FOS and how Prolojik's GO exceeds requirements

Dan King, September 2019

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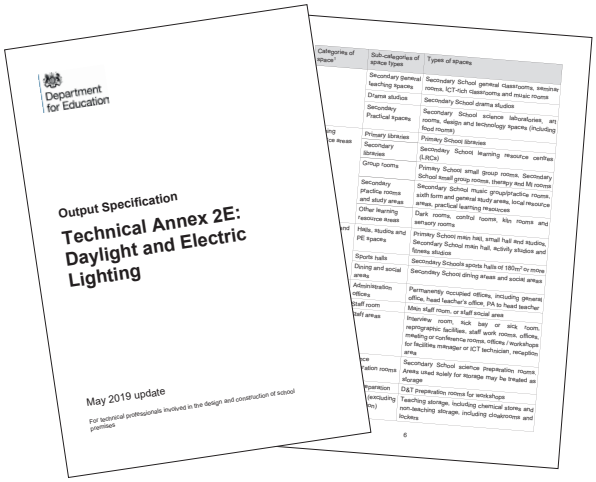
The Priority Schools Building Programme (PSBP) seeks to replace or refurbish school buildings identified as being, in need of improvement. The programme aims to create learning spaces that perform better and at a lower overall cost than under the previous Building Schools for the Future initiative. To achieve these goals, the Education Funding Agency (EFA) adopted the Facilities Output Specification (FOS).

The FOS outlines the environmental strategy for the building, including proposals for lighting. Compliance with the requirements of the EFA facilities output specification (FOS) is demonstrated through the design proposals, and through building simulation methods for daylight and energy.

The Education Funding Agency (EFA) Priority School Building Programme (PSBP) takes a new approach to the design and analysis of daylight within schools. The EFA Daylight Design Guide and Facilities Output Specification (FOS) states that 80% of the 'Teaching & Learning Spaces', within new build projects, must meet the minimum targets for both Spatial Daylight Autonomy (sDA) and Useful Daylight Illuminance (UDI).

The EFA plans for all second phase Priority School Building Programme (PSBP2), schools to open their new or refurbished buildings by the end of 2021.

The Governments, Department for Education (DfE) published, Output Specification, 'Technical Annex 2E: Daylight and Electric Lighting.' These guidance documents are to assist and guide with the design and construction of school building projects.


Department for Education

Output Specification

Technical Annex 2E: Daylight and Electric Lighting

May 2019 update

For technical professionals involved in the design and construction of school premises

Designing lighting and lighting controls for educational buildings, particularly schools, is complex and needs specific considerations in comparison with sectors like healthcare and commercial. With schools, the common functionality requirement is that lighting controls must be automatic to all spaces in order to facilitate control of the visual environment and energy savings. Control devices should be simple and intuitive.

Lighting within a modern building is a key area where energy savings can be realised. Lighting installation can be made energy efficient by careful selection of equipment such as luminaries and lighting controls.

Improving the efficiency of any lighting scheme must start with ensuring lighting levels are appropriate for the use of the space and not too high, as overuse of light can result in wasting energy. All internal lighting levels shall meet, but not significantly exceed the requirements of the space or area, thus, only using light where light is needed. Selection of energy efficient luminaires will be important to ensure that the efficiency targets outlined in both Building Regulations Approved Document L2 (ADL2) and the Priority Schools Building Programme Facilities Output Specification (FOS) are met.

As with correct selection of energy efficient luminaires, lighting controls will help play a part in reducing the energy consumption of buildings. The lighting scheme is most efficient when lights are used, only when they are required, and lighting controls help ensure this happens. The lighting controls need to suit the operational needs of the space. Circulation spaces and WC's generally use presence detection sensors. Switching lights automatically when presence is detected and when there is insufficient daylight. Lights stay switched on until a period of inactivity is detected, after which they automatically switch off.

Within classrooms and teaching spaces, the lighting shall be controlled with daylight dimming, absence detection and manual override. Users enter the room and choose to turn the lights on. The lighting control sensors shall then regulate the light fittings to maintain the required illuminance level according to how much daylight is available. The user can manually adjust the lighting level (up or down) using the light switches to suit the particular teaching needs. The lights shall automatically switch off after a preset period if no movement is detected.

Zone planning of lighting circuits should be carefully considered within all teaching spaces and classrooms to ensure that the lighting control is flexible.

Separate switching of the whiteboard row of lights must be provided.

Within basic teaching rooms the lighting should be switched in rows leading away from the window.

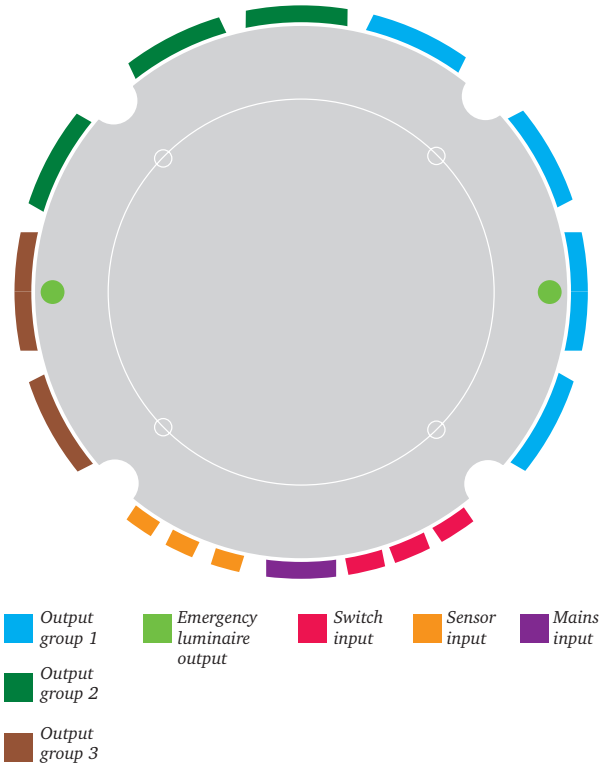
Lighting energy consumption should be minimised, by:

- Appropriate choice of light levels to ensure spaces are not over lit
- Lighting design to optimise and minimise numbers of fittings used
- Use of low energy fittings, I.e. LED's
- Absence and presence detection controls as appropriate to space
- Daylight dimming of fittings in classrooms and other spaces
- Photocell control for external lighting
- Monitoring of lighting usage and system performance

With all this in mind, Prolojik have developed an award-winning lighting control module (LCM), giving simple plug and play functionality, offering quick, hassle-free installation to specifically meet the requirements set out in the FOS documentation and to comply with the requirements and guidance.

The Prolojik GO LCM has built-in Bluetooth mesh and wireless app programming, its flexible configuration offers direct DALI dimming and can be easily configured and programmed with control schemes which can accommodate complex classroom requirements of graduated dimming in rows adjacent to windows, (making the most of natural daylight, to increase energy savings) and the interactive whiteboard control.

The GO LCM can control up to nine luminaires in three groups in basic mode, and nine individually addressed luminaires in advanced mode. Up to 16 individual DALI ballasts can be addressed, with input from both three multi-sensors and three switch devices and has in-built emergency control and reporting, making it the ideal solution for classroom installations. Multiple GO LCM's (classrooms) can be wirelessly grouped, creating a larger building mesh network to efficiently manage and control overall educational facilities and buildings.



At Prolojik, we have ensured that our GO LCM exceeds the requirements set out by the EFA and the FOS guidance, delivering a complete 'out-of-the-box' solution, which gives simple, yet advanced functionality and control to educational facilities. This is proved and reflected in the fact that we have received multiple awards for our GO LCM.

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