

BOSTON TRANSPORTATION DEPARTMENT
Specifications for
8 And 12 Inch Traffic Signals

Housings

Shall be per Massachusetts Highway Department (MHD) specifications and on their current approved list. Housings shall be of die-cast aluminum alloy or polycarbonate, rigidly constructed, and with a smooth outer surface.

Housings shall be constructed to hold securely in place the optical units hereinafter described. Each housing shall be adaptable for post-top, bracket or rigid mast-arm vertical mounting. Assembled housings shall be dust and moisture proof. Each housing shall be equipped with doors of die-cast aluminum or polycarbonate. Each door shall be designed to hold the lens and shall be hinged and fastened by a wing nut or nuts of corrosion resistant material or equivalent to insure uniform pressure around door frame. Each lens shall be provided with a one piece neoprene gasket to cushion and seal lens inside and outside. Weather-resisting, mildew-proof gasketing shall be provided between the body of the housing and each door. Housings shall be provided with attached tunnel visors. Full circle visors are not acceptable. The assembled housings shall be made up of individual sections fastened together in a satisfactory mechanical manner. The assembly of three or more sectional units shall present a smooth unbroken contour of pleasing appearance. Each end of the housing assembly shall have an opening for the slip fit of a 1 1/2 inch pipe nipple. The area around this opening shall be reinforced and shall have integrally die-cast locking notches to provide positive signal positioning and insure against head rotation. Attachment to a slip fitter shall be made with a 1 1/2 inch pipe nipple and locknuts that match the integrally die-cast notches in the housing.

Multiple-way housings are to be assembled by grouping one-way housings on suitable arms to form the required number of adjustable signals. The individual one-way housings are to be attached to arms of suitable length to permit free rotation of the housings without interference so that they may be aimed in any desired direction and locked securely in place. All bracket arms shall consist of one and one half (1 1/2") inch galvanized pipe with threaded ends and one and one half (1 1/2") galvanized rail fittings. Rail fittings on bottom bracket arms shall have threaded caps for wiring access.

With each assembled one-way housing, there shall be supplied one ornamental cap; such cap when used, is to act as a cover over the hole in the top section and is to be of such design that no water may enter the housing.

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Slip fitters shall be of malleable iron, strongly constructed, and of hollow design to permit the carrying of wires from the housing to the post or arm without their exposure at any point. Slip fitters must be of such character as to permit free adjustment and locking of the housings in the desired horizontal position. Each slip fitter shall be of such design that it will slip over a male projection on the top of the post, the diameter of this projection being the same as the outside diameter of a four (4) inch pipe and not less than four (4) inches long and the slip fitter being adjusted by means of 3/8 inch square head, cup point, anodized steel set screws. Slip fitters will not be required unless specified in the purchase order.

Painting

All exposed metallic parts of housings or of slip fitters must have at least two coats of enamel paint. Color code to be as follows:

Option #1:

| | | | | |
|---------------------------|---------|-----|------------|-------|
| Housings: | Back | --- | Black | |
| | Front | --- | Black | |
| Visors: | Outside | --- | Black | |
| | Inside | --- | Dull Black | |
| Bracket & Arm Assemblies: | | | --- | Black |

Option #2:

| | | | | |
|---------------------------|--------------------|-----|------------|--------|
| Housings: | Back | --- | Yellow | |
| | Front Housing Door | --- | Black | |
| Visors: | Outside | --- | Yellow | |
| | Inside | --- | Dull Black | |
| Bracket & Arm Assemblies: | | | --- | Yellow |

The option to be used for a particular project will generally be specified on the plans or in the special provisions. If the option is not defined, the contractor shall request direction from the BTD Engineer.

Specifications For 8 And 12 Inch Traffic Signals.....(cont.)

Optical Units

These units shall consist of sockets, reflectors, lenses and other necessary equipment, exclusive of lamps, which shall be designed to give clearly visible signal indications within an angle of at least 45 degrees and for a distance of from ten feet to three hundred feet and which shall be of such design as to minimize the effect of all phantom light. The optical units shall be readily accessible for maintenance.

Parts of the optical units shall be in accordance with the following detailed specifications:

Sockets

The socket shall have a heat, moisture, weatherproof and vibration-proof phenolic housing. Sockets shall be weatherproof, vibration-proof and so constructed as to focus correctly a 125-volt traffic signal lamp as specified below, and be held firmly in position. Sockets shall be designed with a center contact of phosphor-bronze, or equivalent composition, and shall not twist or turn when lamps are installed. The ring, or outer contact shell, shall be securely fastened to the socket base so that it will not become loose, break out, or turn when replacing lamps.

Lamps

The housing when furnished as part of a field installation shall be supplied with 125-volt standard traffic signal lamps with a rated life of 8000 hours minimum for each signal section to be as follows:

For 8 Inch Housings:
69 watt lamps and approximately 675 initial lumens
2 7/16" Light Center

For 12 Inch Housings:
116 watt and approximately 1950 initial lumens
3" Light Center

Wiring

A suitable terminal block for connection of the wires from the socket and the incoming wires to the traffic signal housing shall be provided in the signal housing. The color of wires attached to the terminal block shall match wire colors from the sockets to the block.

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Reflectors

Each reflector shall be of such design that the light from a properly focused traffic lamp will reflect the light rays parallel. Each reflector shall have a maximum diameter at the point of contact with the lens of approximately eight (8) inches for eight (8) inch housings and approximately twelve (12) inches for twelve (12) inch housings. Reflectors shall be aluminum. The aluminum reflector shall be of alzak process aluminum and spun to a shape which will prevent reflection of external light. The reflecting surface shall be totally free of flaws, scratches, defacements or mechanical distortion.

Lenses

Each lens shall consist of a round one-piece convex multi-prismed polycarbonate material which, when mounted, shall have a visible diameter of approximately eight (8) inches in diameter for eight (8) inch housings and twelve (12) inches in diameter for twelve (12) inch housings. The lens shall be uniformly colored, free from bubbles and striae, three sixteenths (3/16") inch to five sixteenths (5/16") inch in thickness, smooth on the outside surface, and shall be of high light transmission. Lenses shall be of such character as to distribute light and not diffuse it. The distribution of the light beam shall be asymmetrical in a downward direction. The lenses shall be of such design as to give an outward and downward distribution of light and shall tend to prevent a distribution of light above the horizontal. Lenses shall be marked in some manner so as to indicate the top and bottom of each lens.

Guarantee

The vendor shall guarantee all equipment in this order for a period of one year from the date of delivery or installation.