



RECOMMENDED PRACTICE:
**SUPPORTING THE PHYSIOLOGICAL
AND BEHAVIORAL EFFECTS
OF LIGHTING IN INTERIOR
DAYTIME ENVIRONMENTS**
AN AMERICAN NATIONAL STANDARD

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ANSI/IES RP-46-23

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Publication of this document
has been approved by the IES.
Suggestions for revision
should be directed to the IES.

**Prepared by the
IES Light and Human Health Committee**



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Preface

This preface is not part of ANSI/IES RP-46-23. It is provided for general informational purposes only.

ANSI/IES RP-46-23 is based on the research citations noted in the Reference section.

This Recommended Practice (RP) does not provide general lighting information that is included in other IES documents. If the reader does not already have this information, it may be obtained as needed from the following current IES Standards:

The Lighting Science Series:

- ANSI/IES LS-1-22, *Lighting Science: Nomenclature and Definitions for Illuminating Engineering*
- ANSI/IES LS-2-20, *Lighting Science: Concepts and Language of Lighting*
- ANSI/IES LS-3-20, *Lighting Science: Physics and Optics of Radiant Power*
- ANSI/IES LS-4-20, *Lighting Science: Measurement of Light – The Science of Photometry*
- ANSI/IES LS-5-21, *Lighting Science: Color*
- ANSI/IES LS-6-20, *Lighting Science: Calculation of Light and Its Effects*
- ANSI/IES LS-7-20, *Lighting Science: Vision – Eye and Brain*
- ANSI/IES LS-8-20, *Lighting Science: Vision – Perceptions and Performance*

The Lighting Practice Series:

- ANSI/IES LP-1-20, *Lighting Practice: Designing Quality Lighting for People and Buildings*
- ANSI/IES LP-2-20, *Lighting Practice: Designing Quality Lighting for People in Outdoor Environments*
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- ANSI/IES LP-7-20, *Lighting Practice: The Lighting Design and Construction Process*

- ANSI/IES LP-8-20, *Lighting Practice: The Commissioning Process Applied to Lighting and Control Systems*
- ANSI/IES LP-9-20, *Lighting Practice: Upgrading Lighting Systems in Commercial and Industrial Facilities*
- ANSI/IES LP-10-20, *Lighting Practice: Sustainable Lighting – An Introduction to the Environmental Impacts of Lighting*
- ANSI/IES LP-11-20, *Lighting Practice: Environmental Considerations for Outdoor Lighting*
- ANSI/IES LP-12-21, *Lighting Practice: IoT Connected Lighting*
- ANSI/IES LP-13-21, *Lighting Practice: Introduction to Resilient Lighting Systems*
- ANSI/IES LP-16-22, *Lighting Practice: Documenting Control Intent Narrative and Sequences of Operations*

1.0 Introduction and Scope

1.1 Introduction

This Recommended Practice (RP) is the implementation companion to IES TM-18-18, *Light and Human Health: An Overview of the Impact of Optical Radiation on Visual, Circadian, Neuroendocrine, and Neurobehavioral Responses*¹ in that it provides recommendations for translation of the basic science of how light affects visual, circadian, neuroendocrine, and neurobehavioral responses in daytime interior environments, such as those found in schools and offices. IES TM-18-18 reviewed the discovery of melanopsin and the evidence demonstrating that these visual, circadian, neuroendocrine, and neurobehavioral responses can be anatomically—and functionally—distinct from visual responses. This document includes the major advances achieved since the publication of IES TM-18-18 in understanding the physiology by which light mediates circadian, neuroendocrine, and neurobehavioral responses; however, this document does not supplant IES TM-18-18. For a more complete understanding of the topic, this RP should be read as a companion to IES TM-18-18.

The research community has made significant findings relative to lighting that is supportive of physiological