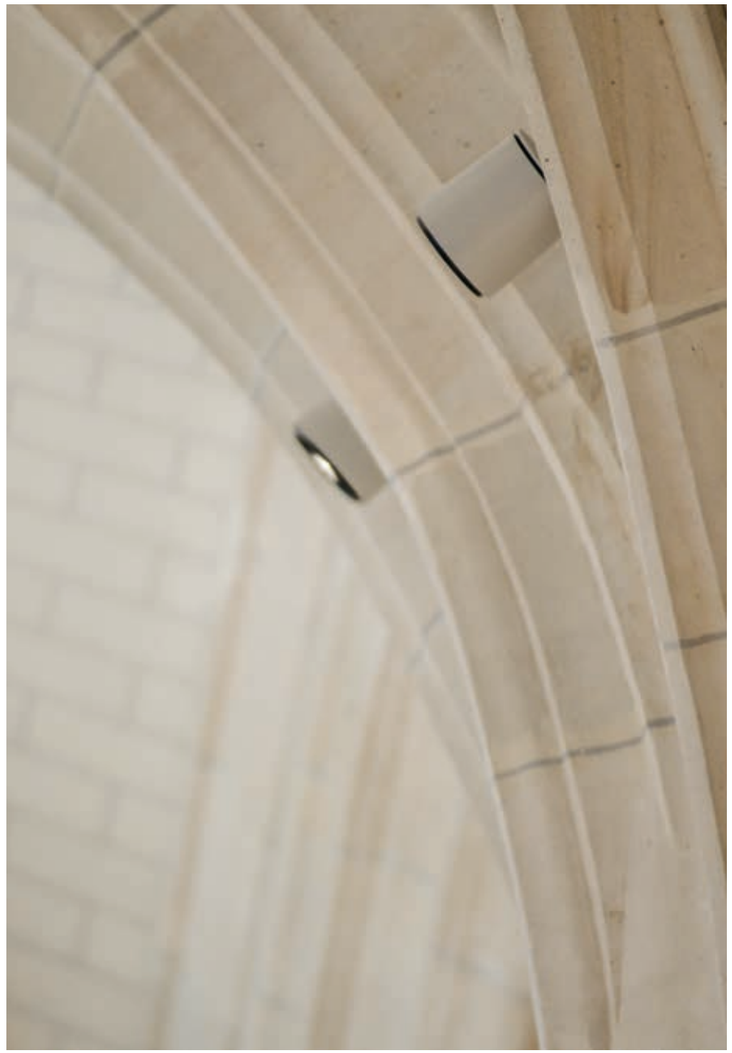
Lumenalpha
Cylinders
Spot

Control Systems
Lumentalk
Unitrack

PRACTISES OF LIGHT
PROJECT PHASES

Lighting a church, or any symbolic, historic building, creates an emphasis on its features, and in doing so, it gives “special” attention to the structure and its usages. Respectful lighting highlights the architecture without distorting it, while also helping people to experience and enjoy the building and its context “in a new light”.

In other words, artificial light, when at its best, can be perceived as a natural element of the space. Whenever possible, the source of light, like the steps of a good magic trick, should be hidden from view. The use of non-invasive, high-performance lighting fixtures, with precision optics along with minimal, soft shapes and colour finishes matched to the surface on which they are installed, let light do its real magic.

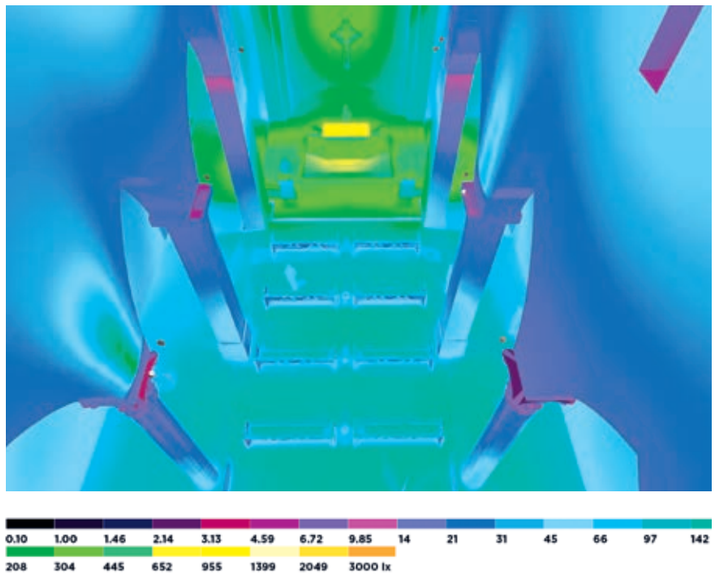


Small size and colour-matched finishes help to minimise a luminaire’s visibility.

THE DESIGN STEPS

Adapting to each specific project is an obvious strength when you're a lighting designer. The first step of many designers is to study and analyse every detail: the existing constraints of the architecture, its context, conservatory laws, and usages are only some of the many elements to consider.

To fulfil the hopes of any lighting design, illuminance and optics are three elementary key components every designer considers. On-site luminaire testing is often done when one is lighting historic architecture. It is here that the power and the optics choices of the lighting fixtures can truly be tried. Here, we're using a place of worship as an example of how respectful and exciting lighting can be done.



THE NAVE

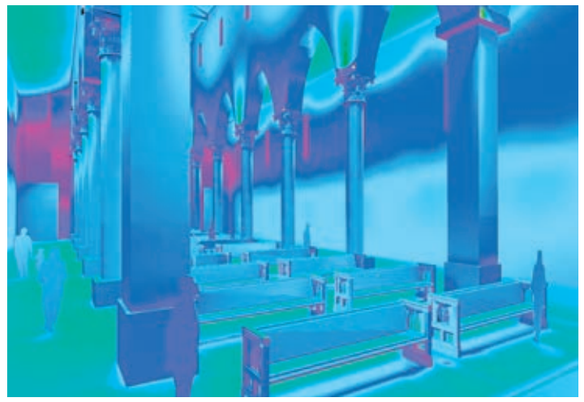
Defining the average illumination level of the central nave is a good place to start. Because the nave is the focal point, all of the other areas to be lit will fall into place once the nave's lighting scheme has been settled upon.

An average illumination of 100-150 lux at 1m from the ground in the central nave — especially great for central-floor churches — allows you to reach a lighting level that is good for reading and that is uniform and shadow-less.

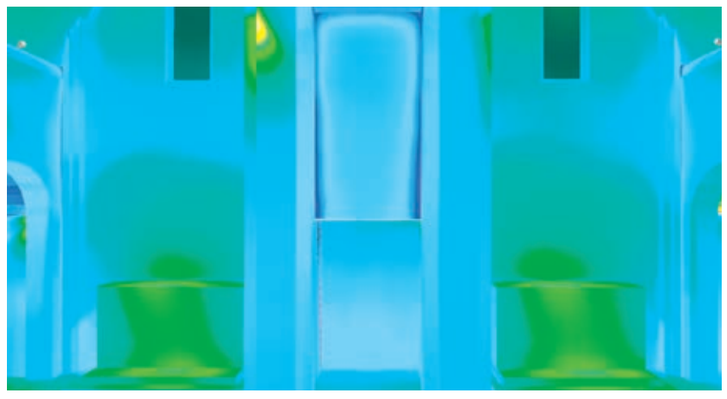
THE AISLES

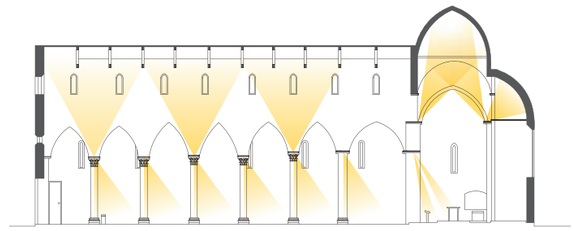
In the aisles, the ledges that often crown pillars are the perfect places to position lighting fixtures. More often than not, the indirect lighting of the vaults supplies the necessary lighting levels necessary to safely walk below.

If the column ledges are deep enough, you can use an asymmetric linear fixture, or a multi-spot with interchangeable optics, which can be hidden atop the small ledge. From here, votive altars, and paintings can easily be accented.

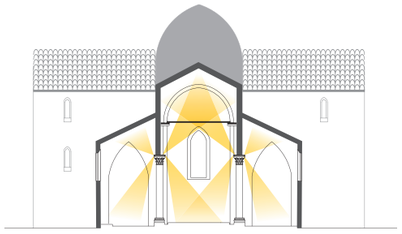


Products used in side nicare perfect for accent lighting votive altars, paintings or frescoes.

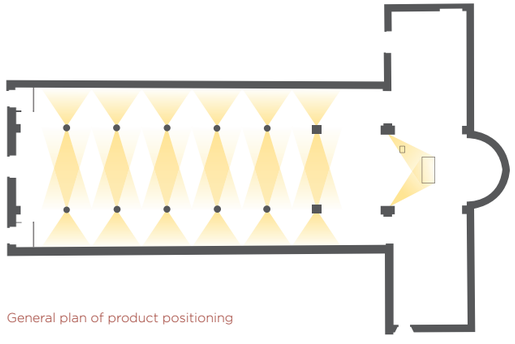




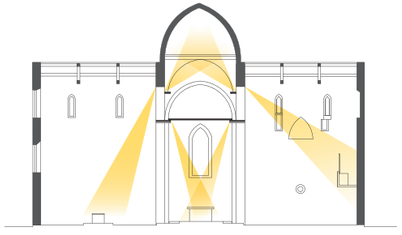
Direct/Indirect lighting of central nave and presbytery area



Sectional view of lighting central nave and side aisles



General plan of product positioning



Accent light positioning for altar, organ and baptismal font

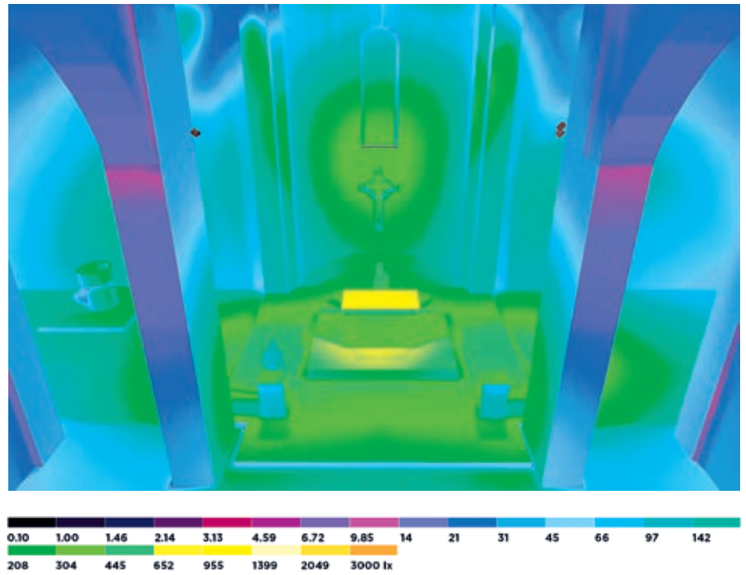
THE SYMBOLS OF LITURGY

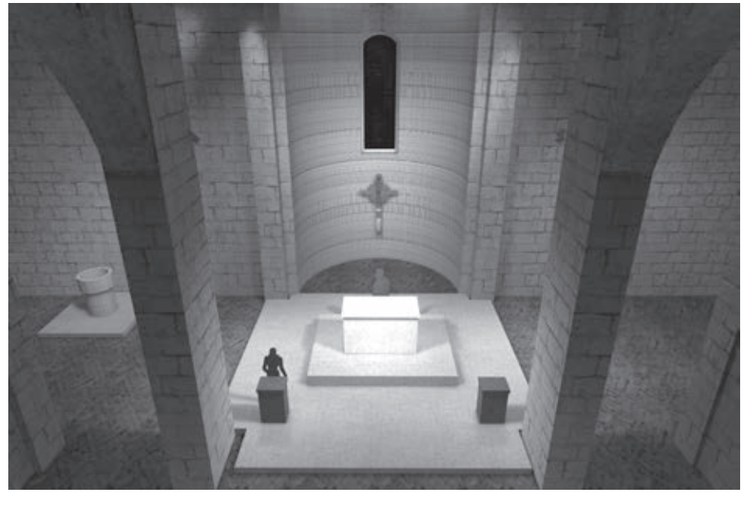
The altar and whoever is speaking from the platform, are the focal points of most Christian religious functions. An illumination level equal to 400-450 lux is a good strategy for highlighting this area.

One of the challenges is that lighting fixtures must be placed in the right position in order to strike a balance between over-lighting the person speaking and not creating a light-beam that is too vertical. This is to avoid creating an excessively dramatic image, due to the shadows left on top of the eyes and the cheekbones of whoever is at the pulpit. Depending on constrictions of the architecture itself, luminaires can be adjusted vertically 30°/40°. To help reduce unwanted light distribution, one option is to provide a special filter to reduce the light emittance by 15%. It is important to remember that the wider the optic, the more chance there is of direct eye-glare.

The same attention must be paid when lighting the ambo. In this case, levels must be considerably lower, around 200-250 lux seems to work best. The presbytery with the high altar, the apse, the bottom altarpiece and the apsidal basin, normally compose the background and frame for the pulpits or lecterns. Here the illumination levels and the luminance levels work nicely when they are harmonised with one another, fading from 300 lux on the tabernacle to 200 lux on the main altar, from the 150 lux on the apse to the 300 lux on the altarpiece. It is important to say that these illuminance values are not those that can be measured on the horizontal surfaces, but on the vertical surfaces, the only ones perceived by the audience or congregation.

If you want to light the main altar from the front, specifically the crucifix, the statues and the canopies, it is a good idea to avoid projecting shadows onto the walls of the presbytery. If the position of the lighting fixtures create shadows on the vertical planes behind, the projected shadows can be eliminated using additional lighting.





THE VAULTS

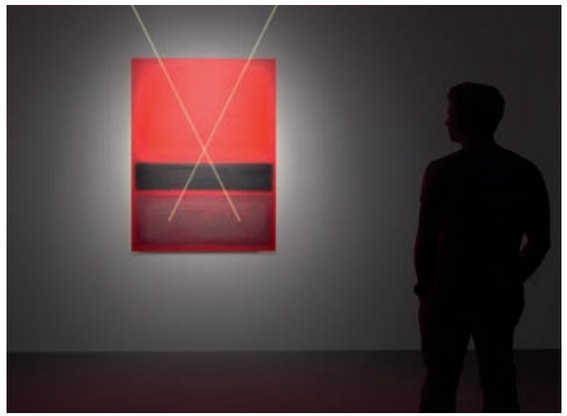
Light can highlight and dissimulate, it can ad layers and even create “new” architectures. If the vaults are well lit, for example, the visitor’s eye is attracted to specific spaces otherwise hidden by shadows. However, excessively lighting the vaults can distort the proportions. It is a good idea to avoid creating a “floating” effect, as if the vaults were separated from the rest of the building. The importance of establishing a good continuity between the vaults and the walls that support them, through illumination levels of 150 lux with peaks of 250 lux on specified points if needed.

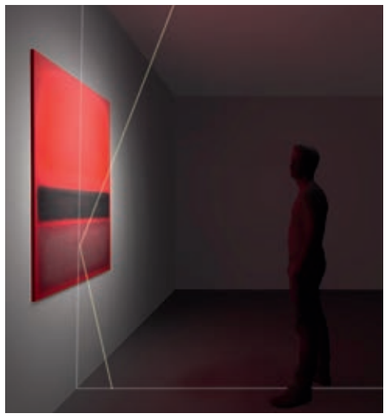
A small but effective trick, is to create narrow shadows lateral to the beams of light that are lighting the arches between one bay and the other. By placing a luminaire on the column ledges (located at the crown), two lines of shadows will be formed on each side, under the larger beam that is lighting the arch. The result is that the curved profile of the arch will be emphasised and the larger vault will consequently obtain a more full-bodied shape and depth.

THE PICTORIAL WORKS

In order to enjoy and fully appreciate a painting, it is important to pay attention to the placement of lighting fixtures. It is integral not to treat a painting as if it was a mirror, lighting it so that a viewer can never see their reflection, in short, making the painting itself seem like a light source. When this is done, the reflection of light on the surface would irreparably compromise the perception of the paintwork, distorting it.

An important aspect for lighting works of art is the colour rendering index (CRI). This index informs the way in which the human eye will perceive the colour of an object and how close this is to its real appearance, under natural daylight. It is desirable

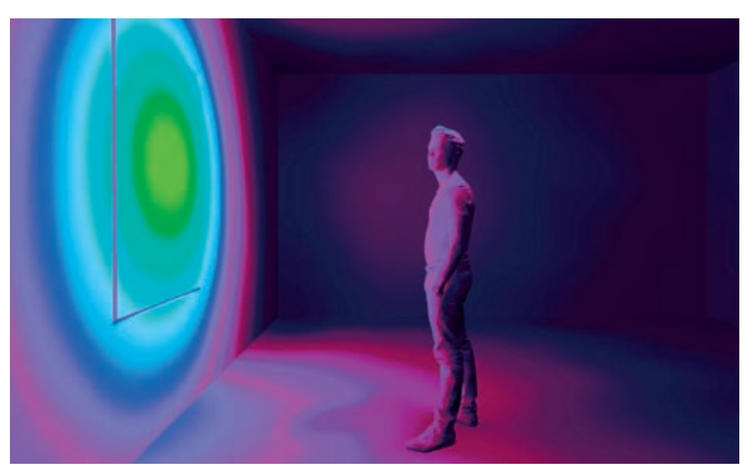




to work with a CRI above 90 and to pay special attention to the red rendition (R9 value) to ensure colours are rendered as lifelike as possible.

Another aspect concerns the colour temperature of the lighting fixtures used to light paintings or frescoes. When using a 3000K source, warm colours will become more pronounced: reds and yellows and their intermediate shades. A 4000K source will exalt cooler colours, like blues and greys.

A suggestion, is to try and mix colour temperatures, using both lighting fixtures of 3000K and 4000K. The result will be an authentic representation of all colours.



PRODUCTS

LUMENIRIS

The Lumeniris family of indoor projectors is a high-performance group of LED luminaires specifically created for use in historical buildings and museums. This range of luminaires benefits from two mounting options (Track and Base Mount), and three sizes, Nano (ø57mm), Small (ø100mm) and Medium (ø140mm), making this family scalable across a wide range or architectures. A wide range of optic choices, including a 6° narrow spot up to a 40° flood, as well as integrated optical accessories (snoots, visors and an innovative double louvre), allows lighting designers to direct the light so it arrives exactly where they need it. Control options include the award winning Lumentalk technology as well as the new DALI T8 control.

Medium
ø140mm

Small
ø100mm

Nano
ø57mm

Nano
ø57mm

Small
ø100mm

Medium
ø140mm

HOW TO USE IN THE APPLICATION. A wide range of optic choices, including a 6° beam, make this family of projectors the ideal tool to light artwork and architectural details in museums, churches and palaces. While the Track Mount option is at home in museum applications, the Base Mount is best used in historical buildings where luminaires can be mounted on cornices, illuminating the ceiling above with a flood optic or pin-pointing a detail below with a spot optic. Optical accessories can enhance the delivery even further. The double louvre sits unobtrusively inside the luminaire head, invisible to the viewer. For the preservation of historical structures, Lumentalk technology allows data signals to be sent via regular power cables, taking away the need for additional data cable wiring. This means you can keep precious historical structures fully intact, no need to drill new holes or bolt down new conduits. The new DALI T8 control allows the use of dynamic whites and colours, allowing designers to dazzle even further.

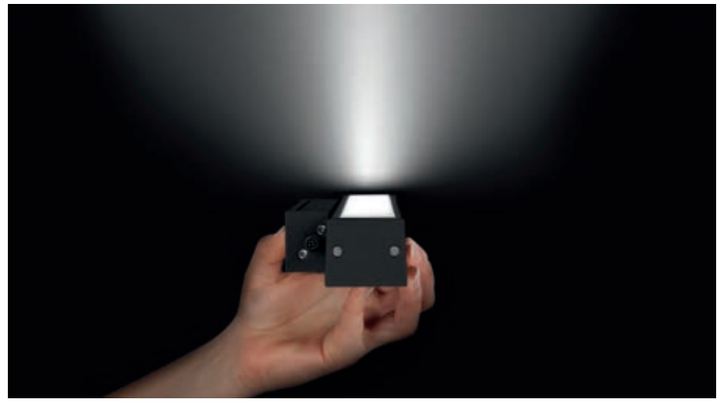
LUMENFACADE NANO

The Lumenfacade Nano is a high-efficiency, linear LED luminaire that goes where no facade lighting has gone before. Available in 0.3m, 0.6m, 0.9m or 1.2m sections, and with a profile height of only 53mm, the Lumenfacade Nano is the right fit for general urban structures, historical buildings and those hardest to reach places. The Lumenfacade Nano packs all the bells and whistles of the larger members of the Lumenfacade family and can be configured with a wide number of options, including: optics for grazing, floodlighting, or wallwashing; a choice of outputs; colour temperatures and dynamic colours; mounting options, finishes, accessories and controls. The Lumenfacade Nano is also available with a unique asymmetric distribution, providing exceptional uniformity and brightness for walls and signage.

Lengths available
300mm, 600mm, 900mm and 1200mm

Lumenfacade Nano
Lumengrid technology

Horizontal
Lumengrid technology

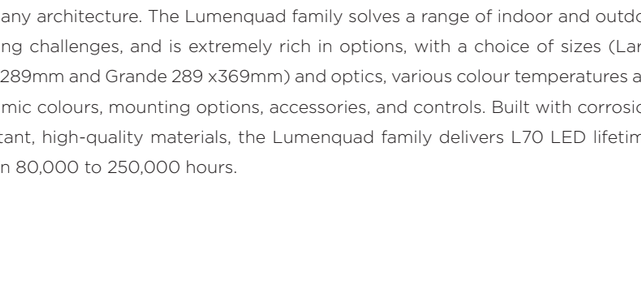


HOW TO USE IN THE APPLICATION. Whether an indoor or outdoor solution is needed, the Lumenfacade Nano is a great tool to create impactful yet unobtrusive lighting schemes. With a profile height of only 53mm, the Lumenfacade Nano can be hidden on the façades of historic buildings as well as on interior walls, creating the desired lighting effect on structures without being visible. The wide choice of optics from Spot (8°x8°) to Wallwash as well as a plethora of colour temperatures, including 2200K, make this luminaire a versatile tool that can be used to create many different lighting schemes that emphasise the unique structural characteristics of each building.

LUMENQUAD

The Lumenquad family are sleek, LED projectors designed to be the ultimate in versatility and style. These luminaires are an elegant workhorse that easily integrate with any architecture. The Lumenquad family solves a range of indoor and outdoor lighting challenges, and is extremely rich in options, with a choice of sizes (Large 225x289mm and Grande 289 x369mm) and optics, various colour temperatures and dynamic colours, mounting options, accessories, and controls. Built with corrosion-resistant, high-quality materials, the Lumenquad family delivers L70 LED lifetimes within 80,000 to 250,000 hours.

Large 225 x 289mm



Grande 289 x 369mm

DWW - Dynamic Warm (2200K-3000K)
DWH - Dynamic White (2700K-6500K)

RGBW - Red, Green, Blue and White
RGB - Red, Green, Blue
RGBA - Red, Green, Blue and Amber

HOW TO USE IN THE APPLICATION. Thanks to its elegant design and built, Lumenquad can be used for both outdoor and indoor lighting applications. Its wide range of optics and colour temperatures allow for the perfect tailoring of how light is delivered onto facades as well as onto artistic details, such as painting and statues. Optics as narrow as 4° can help highlight important architectural details while creating the perfect drama with the use of light and shade, preserving the atmosphere of historic structures. For the preservation of historical structures themselves, Lumentalk technology allows the addition of digital controls over existing power cables without the addition of data cables. Integrated optical accessories and mounting options are just as elegantly designed as the luminaire itself, creating a seamless look for any installation.

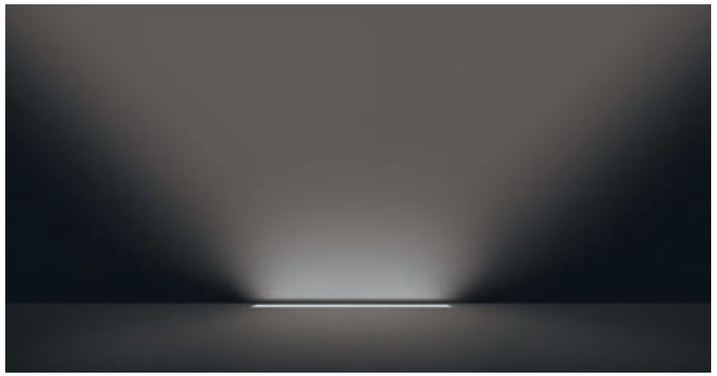
LUMENFACADE

Lumenfacade luminaires are high-performance linear LEDs for grazing, accents and floodlighting indoor and outdoor applications. Available in 0.3m, 0.6m, 0.9m or 1.2m sections, the Lumenfacade family offers a choice of optics; outputs; colour temperatures and colours (Dynamic White, RGB and RGBW); mounting options; accessories; and dimming controls. A unique asymmetric distribution, providing exceptional uniformity and brightness for walls and signage, is also available across the entire family.

Lengths available
300mm, 600mm, 900mm and 1200mm

Pendant

Inground ***Remote*** ***Horizontal*** ***Interior*** ***Facade*** ***Stand Alone***



Lumenfacade **Inground White**

Lumenfacade **Horizontal RGB**

HOW TO USE IN THE APPLICATION. This product family is best used in outdoor applications where its high output fixtures can graze all the way to the top of historic buildings, highlighting beautiful brickwork and other details built into the walls. This family of luminaires comprises many form factors that can provide the perfect fit for the types of architectural lighting challenges found with historic buildings. For example, Lumenfacade Inground can be used on the perimeter around a building, lighting gardens and urban areas, while Lumenfacade Horizontal or Lumenfacade Remote are great tools for unobtrusive facade lighting that still achieves a high output. This family offers a plethora of optics, colour temperature and control choices that allow for the creation of any number of desired lighting effects.

LUMENBEAM

The Lumenbeam family is an award-winning line of high-performance luminaires. Designed to solve a range of indoor and outdoor lighting challenges, the Lumenbeam family is extremely rich in options, with a choice of outputs and optics; colour temperatures and colours (Dynamic White, RGB and RGBW); mounting options; accessories; and dimming controls. Sizes range from small (ø138mm) to Xlarge (ø445mm). Built with robust, high-quality materials, the Lumenbeam family delivers L70 LED lifetimes up to 120,000 hours. A 3G rating is also available.

Medium
ø185mm

Large
ø254mm

Grande
ø336mm

Xlarge
ø445mm

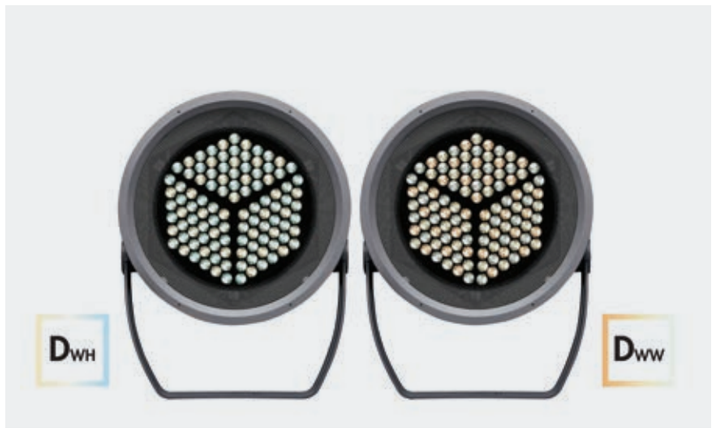
Small
ø138mm

Medium
ø185mm

Large
ø254mm

Grande
ø336mm

Xlarge
ø445mm



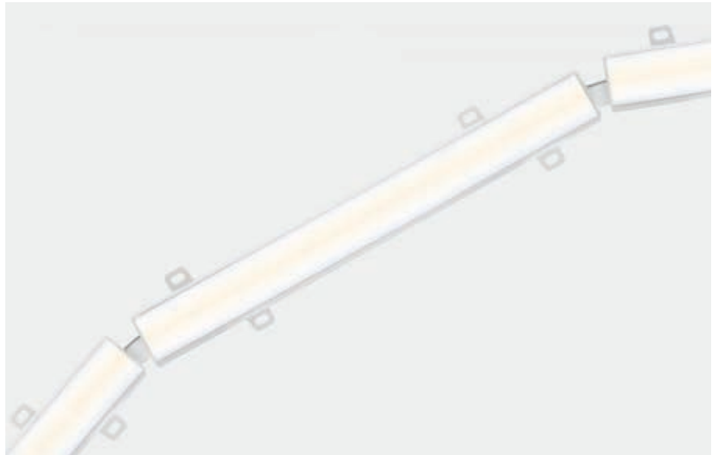
DWH - Dynamic White (2700K-6500K). **DWW** - Dynamic Warm (2200K-3000K).

HOW TO USE IN THE APPLICATION. The Lumenbeam family benefits from an extremely sturdy and robust design that makes it a perfect solution for outdoor architectural lighting in tough environments. It is mounted using a yolk design, which allows it to withstand vibrations (3G rated) and high winds and it can be securely mounted in the most difficult places. All of this makes it an ideal luminaire that can be mounted on top of high bell towers, towering roofs or on the side of walls, creating the perfect lighting effect on the facades of historic buildings.

LUMENCOVE NANO 2.0

The Lumencove Nano 2.0 is a dimmable cove lighting system that eliminates the need for a power supply, which helps to optimise size, efficiency and durability. The luminaire features Lumendrive, a breakthrough ASIC technology that powers LEDs directly from the AC mains, while still allowing full digital dimming and control. The Lumencove Nano 2.0 offers a choice of sizes (300mm to 1207mm) with a profile height of only 35mm, outputs, and colour temperatures, and comes with a 10-year limited warranty.

Sizes available
300mm-1207mm h=35mm



Lumencove Nano 2.0 is a dimmable cove lighting system that eliminates the need for a power supply, optimising size, efficiency and durability.

HOW TO USE IN THE APPLICATION. With its ultra slim, 35mm profile, Lumencove Nano 2.0 can fit into the smallest of spaces making it an ideal lighting tool for indoor cove applications. Whether in historical buildings or museums, a continuous line of up to 90m can be created to highlight walls, ceilings or corridors. The Nano is perfect for mounting in places that are not easily reached or maintained, the 10-year warranty and the control agnostic fixtures help to create a maintenance free installation.

MUSEO

The Museo range of luminaires are lighting tools that enhance historic buildings with a flexible light fitting that seamlessly integrates into the building's architecture. A choice of three optics with reflector and ring, power options, accessories, colour variations and sizes make the Museo range a great match for any architecture. The Museo range comprises of Museo (ø128mm), Museo Compact (ø100mm), Museo Small (ø55mm), Museo Mini (ø39mm) and Museo Micro (ø31mm). Each size is available on a base-mount, and are also available as a twin, triple or four-headed fitting in the smaller sizes. Standard finish options include matte white, matte black and concrete grey.

Museo
ø128mm

Compact
ø100mm
(with Narrow optic)

Mini
ø40mm

Small
ø55mm

Micro
ø31mm

HOW TO USE IN THE APPLICATION. This luminaire was born to light historical buildings. The base-mount design allows the fitting to sit on cornices, highlighting separate areas from one vantage point. With two joints on the luminaire stem, rotation of each individual head, and a choice of one or multiple luminaire heads, offers a great level of flexibility to lighting designers and makes it easy to direct the light where needed.

CR-1

The CR-1 is a compact (ø98mm), high-performance LED projector that combines beam accuracy with innovative finish options, creating a unique luminaire. With a wide range of beam options, including Narrow (10°), Spot (20°), Large (40°) and Wide (60°), as well as a range of colour temperatures and CRI offerings, this luminaire is a versatile tool for many market applications. Finish options include concrete grey, matte textured white and matte textured black. To further shape its output, optical accessories, including a honeycomb louvre and elliptical beam lens, are available.

Size
ø98mm

Optics
Narrow 10°, Spot 20°, Large 40° and Wide 60°

HOW TO USE IN THE APPLICATION. With a peak intensity of 17.103cd/klm (10° Narrow beam) and a clean field angle with minimal light spill, this projector is a powerful tool for museum lighting, putting the right highlights in the right places every time. As standard, the CR-1 is available in CRI95+, this ensures that paintings and other pieces of art will be rendered in their true colours and textures, creating an authentic experience for visitors. By using the Elliptical Beam lens accessory, together with the CR-1's 350° horizontal and 100° vertical adjustment, curators and lighting designers can adapt the light beam to the ever changing exhibits, with a guaranteed flexibility.

ACCADEMIA

The Accademia stands at 2.2m and is a free-standing mount for the Museo Mini, with four adjustable, independent LED spotlights. Its body is made of painted aluminium and is available in matte white, matte black or anodised grey versions. Beam angle choices include: Medium 21°, Large 30°, and Wide 59°. The optics assembly consists of a reflector and coloured ring.

Size
ø40mm
h 2200mm

Optics
Medium 21°, Large 30° and Wide 59°

HOW TO USE IN THE APPLICATION. This product has been designed specifically for installation within sensitive spaces where walls and ceilings cannot be altered. This is often the case in historic buildings where walls are covered in frescos, tapestries or other art that needs to be preserved. With a fixture height of 2.2m and multiple adjustable LED Spotlights, the free-standing Accademia brings light to even the most sensitive historic spaces.

BILUX

The Bilux family of cylindrical LED fixtures is available with several mounting options, including: pendant, surface, wall and track. With a diameter of 154mm, this family is scalable across multiple types of architecture. Combined with innovative finish options, such as concrete grey, and three beam angles, including Medium 27°, Large 48°, and Extra Large 55°, this luminaire is suitable for a number of indoor applications.

Optics
Medium 27°, Large 48° and Extra Large 55°

Ceiling
ø154mm
h 154mm

Ceiling
ø154mm
h 294mm

Pendant
ø154mm
h 294mm

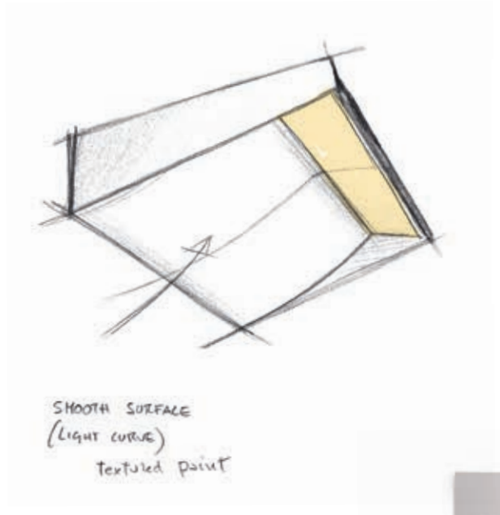
Eurostandard ø154mm - h 140mm
Accessories available and DALI dimmable.

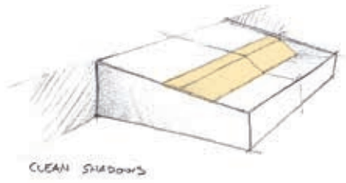
Wall ø154mm - h 120mm
Direct and indirect distribution.

HOW TO USE IN THE APPLICATION. With its concrete grey finish option, the Bilux pendant mount can be used in churches and cathedrals to light aisles, altars and other areas under domes and lofty ceilings. The surface-mount and wall-mounted versions are a great tool to light circulation areas and corridors in museums and galleries.

SPACE

The Space is a high-powered, direct/indirect wall-mounted LED luminaire for applications with heights of 3m or more, such as historic/cultural buildings, entrance areas, atriums or other large spaces where traditionally ceramic metal halide up/down solutions have been used. Lumen packages range from 3000lm to 9500lm (direct distribution) and 6000lm to 24,500lm (indirect distribution). The Space is available in three lengths: 310mm, 610mm and 910mm. The luminaire is fitted with an opal polycarbonate diffuser for even light distribution. Accessories include a three-piece anti-glare kit consisting of an adjustable deflector and two fixed deflectors that reduce the beam cut-off angles of the luminaire and adapt light levels to the needs of various application.





Small
295 x 310 - h 58mm

Medium
295 x 610 - h 58mm

Large
295 x 910 - h 58mm

HOW TO USE IN THE APPLICATION. With its powerful output and three fixture sizes, the Space is an ideal tool for lighting structures with high ceilings, domes and large atriums. Cathedrals can be lit with a wall mount version, using the direct/indirect distribution of the Space luminaire to create a general lighting scheme. The anti-glare kit and polycarbonate diffuser creates visual comfort for visitors.

STEP

The Step range of wall-mounted luminaires with indirect distribution is comprised of four sizes: Small (120mm), Medium (210mm), Large (430mm) and Maxi (640mm). The Step is also available with integrate spotlights, adding a direct distribution to its standard indirect distribution. This luminaire perfectly integrates with its surroundings thanks to a paintable finish option (parget white).

Small
L 120mm
h 120mm

Medium
L 210mm
h 225mm

Large
L 430mm
h 225mm

Maxi L 640mm - h 225mm

STEP 3 L 210mm - h 225mm. Double switch. Optics: Spot 28°, Medium 37°, Large 47° and XLarge 75°.

HOW TO USE IN THE APPLICATION. The Step can blend in with any number of wall colours and paint finishes to create an indirect lighting design for historic structures that seamlessly accents the architecture. This luminaire also works well in corridors and circulation areas where an indirect lighting design creates a warm and comfortable atmosphere.

CYLINDERS

reddot award 2018
winner

The Cylinders are an award-winning range of high-performance LED luminaires that are ideal for many kinds of applications and can deliver up to 5000 lumens. Cylinders come in several finishes, outputs, colour temperatures, CRIs and dimming options, and have been designed to be extremely flexible for a multitude of applications. Their accessories, beam angles, trims, and optics are easily and quickly changeable on-site, in the field offering maximum flexibility for both lighting designers and end-user. Choices of beam angles include: 15° Narrow Spot, 25° Narrow, 40° Medium, 60° Wide and an Asymmetric Wallwash optic. Lighting designers can choose from a number of mounting options including, pendant, surface, track and wall. Sizes include Nano (ø70mm), Small (ø100mm), Medium (ø150mm) and Large (ø200mm) and are available in three standard lengths: 330mm, 457mm and 584mm.

Length available
300mm, 457mm and 584mm

Pendant

Ceiling

Wall

Large ø203mm, ***Medium*** ø152mm, ***Small*** ø102mm, ***Nano*** ø70mm.

HOW TO USE IN THE APPLICATION. Whether the application is in a historic building or a museum, Cylinders are a great tool for creating accents or general lighting in a space. In church applications, Cylinders with the pendant mount option, can be used to highlight altars using a 15° Narrow Spot optic, while pendant-mount Cylinders with a Narrow or Medium beam optic can be used to light the aisles. In museums, Cylinders can be applied to exhibits that are displayed on pedestals or small tables. With field interchangeable optics and accessories, lighting designers and curators get endless choices and flexibility.

SPOT

The Spot family is a versatile range of LED spotlights for retail, gallery and museum spaces. Available in Small (ø85mm) and Large (ø132mm), the Spot is fully adjustable and delivers up to 5000 lumens. The Spot family provides a durable, flexible alternative to ceramic metal halide lamps – with more options, longer life, improved colour stability and lower energy consumption. The Spot family offers a choice of outputs, beam angles, colour rendering options and accessories, making it ideal for a variety of display lighting. The family has a lumen maintenance of 225,000 hours (L70 at 40 °C).

Small
ø85mm

Large
ø132mm

HOW TO USE IN THE APPLICATION. With lumen outputs of up to 5000lm, beam angle choices from 10° to 60° and CRI options of CRI80+ and 95+ as standard, this elegant and minimalist projector is an everyday tool for museums, art galleries and other display lighting applications. This family of projectors specialises in colour rendering, using not only CRI95+ but also Radiant options that help display true colours more accurately. A clean field angle with minimal light spill ensures that light is put exactly where it's needed.

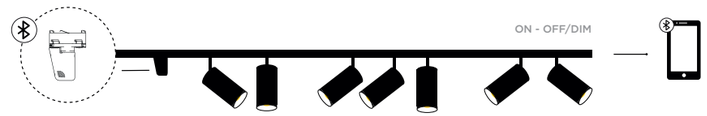
LUMENTALK

Lumentalk™ enables you to introduce modern lighting control over your existing electrical wires without having to install separate data cables, saving you time, money, and hassle. With Lumentalk, Lumenpulse luminaires can be dimmed, colour changed or tuned in colour temperature, using the power line to send data. The technology is compatible with DMX, DALI, or 1-10V, works on any AC voltage (100-277VAC), and operates within frequency bands allocated by worldwide regulations (FCC, CENELEC, ARIB).

HOW TO USE IN THE APPLICATION. Lumentalk enables traditional lighting systems to be upgraded to LED without the cost and disruption of opening up walls and ceilings to rewire for data. This is a big win for the preservation of historic architecture and it greatly reduces the cost of retrofit projects. Also available for track installations often used in museum applications, Lumentalk enables digital control of each individual luminaire on a single-circuit track without the costly purchase of a DALI track.

UNITRACK

Unitrack is a complete portfolio of track mounting systems and accessories and has six conductors instead of four, which allows clients to use only one track for both dimmable and non-dimmable installations. Standard lengths include 1000mm, 2000mm and 3000mm. Custom lengths are available upon request. Whether the lighting designer chooses to use DALI, Bluetooth, or no controls at all, every design is possible with the Unitrack portfolio. Easy light management via a smart phone app is possible when using the Bluetooth control accessory in combination with DALI luminaires. This enables lighting control, scene setting, timers, scheduling and more.



HOW TO USE IN THE APPLICATION. This track portfolio can be used in museum and gallery applications where track and spots are an important lighting tool. By choosing the Bluetooth control accessory, curators can re-adapt the lighting within seconds to suit changing exhibits with different themes and showcases.

INFO

SALES OFFICES AND MANUFACTURING FACILITIES

CORPORATE HEADQUARTERS
1220 Marie-Victorin Blvd.
Longueuil, Quebec
Canada J4G 2H9
T 514 937 3003
F 514 937 6289
info@lumenpulse.com

FLORENCE, ITALY
Via della Chiesa, 38
50041 Calenzano
Florence, Italy
T +39 055 541754
F +39 055 5417575
info@exenia.eu

LONDON, UNITED KINGDOM
The Leathermarket
11/13 Weston Street
Unit no 13.3.2
London UK SE1 3ER
T +44 (0) 2031 765370
F +44 (0) 2031 765377

MANCHESTER, UNITED KINGDOM
4th Avenue
The Village, Trafford Park
Manchester M17 1DB
T +44 (0) 161 872 6868
F +44 (0) 161 872 6869

PARIS, FRANCE
19 Vivienne
Paris 75002
France
T +33 (0)1 40 41 60 10
servicefrance@lumenpulse.com

lumenpulsegroup.com

CREDITS

EDITION
January 2019 © All rights reserved

CONCEPT AND PROJECT MANAGER
Michela Spatola

PRINTING
Tipograhy ABC | Florence, Italy

CONTENTS
Beatrice Santini
Jeramy Dodds

Alberto Ferraresi
Alessandro Grassia
Andrea Ingrosso
Anja Stolte
Benedetta Piccinino
Claudio Longhin
Elisabetta Cane
Francesco Logallo
Giampaolo Sartori
Giulio Malatacca
Giuseppe Rimediotti
Loredana Mobilia
Lorenzo Querci
Luca Cigolotti
Massimo Iarussi
Paola Pontani
Phil Neate
Sara Massi

SPECIAL THANKS
Cataldo Mazzilli
Elisabetta Cane
Francesco Logallo
Juli Boyer
Giulio Malatacca
Phil Neate
Pierangelo Laterza

IN-PLACE PHOTOGRAPHY
© Alex Fradkin
© Alessandro Galeota
© Andrew Lyngarkos p.67
© Ben Cooper
© Bruno Barillari
© Claudio Divizia p.6 shutterstock.com
© Domenico Lofaro
© Elena Romani
© FotoGraphic p.143 shutterstock.com
© Giampaolo Sartori
© Ion Ander
© Jay Rosenblatt
© James Newton p.68
© JJ Lane
© Jpegstudio
© Lorenzo Rinella
© Mario Ciampi
© Matteo Bencini
© Matteo Trentanove
© Mulvey+Banani International Inc.
© Officine Fotografiche
© Pierangelo Laterza
© Raimund Koch
© Roberto Farren
© Stephen Chung p.7 shutterstock.com
© Thomas Schauer p.16 shutterstock.com
© Tom Reese
© Toshio Kaneko
© Varvara Verbitskaya p.12-15
© VistaVerde Ida
© Xavier Boymond
© Ysbrand Cosijn p.106 shutterstock.com