JOINT CANADA-UNITED STATES
NATIONAL STANDARD

ANSI/CAN/UL 8801:2024

STANDARD FOR SAFETY

Photovoltaic (PV) Luminaire Systems

ANSI/UL 8801-2024

SCC FOREWORD

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UL Standard for Safety for Photovoltaic (PV) Luminaire Systems, ANSI/CAN/UL 8801

First Edition, Dated June 15, 2022

Summary of Topics

This revision of ANSI/CAN/UL 8801 dated November 26, 2024 includes the following changes in requirements:

– Scope updates; 1.1, 1.1A, 1.2

– PV luminaire systems with higher voltages; 1.8, 4.2, Annex D

– Referenced Publications; 4.2

– Standard Test Conditions (STC); 5.2A

– PV Modules; 7.2.1

– PV module output voltage; 7.2.2 note

– PV Module Overcurrent Protection; 7.2.6 (deleted), 7.2.7

– PV module output connectors; 4.2, 7.2.8

– Battery compartment removable cover secureness; 7.4.2, 8.6

– Battery charge controller; 7.5.1 note, 7.5.2 note

– Battery output overcurrent protection; 7.6.1, 7.6.3

– Luminaires; 7.8.1

– Disconnect switches for the PV module and battery; 7.9.3, 7.9.4, 9.13, Table C.1

– Multiple integral PV modules; 8.1.2.2 note

– Temperature test without a solar simulator; 8.1.2.2 note, Annex E

– Marking contrast; 9.1

– Ambient temperature markings; 9.3

– Permitting multiple concurrent DC charging or power sources; A2.3, A2.4, A3.3, A3.4

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated September 13, 2024.

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Standard for Photovoltaic (PV) Luminaire Systems

First Edition

June 15, 2022

This ANSI/CAN/UL Safety Standard consists of the First Edition including revisions through November 26, 2024.

The most recent designation of ANSI/UL 8801 as an American National Standard (ANSI) occurred on November 26, 2024. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been designated as a National Standard of Canada (NSC) on November 26, 2024.

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Preface

This is the First Edition of ANSI/CAN/UL 8801, Standard for Photovoltaic (PV) Luminaire Systems.

ULSE is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL 8801 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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This Edition of the Standard has been formally approved by the Technical Committee (TC) on Photovoltaic (PV) Luminaire Systems, TC 8801.

This list represents the TC 8801 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

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This Standard is intended to be used for conformity assessment.

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

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INTRODUCTION

1 Scope

1.1 These requirements apply to luminaire systems whose electrical power is derived from photovoltaic modules. Systems include a photovoltaic (PV) module, storage batteries, one or more co-located luminaires, and controls to manage the energy flow between these subassemblies. These systems are intended to be installed in accordance with:

a) CSA C22.1, the Canadian Electrical Code (CE Code), Section 64, Renewable Energy Systems; and

b) NFPA 70, the National Electrical Code (NEC), Article 710 as a stand-alone system.

NOTE: In accordance with the CSA C22.1, 64-000(1), renewable energy systems operating within the class 2 limits of 16-200(1)(a) and (1)(b) are exempt from the requirements of Section 64.

1.1A These requirements also apply to field installable system subassemblies when the subassembly is marked or provided with installation instructions that identify it as intended for use in a PV luminaire system.

1.2 These requirements do not address:

a) The grid-interactive systems covered by CSA C22.1, Section 64 and NFPA 70, Article 705;

b) Systems that include an inverter intended to supply line voltage luminaires or remote equipment; or

c) Individual system subassemblies (PV modules, batteries, luminaires, or controls) that have not been evaluated as an integral part of a PV luminaire system.

1.3 These systems can include means to connect to and receive energy from the utility grid or similar supplemental supply source; see Annex A, Systems with Supplementary Power Connections. Systems with this feature can be installed in accordance with NEC Article 702, Optional Standby Systems.

1.4 These requirements apply to fixed-in-place systems, to portable systems that are intended to be easily relocated, and to systems intended for periodic user disassembly and storage. These requirements do not apply to handheld luminaires, such as a flashlight, or where light output is an auxiliary function of the handheld device (such as a smart phone).

1.5 These systems are intended for outdoor, exposed installations within a nominal ambient temperature range marked in accordance with 9.3, but no less than -20 °C to +40 °C.

1.6 These systems may include controls and devices to optimize system performance (such as sensors, positioning motors, and communication devices). They may also include output ports for diagnostic purposes or to supply temporary power to portable devices. See Annex B, Power Output Ports and Receptacles.

1.7 These requirements address only some of the mechanical infrastructure used to support or mount parts of the system. The supplemental requirements to fully evaluate the structural integrity of the mechanical infrastructure, including strength and stability of support poles under various environmental conditions such as wind or impact, and the assessment of soil or ground conditions necessary for system physical stability and reliability, are outside the scope of these requirements.

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