Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Florida Greenbook); Chapter 6 - Lighting, Pages 6-8 to 6-9.

Topic # 625-000-015 2018
Manual of Uniform Minimum Standards
for Design, Construction and Maintenance
for Streets and Highways

Table 6 – 1 Road Surface Classifications

Class	Q0*	Description	Mode of Reflectance
R1	0.10	Portland cement concrete road surface. Asphalt road surface with a minimum of 12% of the aggregates composed of artificial brightener or aggregates.	Mostly diffuse
R2	0.07	Asphalt road surface with an aggregate composed of minimum 60% gravel (size greater than 0.4 in.). Asphalt road surface with 10 to 15% artificial brightener in aggregate mix. (Not normally used in North America).	Mixed (diffuse and specular)
R3	0.07	Asphalt road surface (regular and carpet seal) with dark aggregates (e.g., trap rock, blast furnace slag); rough texture after some months of use typical highways).	Slightly specular.
→ R4	0.08	Asphalt road surface with very smooth texture.	Mostly specular.

* Q_0 = representative mean luminance coefficient.

E.3 Lighting Design Levels

The level of illumination for streets and highways should not be less than those shown in Table 6 – 2 Illuminance and Luminance Design Values. When adding supplemental lighting for pedestrian activity, ensure lighting is compatible with any existing lighting in the corridor and minimizes glare.

These levels are for the purpose of highway safety and do not apply to lighting levels required for crime reduction. Further information may be found in the ***AASHTO Roadway Lighting Design Guide (2005).***

COMMERCIAL AREA 1.1 LIGHTING SCHEDULE

CALLOUT	MANUFACTURER	MODEL	#	MOUNTING	HEIGHT	TILT	VOLTAGE	QUANTITY	DESC
L1	GE CURRENT	EVOLVE EALS	EALS04_D2AN730_____ies	WALL	15' UNLESS OTHERWISE SPECIFIED	0°	208V	9	TYPE II. 10,360 LUMEN.
L2	GE CURRENT	EVOLVE EALS	EALS04_F3AW750_____ies	POLE	25'	0°	240V	5	TYPE II. 15,750 LUMEN.
L3	GE CURRENT	EVOLVE EALS	EALS04_D3AW730_____ies	WALL	15' UNLESS OTHERWISE SPECIFIED	0°	240V	8	TYPE II. 9,980 LUMEN.
TOTAL:								**22**	

NOTES: PHOTOMETRIC DATA INCOROPRATES PROPOSED ROADWAY LIGHTING

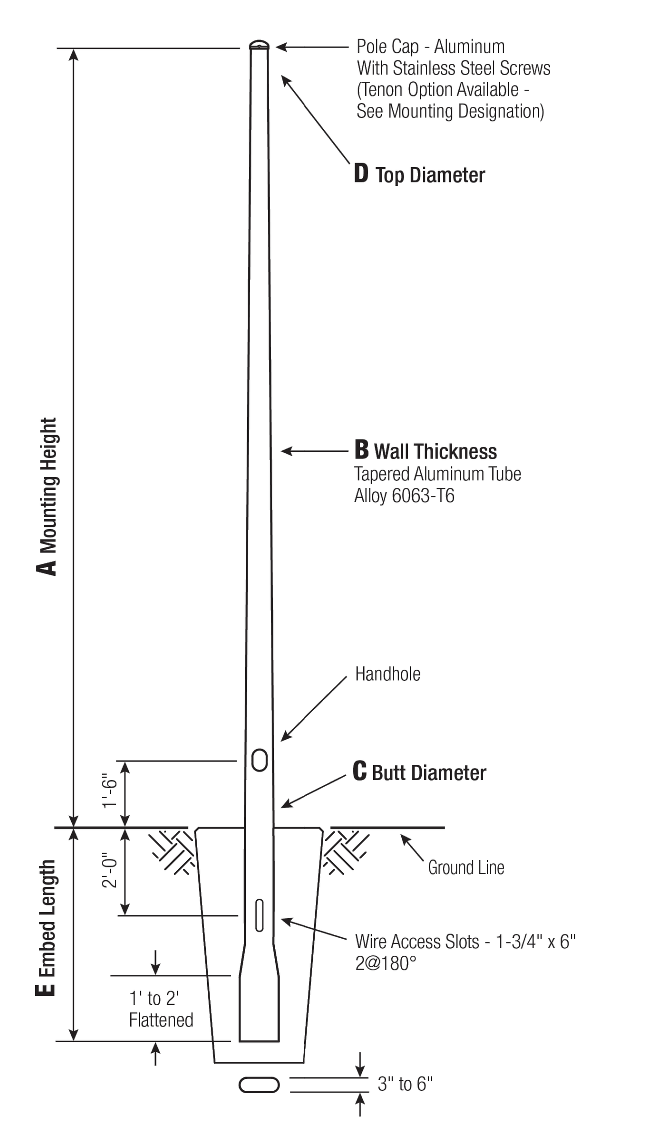
ERL1 SPEC SHEETS
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Table 6 – 2 Illuminance and Luminance Design Values

Roadway and Walkway Classification	Off-Roadway Light Sources: General Land Use	Illuminance Method – Average Maintained Illuminance (Horizontal): R1 (foot-candles) (min)	R2 (foot-candles) (min)	R3 (foot-candles) (min)	R4 (foot-candles) (min)	Illuminance Uniformity Ratio avg/min (max) (6)	Luminance Method – Average Maintained Luminance: Lavg cd/m2 (min)	Uniformity Lavg/Lmin (max)	Uniformity Lmax/Lmin (max)	Additional Values (both Methods): Veiling Luminance Ratio Lv(max)/Lavg (max)(3)
Principal Arterials (partial or no control of access)	Commercial	1.1	1.6	1.6	1.4	3:1	1.2	3:1	5:1	0.3:1
	Intermediate	0.8	1.2	1.2	1.0	3:1	0.9	3:1	5:1	0.3:1
	Residential	0.6	0.8	0.8	0.8	3:1	0.6	3.5:1	6:1	0.3:1
Minor Arterials	Commercial	0.9	1.4	1.4	1.0	4:1	1.2	3:1	5:1	0.3:1
	Intermediate	0.8	1.0	1.0	0.9	4:1	0.9	3:1	5:1	0.3:1
	Residential	0.5	0.7	0.7	0.7	4:1	0.6	3.5:1	6:1	0.3:1
Collectors	Commercial	0.8	1.1	1.1	0.9	4:1	0.8	3:1	5:1	0.4:1
	Intermediate	0.6	0.8	0.8	0.8	4:1	0.6	3.5:1	6:1	0.4:1
	Residential	0.4	0.6	0.6	0.5	4:1	0.4	4:1	8:1	0.4:1
Local	Commercial	0.6	0.8	0.8	0.8	6:1	0.6	6:1	10:1	0.4:1
	Intermediate	0.5	0.7	0.7	0.6	6:1	0.5	6:1	10:1	0.4:1
→	Residential	0.3	0.4	0.4	0.4	6;1	0.3	6:1	10:1	0.4:1
Alleys	Commercial	0.4	0.6	0.6	0.5	6:1	0.4	6:1	10:1	0.4:1
	Intermediate	0.3	0.4	0.4	0.4	6:1	0.3	6:1	10:1	0.4:1
	Residential	0.2	0.3	0.3	0.3	6:1	0.2	6:1	10:1	0.4:1

RTA
Round Tapered Aluminum Pole
No Arm — Direct Buried



Satin Aluminum or Powder Coated Finish per Customer Specification.

C Butt Dia.	D Top Dia.
5	3
6	4.5
7	4.5
8	4.5
9	4.5
10	6

C and D Dimensions in Inches

Pole

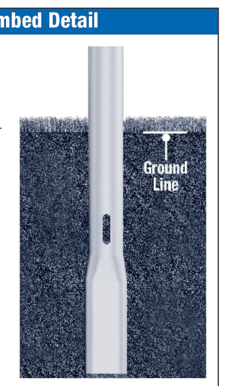
The pole shaft will be constructed of seamless extruded tube of 6063 Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated to produce a T6 temper.

Handhole

5" Butt Diameter - *2-1/2" x 5" Handhole with curved Lap Style Aluminum Door and two (2) SS Self-Tapping Attaching Screws. A Grounding Provision is provided as part of the handhole.*
6" Butt Diameter - *Reinforced, 3" x 5" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. A Grounding Provision incorporating a 3/8" diameter hole is provided opposite the Handhole.*
7"+ Butt Diameters - *Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.*

Embed Detail

Direct Buried Pole bottom section on 6"+ butt diameter poles will be partially flattened into an anti-rotational, oval cross section. Wire access will be provided 24" below ground line. Soil conditions vary by site. Foundation requirements should be determined by a qualified Structural Engineer with knowledge of jobsite soil conditions.

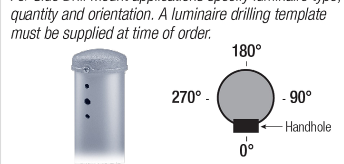


Vibration Damper

When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.

Mounting Designation

Side Drill Mount
For Side Drill Mount applications specify luminaire type, quantity and orientation. A luminaire drilling template must be supplied at time of order.



Tenon Mount - Welded or Spun
For Tenon Mount applications specify both Tenon diameter (2.375", 2.875", 3.5", etc.) and length (3", 4", etc.). Tenon style is factory option. Welded Tenon can be specified.



WARNING: *Do not install light pole without luminaire.*

A Mtg. Hgt.	B Wall Thk.	C Butt Dia.	E Embed Depth	Total Lum. Wt.	Maximum EPA 120	130	140	150	160	170	180	Old Catalog Number	Catalog Number
10	0.125	5	4	110	9.9	8.2	6.9	5.9	5.0	4.4	3.8	87907-0310X	RTA10B5AD-**
12	0.125	5	4	85	7.7	6.3	5.2	4.4	3.7	3.1	2.7	87907-0312X	RTA12B5AD-**
14	0.125	5	4	70	6.0	4.8	3.9	3.2	2.6	2.2	1.8	87907-0314X	RTA14B5AD-**
16	0.125	5	4	50	4.6	3.6	2.8	2.2	1.7	1.4	1.1	87907-0316X	RTA16B5AD-**
18	0.125	5	4	40	3.3	2.4	1.8	1.3	0.9	0.6	-	87907-0318X	RTA18B5AD-**
18	0.156	5	4	55	4.6	3.6	2.8	2.1	1.7	1.3	1.0		RTA18C5AD-**
20	0.125	5	4	40	2.2	1.5	0.9	-	-	-	-		RTA20B5AD-**
20	0.125	6	5	100	8.6	7.0	5.8	4.9	4.2	3.6	3.1	50-001	RTA20B6BD-**
20	0.156	6	6	135	11.5	9.4	7.9	6.8	5.8	5.0	4.4	50-002	RTA20C6BD-**
20	0.188	6	6	170	14.3	11.9	10.0	8.6	7.4	6.5	5.7	50-003	RTA20D6BD-**
20	0.156	7	6	210	17.3	14.4	12.2	10.5	9.1	8.0	7.0	50-004	RTA20C7BD-**
20	0.188	7	7	260	21.4	17.8	15.2	13.1	11.4	9.9	8.8	50-005	RTA20D7BD-**
20	0.156	8	7	295	24.1	20.2	17.2	14.9	12.9	11.3	10.0	50-006	RTA20C8BD-**
20	0.188	8	8	300	29.7	25.0	21.3	18.4	16.1	14.1	12.5	50-007	RTA20D8BD-**
25	0.156	6	6	85	7.0	5.5	4.5	3.8	3.2	2.7	2.2	50-062	RTA25C6BD-**
25	0.188	6	6	110	9.2	7.4	6.2	5.2	4.4	3.7	3.2	50-063	RTA25D6BD-**
25	0.156	7	6	140	11.6	9.4	7.9	6.7	5.7	4.9	4.3	50-064	RTA25C7BD-**
25	0.188	7	7	175	14.7	12.1	10.2	8.7	7.5	6.5	5.6	50-065	RTA25D7BD-**
25	0.156	8	7	205	16.9	14.0	11.8	10.1	8.7	7.6	6.6	50-066	RTA25C8BD-**
25	0.188	8	7	255	21.0	17.5	14.8	12.7	11.0	9.6	8.4	50-067	RTA25D8BD-**
25	0.219	8	8	300	24.9	20.8	17.7	15.2	13.2	11.6	10.2	50-068	RTA25E8BD-**
25	0.250	8	8	300	28.9	24.2	20.6	17.8	15.5	13.5	11.9	50-069	RTA25F8BD-**
30	0.156	7	6	90	7.5	5.9	4.8	3.9	3.3	2.7	2.3	50-124	RTA30C7BD-**
30	0.188	7	7	120	10.0	8.0	6.6	5.5	4.6	3.9	3.4	50-125	RTA30D7BD-**
30	0.156	8	7	140	11.8	9.5	7.9	6.7	5.7	4.9	4.2	50-126	RTA30C8BD-**
30	0.188	8	7	180	15.1	12.4	10.4	8.8	7.6	6.5	5.6	50-127	RTA30D8BD-**
30	0.219	8	8	220	18.2	15.0	12.7	10.8	9.3	8.1	7.0	50-128	RTA30E8BD-**
30	0.250	8	8	260	21.3	17.6	14.9	12.8	11.0	9.6	8.4	50-129	RTA30F8BD-**
30	0.188	9	8	255	20.9	17.4	14.7	12.6	10.9	9.4	8.2	50-131	RTA30D9BD-**
30	0.250	9	9	300	29.1	24.4	20.8	17.9	15.5	13.5	11.9	50-133	RTA30F9BD-**
30	0.188	10	9	300	27.7	23.3	19.8	17.0	14.7	12.8	11.1	50-139	RTA30D1CD-**
35	0.156	8	7	95	7.9	6.2	5.0	4.1	3.4	2.8	2.3	50-186	RTA35C8BD-**
35	0.188	8	7	130	10.6	8.5	7.0	5.8	4.9	4.1	3.5	50-187	RTA35D8BD-**
35	0.219	8	8	160	13.2	10.7	8.9	7.5	6.4	5.4	4.7	50-188	RTA35E8BD-**
35	0.250	8	8	190	15.8	12.9	10.8	9.1	7.8	6.7	5.8	50-189	RTA35F8BD-**
35	0.188	9	8	190	15.5	12.7	10.7	9.0	7.7	6.6	5.6	50-191	RTA35D9BD-**
35	0.250	9	9	270	22.2	18.4	15.6	13.3	11.4	9.9	8.6	50-193	RTA35F9BD-**
35	0.188	10	9	255	21.1	17.7	14.9	12.7	10.9	9.3	8.0	50-199	RTA35D1CD-**
35	0.219	10	9	300	25.4	21.3	18.1	15.4	13.3	11.5	9.9	50-200	RTA35E1CD-**
35	0.250	10	9	300	29.7	25.0	21.2	18.2	15.7	13.6	11.9	50-201	RTA35F1CD-**
35	0.312	10	10	300	38.1	32.2	27.4	23.6	20.5	17.8	15.6	50-202	RTA35G1CD-**
40	0.188	8	7	90	7.1	5.4	4.3	3.4	2.8	2.2	1.8	50-247	RTA40D8BD-**
40	0.219	8	8	115	9.3	7.3	5.9	4.8	4.0	3.3	2.7	50-248	RTA40E8BD-**
40	0.250	8	8	140	11.5	9.1	7.5	6.2	5.2	4.4	3.7	50-249	RTA40F8BD-**
40	0.188	9	8	135	11.3	9.1	7.5	6.2	5.2	4.3	3.6	50-251	RTA40D9BD-**
40	0.250	9	9	205	16.9	13.9	11.6	9.8	8.3	7.1	6.1	50-253	RTA40F9BD-**
40	0.188	10	9	190	16.1	13.4	11.2	9.4	7.9	6.7	5.6	50-259	RTA40D1CD-**
40	0.219	10	9	240	19.7	16.4	13.8	11.7	10.0	8.5	7.2	50-260	RTA40E1CD-**
40	0.250	10	9	280	23.3	19.4	16.4	14.0	12.0	10.3	8.8	50-261	RTA40F1CD-**
40	0.312	10	10	300	30.4	25.5	21.6	18.5	15.9	13.8	12.0	50-262	RTA40G1CD-**

Catalog Number System

The catalog number for Hapco poles utilizes the following identification system.

RTA ☐☐ ☐ ☐ ☐ D - ☐☐
SHAFT ASSEMBLY – MOUNTING HEIGHT – WALL THICK. – BUTT DIA. – TOP DIA. – BASE STYLE – FINISH

Catalog Number Example -

RTA 30 D 8 B D – 01

Round Tapered Aluminum, 30' Mounting Height, .188" Wall Thickness, 8" Butt Diameter, 4.5" Top Diameter, FBC Direct Buried, Satin Aluminum Finish.

POLE TO USE
RTA 25 C6 BD-01

Wall Thickness
B = .125"
C = .156"
D = .188"
E = .219"
F = .250"
G = .312"

Butt Diameter
5 = 5"
6 = 6"
7 = 7"
8 = 8"
9 = 9"
1 = 10"

Top Diameter
A = 3"
B = 4.5"
C = 6"

Base Style
D = FBC Direct Buried

Finish
01 = Satin Aluminum
BA = Black Powder Coat
BH = White Powder Coat
BM = Dark Bronze Powder Coat
BV = Dark Green Powder Coat
GC = Gray Powder Coat
★★ = Specify Finish

RTA - ROUND TAPERED ALUMINUM POLE
NO ARM
DIRECT BURIED

EPA Note:

EPA's based on symmetrically placed side mounted fixture(s) not exceeding height of the pole.

Embed Note:

Embed depths shown are calculated using the weight and EPA combination corresponding to the maximum windspeed available per pole. The calculation uses the assumption of a Class 3 soil type with a 12" diameter augered hole that is to be back-filled (preferably with chloride-free concrete or high density polyurethane foam). Embed depths are subject to change if the loading changes or if the wind speed changes. Please contact Hapco for help in determining an appropriate embed depth.

DATE	DESCRIPTION	ENGINEER	CAD
4/20/26	REVISED GRADING PER FDOT MODIFICATIONS	TL	PDC
1/08/26	REVISED PER WWTP SITE	TL	GL
8/29/23	REVISED PER CONTRACTOR COMMENTS	TL	PDC/JQ
8/2/23	REVISED WETLAND GRADIENT AND IMPERMEABLE BARRIERS COMMENTS	TL	PDC
7/5/23	REVISED PER SFWMD LETTER COMMENTS DATED 6/26/23	TL	PDC/CC
4/25/23	REVISED AS PER COUNTY LETTER DATED 4/25/23	SLD	JCS/AA

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY STEVEN L. DOBBS, P.E., SHALL BE WITHOUT LIABILITY TO NEWLINES ENGINEERING & SURVEY AND STEVEN L. DOBBS ENGINEERING, LLC.

LIGHTING NOTES & DETAILS

NEWLINES LAND CONSULTANTS

STEVEN L. DOBBS, P.E.

FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00029206 DATE
STEVEN L. DOBBS ENGINEERING, LLC
1062 JAKES WAY OKEECHOBEE, FL 34974, PHONE (863) 824-7644

PROJECT No. 21534
DRAWN BY YB/MB
SCALE NOT TO SCALE'
DATE 4/28/2026
SHEET No. 19 OF 21

Z:\2021\21534-Steven Dobbs- Harvey Estates\CAD (2)\04-COMMERCIAL\1.1 SHUL AND MIKVAH\1.1 COMMERICAL SHEET.DWG 2026-04-28