

THORN

LIGHTING PEOPLE

Lighting for Architecture; The Outdoor Environment

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The Lig

Lighting for Architecture; The Outdoor Environment

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Combining many factors provides a comfortable & stimulating outdoor environment

How can we make best use of these using the **new SLL LG6 Code?**

Appropriate

- When, where and how should we light?

Empathy

- “A lighting scheme that does not benefit society, in some way, should not be installed in the first place” (*Alan Tulla – SLL LG6*)

Safety

Help meet CDM Regulation responsibilities through design



COMMUNITY CHEST
This Card May Be Kept Until Needed or Sold

Heritage

Scheduled
Monument

Emergency
Lighting

HSG 38



Get Out of Jail Free

Legislation & Guidance

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EUROPEAN STANDARD
NORME EUROPÉENNE

EN 12464-2

BRITISH STANDARD

BS EN
12183:2001

BSI Standards

LIGHTING
THE OUTDOOR I

Lighting Guide 1:
The industrial
environment

Lighting Guide 12:
Emergency lighting

Lighting Guide 4:
Sports Lighting

The SLL
Code for
Lighting



Legislation & Guidance

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A GUIDE FOR CRIME
REDUCTION PROFESSIONALS

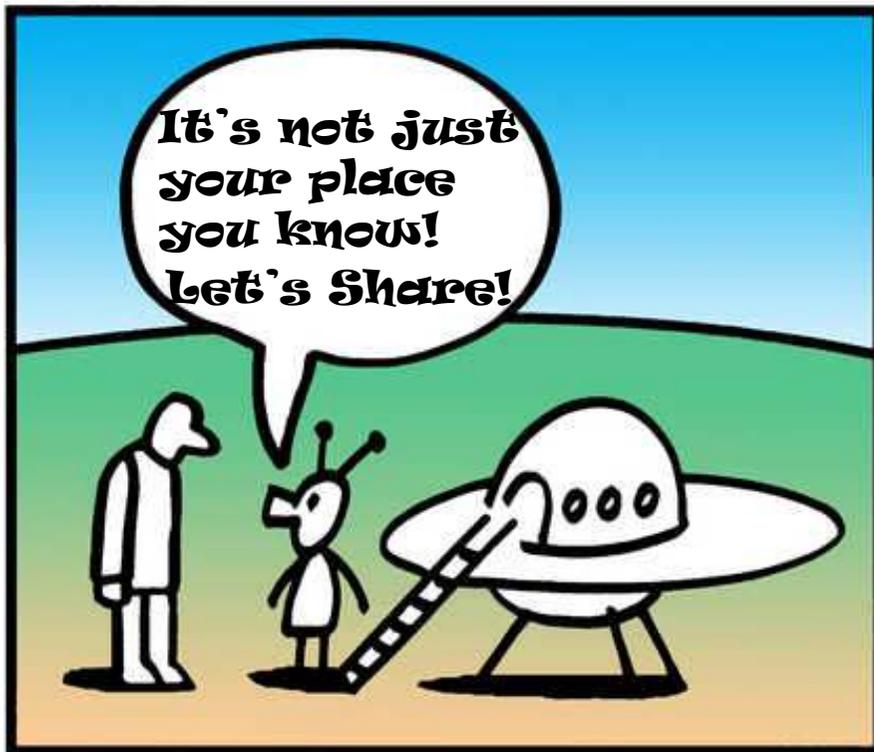
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Have you ever felt
Have you ever thought
inse? cure

Health & Well Being

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Guess, Brief, or Master Plan?

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- 1 - Ensure 20 Lux on all task surfaces (not 19.5 or 22)**
- 2 – Ensure 100% Uniformity on all task surfaces**
- 3 – Ensure no shadows when viewed from any directions**
- 4 – Ensure LED Light sources used**
- 5 - Ensure all LED's constant colour (≤ 1 Macadam ellipse)**



6 - Ensure background uniformly lit to same level as task



Not quite uniform all over
Background has shadows



Perfect!



Guess, Brief, or Master Plan?

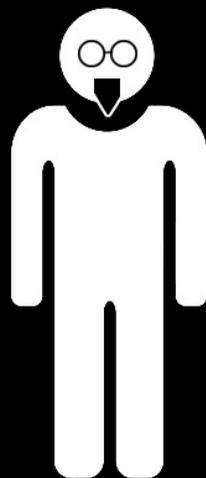
Cast of Characters

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SPEIRS+MAJOR



Architect



Lighting Designer



Project Manager



Contractor



Manufacturer
(Luminaires /
Controls)



Installer



End User

Guess, Brief, or Master Plan? Communication

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Briefing

Who?

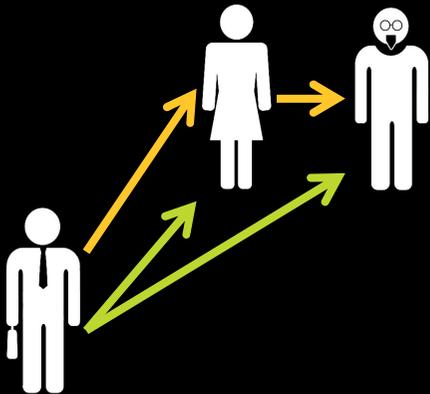
Client, architect, lighting designers

What goes wrong?

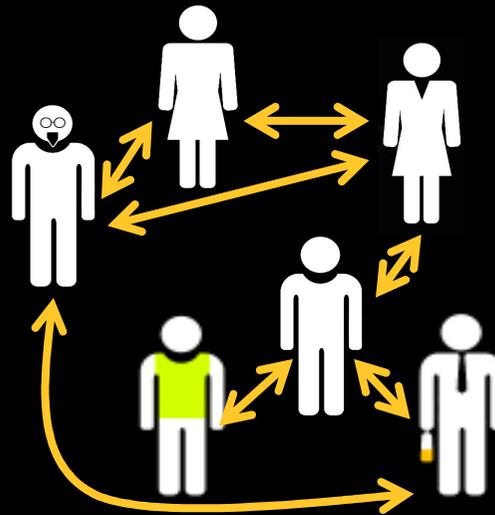
Poor briefs

Poor budgets

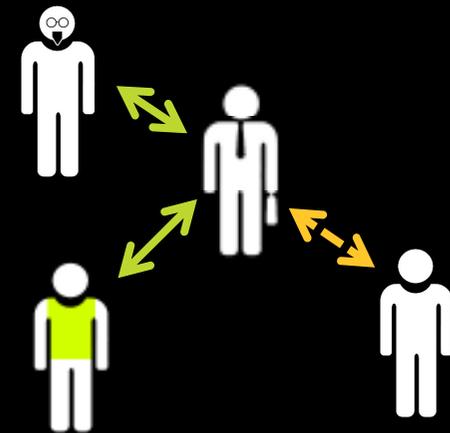
Poor understanding of briefs



Tender and Construction



Handover



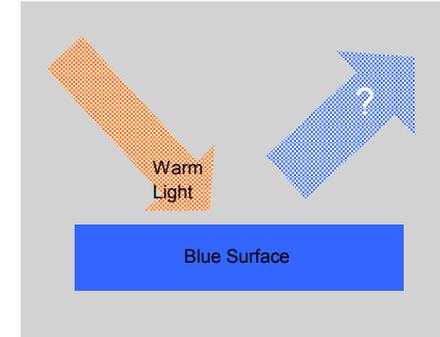
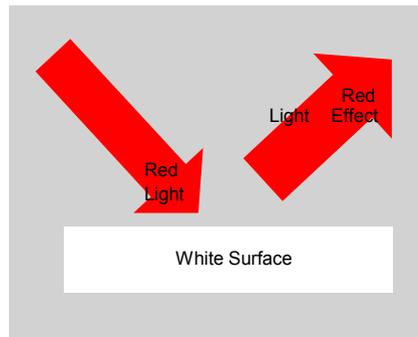
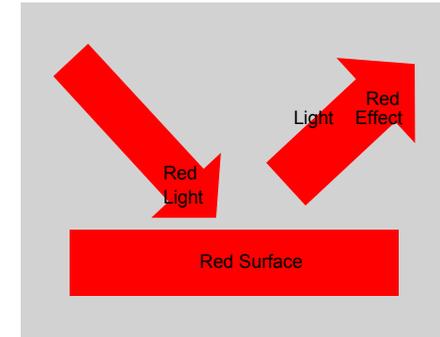
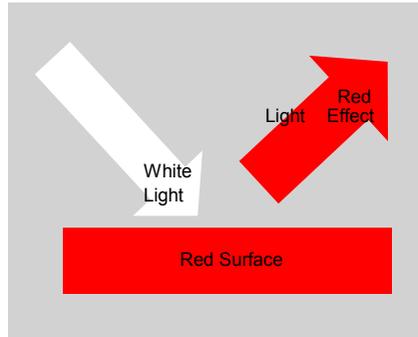
Guess, Brief, or Master Plan? Study the site, All Conditions and Users

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Physical Characteristics

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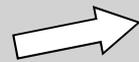


Physical Characteristics

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Small shadows – wash effect



Deeper shadows reveal more detail



Technique

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**Quality of Life & Lumen Maintenance is sum of :
Light Source + Optic + Cooling + Luminaire + Driver**

LxxB50

(Rated Median Useful Life)

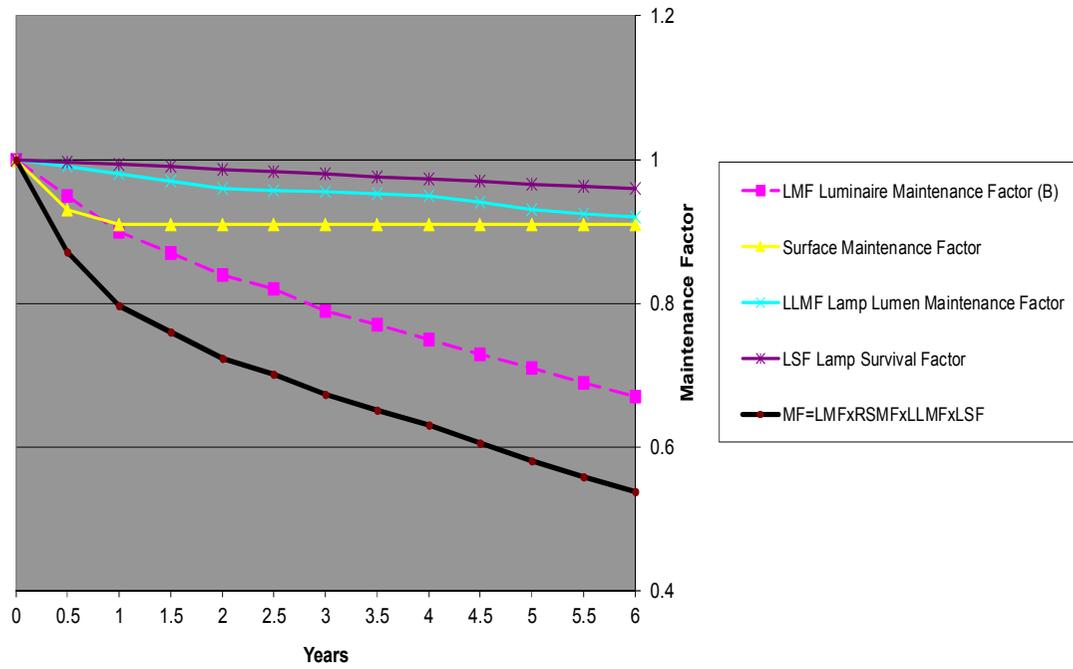
(Note – the table below shows component only, tc 65°C)

Luminous flux	Operating time STARK LLE
80 %	32,000 h
70 %	50,000 h
50 %	92,000 h

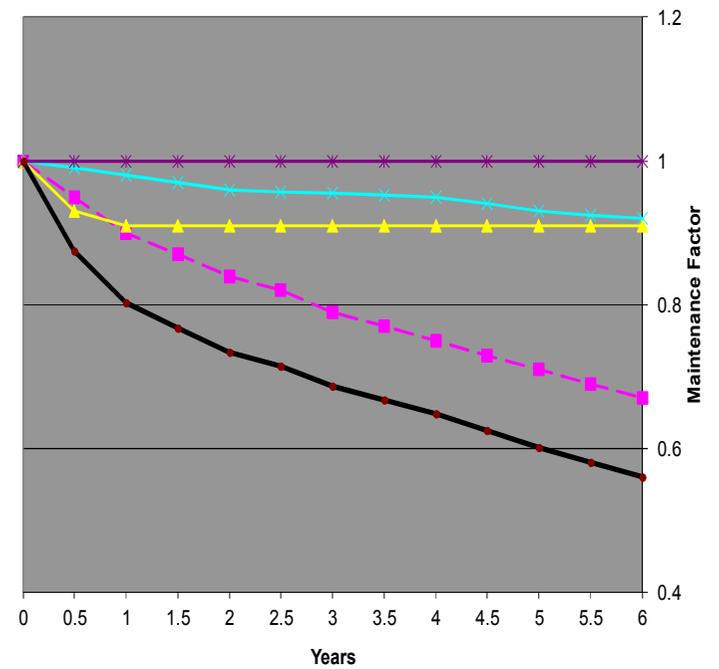
Lifetime Metrics

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Maintenance Factor Calculation LED Luminaire - Example



Same LED Luminaire- Spot Replacement (Example)





Isaro LED

Rated median useful life*: 100000h L90 at 25°C
Ballast: 1x EL2
Luminaire input power*: 79 W
Dimming: DIM_LED
LOR: 1,00 ULOR: 0,00 DLOR: 1,00

LxxB50



Omega LED

Correlated colour temperature*: 4000 Kelvin
Rated median useful life*: 50000h L90 at 25°C
Ballast: 1x HF_ Tridonic LCI TEC
Luminaire input power*: 41 W Lambda = 0.95
Dimming: Fixed output
Maintenance category: D

Maintenance

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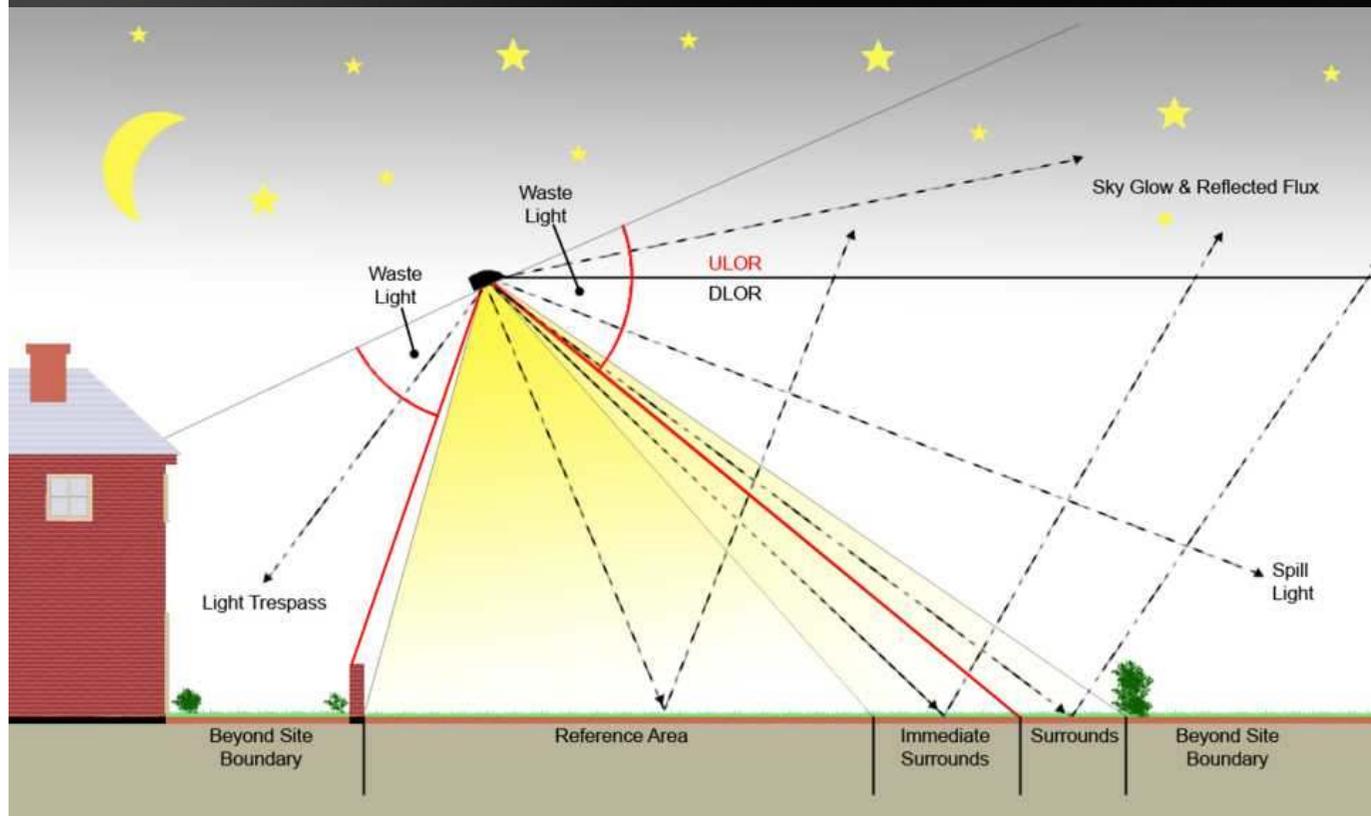
Maintenance

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Pollution

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Pollution

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The ...ble's

**Sustainable
Replaceable
Maintanable
Reliable
Disposable
Recyclable
Affordable**

(including Light Source)

Construction (Design and Management) Regulations 2015

Guidance on Regulations



The Construction (Design and Management) Regulations 2015 (CDM 2015) came into force on 6 April 2015, replacing CDM 2007. This publication provides guidance on the legal requirements for CDM 2015 and is available to help anyone with duties under the Regulations. It describes:

- the law that applies to the whole construction process on all construction projects, from concept to completion; and
- what each dutyholder must or should do to comply with the law to ensure projects are carried out in a way that secures health and safety.

CDM – Design Responsibilities

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End User

Client

now has a duty of care
check due diligence in
design and implementation

Responsible Person

Client – Default Principal



Architect

Until

Principal Designer
Appointed (in writing)

(until On Site)



Contractor

When

Principal Contractor
Appointed (in writing)

CDM – Design Responsibilities

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Safe Design
Build / Install
Commission
Operate / Maintain
Control

Promotes Teamwork,
Partnership, BIM Processes
Large and Small projects



CDM – Design Responsibilities

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Note – You are a “Designer”.....
if advising,
in sales or lighting design,
or any design or application

Duties are to

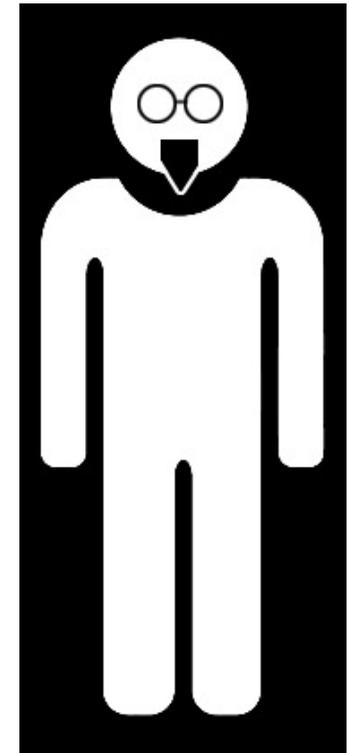
Eliminate Risk

Reduce Risk

Minimise residual risk

Ensure competent

(ie – ICEL Competent Engineer - emergency lighting)



CDM – Design Responsibilities

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Controls

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Reliable
Savings
Effects

Interfaces

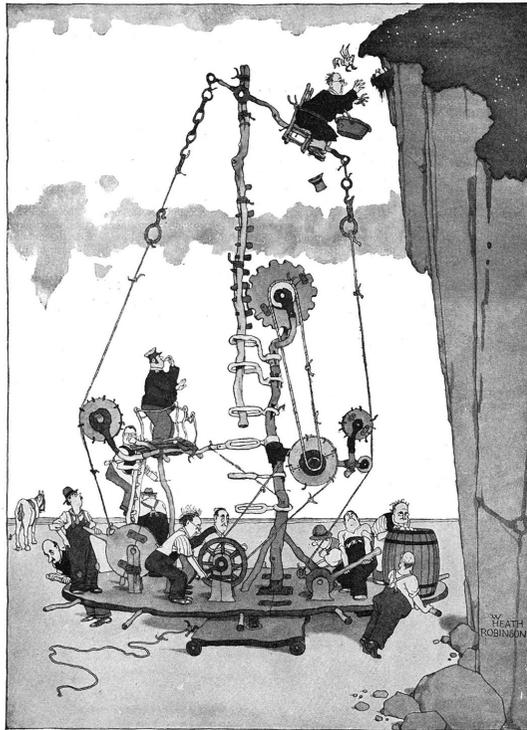
- | | |
|------------|--------------------------------|
| People | Scenes |
| Times | Conditions |
| Atmosphere | Special (Theatrical / AV link) |
| Hardware | Connectivity |

IoT (IoA)



Controls

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THE NEW MULTI-MOVEMENT MACHINE FOR GATHERING EASTER EGGS

Systems

Complex

or

Standalone

Risk?

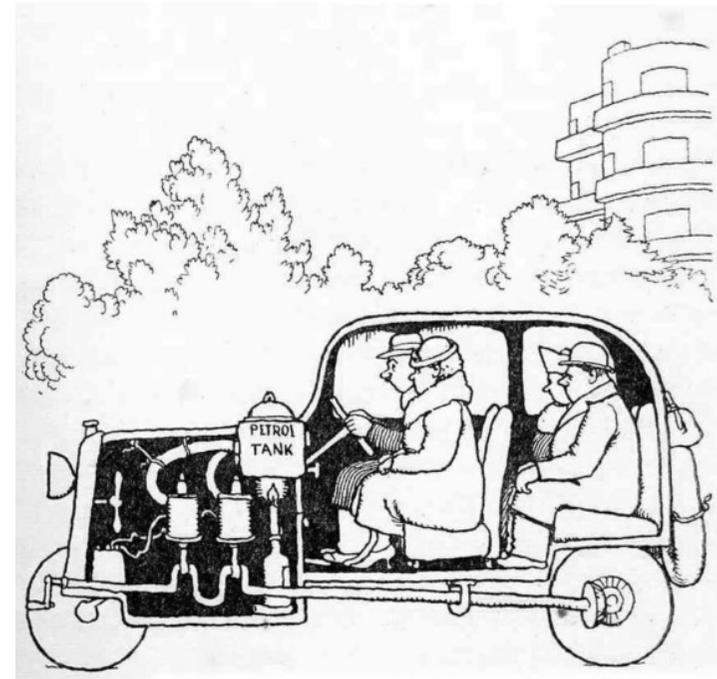
long term functionality?

Simple

Integral

Part Night Switching

Dual Power / Dimming



Product Selection

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Proving or Selling? - Presentation and Trial

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The concept

Project description:
The project is a lighting design for a public space, focusing on creating a vibrant and dynamic atmosphere through the use of color and light.



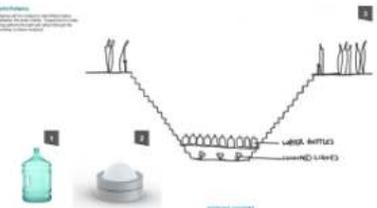
WINDMILL LIGHTS

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The details

Technical details:
The lighting fixture is designed to be weather-resistant and suitable for outdoor use. It features a long-life LED light source and a high-quality lens.



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Install, Aim, Commission

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