ANSI/IES LP-2-20

Illuminating
ENGINEERING SOCIETY

LIGHTING PRACTICE:
DESIGNING QUALITY LIGHTING FOR PEOPLE IN OUTDOOR ENVIRONMENTS

AN AMERICAN NATIONAL STANDARD

Approved American National Standard
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Publication of this document
has been approved by IES.
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should be directed to IES.

Prepared by
The IES Lighting for Outdoor Public Spaces Committee

Approved by the IES Standards Committee October 11, 2019 as a Transaction of the Illuminating Engineering Society.

Approved February 7, 2020 as an American National Standard.

Published by the Illuminating Engineering Society, 120 Wall Street, New York, New York 10005.

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Printed in the United States of America.

ISBN# 978-0-87995-066-8

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Acknowledgement:

The committee would like to thank Ms. Etta Dannemann for her contributions to this Lighting Practice document.

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1.1 Introduction

As the world's population continues to grow, a larger percentage of people are choosing to live in urban environments. Nowhere is this more apparent than in North America, where 82% of people live in urban areas.[1] In fact, the planet has gone through a process of rapid urbanization in recent decades, and in 2007, the global urban population exceeded the global rural population for the first time in history.

Outdoor urban space has become valuable property. Cities are being forced to implement large scale infrastructure projects to accommodate and plan for growing populations no longer constrained by buildings. People are more mobile, blurring the lines between work and social interaction. It is here, in the outdoor space, that people can stay connected with each other and the environment, enjoying a healthier and more social lifestyle, day and night.

New livable cities will attract people to walk, bike, and stay connected while using public or autonomous transportation. It is important that society acknowledge the need to design lighting for pedestrian based tasks. There also needs to be a reduction in acceptance of vehicular roadway-centric lighting as the only solution. Historically, the implicit lighting recommendations for outdoor areas are made from a vehicular vantage point, where pedestrians are considered a potential conflict. Vehicular lighting's role is for motorists to detect potential conflicts within the driving variables associated with viewing angle and moving at speed. Pedestrians and cyclists are more vulnerable than motorists; where they look and what they need in a lighted environment are completely different than for motorists. Intuitively, we know pedestrians need to detect sidewalk hazards for physical safety; see people, destinations, and attractions for navigation decisions; and recognize threats to achieve psychological confidence and reassurance.

Many of the techniques for interior lighting, such as the creation of multiple layers of light, can now be applied to outdoor spaces. What challenges does this present? This document will help lighting practitioners understand ambient lighting levels, glare, contrast, and luminance to design for outdoor pedestrian spaces more holistically. It is important that outdoor public spaces at night provide sufficient light to engender the equivalent feelings of daytime reassurance, allowing people to enjoy public spaces. This document will guide users toward an understanding of how to design lighting for the pedestrian realm at night.

1.2 Scope

The charter of this Lighting Practice (LP) is to provide pedestrian-oriented lighting recommendations for the reassurance, safety, comfort, amenity, and enjoyment of pedestrians in outdoor environments. These recommendations provide a basis for lighting and space design, including the flexibility for application of multiple methods.

The common definition of *pedestrian* is one who travels on foot. For this LP, the inference is that pedestrians, traveling by foot, make decisions regarding their movements while moving at a pace slower than motorized vehicles. Therefore, the lighting recommendations contained within this document may be extended to any individual traveling in a manner consistent with someone on foot due to the absence of research for non-motorized transportation.

This LP makes recommendations beyond illuminance—which, considered alone, is inadequate as a means of accomplishing the complete visual experience necessary for pedestrian based tasks. Rather, it takes a comprehensive approach and makes recommendations based on zonal light level allowances, glare, adaptation, spectrum, and contrast while addressing safety, timing, and the need for reassurance. Application of these recommendations will ultimately enhance the pedestrian's visual experience while also respecting the environment.

A number of IES Recommended Practice (RP) documents provide recommendations and design guidelines for specific outdoor lighting applications. This document is not intended to supersede those publications. Instead, it supplements the various RPs, augmenting them in subject areas not otherwise addressed.