Photo: Gaia Research

Sustainable Construction CPD

Module 2/15
Lighting and Daylighting

CPD Programme by Gaia Research: Info from 0131 558 7227 and www.gaiagroup.org

Sustainable Building Design

Achieving sustainability requires us to live within the limits of the earth's capacity to provide the materials for our activities and to absorb the waste and pollution that our activities generate.

The construction, fit out, operation and ultimate demolition of buildings is a huge factor in human impact on the environment both directly; through material and energy consumption and the consequent pollution and waste, and indirectly, through the pressures on often inefficient infrastructure.

There is already a significant amount of information available to all professions on how to design buildings that are attentive to the needs of sustainable construction. But, most practice still falls radically short of applying even the most easily applicable principles in most projects. Opportunities that could bring real advantage are being missed every day. The result is that buildings and the industries which supply building designers with products, materials and services are less efficient, less economical and more polluting than they might otherwise be.

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Top left photo: A Sports Hall with poor window and shading design. Unwelcome sunlight can enter giving rise to reflections, disability glare, and possible overheating.

Bottom right photo: The Prisma Building, Nuremberg, Germany. An example of mixed-use urban sustainable development with excellent daylighting.

Continuous Professional Development

This CPD module is the second in a series which will summarise the existing sources of best practice guidance on sustainable building design. These modules do not seek to repeat what other documents contain, except to summarise the most important environmental issues.

Each module provides information on critical aspects of a particular topic and sources of further guidance by way of an annotated bibliography. Case studies highlight best practice solutions to improve understanding and encourage implementation. Each is supplemented by seminars which will provide opportunity to discuss design projects in interdisciplinary groups with peers and specialists.

It is hoped that the modules will act as a catalyst in the creation of distance learning opportunities and allow participants to share information on live design projects with their own and other professions.

This document is intended to assist the reader to be better able to make informed decisions about lighting and daylighting design, thereby to contribute to meeting key objectives in government sustainable development plans.

It is not necessary to add anything to the range of good quality guidance already available on the subject in order to effect change. However, there remains a need to bring the guidance to wider attention and to highlight crucial issues and priorities affecting lighting and daylighting in the design of places, buildings and services.

This document includes information on daylighting, artificial lighting and controls. It directs the reader to the contemporary tools and guidance which will assist in implementing best practice. It will be a success if it excites interest and if it provides assistance in communication between the disciplines which can follow through into better quality spaces.

Objectives

By the end of this module the reader should be able to:

- Appreciate that well-designed natural lighting can contribute significantly to energy efficiency, cost savings, well-being and good architecture;
- Appreciate the importance of well-designed and integrated artificial lighting in achieving the best result;
- Communicate to clients the importance of good lighting & daylighting to operational efficiencies, including economy and productivity;
- Access and understand the guidance, tools, facilities and techniques available for good daylighting and lighting design;
- Understand that the design requirements, opportunities and constraints imposed by activities differ enormously in respect to variations in light quantity and quality and problem avoidance;
- Understand the importance of user control and maintenance issues;
- Appreciate the inter-relationship between lighting design and other indoor environmental aspects such as heating, cooling and ventilation strategies;
- Understand the benefits of working with other design disciplines to achieve good lighting & daylighting, especially at the crucial early stages.

Photo: Joachim Eble Architects