

**Diyar Consortium**

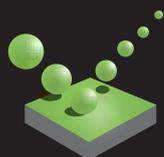
**Bethlehem Bible  
College**

**Mercedes - Benz  
Showroom**

**Jerusalem  
Pharmaceutical  
Company**

**John Paul II  
Foundation**

# Lighting Magazine



**Beam Engineering  
Technology Ltd.**



*Beam Engineering Technology Lighting Newsletter is a promotional magazine of Beam Engineering Technology Ltd. Our intent is to offer – not only to industry professionals, but to the general public as well – useful information and interesting news on what is going on in the world of lighting design, in particular on the use of light in applications like*

*urban decoration, traffic and road systems, sports facilities, infrastructures, and presents interesting lighting projects.*

*Another important goal for the Lighting Newsletter is to collect and provide visibility to contributions from architects, regulators and lighting design experts.*

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# WELCOME..



## Welcome to our Lighting Magazine

*Beam Engineering Technology Ltd. is excited to launch its 4th issue of the Lighting Magazine.*

*To sign up for future issues of our Lighting Magazine, please visit our website at: [www.beam-lighting.com](http://www.beam-lighting.com) and enter your email contact information.*

*Over the last 10 years, Beam Engineering Technology was considered one of the most important lighting companies in Palestine. Our professional work can be seen in our projects which we have done through that period.*

*This issue is dedicated to all our clients and customers and all the electrical engineers and architects who worked with us and trusted us in all fields, design and supply.*

*We will try in this issue to introduce to you the benefits of LED lighting which we have used in many of our projects that we have done lately.*

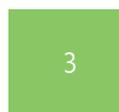
*We look forward to seeing you at our offices and showroom. We hope that the contents of this Magazine will be useful and worthwhile.*

*One last thing, if you have any problem with our products or services and you think we can improve, please do not hesitate to contact us!*

*Yours sincerely*

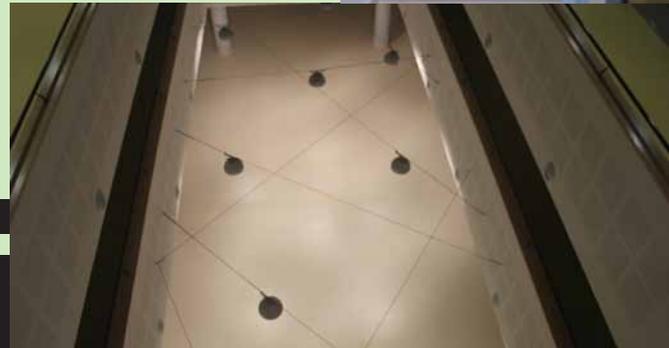
**Eng. Basem Tweme**

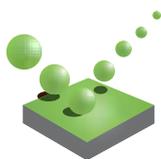
*General Manager*



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# ABOUT BEAM ENGINEERING TECHNOLOGY

Beam Engineering Technology Ltd. (BET) was established in 2002 as a company specialized in the comprehensive field of lighting as follows:

- Interior
- Exterior
- Decorative
- Emergency

BET also provides its services and support starting with the creation and design of a particular project until it is completed by the contractor, in addition to supervision of proper installation of our products. BET is the exclusive agent for many European Lighting Companies in Palestine, including Disano, Fosnova, Fitzgerald, Modus, Arkos, ASD, Halla, Kers, Lucis, and Mitas.

Our name is associated with the best quality that may be used to develop new market based upon our unique products. It is our goal to become No. one in Palestine that offers the best lighting solutions.

## CRITERIA FOR SUCCESS

BET aims to maintain position as one of the leading suppliers of Lighting by:

- Promoting the products in an educational strategy.
- Getting the customers to fully understand and appreciate the products performance and purposes.
- Giving full support in the design of lighting and in choosing the best lighting solution.

## TOTAL CUSTOMER CARE

BET belief of closer customer contact will bring customers into contact with personnel from the following areas:

### • Sales

BET sales office is a team of dedicated sales staff whose job is to provide answers to customer inquiries, produce quotations and handle order processing. Sales Engineers work closely with Project Engineers to provide the best lighting solutions.

### • Project Engineering

Upon receipt of order, a Project Engineer is appointed to the project. He is in-turn overseen by a Project Manager. A full set of specifications for each lighting fixture with its exact location is produced and submitted for full approval. Project Engineers are available by telephone, fax and e-mail to enable direct contact with the customer.

## AGENCIES

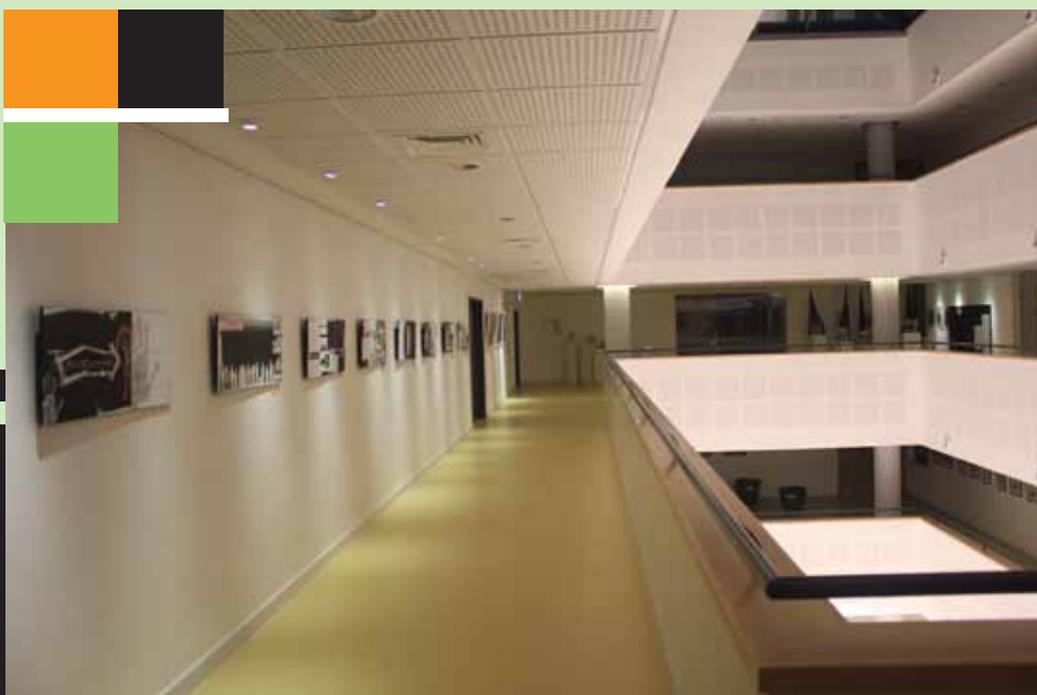


# DIYAR CONSORTIUM HIGHER EDUCATION & RESEARCH BUILDING



## DESCRIPTION

*The College began operating in 2006 from the ICB complex in Madbasseh Square, offering diploma courses in documentary film-making and glass and ceramic art. The College received accreditation in 2007 from the Palestinian Ministry of Education and Higher Education for Bachelor's degree programs in contemporary fine art, multimedia, and tourism studies. In 2009, Rev. Mitri Raheb decided to expand the college into its own building on the hilltop of Mt. Murair.*

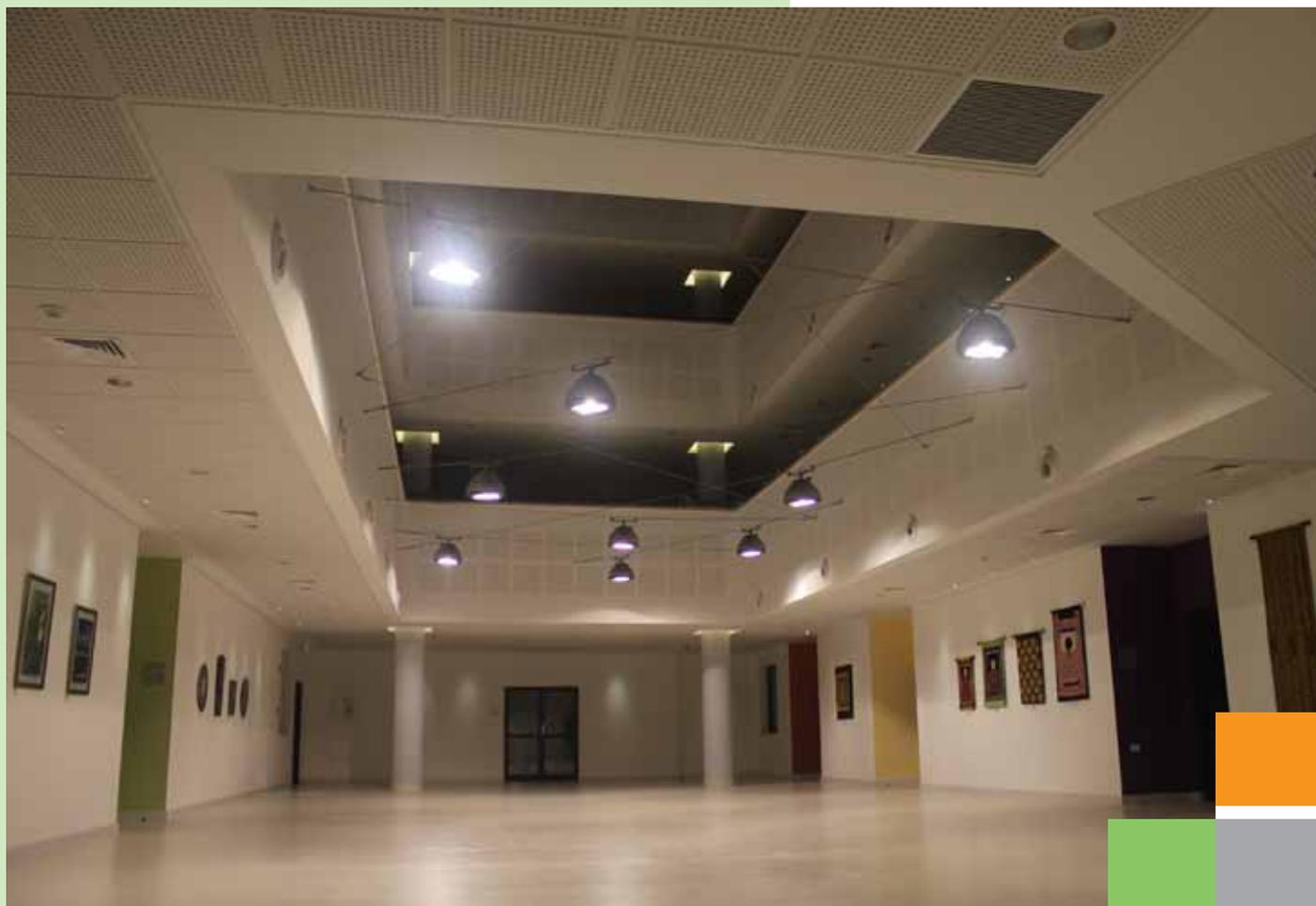




*Elegant in its form, tenuous of color, clean in its lines. As simple in its architectural structure as it is modern and innovative in the details of its lights. This is the Dar Al Kalima College, a school designed in Bethlehem, by the Palestinian architect, Bassem Khoury. The college now offers two degree courses in arts, multimedia, communications, and tourism related studies. The students of documentary film-*

*making won the Middle East Film Festival 2011 for the best documentary film, which focused on the problems and difficulties of living in Palestine. The building, however, was inaugurated in 2010: this is a construction of simple and essential design, interesting because of a lighting system planned in every detail by the architect, Mr. Khoury.*





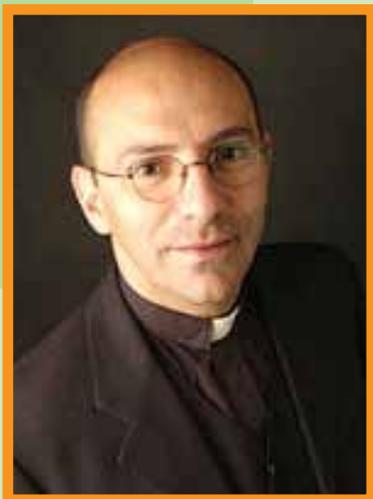
*The lighting design focuses on functionality without neglecting aesthetics. One of the highlights of the project is represented by the installation of LEDs, the ideal solution to achieve visual comfort and energy saving. A touch of originality is represented by the great underground exhibition room where we find the Montecarlo (Disano) fixtures that are generally used outdoors. Here, they are suspended in space, thanks to stainless steel wiring hooked to the walls to give perfect light and create an interesting interior design element.*





*Lighting the lecture rooms, by contrast, are Disano Comfort and Disano Clima, Fosnova Office and Fosnova Luna products. Disano provided the lighting system together with the collaboration and consultation of Beam Engineering Technology, a Palestinian company specializing in the lighting sector and a point of reference for almost all local companies.*





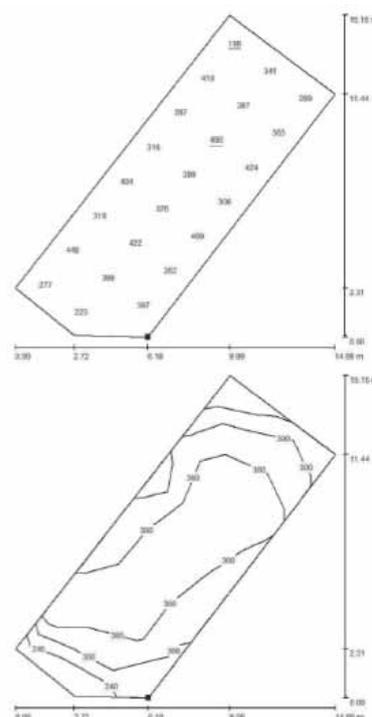
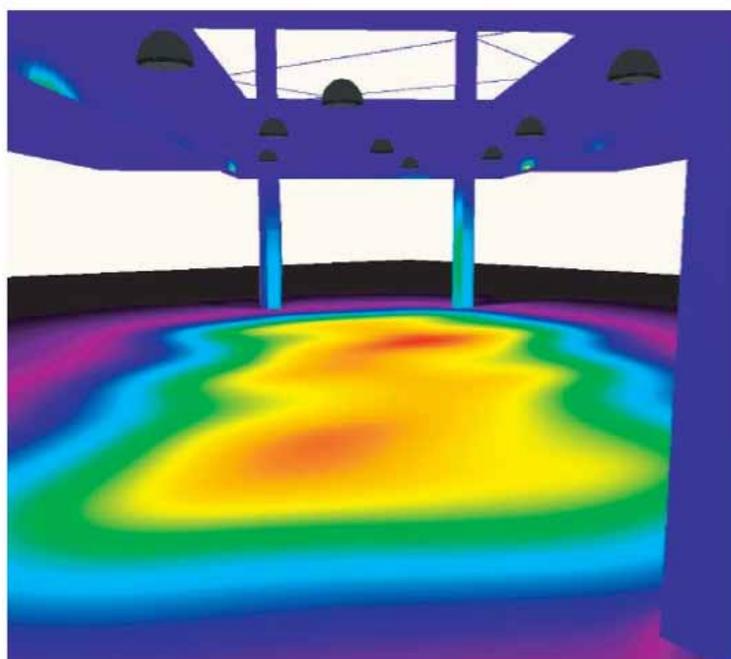
Rev. Dr. Mitri Raheb, founder of the Diyar Consortiums, is the Pastor of the Evangelical Lutheran Christmas Church in Bethlehem. He had the vision and leadership to create institutions to serve Palestinians living in Bethlehem, and focusing specifically on women, children, youth, and the elderly. He had Cultural ideas and educational programs to awaken Palestinian youth, restore new life to the town of Bethlehem and create the dream of a different future. Rev. Dr. Mitri's work has been recognized by several awards; among them are the "Wittenberg award" from the Luther Institute in Washington and the "Mohammed Nafi Tschleibi International Peace Award" from the Central Islamic Archive Institute. When Rev. Dr. Mitri is not conducting his social duties within the community, he can be found busy formulating, adopting, and applying new ideas.

## DESIGN

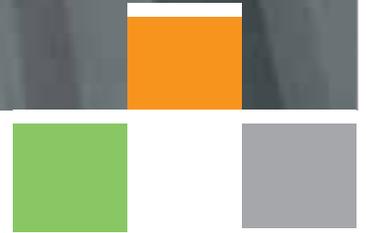
Design for this unique project was done by DISANO Italy with Beam Engineering Technology Palestine to choose the right number of Montecarlo 150W CDM-TD to be used in the void using special stainless steel cable with special hooks and accessories.

CALCULATION

Em = 300 lux



## RENDERING



## REAL PHOTO



2010, Bethlehem, Diyar Consortium  
Designer: Architect Bassem Khoury  
Supervision: Architect Bassem Khoury  
Contractor: United Contractors  
Electrical Contractor: Eng. Nabil Fiefel

### Products Used:

Disano Comfort, Disano Montecarlo, Fosnova Office, Fosnova Luna, Disano Clima.

# BETHLEHEM BIBLE COLLEGE

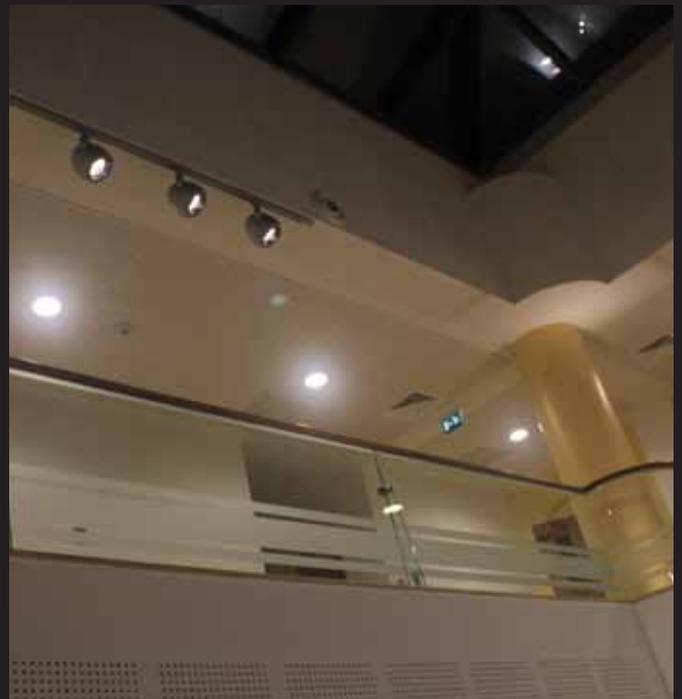


## DESCRIPTION

*Bethlehem Bible College is an interdenominational Christian Bible college, located in Bethlehem, Palestine, started in 1979 at a local Christian school. The College offers a BA program in Biblical studies and Christian education that combines high academic standards with a deep spiritual commitment to Christ. The Bible College also offers a two-year program in mass media and tour*

*guide. It is accredited by the Palestinian Ministry for Higher Education and Middle East Association of Theological Education (MEATE) as a four-year college.*

*In 2007, they began an expansion program with the building of a new Student Centre. This will give the Bible College more facilities and greater opportunities for academic development.*



## LIGHTING CONCEPT:

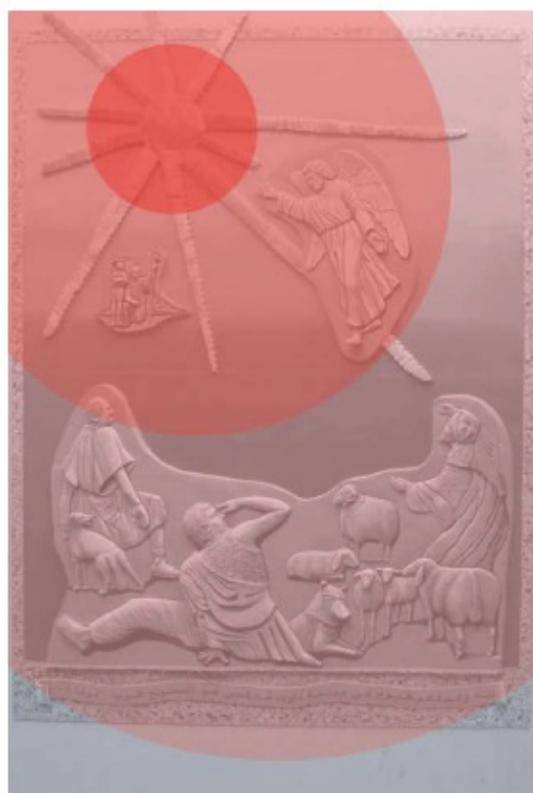
During his visit to Bethlehem Palestine on November 2009 Dr. Massimiliano Anselmi the Export Manager of DISANO visited the site which was still under construction. From there the idea of making special lighting for this building was started.

The coordination between Beam Engineering Technology and DISANO concluded to a very unique design for the building which shows the beauty of the architectural design of the Arch. Basem Khoury.

The aiming of this special lighting project is to enhance colors of this work of art. The painting is installed in the main hall of Bible College. Lighting concept wants respect the idea of the artist: a shining sun which lit the angel and people in the bottom part of the painting. Some floodlight (Fosnova Leo), installed in a power led track (Fosnova Omnitrack), lit the different parts respecting luminance hierarchy. Leo floodlights are fitted with 35W HID lamps with very high CRI index to appreciate wonderful colors like gold and blue.

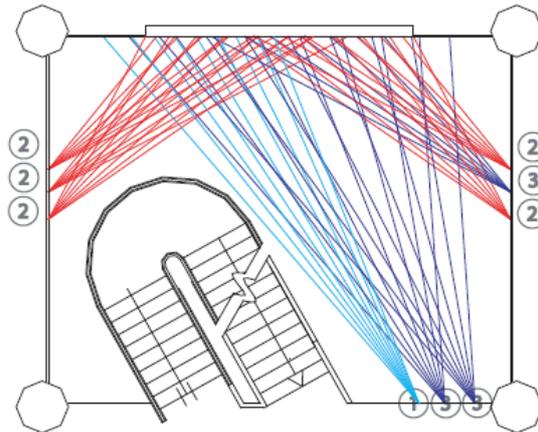
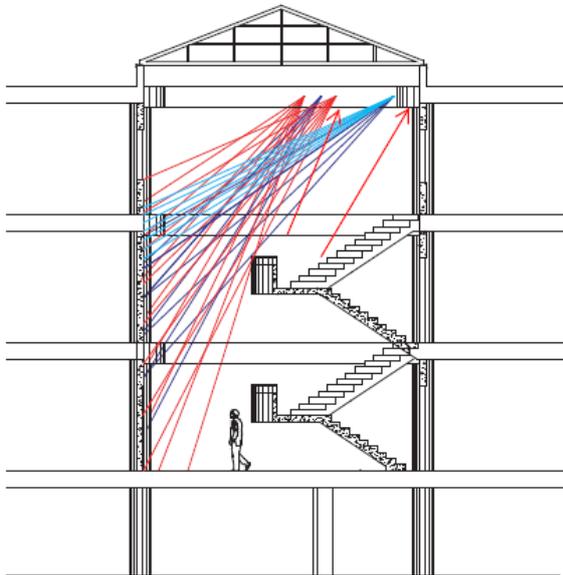
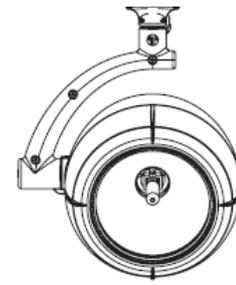


LIGHT INTENSITY

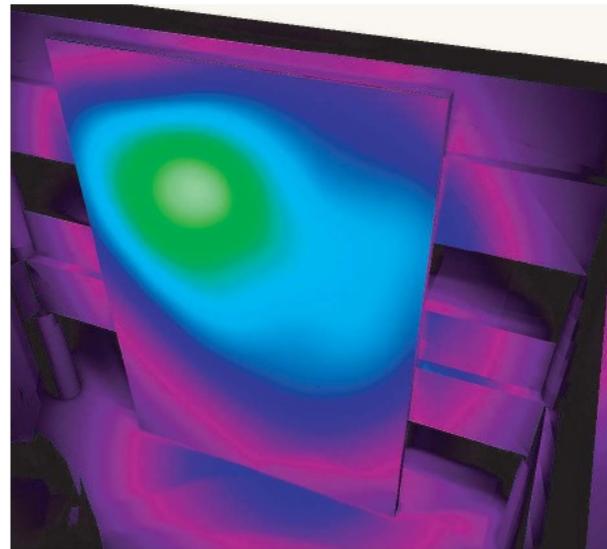
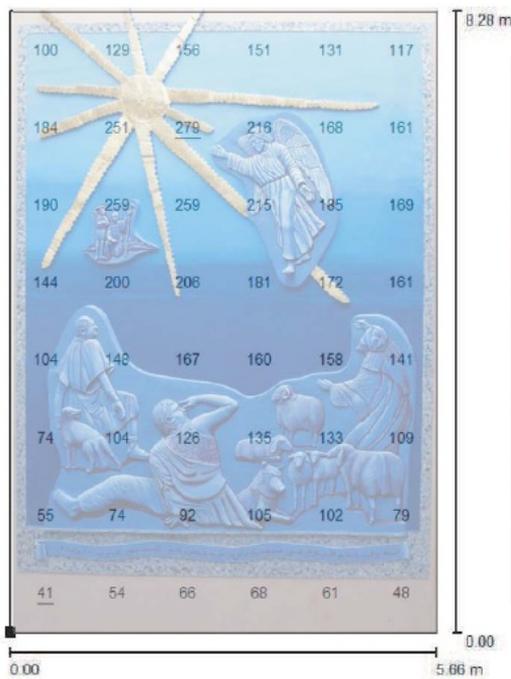


## AIMINGS

- 1\_ Fosnova LEO CDMR-111 70W WDL 10°
- 2\_ Fosnova LEO CDMR-111 35W WDL 24°
- 3\_ Fosnova LEO CDMR-111 70W WDL 40°



## CALCULATION



2010, Bethlehem  
 Owner: Bethlehem Bible College  
 Designer: Architect Bassem Khoury  
 Supervision: Architect Bassem Khoury  
 Contractor: MaugeCAD Contracting Co. Ltd.

**Products Used:**  
 Disano Comfort, Disano Starled, Disano Cilindro, Disano Starled, Disano Box Fosnova Office 2, Fosnova Leo 2.

## MERCEDES SHOWROOM – RAMALLAH



*T. Gargour & Fils (TGF) was established in 1928. Since early 1952 TGF has been the exclusive and sole agent for Mercedes-Benz vehicles in Jordan, Lebanon, and Palestine providing the highest standards of customer care. TGF has been responding to customer demands by introducing new products to its current passenger cars range.*

*In 2009, TGF Decided to open a new showroom at the entrance of Ramallah. The first thing that strikes your eyes is the dictation illuminated passenger cars when entering Ramallah showroom, thanks to the "Fosnova Vision Interior Floodlights". The lighting of some of the offices includes Fosnova Luna 1, Disano Starled, Fosnova King, and Disano Gabbiano fixtures.*



*2009, Ramallah  
Owner: Gargour Trading Company  
Design By: Community Development Group (CDG)  
Supervision: Community Development Group (CDG)*

*Products Used:  
FOSNOVA MINILINEA, FOSNOVA VISION,  
FOSNOVA LUNA 1, FOSNOVA KING  
DISANO GABBIANO, DISANO STARLED*



# DAR ABU SADA BUILDING



## DESCRIPTION

*The Center for Cultural Heritage Preservation (CCHP) was established in 14th April 2001 with the mission to oversee the preservation of old neighborhoods and buildings within the towns and villages of the Bethlehem District and enhance awareness of cultural heritage in the public consciousness.*

*In 2010 CCHP has rehabilitated a traditional*

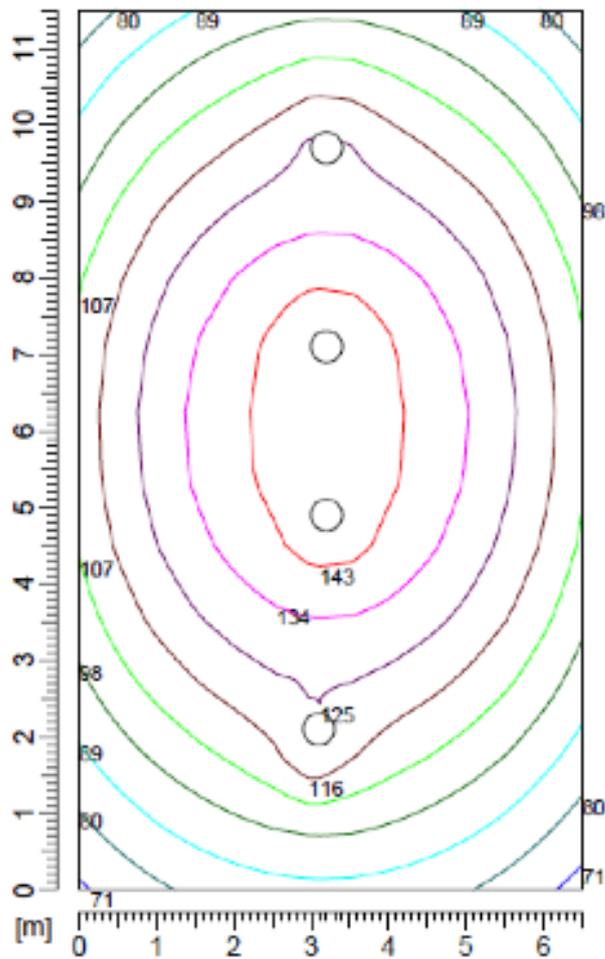
*building in the Historical Center of Beit Sahour which is known as Dar Abu Sada. It was built in the late nineteenth century, which has a surface area of almost 450 square meters distributed over two floors with an open court in the middle, however it has been abandoned for many years. The rehabilitation works serve Beit Sahour Municipality (partner organization) to get additional space that is used as the Mayor's office, the engineering department, and the public relations department.*



## DESIGN

*Design for this project was done by Beam Engineering Technology Design Department with coordination with the CCHP to choose the right number of DISANO Ghost 150W CDM-TD to be used in the void which is the main area in the building.*





Section values [lux]					
	71.0		98.0		125.0
	80.0		107.0		134.0
	89.0		116.0		143.0

2011, Beit Sahour

Owner: Beit Sahour Municipality

Design & Supervision by: The Center for Cultural Heritage Preservation (CCHP)

Contractor: Engineer Issa Rishmawi

**Products Used:**

DISANO CLESSIDRA, DISANO GHOST.

# JERUSALEM PHARMACEUTICAL COMPANY – CAFETERIA



The success story of Jerusalem Pharmaceuticals Co. Ltd. (Al-Quds in Arabic) goes back to the early year of 1967. Following the occupation of the West Bank and Gaza Strip the Israeli authorities prohibited the imports of medications to occupied territories. This encouraged importers of pharmaceuticals by profession to establish a local pharmaceutical industry in order to meet the increasing humanitarian needs of the Palestinian people, thus the offshoot of Jerusalem Pharmaceuticals came to light in 1969 as a private pharmaceutical manufacturing company.

Jerusalem pharmaceutical company has recently undergone a major makeover in the cafeteria. The redesign gave a new, young, and trendy look giving the employees a feeling of comfort and a relaxing break time.

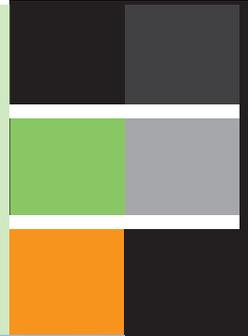


2009, Al-beireh – Ramallah  
 Owner: Jerusalem Pharmaceutical Company  
 Designer: Engineer Wafa Mer'i  
 Supervision: Engineer Wafa Mer'i

**Products Used:**  
 Fosnova Minilinea, Fitzgerald-Ecostar



# PALESTINE ECONOMIC POLICY RESEARCH INSTITUTE



*The Palestine Economic Policy Research institute (MAS) was founded in Jerusalem in 1994 as an independent non-profit institution to contribute to the policy-making process by conducting economic and social policy research. Seventeen years and over two hundred publications later,*

*MAS is proud of its record of applying the highest standards of intellectual independence, relevance and methodological excellence in its economic and social research and analysis, and its contribution to sustainable socio-economic development in Palestine.*



*The elegantly designed building is surrounded by extraordinary lighting thanks to the "Disano Indio projectors" and the "Disano Faro fixtures".*

*The interior and offices of the building are illuminated with Disano Comfort and ASD fixtures.*



2009, Ramallah  
 Owner: Palestine Economic Research Institute  
 Designer: Bayt Al-Handasa – Nablus  
 Supervision: Bayt Al-Handasa – Nablus  
 Contractor: Jerusalem Real Estate Investment Company

**Products Used:**

*Disano – Comfort, Disano – Indio, Disano – Faro*

# JOHN PAUL II FOUNDATION



*John Paul II Foundation for Development and International Cooperation was established in 2007, in Italy, with the headquarter for the Middle East in the city of Bethlehem, the Foundation main objective is to invest in the human capacity building.*

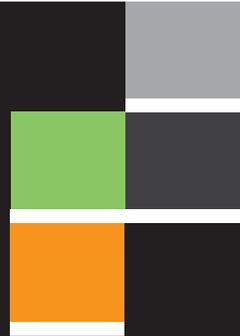
*John Paul II Foundation has invested efforts through its programmers to supply the knowledge, resources, and the infrastructure for their development on both individual and community levels.*



*John Paul II Foundation for Development and International Cooperation, aims, through its work to create development programs in various fields to act as bridges for progress and human and community development especially in the Middle East. Based on this approach, the Foundation*

*hired its efforts through its main branch in the Middle East which operates in the city of Bethlehem to pursue and develop vital programs in order to achieve the goals and objectives of the institution in its strategic and developmental dimensions.*





*As you walk in John Paul II foundation, you will find the Fitzgerald Eco-star, Lucis Sinope, and Lucis Sirius lighting fixtures illuminate the interior design of the building showing nothing but the true beauty of the 150 year old building.*

*Date: 2010*

*Location: Bethlehem*

*Owner: John Paul II Foundation*

*Designer: Engineer Hanna Al-Atrash*

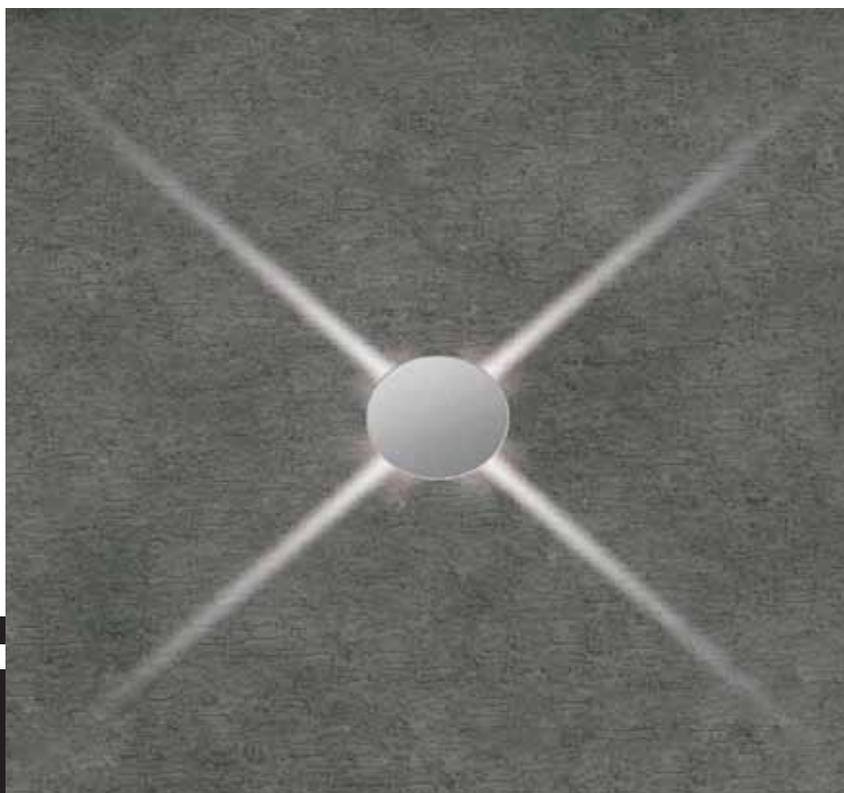
*Supervision: Engineer Shadi Qumsieh*

*Contractor: Engineer Iyad Al-Hawash and Nakhleh Al-Hawash*

***Products Used:***

*Fitzgerald - EcoStar - Disano - Starled  
- Fosnova - Luna - Disano Comfort*

## NEW PRODUCTS



### CARATTERE

*Minimal lights can provide visual guidance and colour, like soft light accents evenly distributed in different spots, transforming a home into a «luminous constellation» that highlights and enhances spaces.*

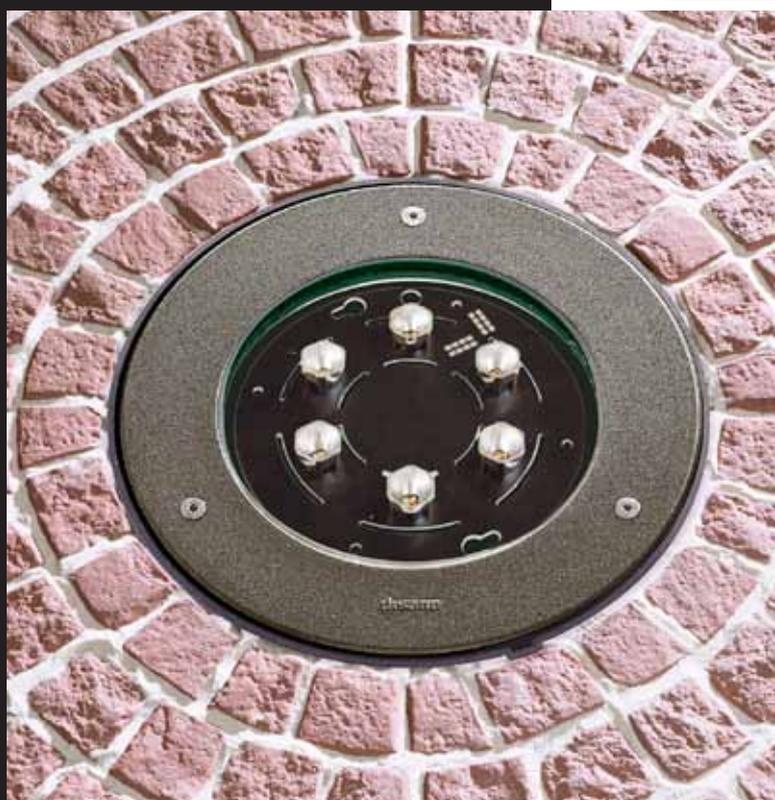
*Carattere draws delicate light beams on walls and ceilings providing the minimum amount of light to define walkways creating decorative light effects. Equipped with 1W, 30lm LEDs.*

### FLOOR

*The re-launching of the Floor range of products: a great step towards a more technical illumination. Accent lights enhance details and add a three-dimensional quality to the displayed objects. It is suitable in both classical and modern contexts, producing the same effect.*

#### *Characteristics:*

- New optics
- More light beams, +/- 20° adjustable reflectors
- Modern lamps (Rx7s and G12)
- IP 68 upon request
- New IP 68 connectors (quick installation)
- Family look





## FIRENZE

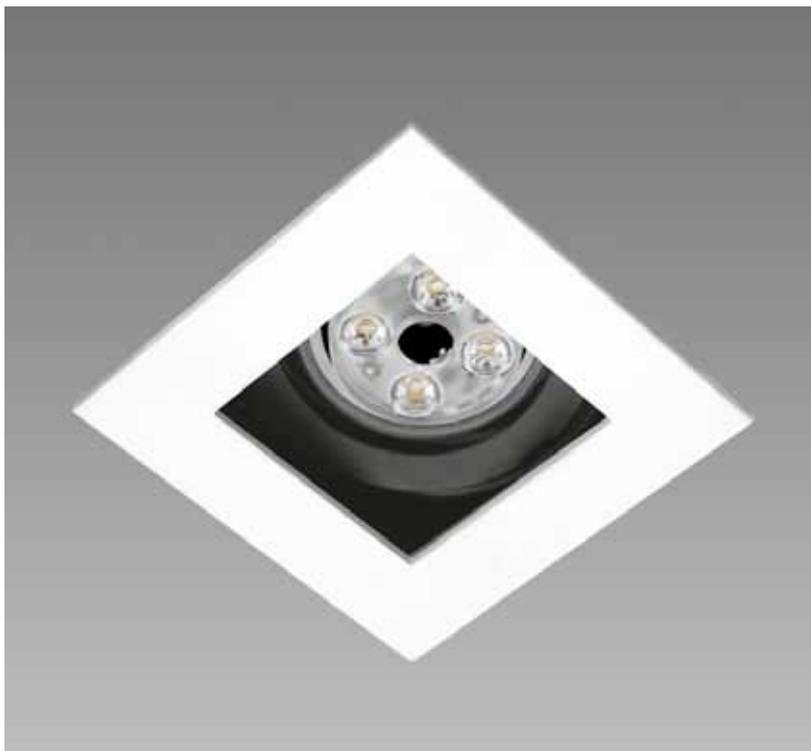
«An authentic revolution in the world of lighting», this is how LEDs are often described. LEDs are noteworthy not only for their energy-saving potential, but also for the high quality of the light emitted from fixtures and the improved flexibility of the lighting systems using them.

### Firenze 1 LED

- Version with LED, total power 18W, life 25000 h
- IP f.h. 20 l.h. 23
- 3000k - 1050lm - Tot.P. 18W

### Firenze 2 LED

- Version with LED, total power 18W, life 25000 h
- IP f.h. 20 l.h. 23
- 3000k - 1050lm - Tot.P. 18W



## FENIX Q

This new version of Fenix completes the range of small recessed LED spotlights. This model resembles the eye of a chameleon; it is fully adjustable, and equipped with new generation 7W - 230V - 560lm LEDs.

Equipped with anti-glare dimmable conveyor available in different colours, it can be successfully integrated into any kind of interior design style.

Particularly suited to retrofit old systems and replace obsolete fixtures with the energy-saving technology



## MATRIX 9

A spot and track light that extends the Matrix series. This version, thanks to its original shape and its linear and clean-cut design, offers the opportunity to meet different architectural lighting needs using LEDs, while ensuring high colour rendering. At last, this fully adjustable spotlight can create an extraordinarily efficient lighting system that places value on spaces and objects.

- Version with 9 white light LEDs with high color rendering
- 4000k - 1500lm - Tot. P. 25W

## ROMA

New models of the Roma series with Fortimo DLM or SLM LEDs. These luminaires represent a great leap forward in interior lighting design.

Light is softer and improves comfort creating spaces that are more pleasant to live in and that make shopping even more enjoyable.

All spotlights have optics in polished aluminium for high efficiency and excellent glare control. Ideal for spaces where light runs all day long (malls, hotels, showrooms).

### Roma 1/2 Twist and Fortimo LED

• Recessed spotlight in aluminium for wide beam lighting. Built-in power supply. The version with LEDs has 1100/2000 - 3000K colour temperature and nearly 25,000 h life for a total power of 20/29W. Complete with DIM power supply (with phase-cutting control). Available square or round.

### Roma 3/4 Fortimo DLM LED

• Each single recessed spotlight allows versions with 3000/4000K colour temperature and 1100/2000lm output for a total power of 13/15-26/29W based on LED type. Complete with electronic built-in DIM DALI power supply. Reflector in matt aluminium with high efficiency, excellent colour rendering and glare control.

### Roma 3/4 Fortimo SLM LED

• Recessed spotlights with 3000K colour temperature and 1100lm output for a total power of 18W based on LED type. Complete with electronic built-in DIM DALI power supply. Reflector in matt aluminium with high efficiency, excellent colour rendering and glare control.





## MILANO

*A full range of recessed downlights to deliver the best light level in public spaces: stores, showrooms or accommodation facilities.*

*The all-new Milano recessed downlights are easy to install, surprisingly affordable and now available even with different kinds of LED lights and colour temperatures for excellent colour rendering.*

*This line of lighting fixtures includes multiple light beam angles to enable designers to use the same product for both ambient and accent lighting.*

*Milano is the solution that best meets the needs of interior lighting designers thanks to its great versatility.*

*In the versions with LEDs and discharge lamps, Milano ensures top efficiency with remarkable energy-saving benefits. Without mentioning the fact that the Milano range also includes discharge lamps that use Elite lamps.*

*Furthermore, Milano is available in smaller sizes to meet the design needs of homes, showrooms and stores.*

### *Milano Cree*

*• Equipped with high-efficiency LEDs with 700/2000/2900lm output and 3000/4000K colour temperature and 13/30/37W wattages. The DIM DALI electronic power supply is incorporated into the device. It comes with white, matt or metallic finishes.*

### *Milano EsaLed*

*• High-efficiency, wide beam version with built-in heat sink for longer life. Equipped with high-efficiency LEDs with 1500/1800lm output, 3000/4000K colour temperature and 18W wattage. The DIM electronic power supply is incorporated into the device. It comes with white, matt, gilded or metallic finishes. Version with IP44 protection is available.*

### *Milano Twist*

*• Each single device allows three different light beam angles. Equipped with 3000/4000K and 1100/2400lm LEDs. The DIM electronic power supply is incorporated into the device. Reflector in white, matt or metallic finishes.*



## LED STRIPS

*LED light strips represent a major innovation in the world of lighting that deserve particular attention for their unique characteristics, which make them the most suitable solution to meet specific lighting demands.*

*This innovative lighting solution is made up of LED lights arranged in linear sequence to form a luminous strip that can be used depending on individual needs.*

*LED strips are very versatile and can be adjusted to different spaces to create ambient lighting with a great visual impact. LED strips are flexible and can be applied on smooth, clean, dry surfaces with 3M adhesive and, typically in the IP20 version, they can be cut in different pieces, where length varies on product type. Pieces only a few centimeters long are also available.*

*These luminous strips do not deliver a very bright*

*light but are extremely useful as surrounding lights to enhance some areas of a home or to highlight details.*

*Therefore, they have an aesthetic rather than a functional purpose, and they also represent an original way to decorate your home with light and colour.*

*LED light strips, just like any other LED product, feature low power usage and long life. In fact, they can guarantee performance for even 50,000 hours and they can minimise or totally eliminate the need to spend money on ordinary maintenance.*

*LED strips should be applied on smooth, clean, dry surfaces with 3M adhesive. Never install strips on sharp surfaces and take all appropriate measures to avoid damages to components.*

## STELVIO

*Stelvio is a product with a simple and slender design, rated with IP66 protection level, fully compliant with existing anti-light pollution standards. The lighting fixture incorporates a controller capable of monitoring the system's main operation parameters. The system also records data regarding the operating hours of the fixture and the LED source as well as the overall energy power used by the system itself. The system provides information on supply voltage, current, power and LED operating temperature. In case the lighting fixture detects a failure or an*

*anomaly, the system will promptly inform the control station and send off the data regarding the device that generated the failure. It is also possible to switch the device on or off based on a predefined schedule. This will operate some installations at reduced power at specific pre-scheduled timeslots. In particular, according to the UNI-11248:2007 road standard, it is possible to classify roads dynamically into two categories, and reduce the luminous flux during specific hours of the night when traffic is low.*



# LIGHTING MARKET REPORT PREDICTS STRONG GROWTH FOR LED LIGHTING

*The worldwide lighting industry indicates sizable growth for LED-based lighting.*

*By: Eng. Basem Tweme / General Manager of Beam Engineering technology Ltd.*

*The worldwide lighting market will grow to approximately EUR 110 billion (\$159 billion) in 2020, with 80% of that total from general lighting.*

*General lighting, automotive lighting and backlighting are considered the three largest lighting-market sectors at present, with general lighting (broken down into numerous segments, of which residential is the largest) accounting for about 75% of the total market in 2010.*

*The global LED lighting market is expected to grow from EUR 7 billion in 2010 to EUR 40 billion in 2016 – a compound annual growth rate (CAGR) of 34%. Subsequently, growth is expected to slow down, with a CAGR of 13% from 2016 to 2020. The LED lighting market will amount to almost EUR 65 billion (\$94 billion) by 2020, representing close to 60% of the total lighting market.*

*“The significant differences in LED technology versus other lighting technologies will lead to a fundamental disruption of the lighting industry along the entire value chain.” Standard lighting approaches are being challenged by entirely new possibilities enabled by LEDs, such as design flexibility, or the ability to dynamically change the colour temperature of light. The controllability of LED-generated light enables intelligent lighting systems.*

*While the rate of LED penetration in residential lighting is slower than in other general-lighting segments, the residential LED lighting market is likely to be worth over EUR 20 billion by 2020. Architectural lighting has been an early adopter of LED lighting due to benefits such as color control, and is expected to see 85% LED penetration by 2020. Rapid growth in LED penetration is also expected in hospitality-, shop- and outdoor-lighting applications. However, the proliferation of cost-competitive linear-fluorescent lamps in office and industrial lighting will mean that penetration of LEDs will be slower in these applications.*

## **Why people buy LED fixtures?**



## General lighting

*A key finding is that growth of the general lighting market is highly correlated with local construction investment, so it is no surprise to see that Asia, and China in particular will experience the most-rapid growth. Asia already accounts for around 35% of the general-lighting market, and this figure is set to rise to around 45% by 2020. Europe and North America will follow, with market shares of 25% and 20% respectively.*

*The general-lighting market, due to the fact that lighting is used in so many different applications, with many types of light sources and many different parties responsible for purchasing decisions.*

*The lighting-fixture market will remain fragmented because of the local buying power of governments, construction firms, architects and designers. This is in contrast with globally-consolidated electronics manufacturers.*

*In Asia, North America and Europe, the current LED share of the general-lighting market is similar, at around 7%, but in each case this is expected to grow to around 70% by 2020. LED penetration will be slightly higher in Europe and North America than in Asia.*



## LIGHT UP THE NIGHT! QUICK FACTS ABOUT OUTDOOR LIGHTING

*When the days start to get shorter, the darkness may drive us inside from our porches, patios or decks. Don't despair – outdoor lighting can lengthen the day and dramatically extend the potential of our outdoor living spaces.*

*The first step, as with any project, is to plan. How do you want to use this space after dark, and what lighting will you need? Lighting can be summarized in four categories:*

- *Security lighting is needed in highly vulnerable areas of your property. Because it is bright and often motion activated, keep it away from the living areas so that it's not distracting. Alternatively, have your security lighting on a manual on/off switch so that you can override automatic illumination.*

- *Task lighting is for performing specific activities such as grilling or walking safely up and down steps and along paths. You should place task lighting between your eyes and the object that needs to be lighted and should take care that it does not glare. An overly bright light will blind rather than guide.*

- *Accent lighting adds drama or can highlight an unusual feature. Uplighting, for example can illuminate an interesting piece of statuary. Silhouetting, achieved by placing a light between an object and a fence or wall, dramatically displays an unusual tree or bush.*

- *General or ambient lighting provides overall illumination so that people feel comfortable and look good. The most magical of lighting imitates what is found in nature – moonlight or starlight. Moonlighting is produced by hanging lights in mature trees, pointing downward to produce a dappled effect, as if the area were lit by a full moon. The look of starlight can be achieved through the use of flickering candles, sprinkled here and there throughout the space, or by suspending tiny lights in the branches of a tree to create a sparkling night time canopy. Of course, there are many other attractive types of light – some just plain fun!*



*No matter what type of lighting you choose, it will be powered by one of these sources.*

- *Fire is the oldest source of light and considered by some to be the most romantic. Flames, produced by candles or oil-burning lamps, are warm and flattering to faces, and have a hypnotic effect that induces calm and relaxation. Firelight on reflected surfaces such as ponds, mirrors and even gazing balls is a particularly effective way to create atmospheric lighting and enhance the impression of light.*

*Try snaking a row of candles along a garden path or suspending them in glass jars from branches. An array of tiki burning torches can add an exotic touch to your patio area. Although torches are designed to withstand a reasonable amount of wind, it's best to provide as much protection as possible to any open flame and never leave one unattended.*

- *Solar-powered lights are an easy and portable choice for outdoor lighting. Some lights have a collector panel that can be concealed behind shrubbery, while others contain their own energy cell and absorb the sun's rays even on a cloudy day.*

- *Battery-operated and rechargeable units are also wireless and very portable while in use.*

- *Line-powered or hard-wired lights are connected to the electrical system of your home. Weatherproof lamps may be plugged directly into an outdoor socket. Wire for lighting that is further from the house runs through buried conduits. The most permanent of outdoor lighting, it is also the most expensive, sometimes costing tens of thousands of dollars. It should be installed by a licensed electrician.*

- *Low-voltage units also connect to the electrical system of your home, but are fitted with a transformer that reduces the electrical current from 120 volts to a safer supply of 12 volts. Although they are less durable than line-powered fixtures,*

*they are also a lot less expensive and are ideal for a small outside space where only short cable runs are required. They are designed for an easy do-it-yourself installation.*

*Whatever your light source, keep these tips in mind:*

- *Less is more in lighting. Be subtle: try to hide lights where possible and use a low watt bulb.*

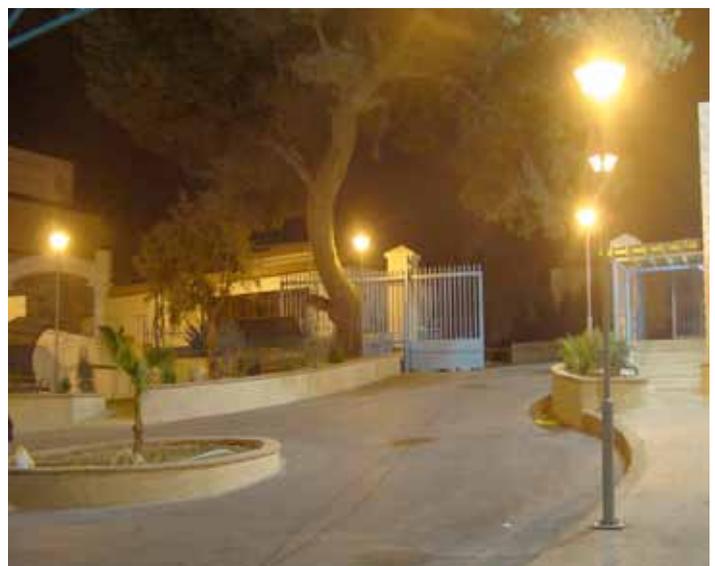
- *Avoid setting lights in straight lines up and down paths, drives or patio edges. This "airport runway" effect is a very common error.*

- *Yellow lights are unflattering to both people and plants. Where possible, install blue-white bulbs or purchase daylight-blue filters for your fixtures.*

- *Position outside lights where they are easily accessible for changing light bulbs. Investing in long-life outdoor bulbs will make the maintenance even easier.*

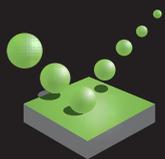
- *With any unit requiring electricity, use the protection of ground fault circuit interrupters (GFCI) on all outdoor circuits.*

***Don't let the sun dictate the use of your outdoor space. Get outside after dark and light up the night!***





# DISANO CLIMA LED



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