
LED applications in Cluj-Napoca,

a recent Central European case study



Dr. Dorin BEU, Dr. Florin POP

Lighting Engineering Center

UT Cluj-Napoca, Romania

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

LED Romanian Projects - exterior

Arad City Council



Cuza University, Iasi



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

LED Romanian Projects - interior

Dolce Internet - Bucharest Club Nagual



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

LED in Cluj

- **luminaire dealers started the LED's promotion in 2004**
- **presentations at ILUMINAT Conferences**
- **there were no LED projects and no feed-back from projects till 2006**
- **the first Asian LED appeared on market in 2007**
- **first large scale projects finished in 2008**

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

LED Romanian Projects - Cluj - exterior

City Business Center



UBB Fountain



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects Avram Iancu Square



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects

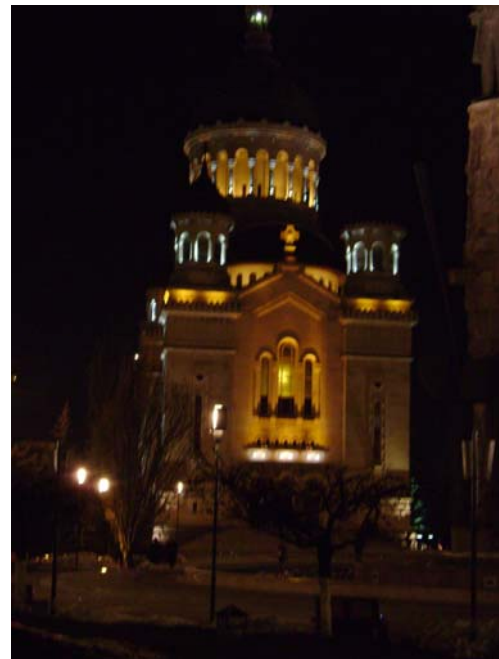
Avram Iancu Square – Photo simulation



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects Avram Iancu Square



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects – Moara simulation

Moara – computer simulation



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects – Moara photo



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects

Moara – computer simulation



Varianta DOURO

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

First LED Projects – Moara photo



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

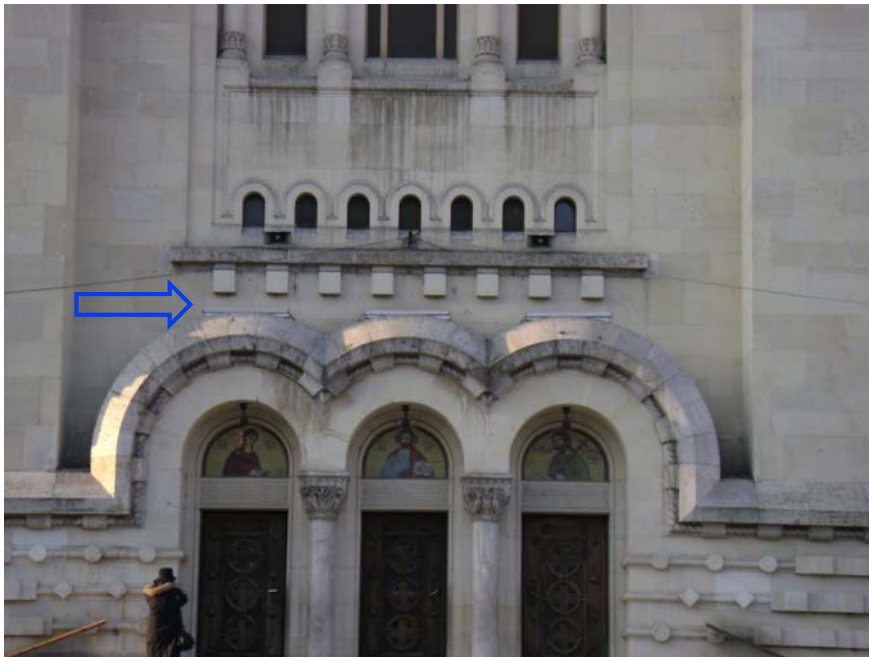
Problems – intervention on building facade



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

Problems – minimise the visual impact



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

Problems – install the LED luminaires out of building



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

Problems – light reveals mistakes



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

Problems – light reveals mistakes



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

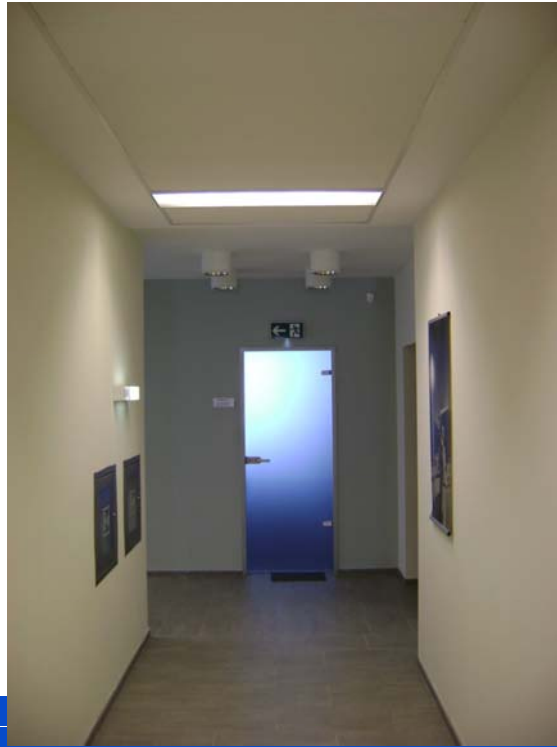
Feed-back – LED emergency signs are better perceived



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

Feed-back – LED emergency signs have electronic problems



In 1 year, from 13 LED escape signs 4 are faulties

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

We consider this LED as fault or not?



Half is still working

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

We consider this LED as fault or not?

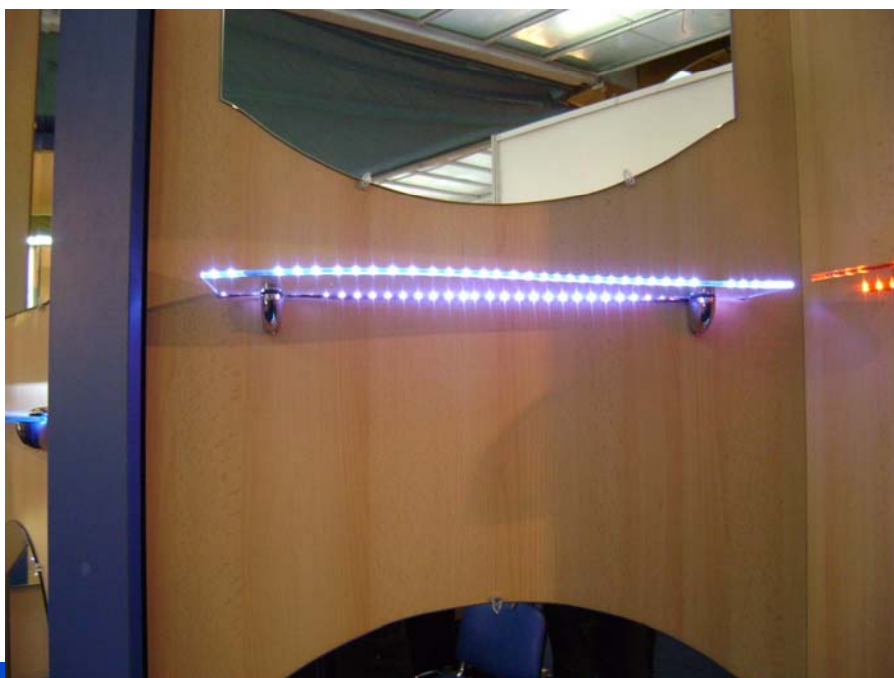


Yellow color shift

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

Do we really need this light?



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

CFL history is repeated: no name on market



- No technical information
- No quality charter
- Color shift
- Problems of reliability
- Low price

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

CONCLUSIONS

- **small dimensions raised new opportunities**
- **excellent solution on color lighting, even if limited to new buildings;**
- **this solution has raised problems for historical buildings (color rendering, LED floodlights too closed to buildings and all surface building imperfections revealed by light);**
- **a higher number of luminaries have to be used for a building, compared with metal-halide solutions;**

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

CONCLUSIONS

- higher investment costs as compared to traditional lighting systems;
- luminaire orientation is essential.
- exterior cabling on historical buildings is problematic;
- reliability is a problem that has to be solved;
- excessive use of LEDs;
- no-name LEDs invasion.

Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?

THANK YOU!



Napoli, March 13, 2009

LED Lighting Today: Tales or Facts?