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**Recommended Practice on
Lighting for Educational Facilities**

Publication of this Recommended Practice
has been approved
by the IESNA. Suggestions for
revisions should be directed
to the IESNA.

Prepared by:

The IESNA School and College Lighting Committee

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Prepared by the IESNA School and College Lighting Committee

School and College Lighting Committee

Shail Mahanti, Chair

R. Anderson
D. Ankrum*
T. Berman
D.B. Blaszak
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K. Pratt
M.D. Ralston

F. Vreeland
A.G. Warner

*Advisory Member

Editing Task Force

Christopher Cuttle, Chair

C. English
D. Ginthner
P. Horner
M. Timmings

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Recommended Practice on Lighting for Educational Facilities

1.0 INTRODUCTION

The aims of this Recommend Practice are:

- To enable school and college administrators to brief their architects on appropriate provision of lighting.
- To enable lighting designers to check that the criteria that they apply are consistent with good current practice.

The scope of this Practice is restricted to learning and study activities, and associated circulation. Reference should be made to the current *IESNA Lighting Handbook*¹ and to the latest versions of other Recommend Practices for guidance on lighting spaces in school and college campuses that provide for supplemental activities, such as administration areas, sports facilities, and residential accommodations. These documents are:

- RP-1 *American National Standard Practice for Office Lighting*²
- RP-6 *Recommended Practice for Sports and Recreational Area Lighting*³
- RP-11 *Design Criteria for Lighting Interior Living Spaces*⁴

This Practice addresses all levels of education, from preschool to continuing professional development. While the principles of applying lighting to visual tasks do not change, the priorities to be applied by the lighting designer can vary widely according to the users. An example of this is the lighting needs for computer use.

The introduction of computers into schools is proceeding at a rapid pace. While at present, general purpose classrooms may only have one or two computers, it is likely that there will exist a one-to-one ratio of students to computers well before the end of the useful life of schools constructed today. Designing every classroom with the anticipation that it will be dominated by computers will mitigate against the premature obsolescence of the lighting system.

Computer installations in colleges provide for prolonged and intensive use by students working individually, and where the prime consideration for lighting is to maximize screen image visibility. In many other computer installations, ranging from mid-school to vocational training, the aim is to give instruction in

computer use, and the visibility of the instructor and paper-based material is as important as screen visibility. It may be necessary to provide medium-height partitions to avoid window reflections in the screen, but otherwise the lighting will be determined by the principal activities of the classroom.

Because of the diversity of educational activities, it is not possible to provide comprehensive recommendations for every situation. While this Practice seeks to explain principles of good lighting, it will always be necessary for the lighting designer to be cognizant of the educational process and of users needs.

2.0 THE ROLES OF LIGHTING IN EDUCATIONAL FACILITIES

Lighting to support the learning process in educational facilities needs to be appropriately related to the type of instructional media used. However, an instructor may use a variety of media (within the same space). The means for coping with the differing needs of these various media are dealt with in **Section 3.0** and **Section 4.0**.

2.1 Support of Instructional Media

2.1.1 Speech Communication. Speech remains the most common means by which instructors communicate with their students, and speech communication is aided by visual contact. Not only does a clear sight line provide a direct sound path, but visual contact reinforces communication in two distinct ways: good visibility of lip movements adds to speech intelligibility, and eye contact personalizes the communication process.⁵

Lighting that provides good modeling of human features, aids speech communication, as well as creating a visually pleasant condition. It requires a balance of illumination on the vertical surfaces of the instructor's head, as shown in **Figure 1 (left)**. The condition shown in **Figure 1 (right)** is the all too familiar lecture theatre condition, where overhead spotlights have been placed to boost the horizontal illuminance at the instructor's position without concern for vertical illuminance.

Figure 1 (left) shows the incident lighting to be stronger from one side than from the other, and this is an optimum lighting condition for speech communication. While this condition can be achieved in a lecture theater by appropriate location of luminaires, a simple arrangement of lighting directed from above and in front of the instructor would be more suitable for a classroom. The vertical angle of the incident light will be a compromise between maximizing vertical illumi-