DFC Mall Retrofit

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Client Details

دبي فستيفال سيتي
Dubai Festival City

Al-Futtaim engineering

Dubai Festival City Mall

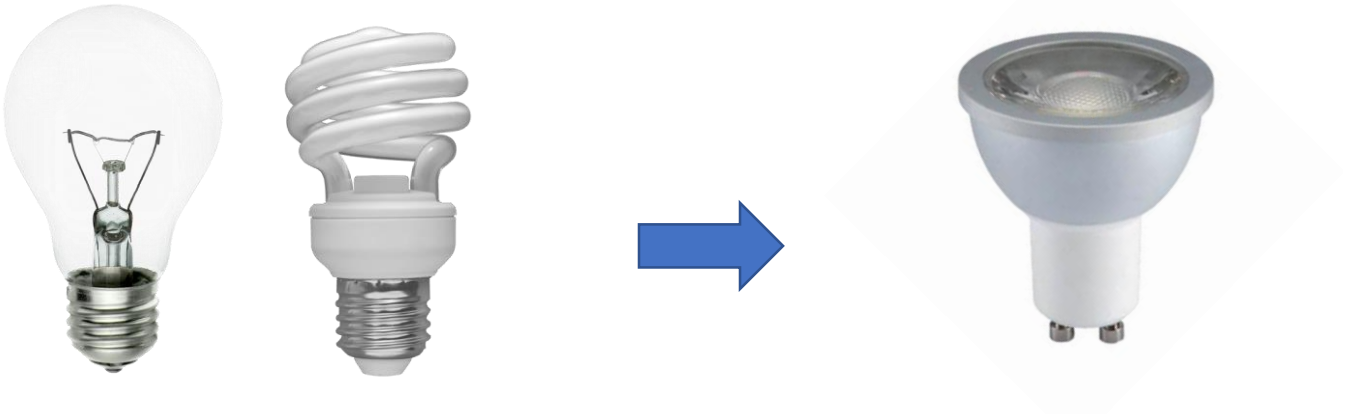
Dubai Festival City Mall is a landmark two million sq. ft. urban retail resort which forms the epicenter of Dubai Festival City, acknowledged to be one of UAE's most exciting retail, dining and leisure attractions. Set on the historic Dubai Creek, Dubai Festival City Mall offers over 400 world-class retailers, 75 restaurants, cafés and bistros, and parking for 6,500 cars. This property is owned by Al-Futtaim engineering.

Objectives

To provide the most cost-efficient solution to reduce energy consumption of lighting throughout the mall

To boost the commercial attractiveness and aesthetics of the mall by improving the quality of light, fixture appearance, and illumination levels.

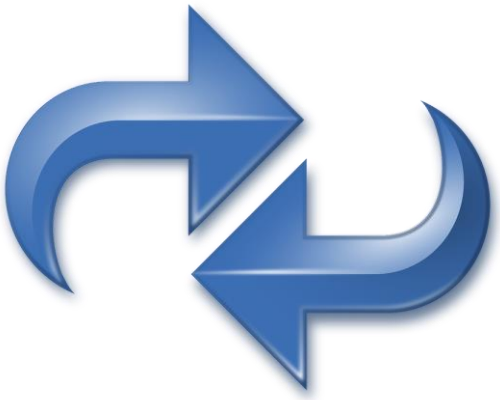
LED Retrofit



LED retrofit is the practice of replacing obsolete lighting such as CFLs and incandescent lights in the system with counterparts such as state-of-the-art LEDs that make it use energy more efficiently.

Purpose of LED retrofit

- To reduce energy usage
- To provide cost-effective solutions
- To Reduce emissions
- To provide recommended illumination levels
- To reduce maintenance operation and costs
- To maintain client and occupant satisfaction
- To provide attractive ambience



Building conditions in need of LED retrofit

- Inefficient technology = Over 10 years of obsolete lighting equipment
- Poor maintenance = Lights and luminaires are way past their useful lifetime and not maintained properly
- Excessive illuminance = Too much light in a majority of spaces in the building
- Excessive hours of lighting operation = Lighting is in operation for too long, even when it is not needed.
- High electricity and/or demand charges = More money is saved per kWh or kW reduction
- Suboptimal lighting conditions. = There are inadequate or poorly maintained lighting system that need to be modified anyway.

3 stages of LED Retrofit

Audit → Plan → Design & Install

LED Retrofit : Audit

The first and the most time-consuming stage of the retrofit is the auditing. It is to check and collect specifications and details of existing lighting in order to propose a comprehensive solution at a later stage of the process. Therefore, It is important for the auditor (in-house or specially hired) should be organized and prepared to perform the audit and fulfill its purpose.

Purpose of the lighting audit

- To Determine the function of existing lighting

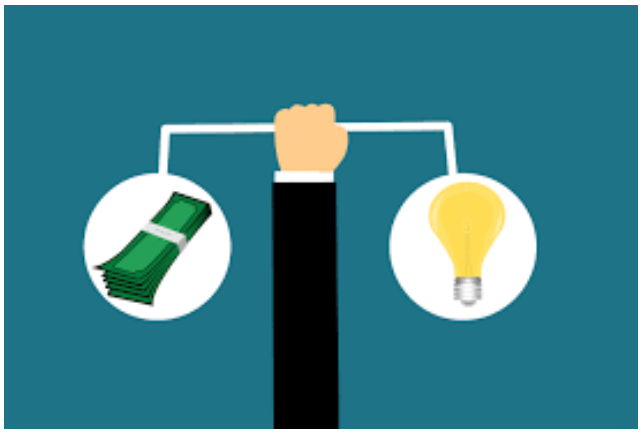
  Task lighting, Street lighting, Emergency lighting, etc.
- To Identify lamp specifications and record all data

  Lumen output, wattage, beam angle, expected life, etc.
- To Identify operating pattern

  Burn hours, cycles per day
- To Count the number of lights and fixtures in each location
- To Determine the visual tasks that are taking place in the space.
- To Record information about layout and the physical dimensions of the space.
- To Interview space users about any lighting quality problems

  Is it too bright, too dim, or just right? Do they experience any glare?

LED Retrofit : Plan



The second stage of the retrofit is the planning. With all the data and information collected from the audit, an economic analysis of energy consumption can prepared for the comprehensive and cost-efficient solution to the client.. Moreover, plans to abide by the lighting guidelines and regulations can be organized.

Purpose of the lighting audit

- To estimate the energy cost savings

$$\text{Savings} = \frac{\$}{\text{kWH}} \times (\Delta \text{watts}) \times \text{hours of operation}$$

- To provide return on investment: Efficacy (lumens/watt)

$$\text{ROI} = \frac{\text{Current value of investment} - \text{Cost of investment}}{\text{Cost of investment}}$$

- To plan the retrofit according to the required illumination levels standard

IESNA and IECC standard for recommended illumination levels

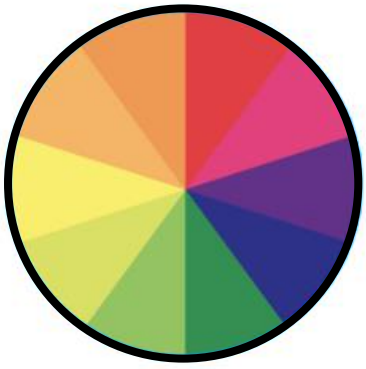
Activity	Illumination (lux, lumen/m²)
Public areas with dark surroundings	20 - 50
Simple orientation for short visits	50 - 100
Working areas where visual tasks are only occasionally performed	100 - 150
Warehouses, Homes, Theaters, Archives	150
Easy Office Work, Classes	250
Normal Office Work, PC Work, Study Library, Groceries, Show Rooms, Laboratories	500
Supermarkets, Mechanical Workshops, Office Landscapes	750
Normal Drawing Work, Detailed Mechanical Workshops, Operation Theatres	1,000
Detailed Drawing Work, Very Detailed Mechanical Works	1500 - 2000
Performance of visual tasks of low contrast, small size for prolonged time	2000 - 5000
Performance of very prolonged and exacting visual tasks	5000 - 10000
Performance of very special visual tasks of extremely low contrast and small size	10000 - 20000

LED Retrofit : Design & Install

The third and the final stage of LED retrofit is the designing and installing. In order to satisfy client's needs, LED lighting must be carefully customized, designed and installed to create different types of ambience.

- Provide the adequate quality of light according to the type of space
  - Color Rendering Index (CRI)

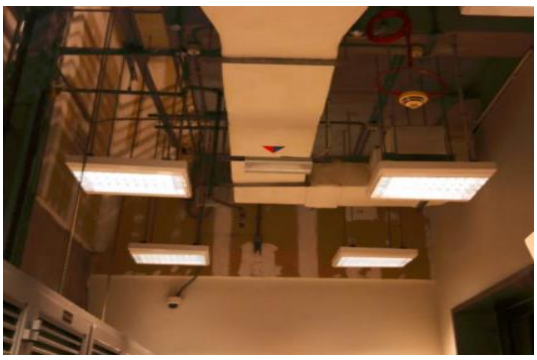
50 CRI
(CFL)

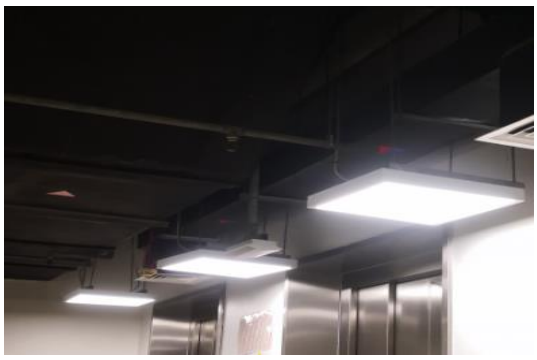


80 CRI
(Standard LED)

90 + CRI
(High LUX LED)

- Consider light aesthetics



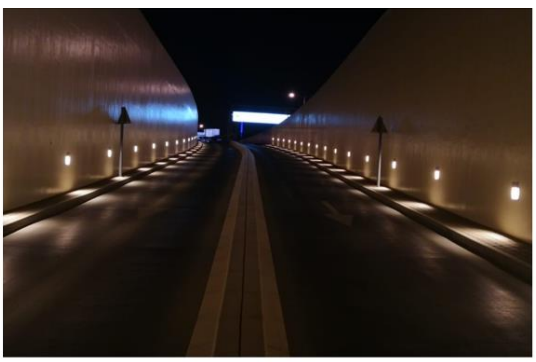


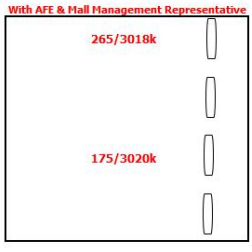
DFC Mall Project : Audit

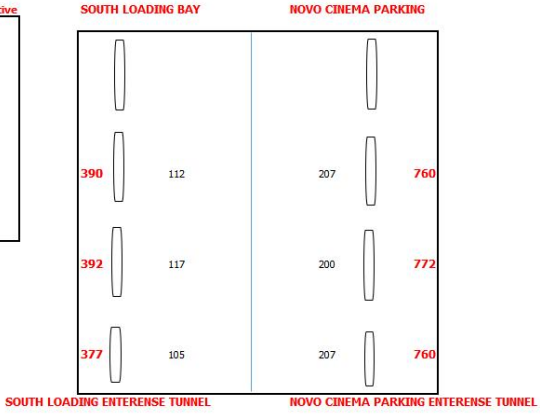


- Identified 8,425 fixtures around the mall
- Identified different areas : Parking, Mall entrance, VIP entrance, Loading bay, Staircase, etc.
- Identified operation hour variance : From 8 hours to 24 hours
- Collected data of existing fixture : Specification, Actual wattage, Power factor, CCT, CRI
- Determined the function of lighting : Street lights, Exterior Flood lights, General illumination, etc.

EXISTING LUMINAIRE		Actucal Energy Measurement Audit - November 29th 2017 Witnessed by Etihad Energy Representative & DFC Officials						
Original Specification	Old Fixture Base	Actual Wattage Per Fittings	Power Factor (PF)	CCT	CRI	Simple LUX@3m for commpariso n	Total kW For Total Units Per Hour	kWh per year
OSRAM HE 49Wx2 /840 T5 tubelight		113	0.625	3327	80	137	22.60	**197,976**







DFC Mall Project : Plan

- Estimated energy cost savings

	Existing Luminaire	Rasmi LED	Savings
Quantity	8,425	7,202	
kWh per year	4,375,952	1,051,124	3,324,828
Cost (unit rate = 0.445 AED)	1,947,299	467,750.18	1,479,548.82

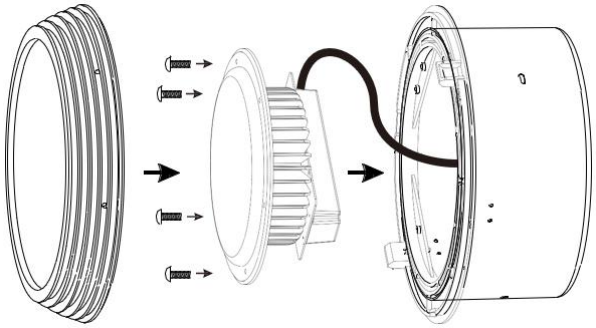
- Existing lights consume 4,375,953 kWh per year
- Total of 7,202 Rasmi LED lights proposed consuming 1,051,124 kWh per year
- Savings = $\frac{\$}{kWH} \times (\Delta watts) \times hours\ of\ operation$
- **Estimated that approximately 76% of energy cost saving per year**
- Cost savings 1,479,548.82 AED saved per year
- Estimated the Return on Investment (ROI)
- ROI = $\frac{\text{Current value of investment} - \text{Cost of investment}}{\text{Cost of investment}}$ = **1.6**

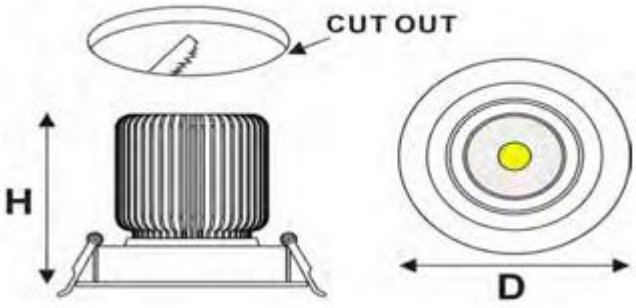
- Followed the illumination level standard

RASMI PROPOSED LED LUMINAIRE			Installed Qnty	Retrofit -Rasmi Global Electronics LLC - Replacement LED Fittings						
Rasmi Part Number	Rasmi Image	RASMI - Spec.		Actual Wattage Per Fittings	Power Factor (PF)	CCT	CRI	Lux Level -LED	Total kW for all of type	kWh per year
RAS-IP66LL38W/N10 W40-B		40W LED linear NCF 4000K IP66	10	40	>0.9	4000	>80	163	0.4	3,504

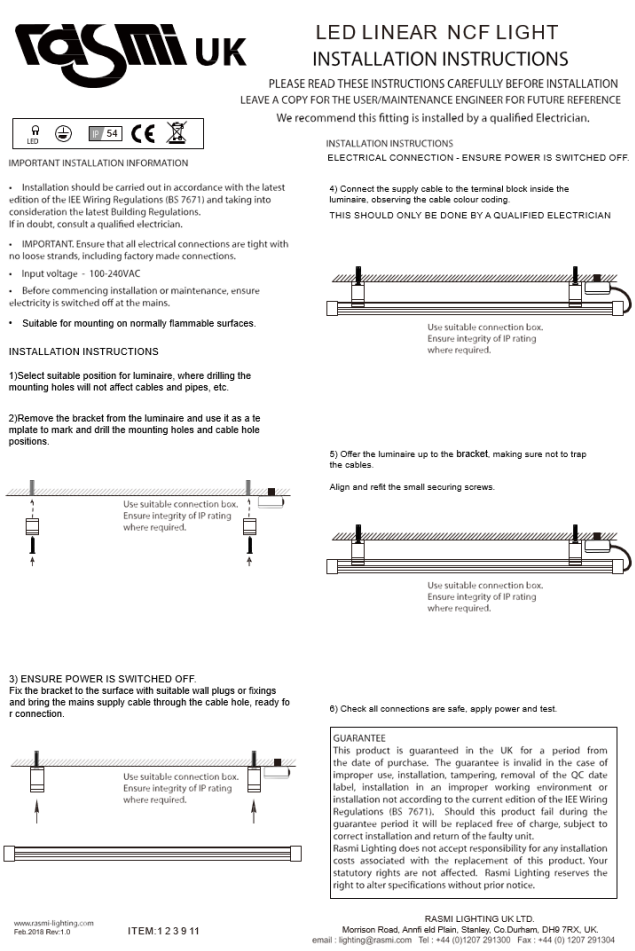
DFC Mall Project : Design and Install

- Designed and customized products to meet standards and satisfy client's needs.





- Supervised under strict safety regulations and followed careful installation instructions



LED LINEAR NCF LIGHT
INSTALLATION INSTRUCTIONS

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION
LEAVE A COPY FOR THE USER/MAINTENANCE ENGINEER FOR FUTURE REFERENCE
We recommend this fitting is installed by a qualified Electrician.

IMPORTANT INSTALLATION INFORMATION

- Installation should be carried out in accordance with the latest edition of the IEE Wiring Regulations (BS 7671) and taking into consideration the latest Building Regulations. If in doubt, consult a qualified electrician.
- IMPORTANT. Ensure that all electrical connections are tight with no loose strands, including factory made connections.
- Input voltage - 100-240VAC
- Before commencing installation or maintenance, ensure electricity is switched off at the mains.
- Suitable for mounting on normally flammable surfaces.

INSTALLATION INSTRUCTIONS

1)Select suitable position for luminaire, where drilling the mounting holes will not affect cables and pipes, etc.

2)Remove the bracket from the luminaire and use it as a te mplate to mark and drill the mounting holes and cable hole positions.

Use suitable connection box. Ensure integrity of IP rating where required.

3) ENSURE POWER IS SWITCHED OFF.
Fix the bracket to the surface with suitable wall plugs or fixings and bring the mains supply cable through the cable hole, ready fo r connection.

Use suitable connection box. Ensure integrity of IP rating where required.

INSTALLATION INSTRUCTIONS
ELECTRICAL CONNECTION - ENSURE POWER IS SWITCHED OFF.

4) Connect the supply cable to the terminal block inside the luminaire, observing the cable colour coding.
THIS SHOULD ONLY BE DONE BY A QUALIFIED ELECTRICIAN

Use suitable connection box. Ensure integrity of IP rating where required.

5) Offer the luminaire up to the bracket, making sure not to trap the cables.

Align and refit the small securing screws.

Use suitable connection box. Ensure integrity of IP rating where required.

6) Check all connections are safe, apply power and test.

GUARANTEE
This product is guaranteed in the UK for a period from the date of purchase. The guarantee is invalid in the case of improper use, installation, tampering, removal of the QC date label, installation in an improper working environment or installation not according to the current edition of the IEE Wiring Regulations (BS 7671). Should this product fail during the guarantee period it will be replaced free of charge, subject to correct installation and return of the faulty unit.
Rasmi Lighting does not accept responsibility for any installation costs associated with the replacement of this product. Your statutory rights are not affected. Rasmi Lighting reserves the right to alter specifications without prior notice.

www.rasmi-lighting.com
Feb.2018 Rev:1.0

ITEM:1 2 3 9 11

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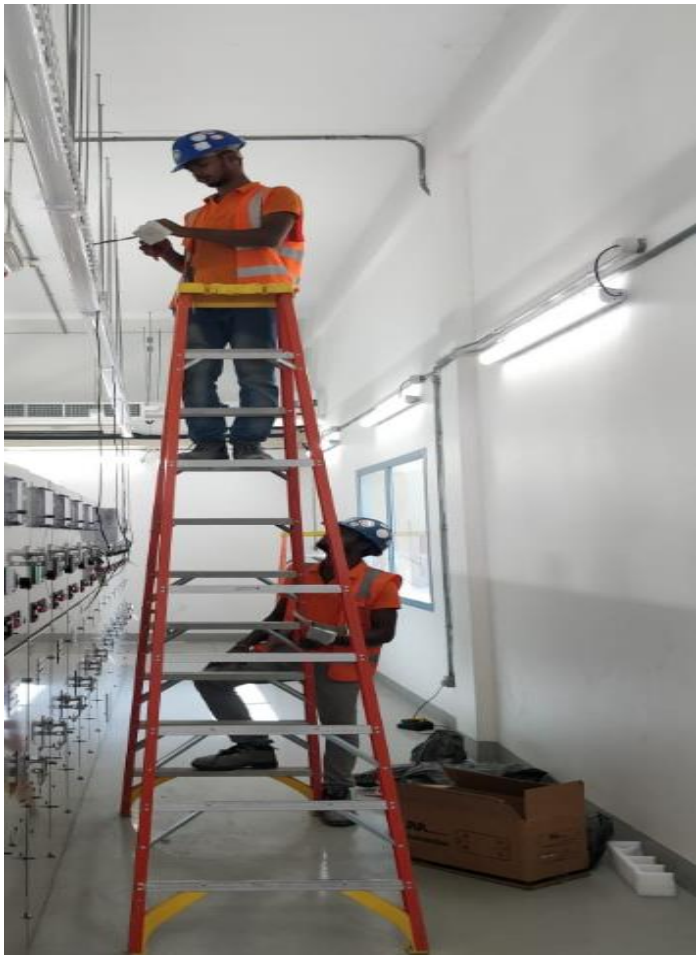


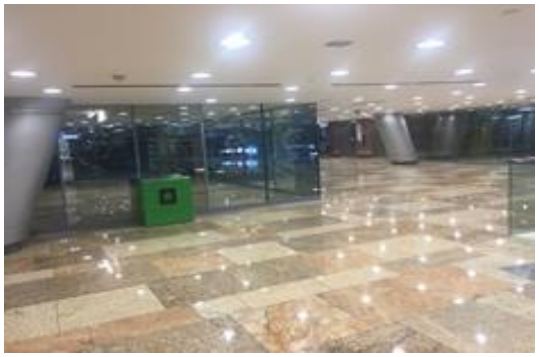
DFC Mall Project : Result

- Successfully supplied and installed 8,425 lighting fixtures
- Supplied 32 types of LED lighting in different areas
- Conducted and Managed the entire process of the retrofit project from sales, auditing, planning, execution, to installation.
- Maintained sublime quality of workmanship and safety during the process
- Maintained a healthy and transparent coordination with all.
- Abided by the rules and regulations of Al Futtaim Engineering.

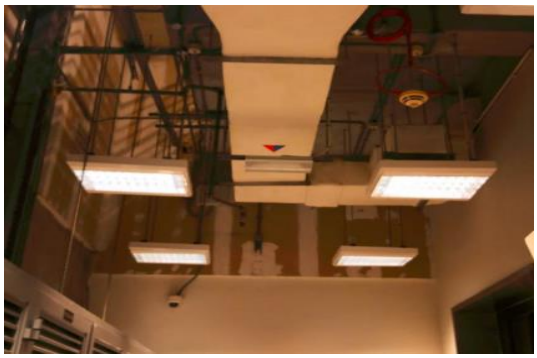
DFC Mall Project : Pictures

Indoors

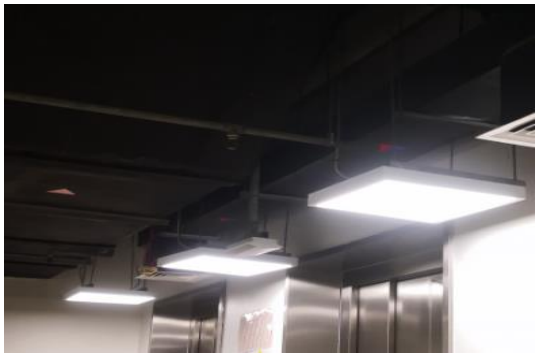
Pre-retrofit



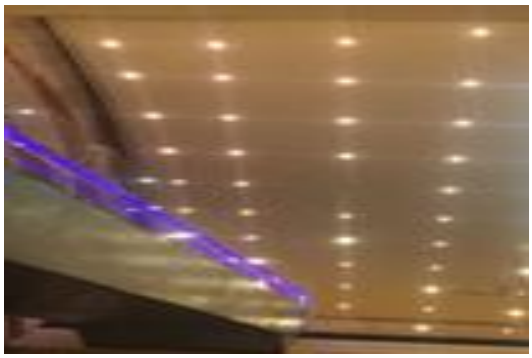
Post-retrofit



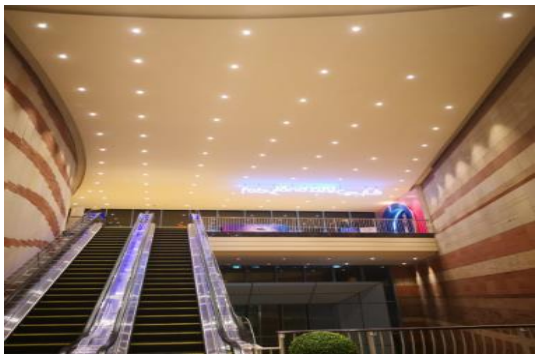
Pre-retrofit



Post-retrofit



Pre-retrofit



Post-retrofit

Pre-retrofit

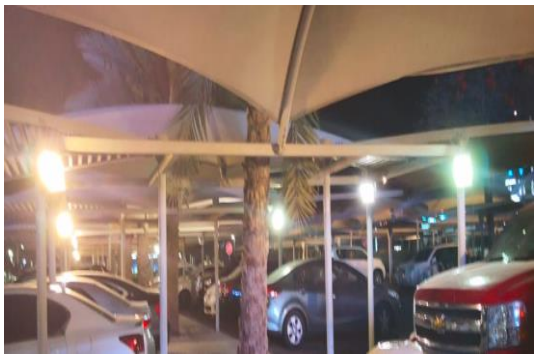
Post-retrofit

DFC Mall Project : Pictures

Parking

Pre-retrofit

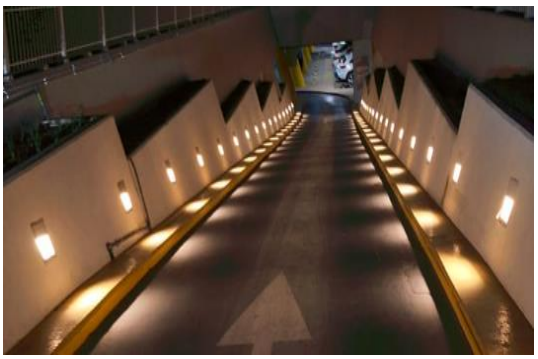
Post-retrofit



Pre-retrofit

Post-retrofit

Pre-retrofit



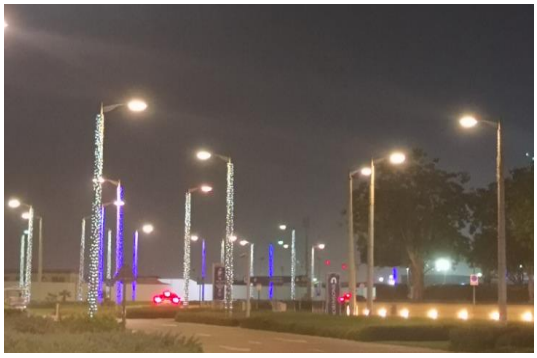
Post-retrofit

Pre-retrofit

Post-retrofit

DFC Mall Project : Pictures

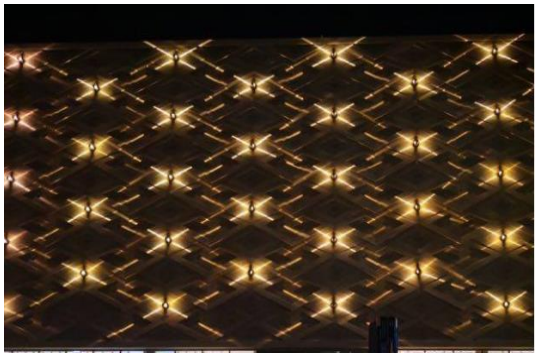
Outdoors



Pre-retrofit

Post-retrofit

Pre-retrofit

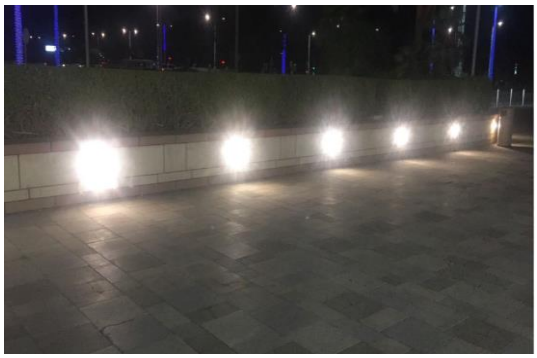


Post-retrofit

Pre-retrofit

Post-retrofit

Pre-retrofit



Post-retrofit

R&D and Manufacture

Rasmi strives to research and develop LED lighting systems manufactured in the UK that are built and tested to meet or exceed industry standards.

R&D

- Rasmi photometric testing facilities include a 2m integrating sphere with a high sped spectrocolorimeter detector and a 10m goniophotometer chamber.
- The integrating sphere measures the total light output (flux or lumens) of a lamp or luminaire as well as the colour spectrum emitted.
- The goniophotometer allows accurate beam pattern measurement of a luminaire by rotating the luminaire about its axes and recording beam intensity.
- Extensive tests are made on new designs to check housing temperature rise and LED junction temperature to minimize color shift and lumen depreciation over time. Mechanical aspects are tightly controlled to ensure finished products meet design intention and criteria.
- Our engineers have a long history of producing high performance solutions from inception to final production realization. This coupled with advances in component manufacture and computer aided design mean we can produce affordable custom solutions faster than ever before.

Manufacture

- At Rasmi we have the machinery and equipment to fully realize product manufacture from beginning to end.
- Our team of 30 highly skilled production operators are based at our manufacturing sites in the UK
- All production is subject to rigorous in-process test and verification.
- Our production process is ISO9001:2008, BS EN ISO14001:2004 and OHSAS 18001:2007 accredited

Product Details

			
40W LED Linear NCF Light Country of Origin : United Kingdom Luminaire system watts : 40 W Total Lumens: 4800Lm Dimension: L:1500mm X W:80mm X H:80mm Beam Angle : 120˚ Body Material : Aluminum Body / Trim Finish: White PC Diffuser / Reflector: Opal PC Color temperature : 4000K Degree of protection : IP 66 LED Chip Details : PHILIPS 3030 1.5W LED Driver : TRIDONIC LC 50W 300mA 5 year warranty	**11W Recessed Ceiling Light** Country of Origin : United Kingdom Luminaire system watts : 11 W Total Lumens: 1640Lm Dimension: D: 225mm x H: 60mm Beam Angle : 90˚ Body Material : Die-Cast Aluminum Body / Trim Finish: White PC Diffuser / Reflector: Partially frosted Heat tempered Glass Color temperature : 4000K Degree of protection : IP 54 LED Chip Details : PHILIPS 3030 1.5W LED Driver : PHILIPS CertaDrive 10W 5 year warranty	**25W Recessed Ceiling Light** Country of Origin : United Kingdom Luminaire system watts : 25 W Total Lumens: 2300Lm Dimension: D: 105mm x H: 120mm Cut Out: 95mm Beam Angle : 15˚ Body Material : Die-Cast Aluminum Body / Trim Finish: White PC Diffuser / Reflector: Polycarbonate Color temperature : 4000K Degree of protection : IP 54 LED Chip Details : CREE1820 LED Driver : PHILIPS CertaDrive 10W 5 year warranty	**11W Recessed Ceiling Light** Country of Origin : United Kingdom Luminaire system watts : 11 W Total Lumens: 1100Lm Dimension: D: 140mm x H: 155mm Beam Angle : 15˚ Body Material : Die-Cast Aluminum Body / Trim Finish: White PC Diffuser / Reflector: Polished Aluminum Color temperature : 4000K Degree of protection : IP 20 LED Chip Details : CREE1820 LED Driver : PHILIPS CertaDrive 11W 5 year warranty

			
22W LED Linear NCF Light Country of Origin : United Kingdom Luminaire system watts : 22 W Total Lumens: 2640Lm Dimension: L:1200mm X W:80mm X H:80mm Beam Angle : 120˚ Body Material : Aluminum Body / Trim Finish: White PC Diffuser / Reflector: Opal PC Color temperature : 4000K Degree of protection : IP 66 LED Chip Details : PHILIPS 3030 1.5W LED Driver : PHILIPS LED driver 20W 5 year warranty	**36W Recessed Panel Light** Country of Origin : United Kingdom Luminaire system watts : 36 W Total Lumens: 3420Lm Dimension: L: 597mm x W: 597mm x H: 10mm Beam Angle : 120˚ Body Material : Steel + Aluminum Body / Trim Finish: Aluminum, White PC Diffuser / Reflector: Polycarbonate Color temperature : 4000K Degree of protection : IP 54 LED Chip Details : PHILIPS 3030 1.5W LED Driver : PHILIPS CertaDrive 38W 5 year warranty	**50W Recessed Ceiling Light** Country of Origin : United Kingdom Luminaire system watts : 50 W Total Lumens: 5000Lm Dimension: D: 237mm x H: 110mm Beam Angle : 110˚ Body Material : Die-Cast Aluminum Body / Trim Finish: Silver PC Diffuser / Reflector: Polycarbonate Color temperature : 3000K Degree of protection : IP 44 LED Chip Details : PHILIPS 3030 1.5W LED Driver : PHILIPS Xitamium 60W 5 year warranty	**25W Recessed Ceiling Light** Country of Origin : United Kingdom Luminaire system watts : 25 W Total Lumens: 2300Lm Dimension: D: 135mm x H: 120mm Cut Out: 120mm Beam Angle : 15˚ Body Material : Die-Cast Aluminum Body / Trim Finish: White PC Diffuser / Reflector: Polycarbonate Color temperature : 3000K Degree of protection : IP 44 LED Chip Details : CREE1820 LED Driver : PHILIPS CertaDrive 25W 5 year warranty

Product Details

30W Bulkhead light

Country of Origin : United Kingdom
Luminaire system watts : 30 W
Total Lumens: 3000Lm
Dimension:
D: 270mm x H: 120mm
Beam Angle : 120˚
Body Material : Aluminum
Body / Trim Finish: White PC
Diffuser / Reflector: Polycarbonate
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : TRIDONIC LC 30W 700mA
5 year warranty

20W LED Bollard Light

Country of Origin : United Kingdom
Luminaire system watts : 20 W
Total Lumens: 1500Lm
Dimension:
L:132mm x W:128mm x H:164mm
Beam Angle : 15˚ x 4
Body Material : Die-Cast Aluminum
Body / Trim Finish: Grey PC
Diffuser / Reflector: Polycarbonate
Color temperature : 2700K
Degree of protection : IP 65
LED Chip Details :CREE 3535 5W
LED Driver : PHILIPS CertaDrive 20W
5 year warranty

25W LED Recessed Wall Light

Country of Origin : United Kingdom
Luminaire system watts : 25 W
Total Lumens: 2000Lm
Dimension:
L: 350mm x W: 300mm x 150mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Dark Grey PC
Diffuser / Reflector: N/A
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details :PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 25W
5 year warranty

30W LED Ceiling Bulkhead Light

Country of Origin : United Kingdom
Luminaire system watts : 30 W
Total Lumens: 3000Lm
Dimension:
L: 315mm x W: 315mm x H: 85mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Black PC
Diffuser / Reflector: Polycarbonate
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 30W
5 year warranty

20W LED IP65 Bollard Light

Country of Origin : United Kingdom
Luminaire system watts : 20 W
Total Lumens: 2000Lm
Dimension: D: 200mm x H:450mm
Beam Angle : 180˚
Body Material : Aluminum + PC
Body / Trim Finish: Black PC
Diffuser / Reflector: Polycarbonate
Color temperature : 2700K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS LED driver 20W
5 year warranty

30W LED IP65 Bollard Light

Country of Origin : United Kingdom
Luminaire system watts : 30 W
Total Lumens: 3100Lm
Dimension: D: 200mm x H:900mm
Beam Angle : 180˚
Body Material : Aluminum + PC
Body / Trim Finish: Black PC
Diffuser / Reflector: Polycarbonate
Color temperature : 2700K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS Certa 30W
5 year warranty

110W LED IP65 Street Light

Country of Origin : United Kingdom
Luminaire system watts : 110 W
Total Lumens: 13200Lm
Dimension: D: 473mm X H:129mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Gray PC
Diffuser / Reflector: Polycarbonate
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : MEANWELL ELG100-48A
5 year warranty

8W LED IP65 Bulkhead Light

Country of Origin : United Kingdom
Luminaire system watts : 8 W
Total Lumens: 800Lm
Dimension: D: 121mm x H: 161mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Black PC
Diffuser / Reflector: Polycarbonate
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details :PHILIPS 3030
LED Driver : PHILIPS CertaDrive 8W
5 year warranty

Product Details

20W LED Recessed Wall Light

Country of Origin : United Kingdom
Luminaire system watts : 20 W
Total Lumens: 1600Lm
Dimension:
L: 210mm x W: 181mm x H:115mm
Beam Angle : 120˚
Body Material : Die-cast Aluminum
Body / Trim Finish: Dark Grey PC
Diffuser / Reflector: N/A
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 20W
5 year warranty

40W LED IP65 Flood Light

Country of Origin : United Kingdom
Luminaire system watts : 40 W
Total Lumens: 4000Lm
Dimension:
L:300mm x W:100mm x H:120mm
Beam Angle : 100˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Black Powder PC
Diffuser / Reflector:
Clear tempered Glass
Color temperature : 4000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030
LED Driver : MEAN WELL LPF-40-48
5 year warranty

20W LED IP67 LN Ground Light

Country of Origin : United Kingdom
Luminaire system watts : 20 W
Total Lumens: 2000Lm
Dimension: D:310m x H:196mm
Beam Angle : 45˚
Body Material : 316 Stainless steel
Body / Trim Finish:
316 Stainless steel, brushed
Diffuser / Reflector:
8mm Tempered glass
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details : CREE 3535 5W
LED Driver : PHILIPS CertaDrive 20W
5 year warranty

20W LED IP65 Bulkhead Light

Country of Origin : United Kingdom
Luminaire system watts : 20 W
Total Lumens: 2100Lm
Dimension:
D: 270mm x H:67mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Black PC
Diffuser / Reflector:
Frosted, tempered glass
Color temperature : 4000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 20W
5 year warranty

40W LED Recessed Panel Light

Country of Origin : United Kingdom
Luminaire system watts : 40 W
Total Lumens: 3800Lm
Dimension:
L:597mm x W:597mm x H:10mm
Beam Angle : 120˚
Body Material : Steel + Aluminum
Body / Trim Finish: Aluminum, White PC
Diffuser / Reflector: Polycarbonate
Color temperature : 4000K
Degree of protection : IP 44
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 44W
5 year warranty

30W LED IP65 Wall Light

Country of Origin : United Kingdom
Luminaire system watts : 30 W
Total Lumens: 3000Lm
Dimension:
L:265mm x W:245mm x H:110mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Black PC
Diffuser / Reflector: Polycarbonate
Color temperature : 4000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 34W
5 year warranty

20W LED Recessed Wall Light

Country of Origin : United Kingdom
Luminaire system watts : 20 W
Total Lumens: 1600Lm
Dimension:
L:197mm x W:162mm x H:104mm
Beam Angle : 120˚
Body Material : Die-Cast Aluminum
Body / Trim Finish: Dark Grey PC
Diffuser / Reflector: Polycarbonate
Color temperature : 3000K
Degree of protection : IP 65
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : PHILIPS CertaDrive 20W
5 year warranty

11W LED Linear NCF Light

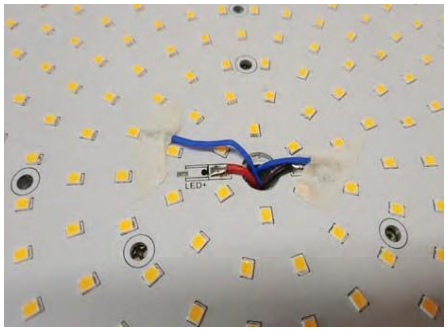
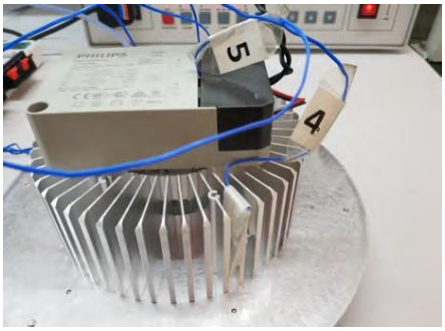
Country of Origin : United Kingdom
Luminaire system watts : 11W
Total Lumens: 1320Lm
Dimension: D: 18mm x H: 588mm
Beam Angle : 120˚
Body Material : Aluminum + PC
Body / Trim Finish: White Opal PC
Diffuser / Reflector: Polycarbonate
Color temperature : 3000K
Degree of protection : IP 66
LED Chip Details : PHILIPS 3030 1.5W
LED Driver : TRIDONIC LC 10W
5 year warranty

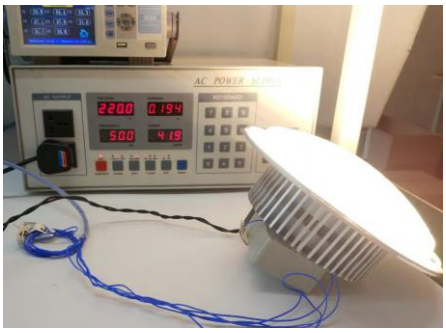
Product Testing

Luminaires were fully tested for the assessment of assembly and thermal performance to ensure safety and endurance of the products.

Thermal Testing

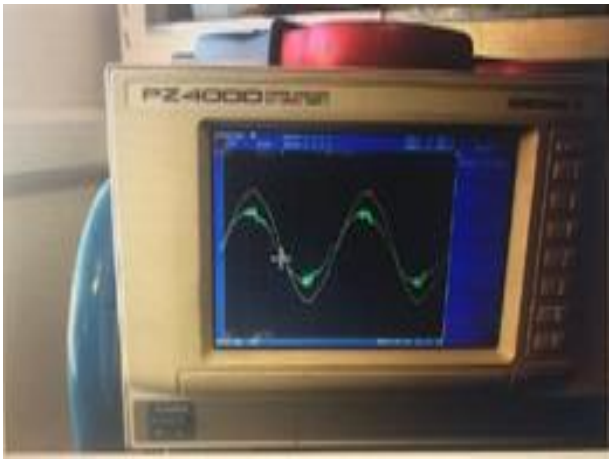
For Evaluating the stable running temperature rise of the LED chips and driver.
The fitting temperature rise and maximum expected ambient temperature when installed are compared with the LED manufacturer's L70 and LM-80 documents to ensure maximum possible LED life is obtained.



Harmonic Testing

Using a laboratory power analyser to check the quality of the LED driver and any mains disturbance caused by it. Running current, power factor and mains current harmonics were shown.

Production testing

Current tuning of the LED drivers to the correct running watttage, before assembly to the mounting brackets and body extrusion.Low current checking of the PCB/extrusion sub-assembly. Brief full power test to check running wattage is correct. Final ageing test, extended full power test including on/off cycling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