CONSORTIUM FOR ENERGY EFFICIENCY

www.cee1.org 617-589-3949

INSTRUCTIONS FOR SUBMITTING COMMERCIAL LIGHTING PRODUCTS

To lighting and ballast manufacturers,

We invite you to list your qualifying products by providing CEE with the following documents:

1. **Qualifying "Higher Lumen" Lamp Submittal Form** (Appendix B)
2. **Qualifying "Higher Lumen" Ballast Submittal Form** (Appendix C)
3. **Contact Information Form** (Appendix D)
4. Product Specification Sheets in electronic or hard copy.

As high-performance commercial lighting programs are implemented by our members, CEE will provide annual updates of these program efforts and the types of approaches being used.

Please contact CEE Program Associate **Susan Loucks** at 617-589-3949, ext. 205, or sloucks@cee1.org with any questions.

CEE High-Performance T8 Specification

For Terms and Usage, see next page

Equipment	Specification
High Performance T8 Lighting Systems	Energy-efficiency specifications based on performance characteristics relating to 4' T8 lamp with a not-to-exceed nominal wattage of 32W. The lamps and ballast must be tested in accordance with the appropriate IESNA and ANSI reference standards, and must meet OSHA/NRTL and UL safety guidelines. These lamps should be applied in accordance with national best practices in lighting design such as (1) IESNA Recommended Practices and (2) Lighting power densities prescribed by local and state building codes.

Performance Characteristics for Lamps	
Mean System Efficacy	≥ 90 MLPW for Instant Start Ballasts ≥ 88 MLPW for Programmed Rapid Start Ballasts
Color Rendering Index (CRI)	≥ 81
Minimum Initial Lamp Lumens	≥ 3100 Lumens[1]
Lamp Life[2]	≥ 24,000 hrs at three hours per start.
Lumen Maintenance -or- Minimum Mean Lumens	≥ 94% -or- ≥ 2900 Mean Lumens

Performance Characteristics for Ballasts[3]

Ballast Efficacy Factor (BEF)

BEF = [BF x 100] / Ballast Input Watts

Based on:
(1) Type of ballast
(2) No. of lamps driven by ballast
(3) Ballast Factor

Instant-Start Ballast (BEF)			
Lamps	Low BF ≤0.85	Norm 0.85< BF ≤1.0	High BF ≥1.01
1	≥ 3.08	≥ 3.11	n/a
2	≥ 1.60	≥ 1.58	≥ 1.55
3	≥ 1.04	≥ 1.05	≥ 1.04
4	≥ 0.79	≥ 0.80	≥ 0.77
Programmed Rapid-Start Ballast (BEF)			
1	≥ 2.84	≥ 2.84	n/a
2	≥ 1.48	≥ 1.47	≥ 1.51
3	≥ 0.97	≥ 1.00	≥ 1.00
4	≥ 0.76	≥ 0.75	≥ 0.75

Ballast Frequency	20 to 33 kHz or ≥ 40 kHz
Power Factor	≥ 0.90
Total Harmonic Distortion	≤ 20%

[1] For lamps with color temperatures ≥4500 K, 2950 minimum initial lamp lumens are specified.
[2] Life rating is based on a Rapid Start or Programmed-Rapid Start Ballast tested in accordance to ANSI C82.11. When used on an Instant Start Ballast, life may be slightly reduced depending upon the operating hours per start.
[3] Multi-Voltage Ballasts must meet or exceed the listed Ballast Efficiency Factor when operated on at least one of the intended operating voltages.

Color Rendering: The effect that the spectral characteristic of the light emitted by the lamp has on the color appearance of the objects illuminated by the lamp.

Initial Lumens: Amount of luminous flux emitted by a lamp after 100 hours of operation at 25°C.

Lamp Life: Number of operating hours that a lamp lasts (based upon the lamp-ballast combination) at 3 hours duty cycle.

Lumen Maintenance: Ratio of mean lumens to initial lumens.

Mean Lumens: Amount of luminous flux emitted by a lamp at 40% of the rated lamp life.

Ballast Efficacy Factor (BEF): Measurement used to compare the efficiency of differing lighting systems. Ratio of ballast factor to the ballast supply power times 100.

Ballast Factor (BF): Measurement of the ability to produce light (lumens) from fluorescent lamps. Ratio of lamp lumens produced when the lamp or lamps are operated by a given ballast to the lamp lumens produced when the lamp or lamps are operated on a reference ballast.

Ballast Frequency: The frequency at which the ballast operates the lamp, measured in Hertz (Hz) or kilohertz (kHz).

Mean System Efficacy: Measure of "efficiency" of a lamp in terms of the ratio between mean visible output (mean lumen) to lamp/ballast electric power input (Watts), measured in Mean Lumens per Watt (MLPW).

Power Factor: The ballast Power Factor is the measurement of how effectively it converts the voltage and current supplied by the power source into watts of usable power delivered to the ballast.

Total Harmonic Distortion: Total harmonic distortion (THD) measures the degree to which the current wave shape is distorted from a sinusoidal wave, expressed as a percentage. Detrimental harmonic components may interfere with electronic equipment.

APPENDIX B - Qualifying "Higher Lumen" T8 Lighting System Lamp Submittal Form [1]

For Example Only

Manufacturer: General Electric

Product Name	Order Code	Model Number or Description	Color Temperature	Rated Average Life		Lumens		CRI	Lumen Depreciation
				IS 3hrs/start	RS/PRS 3hrs/start	Initial	Mean		
Starcoat HL	10327	F32T8/XL/SPX30/HL/ECO	3000K	24,000	24,000	3100	2915	85	0.94

Manufacturer: _____ **Contact Name/Phone:** _____

Product Name	Order Code	Model Number or Description	Color Temperature (K)	Rated Average Life		Lumens		CRI	Lumen Depreciation
				IS 3hrs/start	RS/PRS 3hrs/start	Initial	Mean		

[1] Please return to Susan Loucks, CEE Commercial Program Associate at (Fax) 617-589-3948 or 98 N. Washington Street Suite #101, Boston, MA 02114.

APPENDIX C – Qualifying "Higher Lumen" T8 Lighting System Ballast Submittal Form[1]

For Example Only

Manufacturer: Howard Industries

Product Name	Model Number or Description	Ballast Type	Voltage	Lamps	Ballast Factor	System Input Watts
HEX Electronic	EL1/3215-120HEX	Instant – Low Power	120V	1-32W	0.77	25W

Manufacturer: _____ **Contact Name/Phone:** _____

Product Name	Model Number or Description	Ballast Type	Voltage	Lamps	Ballast Factor	System Input Watts

[1] Please return to Susan Loucks, CEE Commercial Program Associate at (Fax) 617-589-3948 or 98 N. Washington Street Suite #101, Boston, MA 02114.

APPENDIX D – Contact Information Form

Manufacturer Name: _____ NEMA Member: Yes ☐ No ☐

Contact Name:_____Contact Title: _____

Phone Number:_____Fax Number: _____

Email: _____

Address: _____

City, State and Zip code: _____

Qualifying Products List Preferences

CEE's qualifying products list will be updated twice a year. How do you prefer to be notified about bi-annual updates? (Check all that apply)

Email ☐ Mail ☐ Phone ☐

Mail, fax or email this form including relevant attached appendices to:

Susan Loucks
Consortium for Energy Efficiency
98 N. Washington Street, #101
Boston, MA 02116

Email: sloucks@cee1.org
Phone: 617-589-3949 x205
Fax: 617-589-3948