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Illuminating
ENGINEERING SOCIETY

LIGHTING PRACTICE:
DOCUMENTING CONTROL INTENT NARRATIVES AND SEQUENCES OF OPERATIONS

AN AMERICAN NATIONAL STANDARD

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Prepared by the IES Lighting Control Systems Committee.

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CONTENTS

1.0 Introduction and Scope

1.1 Introduction

In order for lighting control systems to work, the designer needs to create a vision for the design and provide clear instructions for how the lighting controls within the project boundaries, as well as their connections to other systems, are to operate. The design vision is documented in a Control Intent Narrative (CIN), a plain text document that can be easily understood by a layperson. The CIN is a springboard for the Sequence of Operation (SOO) document, the instructions for how to program the lighting control system. The SOO has the contractually enforceable language for informing the installer how to program the system to meet the design intent. This Lighting Practice document will describe how to create a project CIN and SOO that: 1) are detailed enough to ensure that the delivered system provides the functionality required; 2) provide enough information that the construction team can provide exactly the programming required; and 3) are contractually enforceable if something goes wrong.

1.2 Scope

This document provides guidance on the documentation of Control Intent Narratives and Sequences of Operation (CIN and SOO). It is not intended to be a design guide, but rather a reference manual of best practices on how the design, once formulated, is included in the project documentation and communicated to the construction and commissioning teams.

This document is intended for people in the lighting community, including building owners, managers, architects, lighting practitioners, electrical engineers, control systems practitioners, luminaire and controls manufacturers, systems integrators, and installers.

Equipment, sensors, software, and network infrastructure are necessary components of a complete lighting control system, but these are not covered here (refer to *ANSI/IES LP-6-20, Lighting Practice: Lighting Control Systems – Products, Selection, and Specification*[1] for information on these aspects of the lighting control system).

There are different ways to convey intent and sequences of operation. This document presents two of the most common formats: a matrix and a narrative. Each has its strengths and weaknesses. Information is provided to help the reader make a decision that will benefit the project. Furthermore, it is imperative that the method chosen be in harmony with the capabilities of the project team so that the SOOs will be updated as they evolve through the project.

It is not necessary to read this document cover to cover. The reader may skip to the sections of interest and the example narratives that will be useful for a given project. While the examples given are real world examples used on various projects, the example sequences should *not* be used as is; they will almost certainly not meet the requirements for a specific project. Instead, the examples should be used as a starting point and then adapted to specify the control system the project requires. The examples given may be used for their structure and level of detail, but the requirements and setpoints should be changed to meet the specific project's needs.

In addition, each specific project may require unique sequences that have never been created before. A questionnaire is provided in **Annex C** to help with creating a CIN and SOO for a specific project.

Finally, a List of **Abbreviations** and a **Glossary** can be found just before the annexes.

2.0 Control Intent Narratives and Sequences of Operation

The CIN and SOO do not hold equal positions in the work products for a project. The CIN is part of the Basis of Design (BOD) and is used to convey the overall intentions for the specified system(s). The CIN may be included in the contract documents (often the specifications or drawings); however, it should not be relied on because it deals in generalities. There is usually a lot of room for interpretation and enforcement; the language is often so vague that it is unenforceable. However, this