

**STATE OF NEW JERSEY
DEPARTMENT OF TRANSPORTATION
TRENTON, NEW JERSEY 08625**

METRIC SPECIFICATIONS FOR SIGN LUMINAIRES, MERCURY VAPOR TYPE

N.J. Specification No. EBM-SL-1

Effective Date: July 1, 2001

New Jersey Department of Transportation Specifications for Sign Luminaires, Mercury Vapor Type.

The purpose of these specifications is to describe minimum acceptable design and operating requirements for Sign Luminaires, Mercury Vapor Type.

GENERAL - I

- 1-1 Sign luminaires shall be of the mercury vapor type designed for sign mounting and for use with a horizontally mounted lamp as specified in the contract documents (or bid documents). The luminaire shall be equipped with an integral ballast.
- 1-2 Sign luminaires shall consist of a weathertight die cast aluminum housing containing reflector, integral ballast, ballast cover, lamp socket and conduit mounting clamps.
- 1-3 The optical assembly housing shall consist of a main housing and a refractor door assembly with separate hinges at the front, and spring-tempered latches at the side of the housing to allow for easy removal of the lamp and access to other components, with adequate provisions against accidental disengagement of the door. All hinges and latches shall be stainless steel.
- 1-4 Entry to the sign luminaire shall be through one hole tapped for 21 millimeter (minimum) conduit, located on side.
- 1-5 All hinges shall be cast aluminum and latches shall be stainless steel. The unit shall have a die cast aluminum visor so that a minimum of light will be directed toward the roadway.
- 1-6 Luminaire shall be equipped with mounting bosses to allow the luminaire to be mounted to sign support as specified in the contract documents (or bid documents).
- 1-7 The fixture wire shall be capable of withstanding all adverse effects of moisture, corrosive atmospheres and various temperatures associated with the operation of the sign luminaire.

OPTICAL ASSEMBLY - II

- 2-1 Optical assembly shall consist of reflector, refractor assembly, lamp socket and terminal block.
- 2-2 The reflectors shall be detachable type fabricated of aluminum alloy polished with alzak processed to a specular finish with overall weather reflector treatment to prevent tarnish and the edge shall be flanged for additional strength.
- 2-3 The refractor assembly shall consist of a single piece, pressed prismatic refractor and a die cast aluminum door frame. The refractor shall be mechanical shock and thermal shock resisting crystal glass. A single piece, heat, moisture and compression resistant gasket shall be fitted to the refractor assembly. The refractor shall have a smooth outer surface and a prismatic inner surface which shall have an intricate array of prisms.
- 2-4 The terminal block shall have compression screw type terminal to accept incoming voltage lines. Terminal shall accommodate #10 AWG wire.
- 2-5 Luminaire shall be equipped with a porcelain enclosed, heavy duty, anti-vibration, mogul based lamp socket. Socket shall be preset and position oriented to keep the lamp in its proper reflector orientation.
- 2-6 The photometric distribution of the luminaire shall conform with the photo-metric data specified in the contract documents (or bid documents).
- 2-7 The contractor or company shall submit for approval complete photometric data as follows:
 - A. Isolux curve. The curve shall indicate the lux based on a diffused sign 5.4 meters high and 4.5 meters wide with one luminaire mounted 300 millimeters below and 1.35 meters in front of the sign.
 - B. A curve, similar to the above, indicating candela per square meter based on the aforementioned size sign coated with retroreflecting Scotchlite #3870 white at a 360 meter viewing distance.
- 2-8 Photometric data shall be supplied for each type of luminaire submitted. The data supplied shall consist of a computerized printout of the luminaires specified. The data shall represent complete isolux charts, etc. The data is to be supplied in accordance with current I.E.S. Recommended Standard Format for Electronic Transfer of Photometric Data.

BALLAST ASSEMBLY - III

- 3-1 The ballast shall be composed of the core, coil, non-PCB type capacitor. The ballast shall be completely prewired to the lamp socket and terminal board. The non-PCB type capacitors shall be so located or positioned that they will not be in the direct stream of heat radiated from the ballast coils and the lamp socket. The ballast coils shall be protected with insulation of the highest grade, capable of withstanding all adverse effects of moisture, corrosive atmospheres and high temperature.

- 3-2 The integral ballast shall be of an autoregulator type. The power factor shall be over 90 percent. Ballast shall provide regulation to within plus or minus 5 percent variation in lamp wattage with a plus a minus 10 percent variation in primary voltage. The losses from the ballast shall not exceed 20 percent of the lamp wattage. The ballast shall be multi-tap (120, 208, 240 and 277 volts), unless otherwise specified on contract documents (or bid documents).

INSTRUCTIONS AND GUARANTEE - IV

- 4-1 Upon request, one wiring diagram and installation manual shall be provide with each luminaire.
- 4-2 No changes or substitutions in these requirements will be accepted unless authorized in writing. Inquiries regarding this specification shall be addressed to the Manager, Office of Traffic Signal and Safety Engineering, New Jersey Department of Transportation, 1035 Parkway Avenue, P.O. Box 613, Trenton, New Jersey 08625.
- 4-3 The luminaire shall carry a one year guarantee from the date of delivery against any imperfections in workmanship and material.
- 4-4 The company agrees upon the request of the Manager, Office of Traffic Signal and Safety Engineering to deliver to the Office, a sample of the luminaire to be supplied in compliance with these specifications for inspection and test before acceptance. After completion of the test, the sample shall be returned.