A LITTLE LIGHT PROVOCATION AND FUTURE CHALLENGES

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Current attitudes to daylighting and electric lighting design need reviewing, revitalizing and redirecting daylighting design methods involving static concepts such as daylight factor and Average or Mean Skies are criticised. Similarly, consideration of electric lighting design as the means of providing uniform horizontal illuminances and glare checks in satisfaction of code requirements are also criticised.

Consider the light sources, fixed spectrum and fixed light output from electric light luminaries on the one hand, and variable spectrum, variable direction and variable, fluctuating, output from sun and sky on the other hand. This is the contrast to be recognised and incorporated in integration of the two light sources. This is one challenge in lighting design in satisfaction of human needs.

Existing computer programs for lighting calculations do not recognise these realities. Static concepts for daylight are not lighting design, and integration of such programs into energy conservation calculations are quite misleading. New computer programs incorporating variability of daylight as it occurs naturally present a future challenge.

The Commission Internationale de l'Eclairage (C.I.E.) International Daylight Measurements Programme (I.D.M.P.) starts to provide the necessary daylighting design data for a new approach to lighting design and energy conservation in lighting. Of course, new computer programs will be developed from this data. For this work special equipment specifications have been defined and participants must comply with strict standards of data acquisition and reporting.

In electric lighting design, new work is required to develop design methods for variability in spatial illuminance and to build on the earlier work involving vector and scalar illuminances in modeling, and applications of semi-cylindrical and cylindrical illuminance in a 4-dimensional approach to lighting, where the fourth dimension can be considered to be time or change, or variety/variability in satisfaction of human needs.

The problems of daylight and electric light provide and exciting challenge for the future.