

Specification for RETROFIT HPL Kit 120V

A. General

1. This Retrofit HPL is intended to upgrade an existing incandescent fixture to an LED fixture while utilizing the existing housing and electrical connection, while retaining the output levels and dimming capabilities.
2. This Retrofit HPL will meet or exceed energy efficiency standards for CSA/UL and the US Department of Energy's Energy Star program.
3. This Retrofit HPL will have a listing of UL1593C and UL8750.
4. This Retrofit HPL will work with SCR forward and reverse-phase dimming, two-wire dimmers, IGBT, TRIAC, and Sine Wave dimmers.
5. This Retrofit HPL shall have no greater droop than 3% in a plenum ambient room temperature of 30 degrees Celsius.
6. This Retrofit HPL shall dim completely from full on to no light being emitted without flicker, strobing, or other visual distraction.
7. The entire Retrofit HPL assembly shall be UL, CSA, or ETL listed.
8. The Retrofit HPL must be made in the USA.

B. Physical Product

1. The base Retrofit HPL shall weigh no greater than 3.5 pounds.
2. The Retrofit HPL shall come equipped with an electrical connection, such as a screw connector or bare wires, to attach to the existing product.
3. The Retrofit HPL shall have a driver chamber utilizing a plastic shell intended for custom driver and heat sink attachment.
4. The Retrofit HPL shall have a single solid heat sink that dissipates heat from the LED Chip-on-Board (COB).
5. The Retrofit HPL shall have a single COB emitter of LEDs. Multiple chips or individual LEDs are not permissible.
6. The Retrofit HPL may utilize a fan for cooling, but it cannot be any louder than 21 dB at 1 meter.
7. The Retrofit HPL shall use an interchangeable reflector system that requires no tools to change or replace reflectors for any reason during or after installation.
8. The Retrofit HPL body shall have an attachment that allows for easy installation of the Retro unit into the lens portion of an ETC Source4 PAR.

C. Electrical

1. The Retrofit HPL shall operate on 110 to 120 volts alternating current.
2. The Retrofit HPL shall dim smoothly on forward and reverse-phase dimming, two-wire dimmers, IGBT, TRIAC, and Sine Wave dimmers.
3. The Retrofit unit shall have an adapter that transmits electricity from the lamp socket to the Retrofit HPL unit.
4. The Retrofit HPL shall function as a constant on product on a non-dimming system.

5. The driver shall have a power factor of .96 or higher.
6. The Retrofit HPL shall have no current draw when in the non-light-emitting state.

D. Thermal

1. The Retrofit HPL shall have a fan, as aforementioned, that shall be no greater in noise output than 21 dB at 1 meter.
2. The fan shall change in velocity to correspond with the output of the product.
3. The fan shall be rated for greater than 50,000 hours of use.
4. The fan shall be serviceable.
5. The fan shall be unobtrusive.
6. Case temperature of the LED Driver shall not reach higher than 30 degrees Celsius in an ambient room temperature of 25 degrees Celsius.
7. LED Driver case shall be constructed with a thermistor to provide overtemp protection in case of fan failure.
 - a. In the event of overheating, the LED Electronics shall reduce current to LED to protect the chip.
 - b. In extreme cases, the fixture will shut off altogether until the product cools to an acceptable temperature.

E. Optical

1. The Retrofit HPL shall produce a nominal 120-degree cone of light.
2. The Retrofit HPL shall come equipped with a device allowing reflectors to be changed out in the field without tools.
3. Standard reflector options shall be as follows.
 - a. Short – 26 Degree
 - b. Short – 40 Degree
 - c. Short – 59 Degree
 - d. Short – 70 Degree

F. Light Emitting Diode

1. The LEDs shall utilize Chip-On-Board construction.
2. The initial output shall be 10,611 Lumens
3. The LEDs shall have a 3,000K color temperature with a CRI of greater than 80.
4. LED chips are to be sorted using the 3 Step MacAdam System.

G. Dimming Performance

1. The Retrofit HPL shall dim in a smooth, even manner without pops, flicker, or strobing across units while dimming.
2. The Retrofit HPL shall use Constant Current Reduction (CCR) for the method of dimming.
3. Pulse Width Modulation (PWM) is not an acceptable alternative.

H. Quality Assurance

1. All Retrofit HPLs shall bear the manufacturer's label, which shall include the following.
 - a. Manufacturer's name and address
 - b. Manufacturer's 1-888 telephone number
 - c. Manufacturer's website
 - d. Product listings, CSA for example
 - e. Energy Certifications
 - f. Power Rating
 - g. Unit type listing output
 - h. Color temperature
2. Each Retrofit HPL unit shall have a unique serial number on the outside of the product, which is easily recognizable as such.
3. All Retrofit HPLs shall be tested after being completely assembled by dimming up and down in a loop for no less than 12 hours. Each fixture will then be evaluated to make sure all parts and diodes are functioning correctly before shipping.
4. All Retrofit HPLs will be individually packaged in a way to protect them during shipping.
5. All Retrofit HPLs shall have installation instructions included with each shipment.
6. The Retrofit HPL manufacturer shall have a phone number and personnel on hand to talk an installer through any issues that may arise.