PLDA

Professional Lighting
Designers' Association

PLDA reply to the Commission Consultation working document on possible measures targeting the energy efficiency of lighting in the tertiary sector dated 05.07.2010 and comments to the CELMA/ELC response to this dated July 2010

The Professional Lighting Designers' Association (PLDA) is now a global organisation that was originally founded as ELDA (the European Lighting Designers' Association) and aims to promote the importance of quality lighting for the human environment and the importance of the Designer as its creator. PLDA sees the Association as a productive and creative link between lighting professionals worldwide.

The architectural lighting designer in the sense of the Professional Lighting Designers' Association is an independent professional whose main activity is designing the light for the built human environment. PLDA currently has 658 members in around 55 countries.

Option A: Ecodesign requirements and energy labeling for tertiary sector luminaires.

The Professional Lighting Designers' Association (PLDA) broadly agrees that labeling of luminaires in the Tertiary Sector will not be effective. The route to market for these products does not follow a retail model where the end user or specifier would necessarily be exposed to the labeling at the point of product selection. The following are typical scenarios:

1. Fittings are specified from manufacturer's published data by lighting designers, electrical engineers and lighting manufacturers who are seeking an optimum balance between performance and efficiency appropriate to the task.
2. Fittings are selected by installers based on perceived needs and choice is based on availability and/or price.
3. Fittings are selected by Interior Designers or Architects based primarily on aesthetic appearance, issues of performance are a secondary consideration in selection.
4. Fittings sold direct to users for installation by others. Such fittings are sold on the specific recommendation of electrical wholesalers or lighting suppliers based on the stock availability or best profit margin for the seller.

Only in scenario 1, or possibly scenario 2, does energy efficiency play a part in the decision process. None of the scenarios would benefit from labeling.

As the proposed measure for labeling is Light Output Ratio (LOR) there is a great danger that optical performance of the installation as a whole will suffer and therefore the user experience will be subject to a general lowering of quality. Typically the highest LOR is achieved by a fluorescent batten with a totally exposed lamp (i.e. no optical control). The greater the requirement for optical control against glare, or to direct light specifically towards a particular direction, the lower the typical LOR. As mentioned in the CELMA document, attempts to categorise fitting types that would have some meaning relating to different fitting's LOR is onerously complex and is restrictive in design.

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Additionally, one must also consider the whole life of the installation including the maintenance. Luminaires with a higher seal against dirt are typically less efficient than those open to the environment however the long term performance of an easily cleaned sealed luminaire is clearly more appropriate in this type of application.

PLDA does not believe that it is practical to assess an energy saving based on labeling of products or restricting the market to fittings of specific LORs. Over the past years the market driven by professional specification has and continued to drive up the LORs of every fitting type as new materials and manufacturing technologies enter the market. Energy savings are already being made year on year through professional specification.

The potential savings in energy of 15-20% by 2030 (at the earliest) are probably the same or even less than has been achieved in the last 20 years by natural development in light sources and luminaire design. We would expect this level of efficiency increase to be achieved without this proposed action, driven by market forces and general awareness.

Option B: Addressing Lighting at the System Level

PLDA broadly agrees that addressing lighting at the system level will provide the opportunity to make significant lighting energy savings. We also agree that the basic measurement for the measure should be the LENI as defined in BS EN 15193.

The existing lighting design process can include LENI calculations based on clients requirements and/or historic industry data. Enforcement can be tackled in a number of ways. As we are heading towards more intelligent metering in new buildings and refurbishments as well as replacement programme for existing supply metering it becomes possible to identify if the calculated LENI is being achieved. Where it is not, penalty levies on electrical consumption over the calculated amount can be applied by marginal taxation collected by the energy supply companies as part of their automated billing process. This creates an automatic and financially driven monitoring and enforcement process.

This approach also does not impact on individual member states existing processes and legislation on building efficiency. Any lighting requirements would still need to be met and these requirements would be calculated into the LENI by the lighting designer during the design process.

The current LENI process is designed around interior lighting only. It is possible to extend the principle with a similar process for exterior lighting and street lighting.

We agree that the lighting design process has to include a continuous involvement from concept and planning through to commissioning. It is essential to ensure that the design and therefore projected energy use is maintained through the process and that commissioning is undertaken by the designers to ensure that the final result performs as predicted. There is currently a draft ISO circulating for voting, ISO/DIN 16817 Building environment design - Indoor environment - Design process for visual environment. That enshrines the lighting design process. This would need slight modification to strengthen the Lighting Designer's role in commissioning to codify the process.

One of the most significant and important process changes that would be required in the implementation of Lighting Systems Legislation would be the need to address the validation of the design, the verification that the actual installation is as per the design and the verification that the commissioning has been carried out. The Professional Lighting Designers' Association would welcome these additional control mechanisms and believe that the key to achieving this is initially based around ensuring that lighting installations are designed and specified by individuals with a minimum level of competency. A competent individual would also need to be involved in the process at the key stages of installation and commissioning to "sign-off" the design. This process would also improve the hand-over to the user and post occupancy operation. This is an area that is receiving in other areas of building services - see UK scheme "Soft Landings".

Finally consideration needs to be given to the current lighting standards to ensure they meet lighting requirements appropriately particularly in the aim of reducing energy consumption. Over the last few decades recommended lighting levels measured solely in the horizontal plane have increased as lighting has become cheaper and more efficient. Many tasks are based on out of date business practice, for example office task lighting is still based on requirements to read and work with paper where the majority of current office work is screen based therefore self illuminated. Consideration also needs to be given to questioning the suitability of horizontal illuminance being the primary measure for all purposes when wall and ceiling illuminance play a far higher role in the perception of space. These matters cannot be addressed instantly however the issue can be raised with the various national bodies responsible for lighting standards.

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