Façade Lighting & Architecture

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Façade Lighting
Attraction or Distraction
There is a big demand on façade lighting recently specially in the GCC countries, it is becoming a competition among clients and developers, most of the clients require façade lighting consultant among the team of consultants.

OUT OF 5 INQUIRIES WE RECEIVE, 3 ARE FOR FAÇADE LIGHTING
DUBAI MARINA, DUBAI, U.A.E
RIYADH, KINGDOM OF SAUDI ARABIA
KUWAIT CITY, KUWAIT
LED Technology
and
Façade Lighting
Advantages

Thanks to LED technology, Façade lighting is becoming more applicable and flexible for the following reasons:
LED lighting fittings are small in size comparing to conventional lighting fittings, this makes it easier and more flexible for the lighting designers to incorporate the lighting fittings within the building façade. No bulky and ugly fittings any more.
High efficiency and lumen output despite the small size.

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\text{Efficiency} = \frac{\text{Lumen}}{\text{Watt}}
\]
Digital color mixing of Red, Green, Blue and White LEDs, hundreds of colors and lighting scenes can be created using the same lighting fittings.
With LED technology, it is easier to customize lighting fittings which match with the architectural facades. Lighting designers can coordinate with the façade architect and lighting manufacturers to make this possible. This will minimize the visibility of the lighting fittings on the facades in daytime.
Very long life time comparing to conventional lighting. This is a big advantage when it comes to un accessible locations on the façade. Since no maintenance nor re-lamping is required.
LED complies 100% with Green Building regulations which is becoming a mandatory law in UAE and most of the GCC Countries.
Very low power consumption.

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\frac{W}{M^2}, \quad \frac{W}{M}
\]
Maintenance free.. No re-lamping.
No CO\textsuperscript{2} emission – Environmental friendly.
Very long life time.
During my observation in the area, many LED facade lighting projects failed after sometime of commissioning. I was curious to check why ....
Disadvantages/ Problems

1. Using low quality of LEDs, everyone knows that main enemy for an LED is high temperature and high humidity. High temperature reduces the life time as well as performance and characteristics of the LED. So instead of working for 50,000 hours, you start to see failures after couple of months or a year, and the worse is when the façade lighting consists of continuous linear lighting effects, where some parts of those lines are off.

Accordingly, the whole façade lighting design concept fails.
Using Low Quality LED in Projects can be due to the following reasons:

Client requires from the beginning to have cheap lighting fittings due to saving in budgets. (Lack of awareness from the client side about LEDs). Here comes the engineer duty to explain to the client about the advantages and disadvantages of LEDs.

High quality LEDs are specified, but during construction specifications change (due to too many reasons ... contractor prices, value engineering, etc.).
2- Lack of **Supervision** by lighting consulting and Lighting experts during the construction stage. In most of the projects, the lighting consultant do only the **Design**. Many problems might happen through construction:

Wrong Installations: even though the LED lighting fittings have good quality, wrong installation and not following manufacturer installation manuals might create many problems.

Using low quality power & data cables, Connector, Junction boxes and electrical accessories can cause lots of problems for the facade lighting.
DRIVERS, POWER SUPPLIES & DMX controllers: In most of the projects included in my survey, the power supplies and controllers are installed outside (remote or build inside the LED lighting fittings), most of those devices fail much sooner than the LEDs. It is not enough to have good quality LEDs and LED lighting fittings, but also good quality drivers and controllers.

It is highly recommended to install all those devices **INDOORS**.
3- **Lighting control system**

Some façade lighting projects are using simple, normal switching system, ON/OFF switches or timers. Human error, or timers error will show part of the façade lighting circuits ON and other parts OFF. This in some cases.

* A proper lighting control shall be used, different scenes can be created by just a push button, remote control or even your smart phone.
4- **Lack of coordination in the design stage & construction stage**

*Proper coordination is the key of the success for every façade lighting project.*

Coordination in the design stage with the façade architect, electrical consultant and other related consultants is very important to come out with complete proper façade lighting design. This can avoid all the problems which might happen in the construction stage.

Also coordination in the construction stage is very important to make sure all items will be installed properly.
Façade Lighting is one of the main applications that cause Lighting pollution and Glare.

There are many examples around us. Façade lighting designers should guarantee a minimal amount of light split out of the facades in all directions specially upwards to the sky.

Emirates GBC & Estidama issued regulations for the same.
Shall Façade lighting be controlled, reviewed, approved by local authorities?

I will leave this question open for discussion…
THANK YOU.