

Design TU-24

... for underpass & tunnel lighting applications



Heavy gauge aluminum
No visible fasteners
Aircraft type latches
Heat and impact resistant lens

METROLUXTM
Roadway Lighting Solutions

Considerations for Underpass Lighting



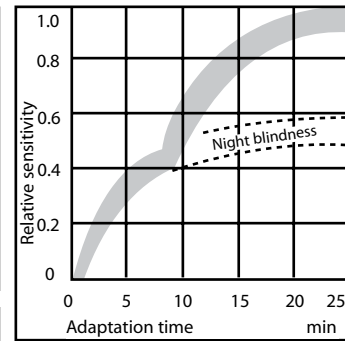
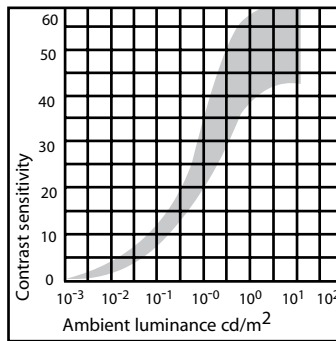
Design TU-24 Luminaire

Design values for underpass lighting
Underpass lighting levels should duplicate, as much as possible, the lighting values used on the adjacent roadways. Because of limitations on luminaire mounting height and spacing, it may be necessary to provide somewhat higher levels of lighting in the underpass to achieve the required underpass uniformity values.

In addition, where roadways are not continuously lighted during nighttime hours, lighting of underpasses should be considered when unusual critical roadway geometry occurs under or adjacent to the underpass.

Illuminating an underpass effectively requires adequate brightness, with a minimum of glare, both by day and night.

Luminance and its effects on the human eye



Visual faculties

Vision is a complex process performed in the eye, on the retina, in the optic nerve and in the brain.

Safety in road traffic demands:

- high contrast sensitivity,
- high visual acuity,
- fast perceptive reaction,
- good color perception.

Contrast sensitivity

is the ability to distinguish between different brightness levels in the field of vision. Like other visual faculties, it depends on the level of ambient luminance. The higher the luminance, the greater the degree of road safety.

Adaptation

This is the eye's adjustment to the luminance levels in the field of vision. The adjustment is made by pupillary action, retinal sensitization and changes in the pathways of the optic nerve. The process of adaptation can take several minutes.

Information obtained from "Good lighting for safety on roads, paths and squares" Vol. No. 3
Published by Fordergemeinschaft Gutes Licht, Frankfurt, Germany.

Design and Construction Features



UL and C-UL Listed - all Design TU-24 fixtures are UL-Listed for use in both the U.S. and Canada.



Reflector Type 12A

One-piece spun aluminum.

Reflector Type 24B

One-piece hydroformed faceted specular aluminum.

Reflector Type 24C

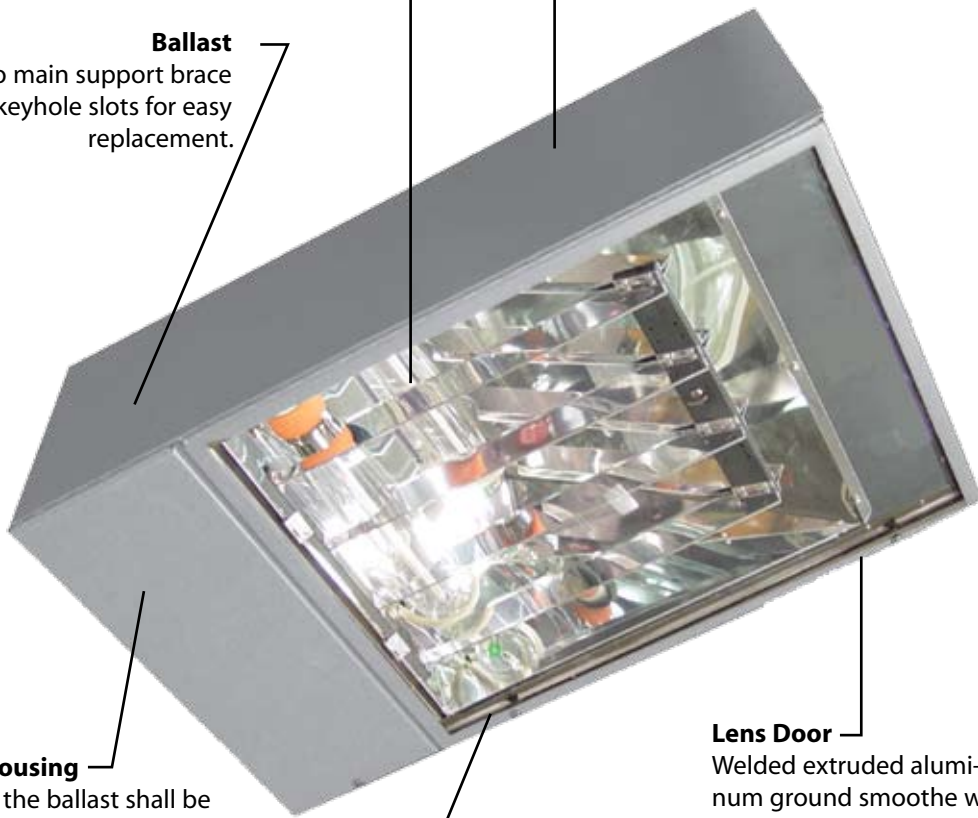
One-piece hydroformed specular aluminum.

Housing

One-piece internally continuously welded aluminum housing. All welds ground smooth without exposed hardware. Painted Bronze finish.

Ballast

Mounted to main support brace with keyhole slots for easy replacement.



Ballast Housing

Access to the ballast shall be through a hinged door cover secured by a 1/4 turn fastener.

Gasket

Silicone-impregnated Dacron allow breathing during energizing and de-energizing.

Lens Door

Welded extruded aluminum ground smooth with painted Bronze finish. A piano-type hinge made of stainless steel, runs the entire length of the door.

Housing: Design TU-24 luminaire shall be constructed of heavy gauge welded aluminum and ground smooth with one piece construction providing exceptional strength and rigidity. This ingenious construction is achieved with no visible fasteners. Reflector with a lamp socket assembly is mounted on a separate compartment. The ballast compartment wiring is isolated from the lamp section. Access to the ballast compartment shall be through a hinged door cover, secured by a 1/4 turn fastener. The ballast compartment shall serve as the luminaires's splice box. Exterior finish is painted powder coated polyurethane Bronze.

Latches: Aircraft type quarter turn latches with leaf spring retainers. These latches combine the advantages of ease of operation along with maximum resistance to fatigue and vibration.

Gasketing: The entire lens assembly shall be gasketed using silicone-impregnated Dacron gasketing. This material will permit the luminaire interior to "breathe" during periods of energizing and de-energizing, but will exclude all dirt, insects and moisture.

Optical System: Reflector type 14G is heat resistant polysulfane, plated with aluminum and protected by a coating of silicone oxide.

Reflector type 24B is one piece of hydroformed faceted specular aluminum with flats to re-direct reflected light away from the arc tube of the lamp.

Lamp Support: Socket and mounting bracket assembly is mounted to the housing enabling the lamp to be adjusted for peak candlepower angles and cut-off control. Socket assembly includes a lamp stabilizer, protecting the arc tube from vibration.

Lens: Optically flat clear tempered glass is heat and impact resistant. The lens doors are welded extruded aluminum ground smooth and powder coated same as fixture housing. A concealed hinge is mounted to main housing.

Ballast Type: All ballasts furnished are high power factor (90% minimum). Mercury vapor, metal halide, and high pressure sodium ballasts incorporate CWA (constant wattage auto transformer) circuitry providing 10-10% voltage-to-wattage regulation. A 10% input voltage variation results in a 10% lamp wattage variation. All ballasts provide reliable lamp starting to -20 degrees Fahrenheit. All ballast components; core and coil, capacitors and starter, are mounted to main support brace.

Mounting System: Each luminaire shall be equipped with a welded aluminum internal slip fitter for mounting to pole tenon. Fitter shall accommodate a 2" (2.375 O.D.) pipe. A 3 degree leveling adjustment shall be incorporated into slip fitter design.

Labels: All luminaire U.L. approved and IBEW labels.

Ordering Information

Creating a Catalog Number for the Design TU-24 Luminaire

For each category in the table below, fill in the Catalog Number for each component or option desired.

Ordering Example:

TU-24 - F - MH400 - 240 - FD
1 2 3 4 5

1. Luminaire

TU-24

2. Distribution

Asymmetrical

3. Lamp Type & Wattage (All lamps are mogul base)

- HPS150 HPS400
 HPS250 HPS1000
 MV175 MV400
 MV250 MV1000
 MH175 MH400
 MH250 MH1000

4. Ballast Voltage

- 120 208 240
 277 480

5. Color

- LG Light Gray (Standard) DB Dark Bronze SL Silver
 BK Black BW Bone White CC Custom Color

6. Electrical Options

- RB Remote Ballast
 FD Single Fusing - 120V/277V
 FDC Single Fusing - 347V
 FDD Double Fusing - 480V
 FDFD Double Fusing - 208V/240V
 TB Terminal Block
 IRS Instant Restrike Starter (HPS HX-HPF only) 150W Max

7. Other Options

- WG Wire Lens Guard
 LMP Lamp Factory-Installed
 SRC Salt Resistant Coating (marine grade 3,000 hr.)
 PMP Pendant Mounting Plate

The MetroLux Advantage

Growing out of a rich 35-year tradition of optical precision, design and application leadership, MetroLux Lighting, a newly-formed division of Quality Lighting, focuses itself on creative roadway lighting solutions.

We welcome the opportunity to serve the needs of local, state and federal highway authorities, with highly-engineered lighting products for roadways, interchanges and highway signage. For more information about MetroLux Lighting or our products and services, please contact us!

Design Services

MetroLux Lighting's Applications Department has the experience necessary to lay out any lighting job, regardless of its complexity. Luminaires are selected based on lighting requirements, as well as such considerations as safety, ease of maintenance and economy. Reflector systems are selected to provide the most efficient use of the light generated by the lamp, with lighting distributions to best suit the geometry of the roadway. A point-by-point layout can be provided, which shows the light levels across the grid.