



**Next Generation Luminaires
SSL Design Competition
2009 Entrant Guide**

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Competition Partners

Next Generation Luminaires is jointly organized by the Illuminating Engineering Society of North America (IESNA), the International Association of Lighting Designers (IALD), and the U.S. Department of Energy (DOE), represented by Pacific Northwest National Laboratory (PNNL).

IESNA is the recognized technical authority on illumination. For over 100 years, its objective has been to communicate information on all aspects of good lighting practice to its members, to the lighting community, and to consumers, through a variety of programs, publications, and services.

IALD is an internationally recognized organization dedicated solely to the concerns of independent, professional lighting designers. The IALD strives to set the global standard for lighting design excellence by promoting the advancement and recognition of professional lighting designers.

DOE's Building Technologies Program conducts research and development on technologies and practices for energy efficiency, partnering with states, industry, and manufacturers to improve the energy efficiency of new and existing buildings. PNNL is a DOE multi-program national laboratory that delivers breakthrough science and technology to meet key national needs.

Purpose

The Next Generation Luminaires™ (NGL) Solid State Lighting (SSL) Design Competition seeks to encourage technical innovation and recognize and promote excellence in the design of energy-efficient LED commercial lighting luminaires.

Next Generation Luminaires encourages manufacturers to develop innovative commercial luminaires that are energy-efficient and provide high lighting quality and consistency, glare control, lumen maintenance, and luminaire appearance needed to meet specification lighting requirements.

Background

The Department of Energy (DOE) administers federal investment in SSL research and development to advance the technology and realize its projected energy efficiency, lighting service, and economic benefits. DOE has developed a comprehensive program to support the effective commercialization and application of SSL in the general illumination market. This program includes technology demonstrations,

product testing, development of industry performance standards and test procedures, information dissemination, and design competitions, to recognize and reward excellence in application of this emerging technology.

On-going advances in SSL technology and the growing number of product introductions signal an opportunity to encourage, recognize, and promote LED luminaires suitable for the commercial specification market, implicitly differentiating them from LED products that will not meet the needs of lighting designers, specifiers, and users. DOE has partnered with the Illuminating Engineering Society of North America (IESNA) and the International Association of Lighting Designers (IALD) to organize this new competition.

NGL 2008

The first NGL competition was launched at LightFair in May 2008 and attracted 68 entries from 29 lighting companies. A panel of 14 judges drawn from the architectural lighting design community convened to evaluate the products by assessing their lighted performance, appearance, construction, and submitted photometric data. If photometric data were lacking, a product was sent to an independent testing laboratory for testing through DOE's CALiPER testing program, then re-evaluated by the judges using the testing data. Ultimately, twenty-two products were designated as market ready; three of these were selected as best-in-class. Five products were recognized in the emerging category.

Participants

The competition is open to LED, lighting, lighting system, and luminaire manufacturers, including LED device and system manufacturers in conjunction with their luminaire manufacturing partners.

Product Criteria

- The 2009 NGL competition will only accept luminaires that are in or near production and **ready for specification**. Emphasis will be on quality and practicality of the luminaire for real-world lighting applications in the commercial specification market.
- Products must be primarily applicable to the **commercial, institutional, or public sector**. Designs that would be appropriate exclusively in residential settings are outside the scope of the competition and should refer to the Lighting for Tomorrow (www.lightingfortomorrow.com) residential competition.
- White light, **general illumination applications** only will be evaluated. Participating LED products must provide useful illumination for a task, space, or object. Holiday lights, light sculpture, lighted fabrics, lighted signs, color changing lights, and other products not designed for general illumination are outside the scope of the NGL program and competition.
- Entries must be **complete luminaires ready for specification**. Judges will not evaluate replacement lamp products or modules that must be combined with other products before they can be specified.
- Products are not limited to any particular lighting application. **Indoor and outdoor applications** are eligible for submission.
- Entrants must submit **two (2) production-quality luminaires**. Computer renderings, and/or product photographs may be submitted as supplementary material, but two (2) working luminaires must be submitted in fully operable condition, including LEDs, drivers, and necessary

controls. A production luminaire is defined as a luminaire with the same composition and materials as luminaires currently in or near production.

Technical Requirements

ENERGY STAR Applications:

Specifiable luminaires covered by the ENERGY STAR[®] 1.1 criteria must be capable of meeting the minimum technical requirements. For full ENERGY STAR[®] requirements, see http://www1.eere.energy.gov/buildings/ssl/energy_star_criteria.html. The following luminaire applications are covered in the 1.1 criteria for non-residential applications:

- Recessed, surface, and pendant-mounted downlights
- Undercabinet shelf-mounted task lighting
- Portable desk task lights
- Wall wash luminaires
- Bollards

Other General Illumination Applications:

Specifiable luminaires not covered by ENERGY STAR[®] 1.1 criteria are not subject to criteria above but photometric testing documentation (based on the IESNA LM-79-08 test procedure) from an independent testing lab is required. Further, the luminaire efficacy of all luminaires selected as finalists will be verified with independent testing as needed.

These applications not covered by the 1.1 criteria could include but are not limited to:

- cove lighting
- valence lighting
- pendants
- wall sconces
- accent lighting
- refrigerated retail display case lighting
- non-refrigerated retail display case lighting
- exterior architectural lights
- facade lighting
- street and area lighting
- pedestrian pathway lighting
- decorative luminaires for non residential applications

Required Documents

- An **Intent-to-Submit form** must be submitted to competition organizers by September 15, 2009.
- A **Final Submission form** (with documentation) must be submitted online, printed, and sent with each set of luminaires entered in the competition by November 13, 2009. Entries arriving without a completed, signed submission form will not be considered. See Appendix A for final submission form questions and complete list of **required documentation**.

Evaluation Procedure

Evaluation of NGL entries will take place in the following stages:

Initial screening

NGL organizers will screen entries by reviewing each submittal to verify that all required documents are included (see required documents section). The product will also be evaluated to make sure all parts necessary to mount the luminaire in its intended application are included and that the luminaire functions properly.

In-person judging

The judging panel will meet in-person to evaluate the entries (see evaluation criteria). Luminaires will be installed and illuminated.

Performance Verification of Finalists

If necessary, photometric performance of entries selected as finalists will be verified through independent testing (according to IESNA LM-79-08) will be conducted to verify results.

Photometric information for finalists will be used to evaluate luminaire efficacy, to verify color characteristics, and to identify potential problems such as unexpectedly high luminaire losses, excessive operating temperatures, low light output, and noticeable color shifts. Test results will be provided to the manufacturer.

Product submission information will be kept confidential until the publication of the NGL results.

Evaluation Criteria

Judges will score each entry according to the following criteria:

- **Color appearance** - Evaluation of this criterion will be based on the judging panel's evaluation of the color appearance of the installed luminaire. CCT data must be provided through LM-79-80 testing reports. CCT of finalists will be verified through LM-79-08 testing as necessary.
- **Color rendering** - Evaluation of this criterion will be based on the judging panel's evaluation of the color appearance of objects illuminated by the installed luminaire. CRI data must be provided through LM-79-80 testing reports. CRI of finalists will be verified through LM-79-08 testing as necessary.
- **Appropriate illuminance** - Horizontal and/or vertical illuminance for the application must be appropriate according to accepted lighting practice. Evaluation of this criterion will be based on the judging panel's evaluation of the light levels and distribution (uniformity and contrast) provided by the luminaire, and may also include measurement of light levels using a standard illuminance meter.
- **Appropriate luminance** – This criterion addresses luminance of the luminaire surface. Judges will evaluate luminaire brightness in conditions as similar as possible to the intended application to assess glare and contrast. Photometric luminance of the luminaire will be verified through LM-79-08 testing of finalists as necessary.

- **Application effectiveness** - The luminaire must deliver appropriate light levels to the task with lower wattage than comparable traditional light sources for that task. Evaluation of this criterion will be based on assessment by the NGL judging panel and submitted luminaire performance data.
- **Aesthetic appearance and style** - Evaluation of this criterion will be based on the judging panel's subjective evaluation of the aesthetic appearance of the installed luminaire.
- **Serviceability and replacement** - Entries must demonstrate attention to specifier and user concerns about follow-on service and replacement in the event of component failure.

The judging panel may award bonus points for entries exhibiting desirable characteristics. Bonus points will be available for the attributes listed below; additional bonus points may be identified by the judges.

- **No off-state power use** - luminaire designs that do not draw power when the luminaire is turned off. Consistent with ENERGY STAR SSL requirements, up to 0.5 W of off-state power draw is allowed for luminaires with integral occupancy, motion, or photo-controls, or individually addressable luminaires with external control and intelligence.
- **Dark-sky friendly** - outdoor luminaires that are shielded to limit upward light emission, and minimize sky glow and light trespass.² Especially useful information in evaluating outdoor luminaires includes ratings by lighting zone for backlight, uplight, and glare (BUG rating).
- **Adjustability/Flexibility** - products which demonstrate white light and beam spread adjustability.
- **Product depreciation data** - Information provided on product depreciation (luminaire depreciation test data/LM-80 data, temperature measurement and TMP location) will be considered by the judges in the bonus section of the competition. Next year this information will be required. Depreciation information is currently required for ENERGY STAR® qualification. See http://www1.eere.energy.gov/buildings/ssl/energy_star_criteria.html for details.
- Other bonus points may be awarded at the discretion of the judging panel.

Judging Panel

Next Generation Luminaires judges will be drawn from across the architectural lighting design community, creating a diverse panel of experts who design, specify, evaluate, research, and write about commercial SSL luminaires.

Awards

Recognizing the diversity of applications and design approaches, the competition will acknowledge all products that the judges consider merit worthy, as well as those selected as Best in Class. The resulting competition marketing materials will be an excellent resource for lighting specifiers seeking quality LED products currently ready for specification

² Please see IESNA TM-15-07 (revised), Luminaire Classification System for Outdoor Luminaires. www.iesna.org

Winners will be announced in early 2010 and winning products will be promoted throughout the ensuing year in a full color catalogue of competition winners, the [Next Generation Luminaires website](#), articles and press releases, and a traveling exhibit.

Timeline

2009 competition announced	LightFair International	May 5, 2009
Intent-to-submit forms due	See www.ngldc.org	Sept. 15, 2009
All entries due		Nov. 13, 2009
Judging Session	Underwriters Laboratories	Dec. 3-4, 2009
Winners notified	Via phone and email	Jan. 2010
Winners announced	Strategies in Light	Feb. 10, 2010

Appendix A: Final Submission Form Questions and Required Documentation

General information:

Provisional name of luminaire:
Entry category:
Brief description of luminaire (150 words):
Price range:
UL, CSA, ETL Listing:
Patents or patents pending on product:

Related document/product requirements:

- Product photos
- Marketing materials
- 2 product samples (same CCT for each sample)

Product replacement/warranty information:

LED module replacement information:
Driver replacement information:
Product recycling information or end of life policy statement:
Product warranty:

Related document requirements:

- Installation/serviceability instruction sheet
- Product warranty statement
- End-of-life policy statement (if available)

LED information:

LED chip/module manufacturer:
LED chip/module model number:
Number of LEDs used in the product:
LED drive current (mA):

Related document requirements:

- Full published LED data sheet

Luminaire Depreciation Information:

LED manufacturer estimated LED life (L70):
In situ temperature measurement in UL 1598 environment for 7 hours (if available):
Location of temperature measurement point (TMP) (if available):
See the SSL ENERGY STAR® [Manufacturer Guidelines for Submitting Qualified Products](#) document for more information on temperature measurements.

Related document requirements:

- Luminaire depreciation test data or LM-80 data (if available)
- Photo or schematic of temperature measurement point (if available)

Driver Information:

Driver brand:

Driver model number:

Related document requirements:

- Driver specification sheet
- Dimming interface specification sheet

Luminaire Performance Information:

Total light output of luminaire (lumens):

Measured total input power of luminaire (watts):

Power factor:

Correlated color temperature (CCT) of luminaire:

Color rendering index (CRI) of luminaire:

Color consistency information:

Related document requirements:

- IES LM-63-03 formatted test report following IES LM-79-08 (.ies format)
- Integrating sphere output report showing luminaire CRI, CCT, and spectral power distribution
- Color consistency specification statement (if available)

For product judging installations:

Voltage/current requirements:

Approximate weight:

Approximate overall dimensions (inches):

Installation Instructions: