

I. Mandatory Qualification Requirements

A. Technical Requirements

The Offeror shall self-certify or provide proof of certification that each recessed CFL downlight fixture proposed meets or exceeds the following technical requirements. Three (3) sample recessed CFL downlight fixtures of each offered model shall be included with the proposal for testing and promotion. These fixtures will not be returned to the Offeror.

1. Fixture(s) shall comply with ENERGY STAR[®] Fixture Specifications) and shall be eligible to use the ENERGY STAR[®] label. (See Table 1 - Indoor Fixtures at <http://www.epa.gov/appdstar/fixtures/pdf/mou.pdf>)

2. Fixtures shall also comply with the following specifications:

HOUSING	
Type and Dimensions Categories A, B, & C Category A & B Category C	<ul style="list-style-type: none"> • Type IC (Insulated Ceiling) rated • Maximum width of 14.5" (for use in 16" o.c. framing) • Minimum depth adjustment of 0.75" (to accommodate various ceiling thicknesses) <hr/> <ul style="list-style-type: none"> • Maximum height of 7.5" (for use in 2"x 8" joist construction) <hr/> <ul style="list-style-type: none"> • Maximum height of 9.25" (for use in 2"x 10" joist construction)
Restricted Air Movement	<ul style="list-style-type: none"> • Manufactured without penetrations between the inside of the recessed fixture and ceiling cavity and sealed or gasketed to prevent air leakage into the conditioned space <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Performance tested in accordance with ASTM E283
Support	<ul style="list-style-type: none"> • Fixture shall be adequately supported by a mechanism capable of the following: • Field adjustable from a minimum span of 14.5" through minimum span of 22.5" • Capable of attachment to wood framing or "T-bar" ceiling
Aperture Category A & B Category C	<hr/> <ul style="list-style-type: none"> • Maximum 7.0" <hr/> <ul style="list-style-type: none"> • Maximum 9.0"

LAMP REQUIREMENTS	
Lamp Base	<ul style="list-style-type: none"> • Lamp base(s) used shall be one (1) of the following NEMA designations: • G24q-2 • G24q-3 • GX24q-2 • GX24q-3 • GX24q-4 • Other lamp base(s), provided the proposed base(s), 1) offer(s) an overriding and compelling benefit, as described in the Offeror's proposal, and; 2) are approved by the evaluation committee as consistent with the overall purposes of this RFP
Lamp(s)	<ul style="list-style-type: none"> • Should a lamp (or lamps) be shipped with the fixture it shall meet the following four (4) lamp requirements:
Average Rated Life	<ul style="list-style-type: none"> • 10,000 hours minimum
Color Rendering Index	<ul style="list-style-type: none"> • ≥ 80
Correlated Color Temperature	<ul style="list-style-type: none"> • 2700-3000K
Lumen Maintenance	<ul style="list-style-type: none"> • $> 80\%$ @ 40% of rated life
PERFORMANCE	
Lumen Output	<ul style="list-style-type: none"> • Fixture shall deliver a minimum of 900 lumens (initial), net of fixture losses, when operated in an insulated ceiling environment
Fixture Efficiency	<ul style="list-style-type: none"> • 50% minimum, with 85% of the lumen output within the 0 to 60 degree zone
REFLECTORS	<ul style="list-style-type: none"> • Reflectors available for use in the fixture must include a clear anodized reflector
ELECTRICIAL CONNECTIONS	<ul style="list-style-type: none"> • Junction box with snap-on covers and ground wire, built-in Romex® clamps • 1/2" and 3/4" "pryouts" provided for straight-through conduit runs
POWER CHARACTERISTICS	
Input Voltage and Frequency	<ul style="list-style-type: none"> • 120 volts, 60 Hz
Operating Frequency	<ul style="list-style-type: none"> • $> 40\text{Khz}$
OPERATING CHARACTERISTICS	
Starting Temperature	<ul style="list-style-type: none"> • Minimum 32°F (0°C)

Run-up Time	<ul style="list-style-type: none"> Run up time shall be a maximum of 3 minutes per ANSI C78.5, clause 3.11 and 4.8
BALLASTS/ELECTRONICS	
Thermal Protection	<ul style="list-style-type: none"> “Class P”
End-of-lamp-life protection	<ul style="list-style-type: none"> Ballasts shall have automatic end-of-lamp-life protection
Dimming (if incorporated)	<ul style="list-style-type: none"> Dimming ballasts shall be two-wire and capable of dimming via standard SCR dimmers Fixture shall be capable of dimming to a minimum of 40% of full light output.
LISTINGS/USER PROTECTION	<ul style="list-style-type: none"> UL Damp Locations UL Feed Through UL 1570 listed for direct burial in insulation (type I.C.).
LABELING	<ul style="list-style-type: none"> In English, or English with additional languages UL, ETL, or CSA (Type I.C., Suitable for damp locations) Complies with Washington State Air Leakage Requirements Complies with ASTM E 283 Fixture shall clearly state any known incompatibility with photo controls, dimmers or timing devices

3. Fixtures are required to meet the safety standards of an accredited testing laboratory. Recessed CFL downlight fixtures must be tested, listed, and labeled by an organization accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or the American Association for Laboratory Accreditation (A2LA) as having the capability for testing, listing, and labeling recessed CFL downlight fixtures. These organizations include Underwriters Laboratories (UL), Intertek Testing Services Performance Division (formerly ETL Testing Laboratories), Factory Mutual, and others. Listing and labeling are as defined in the National Electrical Code[®]. In addition, the Offeror shall certify that the recessed CFL downlight fixtures meet the Recessed CFL Downlight Fixture Specifications based upon the following test procedures:

References

Housing	
Restricted Air Movement	ASTM E283-91
Support	Certify compliance, but no test required
Aperture	Certify compliance, but no test required

Lamp Requirements	
Lamp Base	Certify compliance, but no test required
Average Rated Life	IESNA LM-65-91 using calibrated instruments traceable to NIST standards
Color Rendering Index (CRI)	IESNA LM-58-94 using calibrated instruments traceable to NIST standards
Correlated Color Temperature	IESNA LM-58-94 using calibrated instruments traceable to NIST standards
Lumen Maintenance	IESNA LM-66-00 using calibrated instruments traceable to NIST standards
Performance	
Lumen Output	Certify compliance, but no test required
System Efficacy	Initial lamp lumens from LM-66-00, de-rated by the ballast factor for the ballast used in the light fixture, yielding lamp/ballast system efficacy
Luminaire Efficiency	IESNA LM-41-98 using calibrated instruments traceable to NIST standards
Power Characteristics	
Input Voltage and Frequency	IESNA LM-66-00 using calibrated instruments traceable to NIST standards
Power Factor	IESNA LM-66-00 using calibrated instruments traceable to NIST standards
Electromagnetic Interference and Radio Frequency Interference	FCC test procedure. Code of Federal Regulations section 47.2, Subpart J.
Transient Protection	ANSI C78.375
Operating Frequency	ANSI C82.11
Operating Characteristics	
Starting Temperature	Certify compliance, but no test required
Starting Time	Certify compliance, but no test required
Run-up Time	Certify compliance, but no test required
Ballasts/Electronics	
Sound	Certify compliance, but no test required
Thermal Protection	UL 935
Lamp Current Crest Factor	ANSI C82.11
End-of-lamp-life protection	Certify compliance, but no test required
Listings/User Protection	UL 1570