Smart lighting for retail (summary)

A recent report released by the Californian Energy Commission has highlighted the benefits of adaptive lighting solutions in the retail sector. Currently accounting for 13 per cent of California's lighting electricity use, surprisingly the retail sector in the region has less lighting legislation with which to conform. This has led to innovative smart lighting control solutions being underutilised for energy saving and marketing functions.

From three individual studies, the key energy saving features of a smart lighting solution for general lighting were identified as:
- Lighting power density: 0.85 to 1.25 W/sf
- Systems should be fully dimmable
- Zonal occupancy sensing resulting in a multi-level lighting design:
    - Occupancy sensor with timeout period between 5-10 minutes
    - Occupied: full light output
    - Unoccupied: 30-50 per cent of full output
    - Control zones should be less than 500 sf to maximise savings
- Tuning: based on system design, high-end trim should be utilised to reduce full output by 10-30 per cent
    - Systems should be evaluated at the end of five years to adjust high-end trim to account for lumen depreciation or use systems that include automatic lumen maintenance adjustments
- All systems automatically switch off after business hours

All of these features can effectively improve energy efficiency in a retail environment, or any building. Making effective use of lighting controls allows for the optimisation of space, with on-going changes possible throughout the solution's lifespan. Consequently this means that businesses, in this case, retailers, can reduce their electricity bill.

Not only can lighting controls reduce electricity consumption, it can also be leveraged as a marketing and sales tool. Many studies, such as a recent research project undertaken by the Retail Design Research Lab of the PHL University of Hasselt, have highlighted the route customers take can depend on the lighting. By tracking the movements of customers within a store, studies have shown that customers buy

more and spend more time browsing in areas with warmer lighting settings than darker, cooler lit areas.

Therefore by installing a smart control solution, which can enable all of the above-mentioned features by simply connecting intelligent light fixture networks to the building's existing <u>B</u>uilding <u>M</u>anagement, <u>A</u>utomation or <u>E</u>nergy <u>C</u>ontrol <u>S</u>olution platforms would be the ideal solution. Known as **elite**dali^{TM} the technology enables total control over large retail environments using existing installed BMS, BAC and BEMS platforms. As it allows for moves and changes within the system through the building's existing BMS maintenance provider, the need for a costly maintenance package from a traditional lighting control solution's manufacturer is not required.

In addition, **elite**dali provides facilities managers and building owners with complete access to their lighting data. This allows for any data analysis to take place, effectively providing a real-time cost vs benefits for the environment created.

Finally, by choosing a highly vendor independent solution based on open standards means that any lighting products that conform to DALI IEC 62386, regardless of manufacturer can be connected to such a smart lighting system. In addition, any suitable BMS, BAS or BEMS solution based upon Tridium's Niagara Framework may be used in the installation, with on-going maintenance provided by any suitably qualified organisation of the end-client's choosing.

The full report can be found [here](#).

About DALI
- **D**igital **A**ddressable **L**ighting **I**nterface, IEC 62386
- Only global open interoperable published standard for intelligent light fittings
- Up to 64 DALI light fixtures connected on a single network
- Communicate individually, collectively or in groups
- ON, OFF, Dim Up, Dim down instructions and more
- 100's of device manufacturers, 100M devices deployed in millions of buildings
- See www.dali-ag.org

About Niagara

- World's de-facto standard convergent web technology platform for building and lighting controls
- A software framework for building device-to-enterprise applications and Internet-enabled products, created by Tridium Inc.
- A unified platform to easily build Internet-enabled products and software applications for controlling and managing diverse "smart" devices across an enterprise in real time.
- 20,000+ certified Niagara engineers, 1,000s of organisations
- 400+ global OEMs producing building management, automation and energy management solutions based upon Niagara installed in 500,000+ buildings. See www.tridium.com.

For more information, please contact cns@control-network-solutions.co.uk or call 01256-818700.

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