ANSI/IES RP-37-20

Illuminating Engineering Society

RECOMMENDED PRACTICE: LIGHTING AIRPORT OUTDOOR ENVIRONMENTS

AN AMERICAN NATIONAL STANDARD

Approved American National Standard ANSI

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

Prepared by:
The IES Aviation Lighting Committee

Approved by the IES Standards Committee November 22, 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# 978-0-87995-070-5

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Foreword

This Foreword is not part of ANSI/IES RP-37-20. It is provided for informational purposes only.

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 IES Standards:

The Lighting Science Series:

- *ANSI/IES LS-1-20, 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-5-20, 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*
- *ANSI/IES LP-3-20, Lighting Practice: Designing and Specifying Daylighting for Buildings*
- *ANSI/IES LP-4-20, Lighting Practice: Electric Light Sources – Properties, Selection, and Specification*
- *ANSI/IES LP-6-20, Lighting Practice: Lighting Control Systems – Properties, Selection, and Specification*
- *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 Consider-ations for Outdoor Lighting*

1.0 Introduction and Scope

1.1 Introduction

ANSI/IES RP-37-20, Recommended Practice: Outdoor Lighting for Airport Environments is a guide for the planning and design of lighting systems in the entire airport outdoor environment. It has been prepared as a guide for the application of fixed outdoor lighting in and around the airport environment with respect to the airport's special requirements. These requirements include (but are not limited to):

- Height restrictions (such as obstructions affecting navigable airspace) as defined by the governing civil aviation authorities
- The ability to distinguish color of light for visual cues
- Prevention of light trespass that may interfere with the vision of pilots or air traffic control tower (ATCT) personnel
- Air traffic controllers' ability to see approaching aircraft and aircraft performing ground operations within the "aircraft movement area" without glare or direct or indirect light trespass
- Pilots' ability to detect runway lighting without glare or direct or indirect light trespass

ANSI/IES RP-37-20 provides guidance for dealing with the preceding considerations, while being cognizant of the need to provide an adequate and safe lighted environment for aircraft servicing and for pedestrian and vehicular movement in and around the airport environment.

This document is not intended to supersede any civil aviation regulations, government regulations,

occupational safety and health requirements, or the authority having jurisdiction.

Other IES standards provide recommendations and design guidelines for specific outdoor lighting applications. This document is not intended to supersede these other applicable IES RPs; rather, it is intended to supplement them to meet the specific needs of the airport environment.

This Recommended Practice (RP) is to be used in conjunction with appropriate energy codes and environmental sustainable design practices in use for the facility. Recommendations within the appropriate sections are included for basic information to provide guidance as to the key issues for consideration.

1.2 Scope

The purpose of this Recommended Practice is to provide recommendations for three airport-related applications:

- For airside applications: Provide for adequately lighted areas where parked aircraft are safely serviced, where aircraft crew and passengers safely board and deplane, and where cargo operations are conducted.
- For landside applications: Provide for adequately lighted departure and arrival areas, walkways to the terminal, secure staffed access points, and vehicle transaction areas for safety and security of pedestrians and vehicles.
- For adjacent development applications: Provide guidance for lighting in the vicinity of the airport (including areas outside the airport property line), while also taking into account the special needs of the airport environment, such as height restrictions and potential light interference with air traffic controller and/or pilot vision

ANSI/IES RP-37-20 does not provide guidance for aeronautical ground lighting systems, such as runway, taxiway and approach lighting, and is not intended to be used for lighting designs for heliports (refer to **Annex E – Glossary**). Nor does it provide recommendations for roads or parking facilities; these are covered in *ANSI/IES RP-8-18, Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting*.[1]

Additional information pertaining to lighting outdoor environments may be found in *ANSI/IES LP-2-20, Lighting Practice: Designing Quality Lighting for People in Outdoor Environments*, in *ANSI/IES LP-10-20, Lighting Practice: Sustainable Lighting – An Introduction to the Environmental Impacts of Lighting*, and in *ANSI/IES LP-11-20, Lighting Practice: Environmental Considerations for Outdoor Lighting* (see **Foreword**).

2.0 Characteristics of Airport Areas

The characteristics of airport areas constitute general descriptions of areas that could be found on or adjacent to an airport. These areas are identified by the activities that require illumination. **Figure 2-1** shows various infrastructures and facilities inside the premises of an airport and in the surrounding area.

2.1 Aprons: Commercial (Air Carrier), General Aviation, Cargo, Hangar

In general, the apron comprises the area used for aircraft parking and aircraft support and servicing operations. Aircraft taxi on the apron as they arrive, and then depart from the aircraft stand. Verification of credentials and ID badges is required in this area. These areas have very heavy traffic and are congested with both personnel and equipment.

There are four types of aprons:

- *Commercial aprons:* Primarily used by scheduled air carriers for parking aircraft, boarding and deplaning passengers, loading and unloading luggage, and fueling the aircraft and vehicles servicing the aircraft; (refer to **Figure 2-2** for a general overview of a commercial apron)
- *General aviation aprons:* Typically used by private, business, and charter aircraft for parking aircraft, boarding and deplaning passengers, loading and unloading luggage, and fueling aircraft
- *Cargo aprons:* Used to park cargo aircraft, load and unload cargo, and fuel cargo aircraft
- *Hangar aprons:* Used to park aircraft temporarily as they are prepared to enter the hangar or temporarily as they are removed from the hangar; activities on