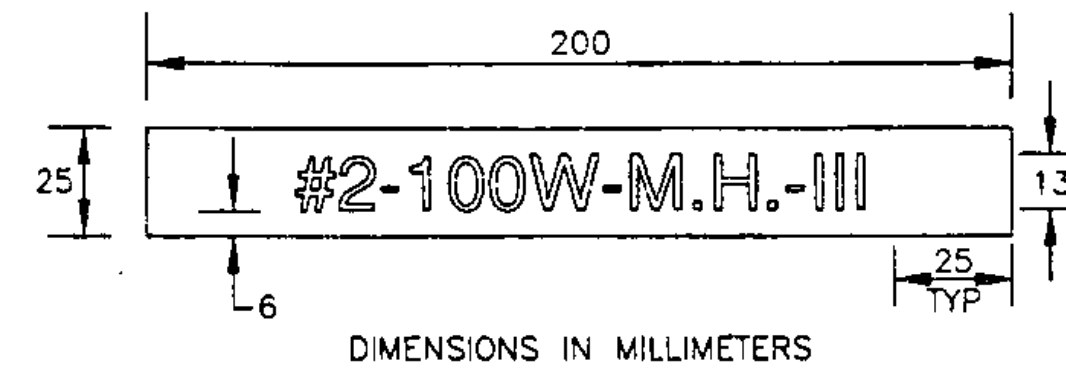


DETAILS FOR TAGS ATTACHED TO STREET LIGHT POLES



LEGEND: BLACK OR WHITE (NON-REFL.) - STAMPED PRIOR TO PRINTING/PAINTING.
BACKGROUND: NATURAL ALUMINUM OR SAME AS POLE FINISH.

- NOTES:
1. THE TAG SHALL BE MOUNTED ON ALL STREET LIGHT POLES IN SUCH A MANNER AS NOT TO BE EASILY REMOVED, SUCH AS WELDED, RIVETED, OR BOLTED WITH VANDAL PROOF BOLTS.
 2. THE LETTERS SHALL BE PUNCHED, STAMPED, ENGRAVED, OR PHOTO-ETCHED. PUNCHING, STAMPING OR ENGRAVING SHALL PENETRATE AT LEAST 50% OF THE BASE MATERIAL THICKNESS.
 3. THE BASE MATERIAL FOR THE TAG SHALL BE ALUMINUM WITH A MINIMUM THICKNESS OF 2.5 mm.
 4. THE TAG SHALL BE ATTACHED TO THE POLE ABOVE THE HANDHOLE, 15 mm MAXIMUM. IF THE POLE HAS A TRANSFORMER BASE, ATTACH TAG TO COVER.

GENERAL STREET LIGHT NOTES

CONCRETE BASES

THE OFFSET FOR CONCRETE BASES (FACE OF CURB OR EDGE OF PAVEMENT TO CENTER OF CONCRETE BASE) TO BE A MINIMUM OF 0.7 m OR AS OTHERWISE NOTED ON THE PLANS.

WHEN CONCRETE BASES ARE INSTALLED IN SLOPING GROUND, THE GREATEST EXPOSED HEIGHT TO KEEP ALL OF THE TOP ABOVE GROUND MUST BE DOUBLED AND THEN ADDED TO THE MINIMUM DEPTH FOR THE TOTAL BASE HEIGHT.

CARE SHOULD BE TAKEN WHERE CONCRETE BASES, DRAINAGE STRUCTURES OR UTILITIES ARE CLOSE TOGETHER.

POLES, ANCHOR BASES AND ARMS

ALUMINUM STREET LIGHT POLE SHAFT WALL THICKNESS SHALL BE AS NOTED IN THE SPEC. BOOK OR ON STANDARD SHEETS OR WILL BE GOVERNED BY MOUNTING HEIGHT, ARM LENGTH, NUMBER OF ARMS AND LUMINAIRE WEIGHT, AND EFFECTIVE PROJECTED AREA.

ALL NEW STREET LIGHT POLES AND LUMINAIRE ARMS FOR THIS PROJECT SHALL BE ALUMINUM IN ACCORDANCE WITH SUBSECTION 753.01 (B).

LUMINAIRES

LIGHT DISTRIBUTION IS BASED ON GENERAL ELECTRIC PHOTOMETRIC DATA DRAWINGS #35-178271, MEDIUM CUT-OFF, TYPE III DISTRIBUTION DATED 08-28-90 AND #35-178523, SHORT CUT-OFF, TYPE V DISTRIBUTION DATED 04-29-91.

THE ABOVE PHOTOMETRIC DATA DRAWINGS WERE USED FOR DESIGN PURPOSES ON THIS PROJECT. OTHER MANUFACTURER'S PRODUCTS MAY BE SUBSTITUTED IF THE INSTALLED LUMINAIRE LIGHT UTILIZATION AND MINIMUM LUX ON THE PARKING AREA ARE AT LEAST AS GREAT AS THAT INDICATED BY THE ABOVE PHOTOMETRICS.

CONDUIT

A 51 mm (ID) MINIMUM CONDUIT SHALL BE USED AT ALL LOCATIONS UNLESS OTHERWISE NOTED ON THE PLANS. ALL CONDUIT SHALL BE AT LEAST SCHEDULE 40 P.V.C. OR RIGID GALVANIZED STEEL ELECTRICAL CONDUIT (AND CONFORM TO THE REQUIREMENTS OF UL-6), TYPE OF CONDUIT (P.V.C. OR STEEL) SHALL BE NOTED ON THE PLANS.

CONDUIT SLEEVE

MINIMUM WALL THICKNESS FOR RIGID PLASTIC PIPE SLEEVES SHALL BE 2.9% OF THE DIAMETER. ALL CONDUIT RUNS UNDER ROADWAY SHALL BE INSTALLED IN RIGID PLASTIC OR STEEL PIPE SLEEVES. THE SLEEVES SHALL EXTEND TO WITHIN 0.6 m OF THE SIDE OF A CONCRETE BASE OR PULLBOX. WHERE NO CONCRETE BASE OR PULLBOX IS PRESENT, THE SLEEVE SHALL EXTEND 1.2 m BEYOND THE OUTSIDE EDGE OF SHOULDER OR FACE OF CURB. BACKFILLING AROUND A SLEEVE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

WIRE

ALL WIRING BETWEEN THE METER AND/OR POWER SOURCE AND THE FIRST POLE AND/OR PULLBOX AND BETWEEN POLES AND/OR PULLBOXES SHALL BE COPPER AND SIZED AS SPECIFIED ON THE PLANS. ALL WIRE TO HAVE TYPE XHHW INSULATION OR EQUIVALENT.

GROUNDING

ALL CONDUIT MUST INCLUDE A GROUNDING CONDUCTOR, AND RIGID STEEL CONDUIT SHALL BE PROPERLY CONNECTED AT THE JOINT SO AS TO BE WATERTIGHT AND MAINTAIN ELECTRICAL CONTINUITY AND HAVE GROUNDING BUSHINGS SO AS TO ACT AS A GROUND CONDUCTOR.

ALUMINUM WIRE SHALL NOT BE USED FOR GROUND WIRE.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS, NO SPLICES, BUT MAY HAVE TAPS CONNECTED TO IT AT THE SERVICE CENTER AND POLE BASES.

GENERAL

THE LOAD ON EACH BRANCH OF A THREE WIRE CIRCUIT SHALL BE AS BALANCED AS POSSIBLE, LOAD TO NEUTRAL.

THE LAST CONCRETE POLE BASE AT THE END OF EACH CIRCUIT SHALL HAVE A CONDUIT SWEEP WITH CAP INSTALLED FOR FUTURE USE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY ELECTRICAL PERMITS.

STREET LIGHTING DESIGN PARAMETERS

AVERAGE MAINTAINED HORIZONTAL ILLUMINATION (IN LUX)	REQUIRED MIN.	ACTUAL
PARKING AREA	10.76	11.51

LUMINAIRE DIRT DEPRECIATION	0.90
LAMP LUMEN DEPRECIATION	0.65
COMBINED LAMP OR MAINT. FACTOR	0.59
COEFFICIENT OF UTILIZATION	0.46
UNIFORMITY RATIO	4 : 1
MIN. LUX ON PARKING AREA	2.15
	3.01

UTILIZATION CURVE

GENERAL ELECTRIC PHOTOMETRIC DATA
LIGHTING SYSTEMS BUSINESS DEPARTMENT
INDIANAPOLIS, IN, U.S.A. 46206

PER 1000 LAMP LUMENS

LUMINAIRE
SPMH
REFLECTOR 232112-13
REFRACTOR clear flat glass
SOCKET B

LAMP
70-175 WATT CLEAR
METAL HALIDE
M70/U-MVR175/U/MED

ANSI/IES TYPE 1972
MEDIUM CUTOFF III
CIE TYPE SEMICUTOFF

ISOFOOTCANDLE CURVES

GENERAL INFORMATION

TEST DISTANCE 7 METERS
MAX CANDELA 338.7
MAX CONE 72.5
MAX VERTICAL PLANE 67.8 / 292.2
MAX CANDELA AT 90° 0.0
MAX CANDELA AT 80° 7.1
NADIR FOOTCANDLES 1.004
NADIR CANDELA 229.8

MULTIPLY ALL LUMEN, CANDELA, AND FOOTCANDLE VALUES BY THIS RATIO
RATIO - ACTUAL LAMP LUMENS 1000

PHOTOMETRIC TEST IN ACCORDANCE WITH IES GUIDE

LIGHT FLUX VALUES	
LUMENS	PERCENT OF LAMP
DOWNWARD STREET SIDE	393 39.3
UPWARD STREET SIDE	0 0.0
DOWNWARD HOUSE SIDE	254 25.4
UPWARD HOUSE SIDE	0 0.0
TOTAL	656 65.6

PHOTOMETRIC TEST IN ACCORDANCE WITH IES GUIDE

TESTED DATE 1/1/96
APPROVED DATE 1/31/96

MOUNTING HEIGHT - FEET	9	11	13	15	17	19	21
FACTOR	2.78	1.86	1.33	1.00	0.78	0.62	0.51

35-178271 1 00

UTILIZATION CURVE

GENERAL ELECTRIC PHOTOMETRIC DATA
LIGHTING SYSTEMS BUSINESS DEPARTMENT
INDIANAPOLIS, IN, U.S.A. 46206

PER 1000 LAMP LUMENS

LUMINAIRE
SYMM
REFLECTOR 232929-01 (SYM)
REFRACTOR CLEAR FLAT GLASS
SOCKET FIXED MED BASE

LAMP
70-175 WATT CLEAR
METAL HALIDE
M70/U-MVR175/U/MED

ANSI/IES TYPE 1972
SHORT CUTOFF V
CIE TYPE CUTOFF

ISOFOOTCANDLE CURVES

GENERAL INFORMATION

TEST DISTANCE 25 FEET
MAX CANDELA 323.1
MAX CONE 68.5
MAX VERTICAL PLANE 0.0 / 360.0
MAX CANDELA AT 90° 0.0
MAX CANDELA AT 80° 2.9
NADIR FOOTCANDLES 0.088
NADIR CANDELA 14.8

MULTIPLY ALL LUMEN, CANDELA, AND FOOTCANDLE VALUES BY THIS RATIO
RATIO - ACTUAL LAMP LUMENS 1000

PHOTOMETRIC TEST IN ACCORDANCE WITH IES GUIDE

LIGHT FLUX VALUES	
LUMENS	PERCENT OF LAMP
DOWNWARD STREET SIDE	371 37
UPWARD STREET SIDE	0 0
DOWNWARD HOUSE SIDE	371 37
UPWARD HOUSE SIDE	0 0
TOTAL	742 74

PHOTOMETRIC TEST IN ACCORDANCE WITH IES GUIDE

TESTED DATE 1/1/96
APPROVED DATE 1/1/96

MOUNTING HEIGHT - FEET	9	11	13	15	17	19	21
FACTOR	2.78	1.86	1.33	1.00	0.78	0.62	0.51

35-178523 1x3 001

STREET LIGHTING NOTES AND DETAILS

PREPARED BY VSE DATE 1/96
CHECKED BY VSE DATE 1/96
DESIGN SUPERVISOR GAK DATE 1/96
PROJ. RICHMOND CMG PARK(4)

SHEET 16 OF 22 SHEETS