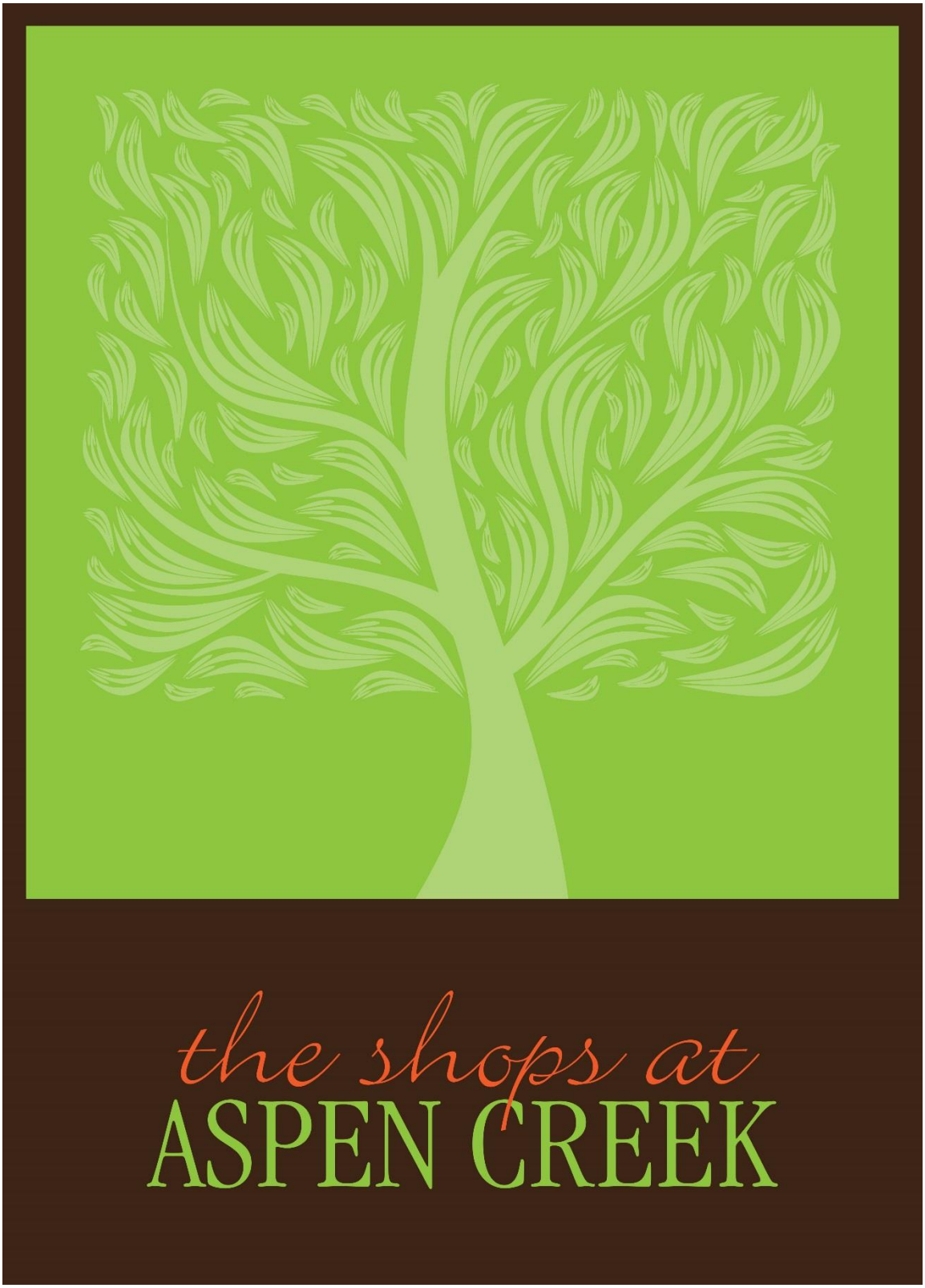


Street Light Plan (Final)

Presented by The Signorelli Company

April 17, 2015

The Shops at Aspen Creek - Street Lights

Qty	Type	Manufacturer	Style	Model No.	Description	Price	Extd. Price	Catalog No.
10	Fixture	Philips Lumec	Zenith Series	Z40G-SFZ4	Decorative post-mounted fixture (black)	$1,299	$12,990	Z40-65W42LED4K-R-AC-RLE3-120-SFZ4-FN1-PH7-BRTX 912300009334
10	Pole	CMT Legacy	Colonnade		16' Fluted composite fiberglass pole (black) with banners	$1,528	$15,280	LC(W)B16-T-0-T400-F
4	Fixture	Philips Lumec	Roadway RoadFocus		Cobra head LED fixture (black) on 6' mast	$264	$1,056	RFM-108W32LED4K-T-R3M-VOLT-DMG-RCD-WC10-FAWS-BR912300009333
4	Pole	CMT Legacy	Colonnade		28' Fluted composite fiberglass pole (black) with banners	$3,167	$12,668	LPCL(W)B28-T-0-S6-PC-F

Cobra (30')(black)

Decorative (16')(black)

Private - not a part of City's steet lights

Plan View
Scale - 1" = 100'

Luminaire Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	C	5	Philips Lumec	RFM-108W32LED4K-T-R3M	Roadfocus	(2 Clusters of 16 LXH7-FW40 LED's) White 108W SSL c/w Advance Driver LEDINTAO700C21ODO @ 120.00V	1	RFM-108W32LED4K-T-R3M (S1410151m).ies	10963.57	0.85	108
	D	10	PHILIPS-HADCO LIGHTING	Z47A-65W42LED4K-R-AC-RLE3	Z47A-65W42LED4K-R-AC-RLE3,TYPE III OPTICS, ACRYLIC, PRISMATIC GLOBE, GLASS ROOF	4000K, 42 LED (NW), LUXEON "R"	1	Z47A-65W42LED4K-R-AC-RLE3 (TR120887).ies	4980.132	0.85	67

Luminaire Locations

Label	MH	Tilt
C	30.00	0.00
C	30.00	0.00
C	30.00	0.00
C	30.00	0.00
C	30.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00
D	16.00	0.00

Statistics

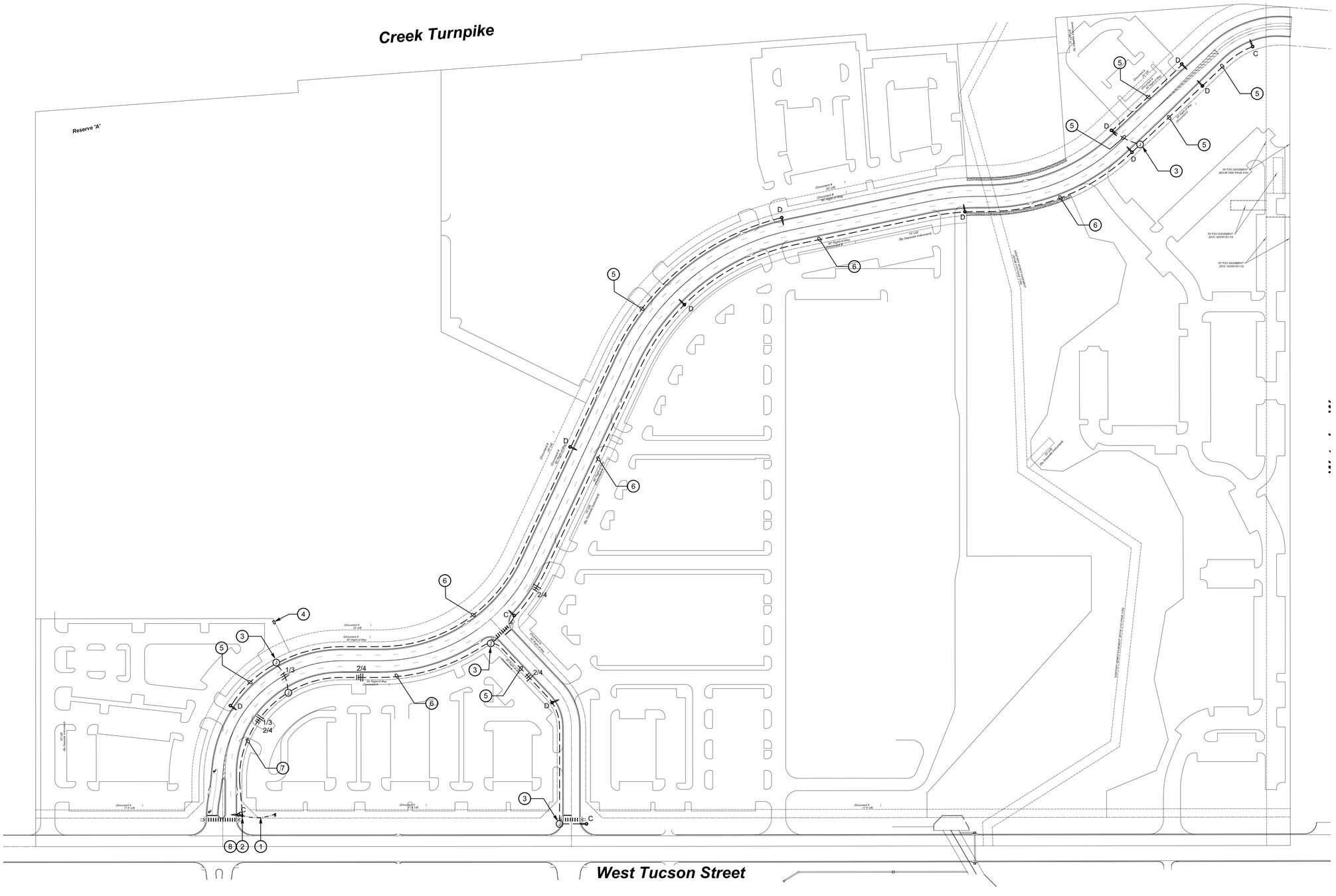
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
MAIN ROAD	+	0.2 fc	2.6 fc	0.0 fc	N/A	N/A	0.1:1
SOUTH ENTRY	+	0.3 fc	2.4 fc	0.0 fc	N/A	N/A	0.1:1

ASPEN PARK ROADWAY
LED - COBRA AND DECORATIVE

Designer

Date
1/30/2015
Scale
Not to Scale
Drawing No.

Summary



KEYNOTES:

1. PSO TO UPGRADE O.H. SERVICE DROP TO PROVIDE 240/120V,1PH,3W SERVICE.
2. REPLACE EXISTING 120V-1PH LOAD CENTER MOUNTED TO TRAFFIC SIGNAL WITH NEW PANEL "SL2." RECONNECT (2) 20A-120V CIRCUITS SERVING TRAFFIC SIGNAL. REPLACE EXISTING WEATHER HEAD AS NECESSARY TO PROVIDE 60A (2 #6, #6N) CONDUCTORS THROUGH IN-LINE METER TO UPGRADED O.H. DROP FROM PSO POLE MOUNTED TRANSFORMER.
3. 12"x12"x12" DEEP IN-GRADE JUNCTION BOX EQUAL TO QUAZITE PC SERIES WITH OPEN BOTTOM.
4. EXISTING PSO HV TAP CABINET TO REMAIN.
5. 1"C WITH 2#8, #10N, #10GND.
6. 1"C WITH 2#6, #8N, #8GND.
7. 1"C WITH 4#6, 2#8N, #8GND.
8. PROVIDE LOCAL PHOTOCELL TO SWITCH THE (2) ROADWAY LIGHTING CIRCUITS.

A ELECTRICAL SITE PLAN

SCALE: 1"=100'-0"

NORTH

FLYNT & KALLENBERGER
Consulting Engineers
10810 E. 45th Street, Suite 201
Tulsa, Oklahoma 74146
(918) 258-6890 / www.fkengineers.com
Oklahoma C.A. #50 (Renewal Date 06.30.2016)

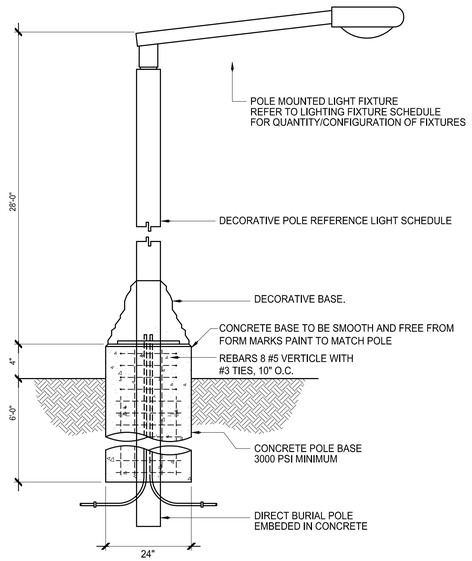
SEAL:

Shops at Aspen Creek Street Lights
Lighting Circuiting Design
Broken Arrow, Oklahoma

Sheet Title:
ELECTRICAL SITE PLAN

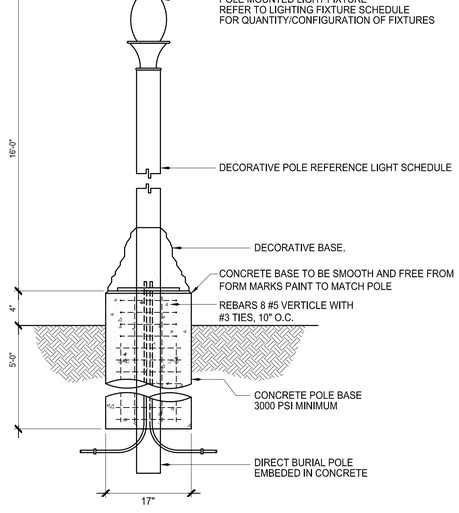
Date: 04.17.2015
Revisions:

Drawn: CH
Sheet:
E-1
1 of 1 sheets



A POLE BASE DETAIL TYPE C

SCALE: NTS



B POLE BASE DETAIL TYPE D

SCALE: NTS

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NUMBER	LAMPS QTY.	LAMPS REF.	MOUNTING	FINISH	VOLT	REMARKS
C	PHILIPS LUMEC	RFM-108W32LED-4K-T-R3M XX	LED	LED	POLE	TBD	240V	POLE MOUNTED LED COBRA HEAD LIGHT FIXTURE PROVIDE DECORATIVE POLE - CMT #LPRL(W)B28-T-0-S6-PC-F
D	PHILIPS HADCO	Z47A-65W42LED4K-R-AC-RLE3 X	(3)	MH1	POLE	TBD	240V	DECORATIVE LED POLE MOUNT LIGHT FIXTURE PROVIDE DECORATIVE POLE - CMT #LPRL(W)B28-T-0-S6-PC-F

PANEL DESIGNATION: SL2

CKT	LOAD SERVED	LOAD VA	C.B. AMP	N — A B	C.B. AMP	LOAD VA	LOAD SERVED	CKT
1	STREET LIGHTING	-	20		20	-	STREET LIGHTING	2
3		X	"		"	X	—	4
5	TRAFFIC SIGNAL	500	20		20	-	SPARE	6
7	TRAFFIC SIGNAL	500	20		20	-	SPARE	8
9	SPARE	-	20		20	-	SPARE	10
11	SPARE	-	20		20	-	SPARE	12
		-	← KVA SUBTOTALS →			-		
			TOTAL CONNECTED KVA =			-		

BUSS RATING 60 A COPPER
☒ 100 A MAIN BREAKER
☐ MAIN LUGS
☒ 240 / 120V
☐ 480 / 277V
☐ FEED THROUGH LUGS

S.C.C.R. 22 KAIC
☒ FULLY RATED
☐ SERIES RATED
ENCLOSURE TYPE NEMA 3R , SURFACE MOUNTED.

NOTE: INSTALL GROUNDING CONDUCTOR IN ALL LIGHTING AND POWER CONDUITS.

POWER SYMBOLS SCHEDULE

	INDICATES THAT ELECTRICAL DEVICE IS TO BE MOUNTED ABOVE COUNTER
	DUPLEX CONVENIENCE RECEPTACLE 120 VOLT, 20 AMP - U.N.O.
	ABOVE COUNTER DUPLEX CONVENIENCE RECEPTACLE 120 VOLT, 20 AMP - U.N.O.
	POWER RECEPTACLE, 208 VOLT, REFER TO PLANS FOR AMPACITY
	4-PLEX CONVENIENCE RECEPTACLE, 120 VOLT, 20 AMP - U.N.O.
	TRANSIENT VOLTAGE SURGE SUPPRESS. RECEPT WITH ISOLATED GROUND, 125 VOLT
	(2) TRANSIENT VOLTAGE SURGE SUPPRESS. RECEPT WITH ISOLATED GROUND, 125 VOLT
	TWIST LOCK RECEPTACLE, 120 VOLT, 20 AMP - U.N.O.
	GROUND FAULT CURRENT INTERRUPTER DUPLEX RECEPTACLE, 120 VOLT, 20 AMP
	GROUND FAULT CURRENT INTERRUPTER 4-PLEX RECEPTACLE, 120 VOLT, 20 AMP
	FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE, 120 VOLT, 20 AMP
	FLUSH FLOOR MOUNTED 4-PLEX RECEPTACLE, 120 VOLT, 20 AMP
	CEILING MOUNTED DUPLEX RECEPTACLE, 120 VOLT, 20 AMP, U.N.O.
	PUSH-BUTTON SWITCH
	TYPICAL DISCONNECT SWITCH
	COMBINATION DISCONNECT AND MAGNETIC MOTOR STARTER
	MAGNETIC MOTOR STARTER
AFD	ADJUSTABLE FREQUENCY DRIVE - BY DIV.16 UNLESS NOTED OTHERWISE
AFD	ADJUSTABLE FREQUENCY DRIVE WITH INTEGRATED DISCONNECT- BY DIV.16 UNO
	ELECTRICAL PANEL
	SPECIAL PANEL
T	TRANSFORMER
	GROUND ROD
	MOTOR
J	JUNCTION BOX
	INDICATES CONCEALED IN WALL OR CEILING SPACE
	INDICATES CONDUIT RUN BELOW CONCRETE FLOOR OR BELOW FINISHED GRADE
	INDICATES CIRCUIT HOMERUN
	INDICATES ISOLATED GROUND CONDUCTOR IN ADDITION TO EQUIPMENT GND CONDUCTOR INDICATES LINE CONDUCTOR INDICATES NEUTRAL CONDUCTOR
$	SINGLE POLE TOGGLE SWITCH
$M	MOTOR RATED TOGGLE SWITCH
$P	TOGGLE SWITCH WITH PILOT LIGHT

LIGHTING SYMBOLS SCHEDULE

	LIGHTING FIXTURE - 2' x 4', FLUORESCENT
	LIGHTING FIXTURE - 2' x 4', FLUORESCENT EMERGENCY OR NIGHT LIGHTING
	LIGHTING FIXTURE - 2' x 2', FLUORESCENT
	LIGHTING FIXTURE - 1' x 4', FLUORESCENT
	LIGHTING FIXTURE - FLUORESCENT WALL MOUNTED
	LIGHTING FIXTURE - FLUORESCENT STRIP
	LIGHTING FIXTURE - FLUORESCENT STRIP WALL MOUNTED
	LIGHTING FIXTURE - FLUORESCENT UNDER-CABINET TASK LIGHT
	LIGHTING FIXTURE - RECESSED MOUNTED
	LIGHTING FIXTURE - RECESSED MOUNTED DIRECTIONAL / WALL WASHER
	LIGHTING FIXTURE - SURFACE MOUNTED
	LIGHTING FIXTURE - PENDANT MOUNTED
	LIGHTING FIXTURE - WALL MOUNTED
	LIGHTING FIXTURE - TRACK MOUNTED
	EXIT LIGHT - WALL MOUNTED (DARK AREA INDICATES FACE)
	EXIT LIGHT - WALL MOUNTED TO END (DARK AREA INDICATES FACE)
	EXIT LIGHT - CEILING MOUNTED (DARK AREA INDICATES FACE)
	LIGHTING FIXTURE - EMERGENCY WALL MOUNTED FLOOD WITH BATTERY PACK
	PARKING LOT LIGHT FIXTURE POLE MOUNTED - 1 FIXTURE HEAD INDICATED
	LIGHTING FIXTURE - EXTERIOR WALL MOUNTED
	CEILING FAN
J	JUNCTION BOX
	INDICATES CIRCUIT HOMERUN
	INDICATES LINE CONDUCTOR INDICATES SWITCHED LEG CONDUCTOR INDICATES NEUTRAL CONDUCTOR
$	SINGLE POLE TOGGLE SWITCH
$a	SINGLE POLE TOGGLE SWITCH - a INDICATES SWITCHED LEG
$2	DOUBLE POLE SINGLE THROW TOGGLE SWITCH
$3	THREE-WAY TOGGLE SWITCH
$4	FOUR-WAY TOGGLE SWITCH
$K	KEYED TOGGLE SWITCH
$FSC	FAN SPEED CONTROL SWITCH
$OR	OVERRIDE SWITCH
$A	DIMMER SWITCH TYPE AS SPECIFIED (REFER TO PLANS)
MS 1	LIGHT SWITCHING OCCUPANCY SENSOR - TYPE 1 INDICATED.
PP	POWER PACK FOR OCCUPANCY SENSOR
NL	NIGHT LIGHT

FLYNT & KALLENBERGER
Consulting Engineers
10810 E. 45th Street, Suite 201
Tulsa, Oklahoma 74146
(918) 258-6890 / www.fkengineers.com
Oklahoma C.A. 50 (Renewal Date 06.30.2016)

SEAL:

Shops at Aspen Creek Street
Lighting Circuiting Design
Broken Arrow, Oklahoma

Sheet Title:
ELECTRICAL SCHEDULES AND DETAILS

Date: 04.17.2015
Revisions:

Drawn: CH
Sheet:
E-2
2 of 2 sheets

ZENITH
SERIES

Product Overview and Technical information >>

PHILIPS
LUMEC

>>

LUMINAIRE > Z41-AC
BRACKET > M50-1A
POLE > P135A-B50

Z14-SFZ4 Z47A-SFZ4 Z40-SFZ4 Z41-SFZ4-M30 Z12-SFZ4-M10

ZENITH
SERIES

Flexibility and Precision / By combining high-tech optics with elements of modern design, the Zenith gives designers great flexibility and freedom. The Zenith is a compact floodlight that uses long arc double-ended metal halide lamps. It was specially developed for lighting large areas, such as parks, sports fields, public areas, and halls. >>

FUNCTIONAL PRECISION

The Zenith's power becomes apparent when it lights up. The classically inspired modern design houses state-of-the-art technology designed for performance. Zenith's prismatic globe provides excellent pole spacing, making it possible to have the maximum amount of light with the minimum amount of luminaires.

FLEXIBLE DESIGN

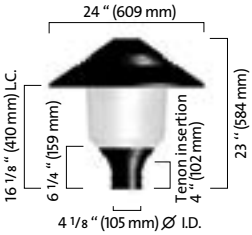
The Zenith has many features that allow its appearance to be customized and personalized. This flexibility offers designers and landscape architects the freedom to create the perfect product with the certainty that no matter what the appearance of the luminaire turns out to be, the interior components stay the same, simplifying maintenance across the board, and providing the best possible photometric performance.

BENEFITS

- Powerful light output thanks to long arc double-ended metal halide lamps.
- Excellent performance in the most demanding environments.
- Toolfree access for ease of maintenance.
- Precise optics maximize pole spacing.
- Vertical illumination increases feeling of safety.

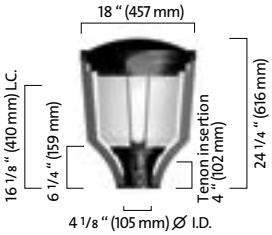
LUMINAIRES

*Conform to the **UL 1598** and **CSA C22.2 No. 250.0-08** standards*



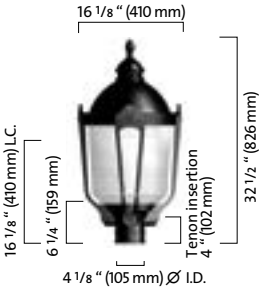
Z12-SFZ4

EPA: 2.01 sq. ft.
Weight: 19 lbs (8.6 kg)



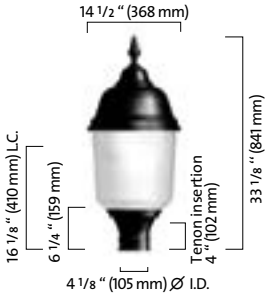
Z14-SFZ4

EPA: 2.38 sq. ft.
Weight: 27 lbs (12.2 kg)



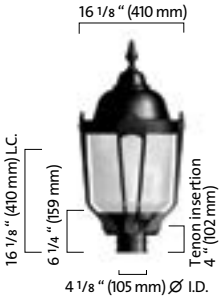
Z40-SFZ4

EPA: 2.32 sq. ft.
Weight: 26 lbs (11.8 kg)



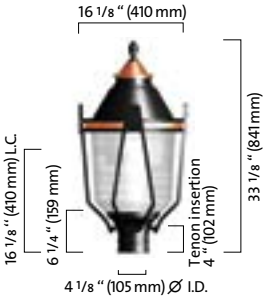
Z40F-SFZ4

EPA: 2.12 sq. ft.
Weight: 16 lbs (7.3 kg)



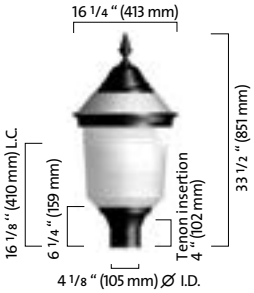
Z40G-SFZ4

EPA: 2.44 sq. ft.
Weight: 26 lbs (11.8 kg)



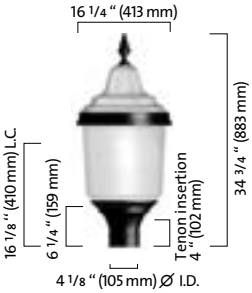
Z41-SFZ4

EPA: 2.02 sq. ft.
Weight: 35 lbs (15.9 kg)



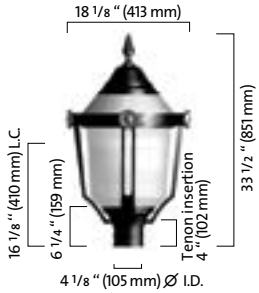
Z47-SFZ4

EPA: 2.24 sq. ft.
Weight: 20 lbs (9.1 kg)



Z47A / Z47L-SFZ4

EPA: 2.19 sq. ft.
Weight: 26 lbs (11.8 kg)



Z47G-SFZ4

EPA: 2.52 sq. ft.
Weight: 26 lbs (11.8 kg)

Z47A : glass top / **Z47L** : acrylic top

LAMPS / **LED**

These LED lamp details are showing typical delivered lumens relative to the complete luminaire with EcoSwap.

LED = Philips Lumileds Luxeon R, CRI = 70, CCT = 4000K (+/- 350K)
LED rated life = 70,000 hrs [1] - Driver rated life = 100,000 hrs

LAMP	TYPICAL DELIVERED LUMENS [2]	TYPICAL LAMP WATTAGE (W)	TYPICAL SYSTEM WATTAGE [3] (W)	TYPICAL CURRENT @ 120 V (A)	TYPICAL CURRENT @ 240 V (A)	TYPICAL CURRENT @ 277 V (A)	LED CURRENT (MA)	HPS EQUIVALENT [4]	LUMINAIRE EFFICACY RATING (LM/W)
40W42LED4K-R	3430	40	45	0.48	0.24	0.22	333	70	76
65W42LED4K-R	5050	65	70	0.72	0.36	0.32	500	100	72

[1] *L70 = 70,000 hrs (at ambient temperature = 25°C and forward current = 500 mA).*
[2] *May vary depending on the optical distribution used.*
[3] *System wattage includes the lamp and the LED driver.*
[4] *Equivalence should always be confirmed by a photometric layout.*

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

PHILIPS LUMEC

OPTICAL SYSTEM / **LED**

EcoSwap
Rotomatic toolfree system composed of 4 main components: LED lamp / Optical System / Heat Sink / Driver

Lamp
Lamp type Philips Lumileds Luxeon R. Composed of 42 high performance white LEDs, 40w/65w lamp wattage. Color temperature of 4000 Kelvin nominal, 70 CRI. Operating lifespan based on LM80 results after which 50% still emits over 70% (L70) of its original lumen output. Use of a metal core board insures greater heat transfer and longer lifespan of the light engine.

Optical System
Composed of high performance acrylic refractors lenses to achieve desired optimized distribution to get maximum spacing, target lumens will create a perfect lighting uniformity. Performance shall be tested by independent lab for LM63 and LM79 and TM15 (IESNA) certifying its photometric performance.

RLE3: Asymetrical
RLE5: Asymetrical (Square)

> House shield available in option (HS)

* Photometry available on Philips Lumec web site www.lumec.com

VOLTAGE

120 / 208 / 240 / 277

LAMPS / **HID**

WATTAGE	2 / 3 / 5
50 MH, medium	✓
70 MH, medium	✓
100 MH, medium	✓
150 MH, medium	✓
175 MH, mogul	✓
35 HPS, medium	✓
50 HPS, mogul	✓
70 HPS, mogul	✓
100 HPS, mogul	✓
150 HPS, mogul	✓

✓ : Available

OPTICAL SYSTEMS / **HID**

(Lamps not included)

Optics
Large round acrylic or polycarbonate refractor featuring two series of prisms controlling the lamp's horizontal and vertical luminous flux.

2: Asymmetrical
3: Asymmetrical
5: Symmetrical

> House shield available in option (HS)

* Photometry available on Philips Lumec web site www.lumec.com

VOLTAGE

HID[1]: 120 / 208 / 240 / 277 / 347 / 480

[1] *Multi-top ballast also available.*

LAMPS / **QL**

WATTAGE	2 / 3 / 5
55 QL	✓
85 QL	✓

✓ : Available

High frequency generator for induction lamp (4000K).
Instant start. Operating range 50-60 Hz or DC.
Lamp minimum starting temperature -40F (-40 °C).

VOLTAGE

120 / 208 / 240 / 277

OPTICAL SYSTEMS / **QL**

(Lamps included)

Optics
Large round acrylic or polycarbonate refractor Asymmetrical featuring two series of prisms controlling the Symmetrical lamp's horizontal and vertical luminous flux.

2: Asymmetrical
5: Symmetrical

> House shield available in option (HS)

* Photometry available on Philips Lumec web site www.lumec.com

LUMINAIRE OPTIONS

HS House shield
PH7 Button-type photoelectric cell
BC Block connectors (available with the SFZS3 only)
FN Decorative finial (see bellow)
FNC Copper-color painted finial

ADAPTORS

SFZ3* / SFZ4

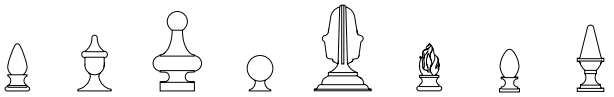
SFZS3

* The SFZ3 and SFZS3 slip fit over a 3" (76 mm) round by 2 3/4 " (70 mm) long tenon.

The SFZS3 model features a door. (SFZS3 only applicable on Z12 / Z47 / Z47A / Z47L)

FILIALS

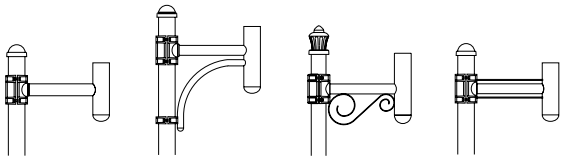
(Finial shown with luminaire comes standard)



FN1 FN2 FN3 FN4 FN6 FN8 FN9 FN10

MOUNTINGS

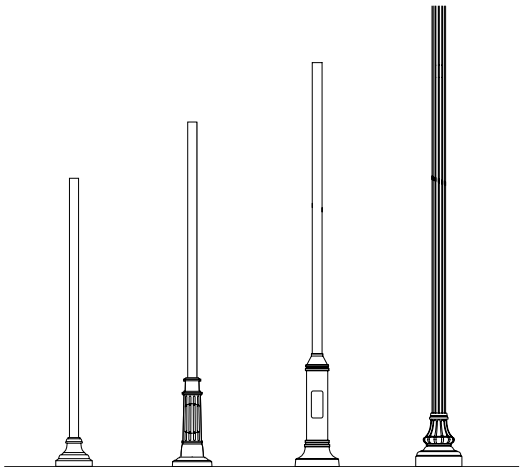
(Consult the Pole Guide for details and the complete line of mountings)



M10 M30 M50 M70

POLES AND POLE OPTIONS

(Consult the Pole Guide for details and the complete line of poles)



APR4-LBC3 RS805 SM8 RA43

FINISHES

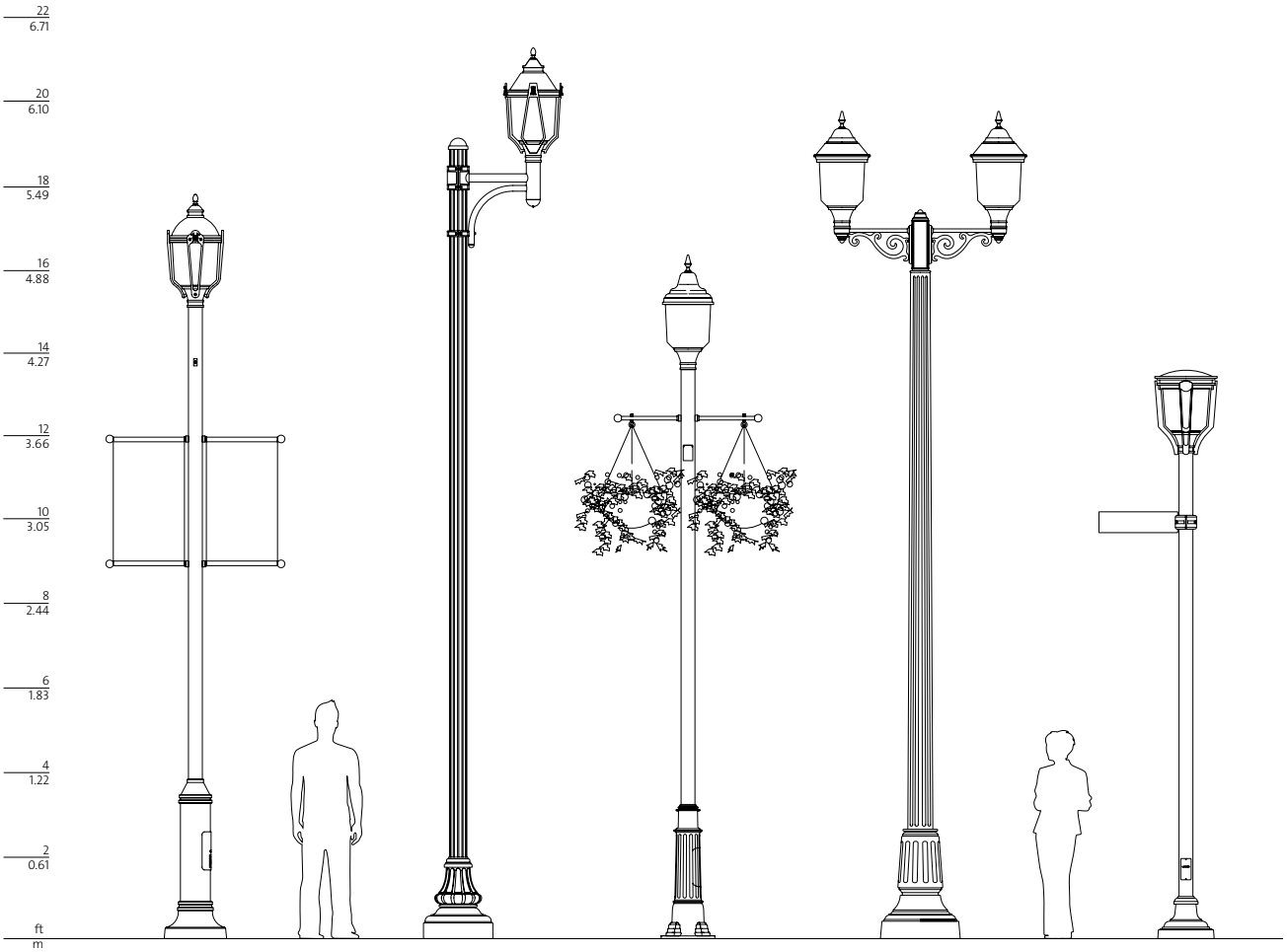
(Consult Philips Lumec's Color Chart for complete specifications)

The specially formulated **Lumital** powder coat finish is available in a range of many standard colors.

ORDERING SAMPLE

LUMINAIRE	LAMP	OPTICAL SYSTEM	VOLTAGE	ADAPTOR	OPTIONS	MOUNTING & CONFIGURATION	POLE	FINISH
Z40	100 MH	5	120	SFZ4	PH7	M50-1A	APR4-14	BKTX

ASSEMBLY EXAMPLES



Luminaire: Z40-SFZ4
Pole: SM8-BA-PH7

Luminaire: Z41-SFZ4
Mounting: M30-1A
Pole: RA54

Luminaire: Z47A-SFZ4-PH7
Pole: R80-PS-GFI

Luminaire: Z47-SFZ4
Mounting: CRA-2
Pole: RTA927

Luminaire: Z14-SFZ4
Pole: APR4-LBC3-SA1

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LUMEC

>>

LUMINAIRE > Z41-AC
POLE > P604

www.philips.com/lumec

PHILIPS LUMEC HEAD OFFICE
640, Curé-Boivin Boulevard
Boisbriand, Québec
Canada J7G 2A7

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F : 450.430.1453

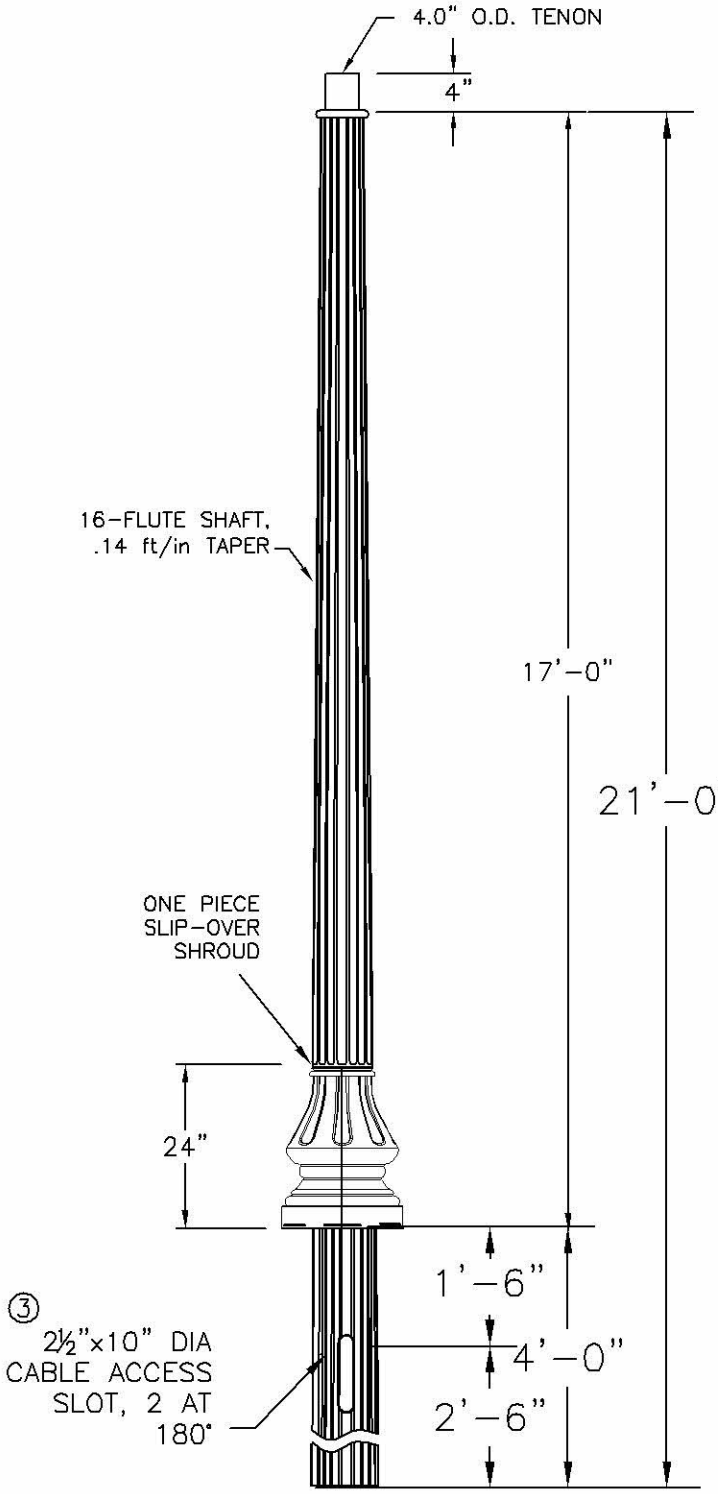
ONTARIO OFFICE
189 Bullock Drive
Markham, Ontario
Canada L3P 1W4

T : 416.223.7255
F : 866.971.2825

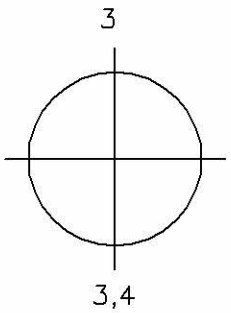
For the details of our different agents and representatives, please consult the **Contact us** section of our Website.

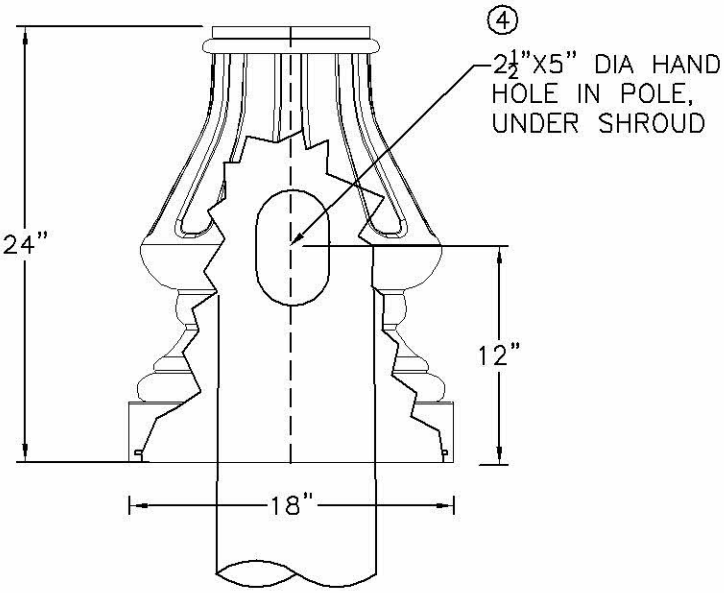
Hg / Some luminaires use fluorescent or high intensity discharge (HID) lamps that contain small amounts of mercury. Such lamps are labeled "Contains Mercury" and/or with the symbol "Hg." Lamps that contain mercury must be disposed of in accordance with local requirements. Information regarding lamp recycling and disposal can be found at **www.lamprecycle.org**

>> The choice to not print paper brochures anymore but to make them available on-line is an example of the positive environmental actions that Philips Lumec has decided to undertake. This not only considerably reduces our paper consumption but also guarantees the exactitude of the information our clients receive.



ORIENTATION VIEWED FROM TOP OF POLE





SHROUD DETAIL

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FINISH: TEXTURED

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By valmont
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145 Wood Street
Estill, SC 29918
800-416-4276
www.cmtpoles.com

BROKEN ARROW

CAT. NO.: LC(W)B16-T-0-T400-F	
SPECS: CMT CATALOG	WIND VEL.: 90 @ 1.3
TOT. LENGTH: 21'-0"	LUM. WEIGHT: 50 lbs.
EMBED. DEPTH: 4'-0"	LUM. EPA: 7.5 sq.ft. max
TIP DIA: 4.50	STATIC DEFL.:
WEIGHT: 75	TOTAL DEFL.:
DRAWN BY: PLF	DATE: 03/31/2015

QUANTITY: — JOB NUMBER: —

PO#: DWG#:

REV.	DATE	BY	REMARKS
A	03/31/15	PLF	URETHANE D3M

PHILIPS
LUMEC

Roadway

RoadFocus

72, 108 and 160W RFM

Project:

Location:

Cat.No:

Type:

Lamps: Qty:

Notes:

The Philips Lumec RoadFocus LED Cobra Head luminaires feature a sleek design that provides seamless replacement of existing HID luminaires. RoadFocus is available in three sizes, offers multiple lumen packages, and a complete array of optical distributions, making it an outstanding solution for all types of roadway applications.

Ordering guide

Example: RFM-72W32LED4K-T-R2S-UNIV-DMG-AST-FAWS-RCD-SP2-WC10-GY3

Luminaire	LED Module	Optical System	Voltage	Driver and Dimming	Wattage Switch	Twist-Lock Receptacle	Surge Protection	Warranty	Finish
RFM								**WC10**	
RFM RoadFocus Medium	**72W32LED4K-T** or **108W32LED4K-T**[2,4] or **108W48LED4K-T** or **160W48LED4K-T**[2,4]	**R2S** Type II Short **R2M** Type II Medium **R3S** Type III Short **R3M** Type III Medium **5** Type V	**UNIV** 120-277VAC **HVU** 347-480VAC	*Standard:* **DMG**[1,6] Dimmable driver 0-10V *Optional:* **AMPD**[2,4,5,6] Amplight Dimming DynaDimmer Economy Profile **CDMGE25**[2,4,5,6] **CDMGE50**[2,4,5,6] **CDMGE75**[2,4,5,6] DynaDimmer Median Profile **CDMGM25**[2,4,5,6] **CDMGM50**[2,4,5,6] **CDMGM75**[2,4,5,6] DynaDimmer Safety Profile **CDMGS25**[2,4,5,6] **CDMGS50**[2,4,5,6] **CDMGS75**[2,4,5,6] **DALI**[2,4,5,6] Digitally Adressable Lighting Interface **DMG-AST***[2,4] Adjustable Startup Time **DMG-CLO***[2,4,5] Constant Light Output **DMG-OTL***[2,4] Over The Life **Includes 0-10v Dimming*	**FAWS**[5] Field Adjustable Wattage Selector (optional)	*Standard:* **RCD**[1,3,7] Receptacle for twist-lock photocell or shorting cap, 5-pin (standard) *Optional:* **RCD7**[3,7] Receptacle for twist-lock photocell or shorting cap, 7-pin (optional)	**SP2**[8] 20kV / 20kA Surge Protector (optional)	**WC10**[1] 10-year limited warranty (standard)	**BK** Black Finish **BR** Bronze Finish **GY3** Gray Finish **WH** White Finish

1. Please note these integrated features come standard with RoadFocus luminaires.
2. Denotes programmable driver option. Not available with HVU (347-480volt). Not available with 1050 mA versions (108W32LED, 160W48LED).
3. Use of photoelectric cell or shorting cap is required to ensure proper illumination.
4. Not available with HVU (347-480volt).
5. FAWS not available with AMPD, CDMG options, DALI or CLO.
6. Dimming choices: Select either DMG or AMPD or one of the CDMG options or DALI.
7. When RDC7 option is selected you will get 7-pin instead of standard RCD 5-pin.
8. When SP2 option is selected you will get SP2 instead of standard SP1.

RFM RoadFocus LED Cobrahead, Medium

72, 108, and 160W

Accessories (must be ordered as separate line items - quickly and easily installed in the field)

ACC-RFS-RFM-RFL-PH9[9]
Shorting cap

ACC-RFS-RFM-RFL-HS
House side shield, 1 per 16 LED light engine.

ACC-RFS-RFM-RFL-UNIV-PH8[9]
Twist-lock Photoelectric Cell, UNIV (120-277VAC).

ACC-RFM-RFL-PH8/347[9]
Twist-lock Photoelectric Cell, HVU 347VAC.

ACC-RFM-RFL-PH8/480[9]
Twist-lock Photoelectric Cell, HVU 480VAC.

ACC-RFS-RFM-RFL-UNIV-PH8XL[9]
Twist-lock Photoelectric Cell, extended life, UNIV (120-277VAC).

ACC-RFS-RFM-RFL-UNIV-SPC[9,10]
Starsense twist-lock photoelectric cell & antenna node, UNIV (120-277VAC).

ACC-RFM-RFL-HVU-SPC[9,10]
Starsense twist-lock photoelectric cell & antenna node, HVU (347-480VAC).

ACC-RFS-RFM-RFL-UNIV-SPCD[9,10]
Starsense dimmable twist-lock photoelectric cell & antenna node, UNIV (120-277VAC).

9. Use of photoelectric cell or shorting cap is required to ensure proper illumination.
10. Please note that more hardware as well as software are required - please contact the quotations department for help with putting together the entire control system.

LED Wattage and Lumen Values

LED = Philips Lumileds LUXEON T, CRI = 70, CCT = 4000K (+/- 350K)
System (LED + driver) rated life = 100,000 hrs[11]

LED Module	Typical Delivered Lumens	Typical System Wattage (W)[12]	LED Current (mA)	Typical System Current (A) @						Efficacy (Lm/W)	BUG Rating
				120V	208V	240V	277V	347V	480V		
72W32LED4K-T-R2S	8,330	73	700	0.62	0.36	0.31	0.28	0.21	0.15	114	B2-U0-G1
72W32LED4K-T-R2M	8,140	73	700	0.62	0.36	0.31	0.28	0.21	0.15	112	B2-U0-G2
72W32LED4K-T-R3S	8,085	73	700	0.62	0.36	0.31	0.28	0.21	0.15	111	B1-U0-G2
72W32LED4K-T-R3M	8,178	73	700	0.62	0.36	0.31	0.28	0.21	0.15	112	B2-U0-G2
108W32LED4K-T-R2S	11,169	108	1050	0.91	0.53	0.47	0.41	N/A		103	B2-U0-G2
108W32LED4K-T-R2M	10,914	108	1050	0.91	0.53	0.47	0.41			101	B2-U0-G2
108W32LED4K-T-R3S	10,841	108	1050	0.91	0.53	0.47	0.41			100	B1-U0-G1
108W32LED4K-T-R3M	10,965	108	1050	0.91	0.53	0.47	0.41			102	B2-U0-G2
108W48LED4K-T-R2S	12,507	106	700	0.93	0.53	0.46	0.40	0.32	0.23	118	B3-U0-G2
108W48LED4K-T-R2M	12,222	106	700	0.93	0.53	0.46	0.40	0.32	0.23	115	B2-U0-G2
108W48LED4K-T-R3S	12,140	106	700	0.93	0.53	0.46	0.40	0.32	0.23	115	B2-U0-G2
108W48LED4K-T-R3M	12,279	106	700	0.93	0.53	0.46	0.40	0.32	0.23	116	B2-U0-G2
160W48LED4K-T-R2S	16,778	161	1050	1.34	0.76	0.66	0.58	N/A		104	B3-U0-G2
160W48LED4K-T-R2M	16,396	161	1050	1.34	0.76	0.66	0.58			102	B3-U0-G3
160W48LED4K-T-R3S	16,285	161	1050	1.34	0.76	0.66	0.58			101	B2-U0-G3
160W48LED4K-T-R3M	16,472	161	1050	1.34	0.76	0.66	0.58			102	B3-U0-G3
Type V (5) IES files for all LED modules pending.											

11. L_{70} >100,000 hrs (at ambient temperature = 25°C).
12. System wattage or total luminaire wattage includes the LED module and the LED driver.
Note: Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

RFM RoadFocus LED Cobrahead, Medium

72, 108, and 160W

Field Adjustable Wattage (FAWS) Multiplier Chart

72W32LED4K-T or 108W48LED4K-T (700 mA)

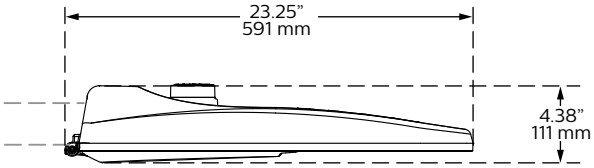
FAWS Position	Typical Delivered Lumens Multiplier	Typical System wattage and typical current
1	0.37	0.29
2	0.55	0.50
3	0.62	0.58
4	0.71	0.69
5	0.77	0.75
6	0.81	0.81
7	0.84	0.87
8	0.94	0.91
9	0.98	0.96
10	1.00	1.00

108W32LED4K-T OR 160W48LED4K-T (1050mA)

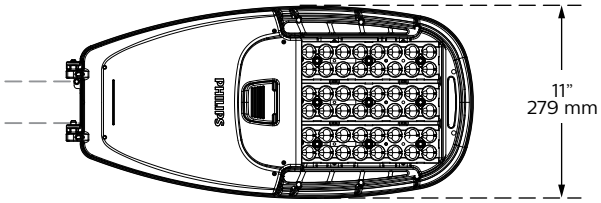
FAWS Position	Typical Delivered Lumens Multiplier	Typical System wattage and typical current
1	0.33	0.27
2	0.56	0.48
3	0.64	0.57
4	0.71	0.65
5	0.79	0.74
6	0.84	0.79
7	0.89	0.85
8	0.92	0.90
9	0.96	0.95
10	1.00	1.00

Dimensions

Side View



Bottom View



Weight: 12.2 Lbs

EPA: 0.53 sq. ft.

Predicted Lumen Depreciation Data[14,15,16]

Ambient Temperature °C	Driver mA	Calculated L_{70} Hours	L_{70} per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	**up to 1050 mA**	**>100,000 hours**	**>60,000 hours**	**>96%**

14. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.

15. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output.

16.Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours

Specifications

Housing

Made of a low copper die cast Aluminum alloy (A360), 0.100" (2.5mm) minimum thickness. Fits on a 1.66" (42mm) O.D. (1.25" NPS), 1.9" (48mm) O.D. (1.5" NPS) or 2 3/8" (60mm) O.D. (2" NPS) by 5 1/2" (140mm) minimum long tenon. Comes with a zinc plated clamp fixed by 2 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5° tilt in 2.5º increments. Includes integral bubble level standard (always included). A quick release, tool less entry, single latch, hinged, removable door opens downward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement. A clearance of 13" (330mm) at the rear is required in order to remove the door. Complete with a bird guard protecting against birds and similar intruders and an ANSI label to identify wattage and source (both included in box). Housing (including electrical compartment) rated IP54 per ANSI C136.37.

Light Engine

Composed of 4 main components: LED Module / Optical System / Heat Sink / Driver

Electrical components are RoHS compliant, IP66 sealed light engine equipped with Philips Lumileds LUXEON T LEDs.LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

LED Module (Included), LED type Philips Lumileds LUXEON T. Composed of high performance white LEDs. Color temperature as per ANSI bin 4000 Kelvin nominal (3985K +/ 275K), CRI 70 Min. 75 Typical.

Optical System: Composed of high performance optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Dark Sky compliant with 0% uplight and U0 per IESNA TM-15.

Heat Sink: Built in the housing, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimising their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +40°C / +104°F.

RFM RoadFocus LED Cobrahead, Medium

72, 108, and 160W

Specifications (continued)

Driver: High power factor of 90% min. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 or 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max.
(DMG), Dimming compatible 0-10 volts.
The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Integrated Features

DMG: Dimmable driver 0-10V.

RCD*: Receptacle with 5 pins enabling dimming, can be used with a twist lock Starsense or photoelectric cell or a shorting cap.

WC10: 10-year limited warranty from defects in material and workmanship in its intended use, as well as coverage for finish. Visit website for more details.

SP1: Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA.

Please note that these integrated features always come with RoadFocus luminaire.

** Use of photoelectric cell or shorting cap is required to ensure proper illumination.*

Driver and Luminaire Options

AMPD*: Driver pre-programmed for compatibility with Amplight control system.

AST*: Pre-set driver for progressive start-up of the LED module(s) to optimize energy management and enhance visual comfort at start-up.

CLO*: Pre-set driver to manage the lumen depreciation by adjusting the power given to the LEDs offering the same lighting intensity during the entire lifespan of the LED module.

DALI*: Pre-set driver compatible with the DALI control system.

OTL*: Pre-set driver to signal end of life of the LED module(s) for better fixture management.

CDMG*: Dynadimmer standard dimming functionalities including pre-programmed scenarios to suit many applications and needs from safety to maximum energy savings

Safety Mode:
CDMGS25: 4 hours, 25% power dimming
CDMGS50: 4 hours 50% power dimming
CDMGS75: 4 hours 75% power dimming

Median Mode:
CDMGM25: 6 hours 25% power dimming
CDMGM50: 6 hours 50% power dimming
CDMGM75: 6 hours 75% power dimming

Economy Mode:
CDMGE25: 8 hours 25% power dimming
CDMGE50: 8 hours 50% power dimming
CDMGE75: 8 hours 75% power dimming

**Not available with HVU (347-480V)*

FAWS: Field Adjustable Wattage Selector, pre-set to the highest position, can be easily switched in the field to the required position. This reduces total luminaire wattage consumption and reduces the light level – see the FAWS multiplier chart for more details. *NOTE: When using FAWS with dimming, set the switch to position 10 (maximum output) to enable dimming.*

SP2: 20kV / 20kA surge protection device that provides extra protection beyond the SP1 10kV/10kA level.

RCD7*: Receptacle with 7 pins enabling dimming and additional functionality (to be determined), can be used with a twist lock Starsense node or photoelectric cell or a shorting cap.

Please note: Additional hardware will be required to utilize the additional 2 pins on this receptacle.

** Use of photoelectric cell or shorting cap is required to ensure proper illumination.*

Luminaire Useful Life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, Philips System Reliability Tool, Philips Advance data and Philips Lumileds LM-80/TM-21 data, expected to reach 100,000 + hours (72W32LED and 108W48LED at 700mA) or 94,500 hours (108W32LED and 160W48LED at 1050mA) with >L70 lumen maintenance @ 25°C. Luminaire Useful Life accounts for LED lumen maintenance AND all of these additional factors including: LED life, driver life, PCB substrate, solder joints, on/off cycles, burning hours and corrosion.

Wiring

The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2 14 AWG. wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a time delay or slow blow fuse to avoid unnecessary and unwanted fuse blowing that can occur with fast acting fuses.

Hardware

All exposed screws shall be stainless steel with Ceramic primer seal basecoat to reduce seizing of the parts. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard. The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Vibration Resistance

The RFM meets the ANSI C136.31, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications. (Tested for 3G over 100,000 cycles by an independent lab)

Certifications and Compliance

cULus Listed for Canada and USA. Luminaire meets DOE and MSSLC Model Specification for LED Roadway Luminaires. RoadFocus LED Cobrahead luminaires are DesignLights Consortium qualified.

Limited Warranty

10-year limited warranty. See philips.com/luminaires for details and restrictions.

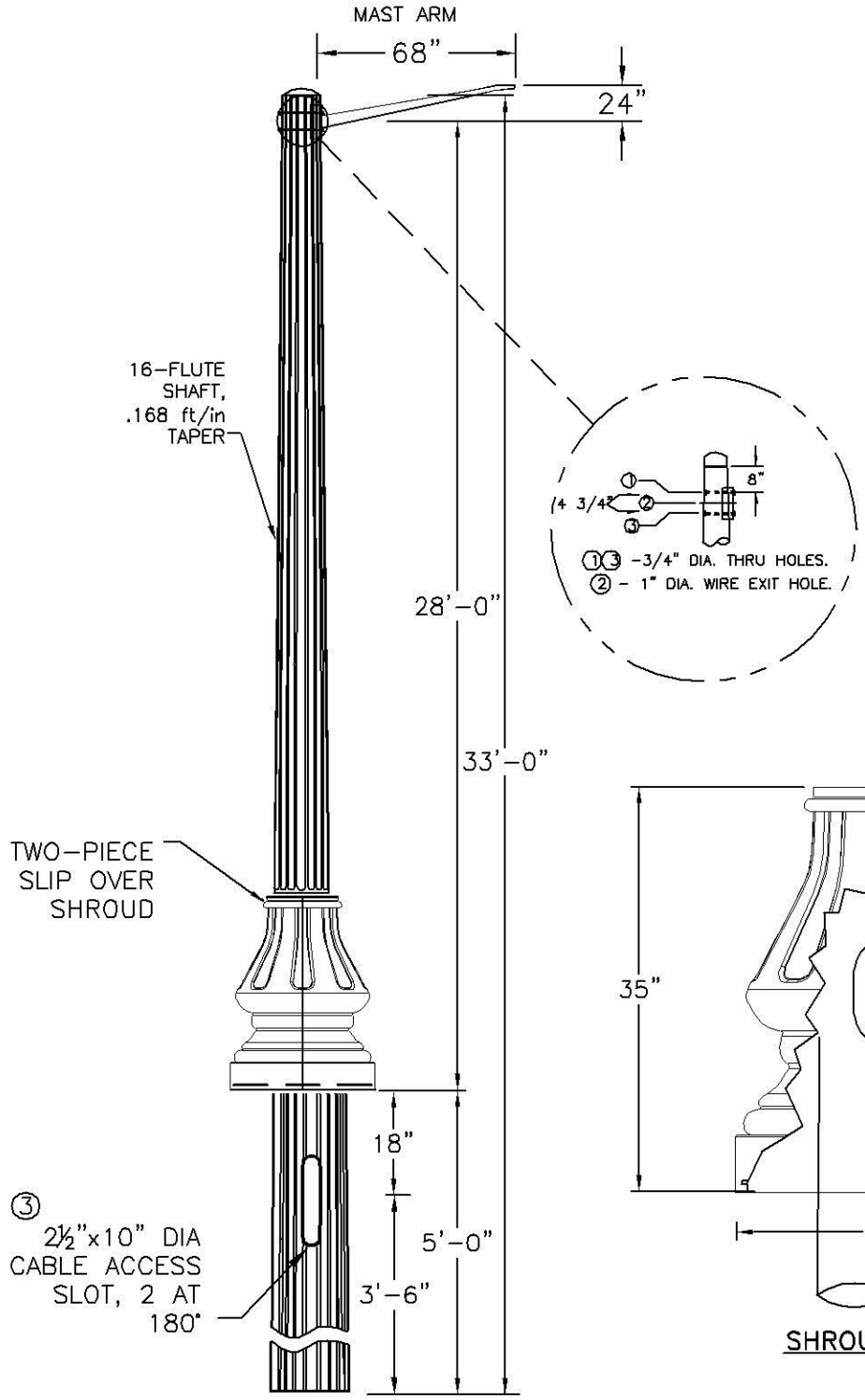
Brackets/Arms

Philips Lighting, North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

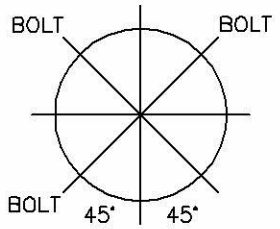
Imported by: Philips Lighting,
A division of Philips Electronics Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008

LEGACY™

COLONNADE



ORIENTATION VIEWED FROM TOP OF POLE



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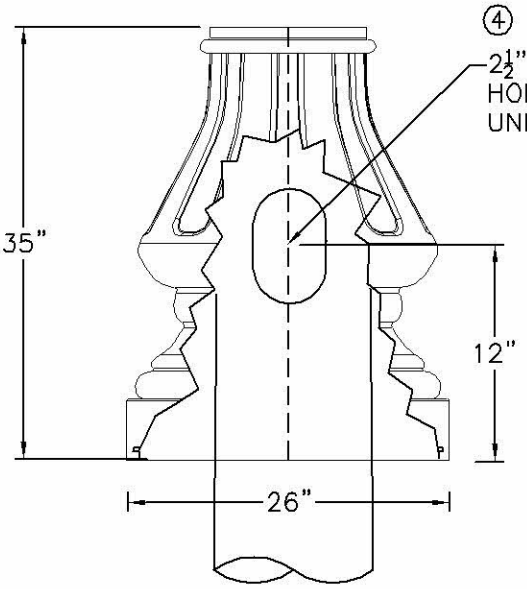

SHROUD DETAIL

COLOR: SPECIFY
FINISH: TEXTURED

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145 Wood Street
Estill, SC 29918
800-416-4276
www.cmtpoles.com

BROKEN ARROW

CAT. NO.: LPCL(W)B28-T-0-S6-PC-F

SPECS:	WIND VEL.: 100 @ 1.3
TOT. LENGTH: 33'-0"	LUM. WEIGHT: 50 lbs.
EMBED. DEPTH: 5'-0"	LUM. EPA: 3.5 sq.ft.
TIP DIA: 5.00"	STATIC DEFL.:
WEIGHT: . lbs.	TOTAL DEFL.:
DRAWN BY: PLF	DATE: 03/31/2015

QUANTITY: —

JOB NUMBER: —

PROGRESS NUMBER:

REV.	DATE	BY	REMARKS
A	03/31/15	PLF	URETHANE D3L/2