



*NSF International Standard /  
American National Standard*

**NSF/ANSI 457 - 2017**

**Sustainability Leadership  
Standard for Photovoltaic  
Modules**



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Unless otherwise referenced, the Annexes are not considered an integral part of NSF Standards. The Annexes are provided as general guidelines to the manufacturer, regulatory agency, user, or certifying organization.

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## Foreword<sup>2</sup>

This American National Standard, NSF/ANSI 457 Sustainability Leadership Standard for Photovoltaic Modules, has been developed as part of the ongoing efforts of a number of interested parties to document and improve the sustainability performance profile of photovoltaic modules using established and advanced scientific principles, practices, materials, and standards.

The purpose of this Standard for Photovoltaic modules is to establish product sustainability performance criteria and corporate performance metrics that exemplify sustainability leadership in the market. These performance criteria are intended to form the basis of conformity assessment programs, such as third-party certification or registration.

Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance schedule and can be opened for comment at any time. Comments should be sent to Chair, Joint Committee on Sustainability Leadership Standard for Photovoltaic Modules at [standards@nsf.org](mailto:standards@nsf.org), or NSF International, Standards Department, P.O. Box 130140, Ann Arbor, Michigan 48113-0140, USA.

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## NSF/ANSI Standard for Sustainability—

# Sustainability Leadership Standard for Photovoltaic Modules

## 1 General

### 1.1 Purpose

The purpose of this Standard for Photovoltaic (PV) modules is to establish product sustainability performance criteria and corporate performance metrics that exemplify sustainability leadership in the market.

The Standard provides a framework and standardized set of performance objectives for manufacturers and the supply chain in the design and manufacture of PV module components. For purchasers, this Standard provides a consensus-based definition of key sustainability attributes and performance metrics, alleviating individual purchasers from the arduous and complex task of defining sustainability performance for PV modules. This Standard can be used within an established system for the identification of sustainability/environmentally preferable products by purchasers and to provide market recognition for conforming products and brand manufacturers.

This Standard was developed based on the principle that only sustainability leadership products, those in the top third of the market, are expected to qualify to the Standard at the Bronze level at the date of publication of the Standard. Only a few products are expected to meet the highest performance level (Gold) at the date of publication of the Standard.

This Standard will be continually maintained and periodically reviewed to ensure that the definition of sustainability leadership, as reflected in the performance criteria, progresses with the evolution of technology and services and sustainability/environmental improvements in the product sector.

### 1.2 Scope

This is a sustainability leadership Standard for PV modules. The scope of this Standard includes PV modules for installation on, or integral with buildings, or to be primarily used as components of free-standing power-generation systems, including but not necessarily limited to:

- photovoltaic cells that generate electric power using solar energy
- interconnects (materials that conduct electricity between cells)
- encapsulant (insulating material enclosing the cells and cell interconnects)
- superstrate (material forming primary light-facing outer surface) and substrate (material forming back outer surface) (e.g., glass, plastic films)
- wires used to interconnect photovoltaic modules and connect junction boxes to the balance of system equipment
- frame or integrated mounting mechanism, if present