CEO
LIGHTING WORKSHOP

FOR CODE ENFORCEMENT OFFICIALS

AND OTHERS WITH SIMILAR JOB RESPONSIBILITIES

WHY THIS WORKSHOP?

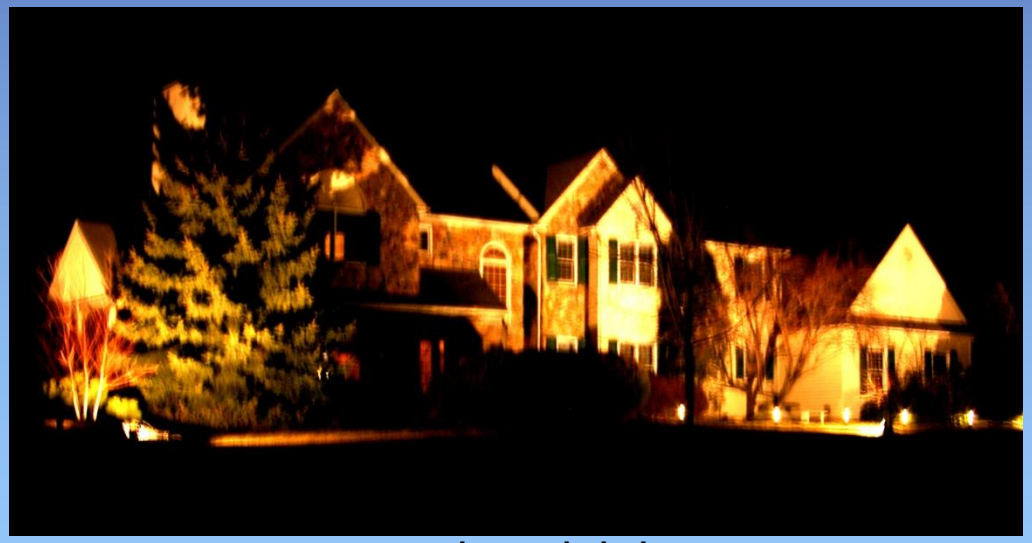
- There’s a lot of bad lighting out there.
- CEOs can be an important line of defense against bad lighting.
- This workshop will provide the tools needed to recognize and combat bad lighting.

WHAT WE'LL COVER

- How to identify good and bad lighting
- Consequences of bad lighting
- Common lighting terms
- Light sources and fixtures
- Reviewing a lighting plan
- Evaluating a lighting installation
- Dealing with citizen lighting complaints

WHY SO MUCH BAD LIGHTING?

- People don’t know or don’t care
- Permit commitments not honored
- Advertising/Vanity
- “Security” lighting
- Weak ordinances
- Weak enforcement



McMansion Lighting
Hey, Ain’t I Somethin’?

BAD-LIGHTING ISSUES

BAD-LIGHTING IMPACTS ON:

- Environment
- Economy
- Safety/Security
- Health
- Night sky

ENVIRONMENTAL ISSUES

WASTED LIGHT AT NIGHT

- Disrupts birds' migration patterns and disorients them, causing needless deaths
- Disrupts animal feeding/breeding habits
  - Exposes animals to predators
- Creates needless air pollution from power plants
- Disrupts atmosphere's natural cleansing process

ENVIRONMENTAL ISSUES

Light at night impacts plants and trees

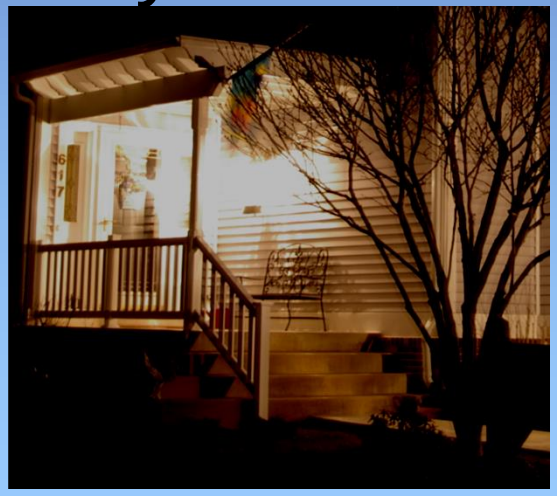
ECONOMIC ISSUES

Estimated $2 billion wasted annually in US on bad outdoor lighting

- Money wasted lighting up the sky
- Money wasted lighting neighbors' properties
- Money wasted on all-night lighting when there's no one there to see what's being lighted
- Money and resources wasted generating wasted electricity

SAFETY ISSUES

- Good lighting guides the way.
- Good lighting highlights potential hazards.
- Good lighting helps us react quickly.
- Bad lighting creates shadows and hides hazards.
- Bad lighting creates glare that hampers vision.



“SECURITY LIGHTING” ISSUES

- Feeling secure is state of mind.
- “Security lighting” creates false sense of safety
- “Security lighting,” on when no one is looking, is a waste of energy and money and a needless source of pollution.
- More crime occurs during the day than at night.

“SECURITY LIGHTING” ISSUES

- Lighting, by itself, is seldom an effective security means.

HEALTH ISSUES

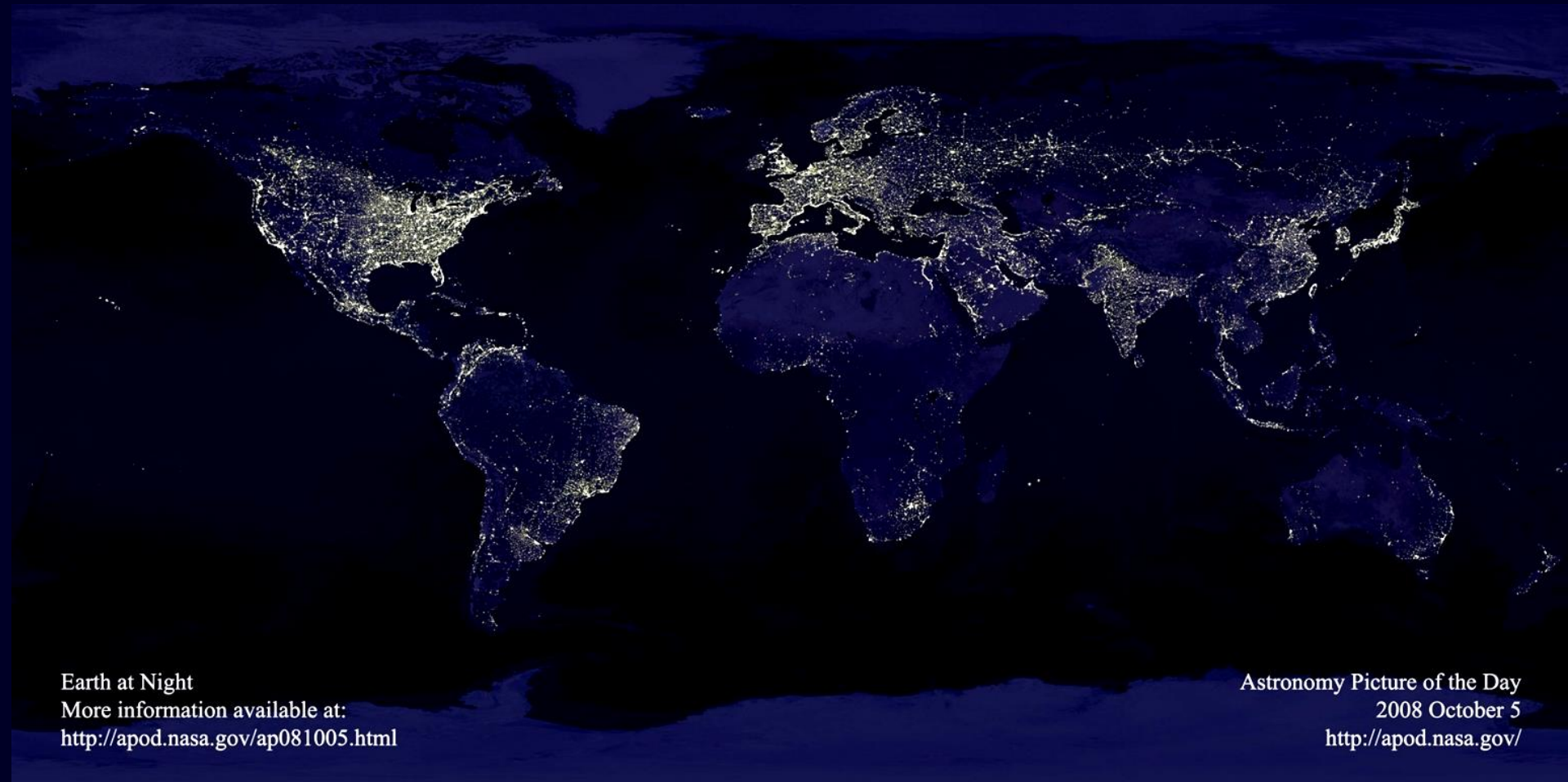
- Light shining in bedroom windows at night can disrupt sleep, causing sleep deprivation and reduced performance.

HEALTH ISSUES

- Light at night can adversely impact our immune system, leading to health concerns.

NIGHT SKY ISSUES

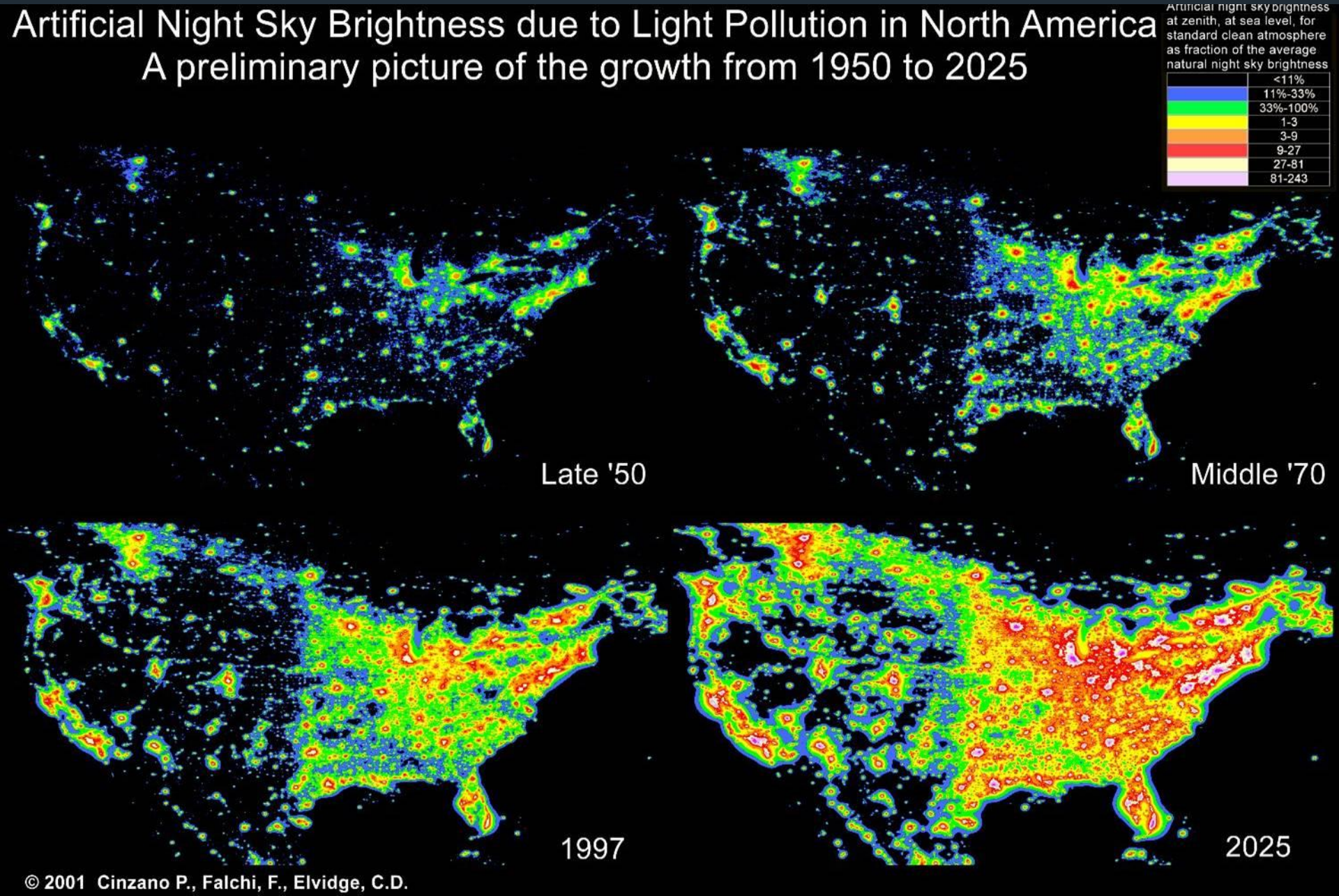
Light from earth outshines the stars



LA Basin 1908

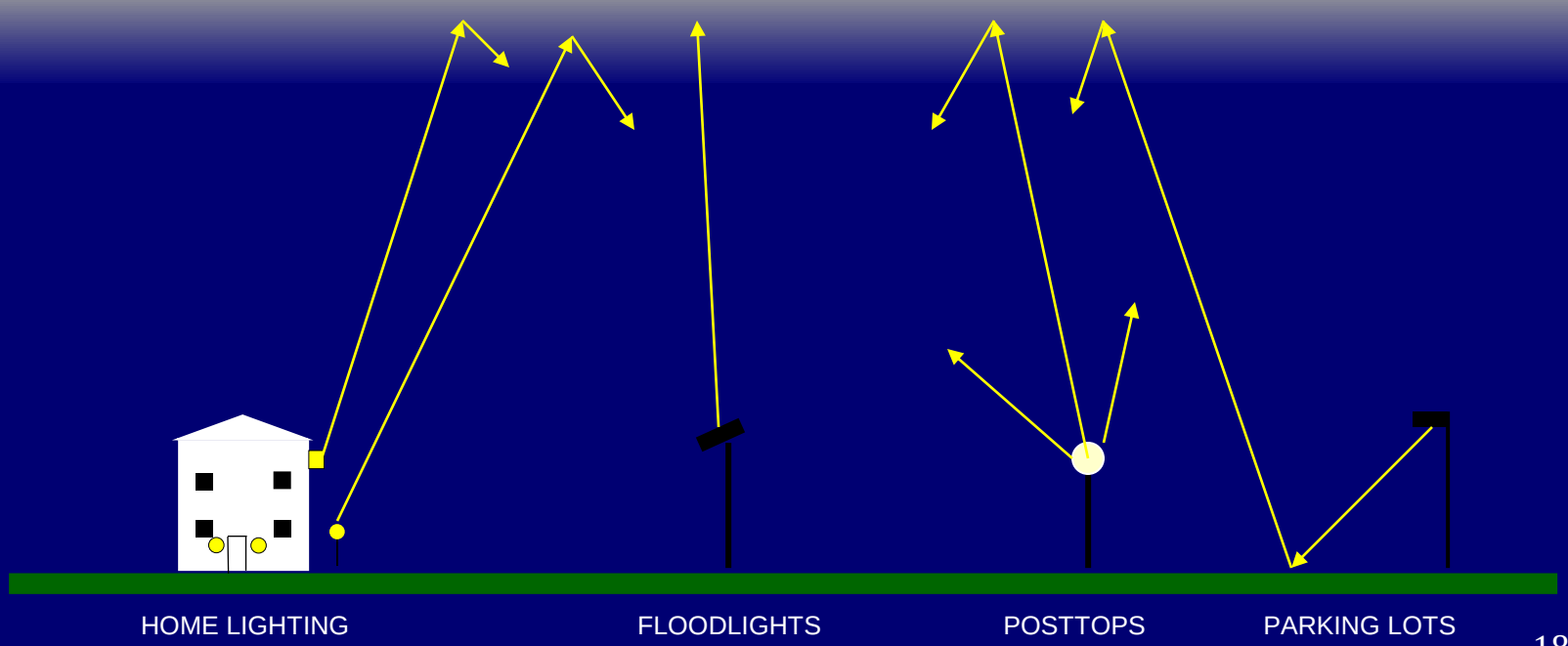
LA Basin Recently

2025 PREDICTION



Sky glow blocks seeing stars

Natural light from the stars



Light pollution from below

WHAT IS "GOOD LIGHTING"

- Lighting is good when it's:
  - the right amount for the task
  - aimed and shielded so it goes where it is needed and doesn't produce glare
  - on only when needed

We don't leave water on all night.

Why is it OK to leave lights on all night?

IMPORTANCE OF GOOD LIGHTING

- The POLC is not against lighting. We're against bad lighting.

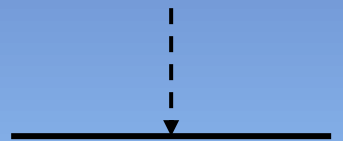
- Good lighting is important to work, travel and play effectively and safely.

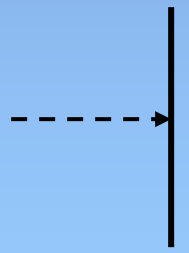
LIGHTING FUNDAMENTALS

- Definition of essential terms
- Light sources (lamps, bulbs)
- Lighting fixture (luminaire) types
- Light on/off control
- Safety/Security lighting

DEFINITIONS

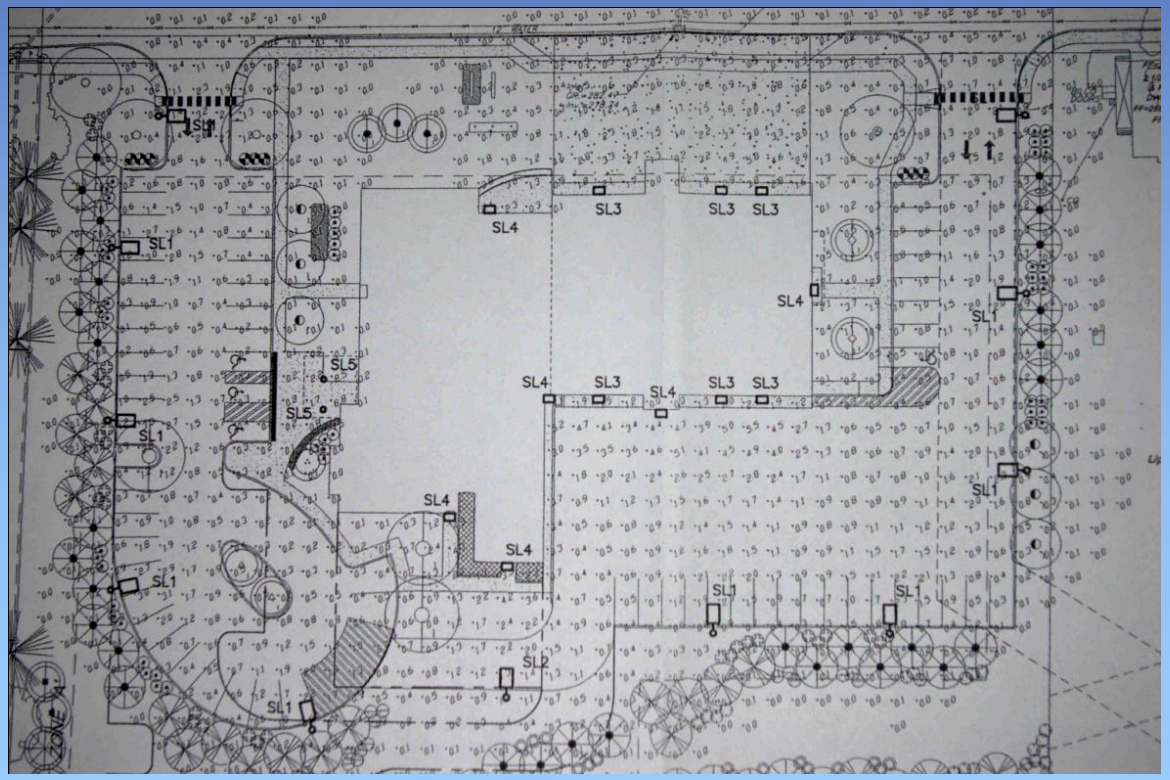
- Luminaire: Complete assembly (fixture)
- Ballast: Provides proper electricity to lamp
- Illuminance: Amt. of light received on surface
  - Invisible
- Footcandle: Unit of illuminance
- Horizontal Footcandles
  - Light received on a horizontal surface
- Vertical Footcandles
  - Light received on a non-horizontal surface





DEFINITIONS (CONTD)

- Footcandle Plot: A way to show predicted light levels across a surface
  - Typically values on 10’ x 10’ centers

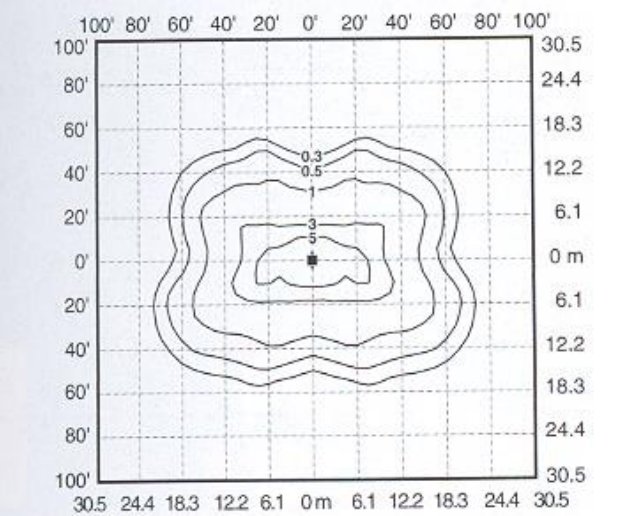


DEFINITIONS (Contd)

- Iso-Footcandle Plot
  - Points of common illuminance value connected

    Shows beam pattern

    Sometimes used in combination with point by point



Isofootcandle plot of 16" square 400W MH Horizontal Lamp Post Top Light at 25' (7.6 m) mounting height.

DEFINITIONS (CONTD)

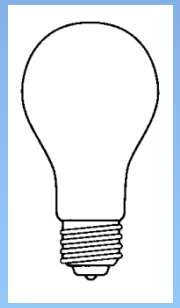
- Lamp: The “bulb” that is the light source
- Light Loss Factor: Multiplier applied to the lamp’s rated output to compensate for lamp depreciation, dirt accumulation and other factors before burnout.

  Run between 0.90 and 0.60 depending upon lamp type, fixture sealing and ambient conditions.

- Lumen: Unit of light output of lamp.

  E.g., 400-watt HPS lamp = 50,000 lumens

  40-watt incandescent = 500 lumens



DEFINITIONS (Contd)

- Brightness: Light being *emitted* from a source or *reflected* off of a surface.
- Glare – The sensation produced by excessive brightness in the field of view
  - Varies with viewer's age and other factors
  - Can't be measured
  - Nuisance, disabling
  - In the eye of the beholder

DEFINITIONS (Contd)

- Light Trespass – Light where it isn't needed or wanted, e.g. neighbor's yard
- HID – High intensity discharge. Generic reference to HPS, MH lamps

DEFINITIONS (Contd)

Cutoff Classifications

Amount of light emitted

in 2 critical zones:

90º - 180º (up light)

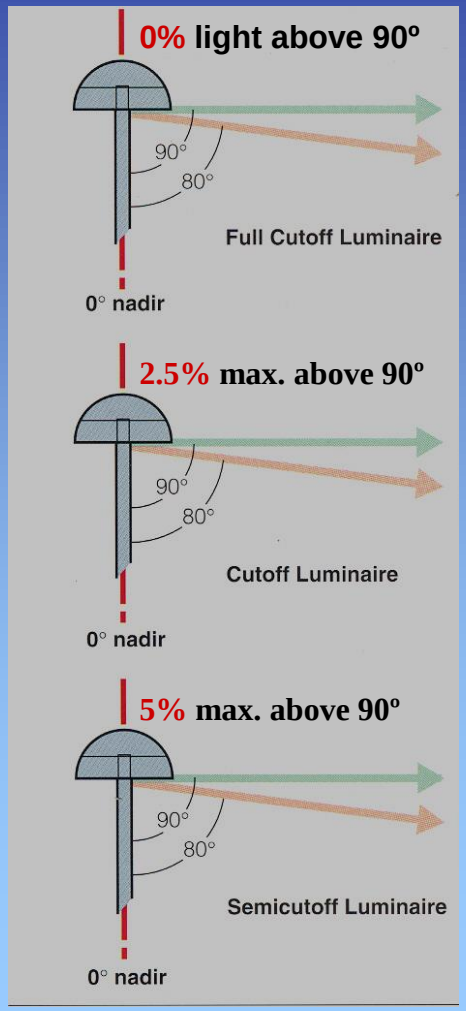
80º - 90º (Glare Zone)

Non Cutoff

Anything goes

Fully Shielded

No light emitted above 90º



FULL CUTOFF

No more than 10% between 80º & 90º

CUTOFF

No more than 10% between 80º & 90º

SEMI-CUTOFF

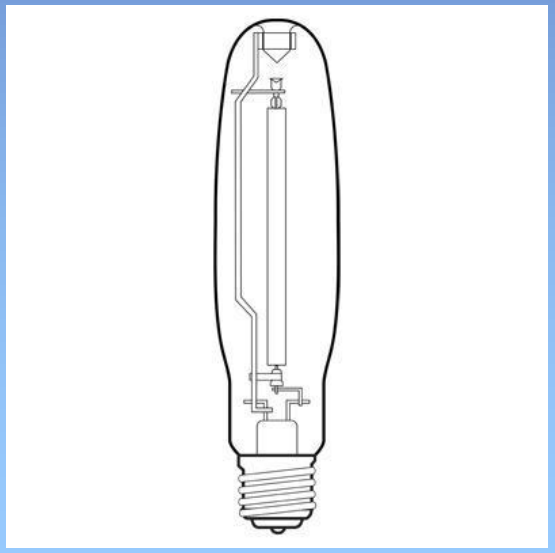
No more than 20% between 80º and 90º

LIGHTING FUNDAMENTALS

Light sources (lamps, bulbs)

High Pressure Sodium HPS

- Things look somewhat gray under it.
- High efficacy: 100-125 lumens/watt
- Long life: 24,000+ hours
- Color of Light: Yellow-white
- Run up time: 1 – 3 minutes
- Restrike time: 10 minutes
- Dimming: No



LIGHTING FUNDAMENTALS

- Light sources (lamps, bulbs)
  - Metal Halide MH
    - Relatively high efficacy: 90 to 100 lumens/watt
    - Life: 7,500 to 20,000 hours
    - Color of light: Blue/white
    - Run up time: 2 minutes
    - Restrike time: 3 to 4 minutes
    - Dimming: Limited

LIGHTING FUNDAMENTALS

- Light sources (lamps, bulbs)
  - Induction (enhanced and advanced form of florescent)
    - Efficacy: 64 to 73 lumens/watt
    - Life: 60,000 to 100,000 hours
    - Color of light: White
    - Run up time: Instant
    - Restrike time: Instant
    - Dimming: Limited

LIGHTING FUNDAMENTALS

- Light sources (lamps, bulbs)
  - LED
    - Efficacy: 50 to 80 lumens/watt (and climbing)
    - Life: ~50,000 hours ?
    - Color of light: Bluish to warm
    - Run up time: Instant
    - Restrike time: Instant
    - Dimmable: Yes

LED vs. HPS

LIGHTING FUNDAMENTALS

- Lighting fixture (luminaire) types
  - Pole-Mount Area Luminaires

Flat-lens Shoebox

FCO

Adjustable Mount Shoebox
Not FCO

Sag Lens Shoebox
Not FCO

LED Shoebox
FCO

LIGHTING FUNDAMENTALS

- Lighting fixture (luminaire) types
  - Wall Mount

FCO

Wall Brightness

Decorative FCO

Non-Cutoff

LIGHTING FUNDAMENTALS

- Lighting fixture (luminaire) types – Misc.

Floodlights

Bollards

Decorative

Roadway
Lighting Fixtures

LIGHTING FUNDAMENTALS

UP-LIT BOARD

LED BOARD

LIGHTING FUNDAMENTALS

LIGHTING ORDINANCES

- If your municipality doesn't have a strong lighting ordinance you'll be:
  - Less equipped to enforce corrective action for bad lighting
  - Shooting from the hip and open to possible legal action
  - Playing by their rules
- Best located in zoning ordinance
- POLC can help your municipality draft an ordinance.

REVIEWING SUBMISSIONS

Lighting plans are seldom thoroughly reviewed during Building Permit Application phase.

There is so much else to look at.

Building Permit Plans – Where's the Lighting?

REVIEWING SUBMISSIONS

Too often lighting on approved land development plans doesn't get on building permit submissions.

Why?

The Stone Wall

<u>Land Development</u>
Civil Engineers
- Free lighting layout

Landscapers
Site Planners

<u>Building Permit</u>
Architect
Electrical Engineer
General Contractor
Electrical Contractor

REVIEWING SUBMISSIONS

Here's what needs to be checked:

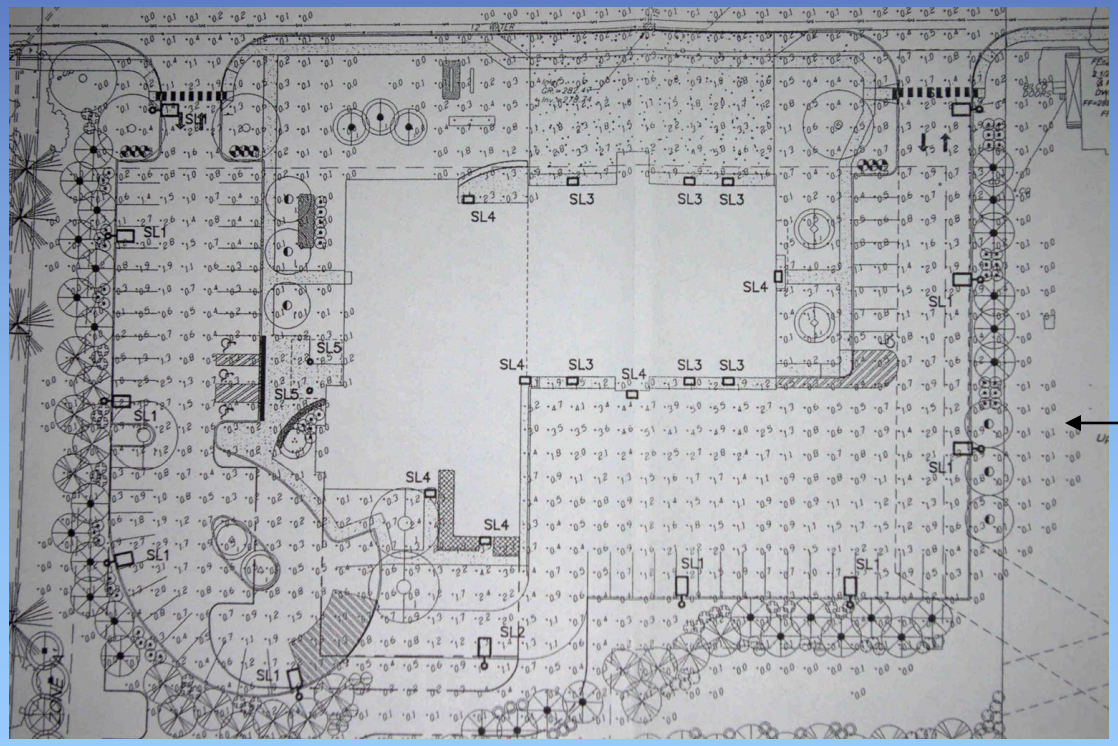
Plan Content Check List

- ✓ Illuminance plot provided and compliant?
- ✓ Fixture catalog cuts on plan?
- ✓ Fixture catalog numbers, including accessories?
- ✓ Statistical Area Summary?
- ✓ Lamp ordering nomenclature?
- ✓ Mounting heights for all fixture types?
- ✓ Aiming angles for directional fixtures?
- ✓ Control device details?

REVIEWING SUBMISSIONS

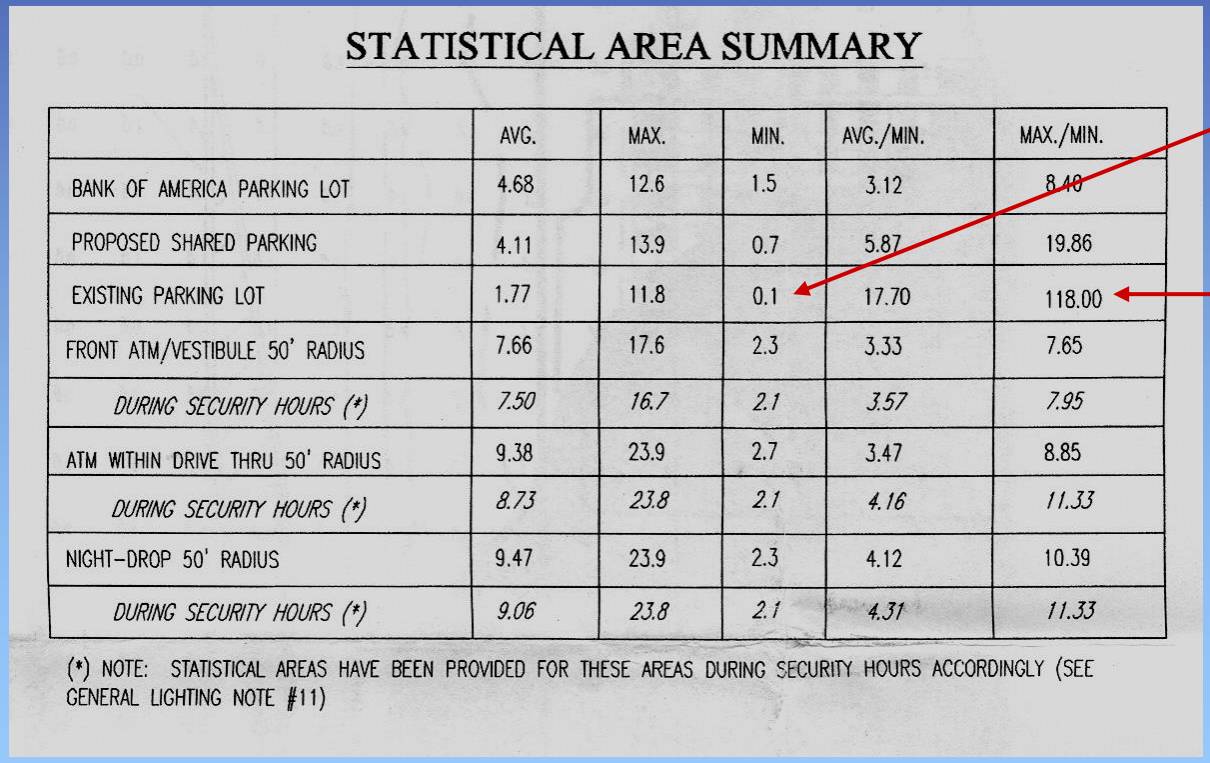
Plan Content

- Illuminance plot provided and compliant?



REVIEWING SUBMISSIONS

- Illuminances and uniformities per ordinance?



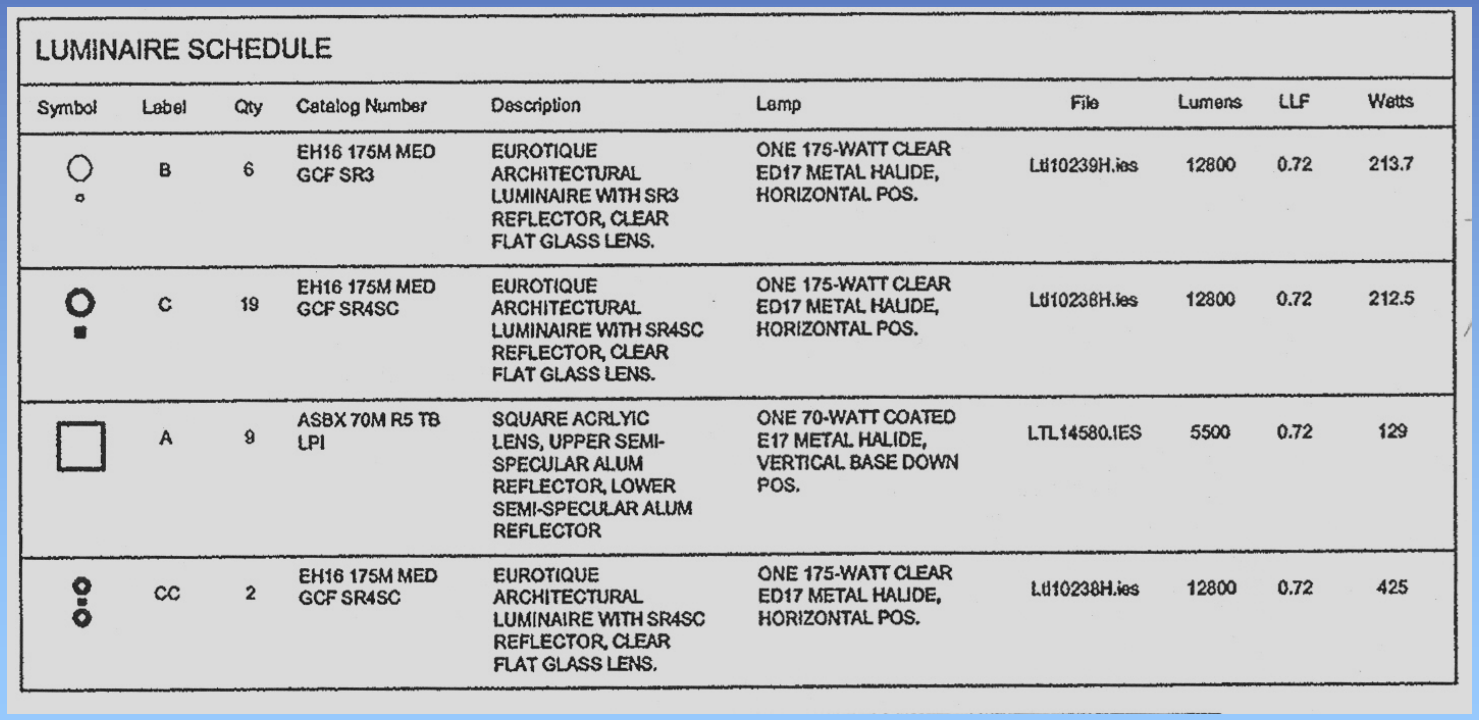
STATISTICAL AREA SUMMARY

	AVG.	MAX.	MIN.	AVG./MIN.	MAX./MIN.
BANK OF AMERICA PARKING LOT	4.68	12.6	1.5	3.12	8.40
PROPOSED SHARED PARKING	4.11	13.9	0.7	5.87	19.86
EXISTING PARKING LOT	1.77	11.8	0.1	17.70	118.00
FRONT ATM/VESTIBULE 50' RADIUS	7.66	17.6	2.3	3.33	7.65
DURING SECURITY HOURS (*)	*7.50*	*16.7*	*2.1*	*3.57*	*7.95*
ATM WITHIN DRIVE THRU 50' RADIUS	9.38	23.9	2.7	3.47	8.85
DURING SECURITY HOURS (*)	*8.73*	*23.8*	*2.1*	*4.16*	*11.33*
NIGHT-DROP 50' RADIUS	9.47	23.9	2.3	4.12	10.39
DURING SECURITY HOURS (*)	*9.06*	*23.8*	*2.1*	*4.31*	*11.33*

(*) NOTE: STATISTICAL AREAS HAVE BEEN PROVIDED FOR THESE AREAS DURING SECURITY HOURS ACCORDINGLY (SEE GENERAL LIGHTING NOTE #11)

REVIEWING SUBMISSIONS

- Fixtures fully described in Luminaire Schedule?

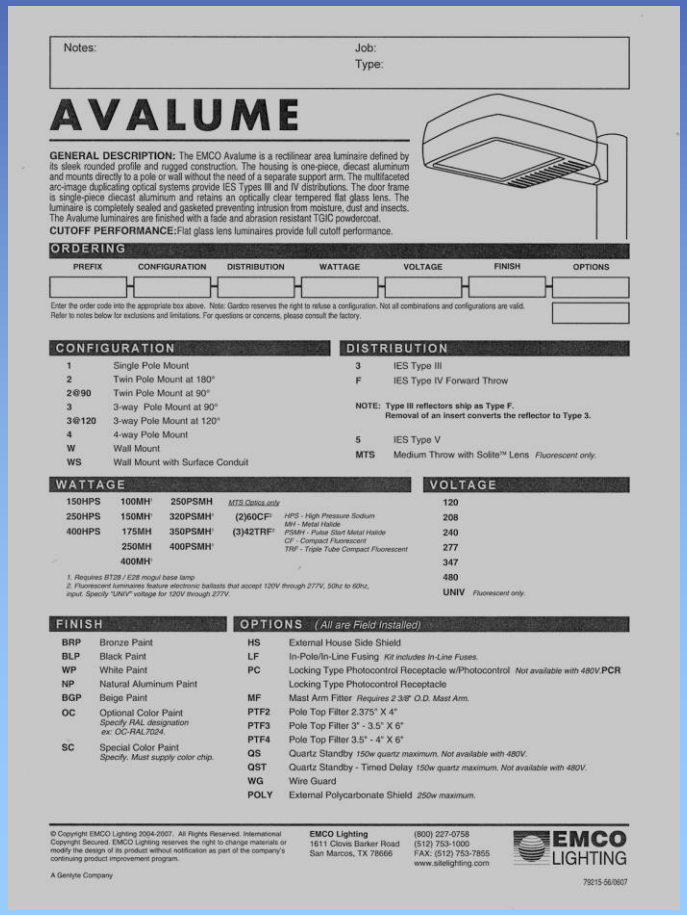


LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
○	B	6	EH16 175M MED GCF SR3	EUROTIQUE ARCHITECTURAL LUMINAIRE WITH SR3 REFLECTOR, CLEAR FLAT GLASS LENS.	ONE 175-WATT CLEAR ED17 METAL HALIDE, HORIZONTAL POS.	Ltl10239H.ies	12800	0.72	213.7
○ ■	C	19	EH16 175M MED GCF SR4SC	EUROTIQUE ARCHITECTURAL LUMINAIRE WITH SR4SC REFLECTOR, CLEAR FLAT GLASS LENS.	ONE 175-WATT CLEAR ED17 METAL HALIDE, HORIZONTAL POS.	Ltl10238H.ies	12800	0.72	212.5
□	A	9	ASBX 70M R5 TB LPI	SQUARE ACRLYIC LENS, UPPER SEMI-SPECULAR ALUM REFLECTOR, LOWER SEMI-SPECULAR ALUM REFLECTOR	ONE 70-WATT COATED E17 METAL HALIDE, VERTICAL BASE DOWN POS.	LTL14580.IES	5500	0.72	129
○ ◇	CC	2	EH16 175M MED GCF SR4SC	EUROTIQUE ARCHITECTURAL LUMINAIRE WITH SR4SC REFLECTOR, CLEAR FLAT GLASS LENS.	ONE 175-WATT CLEAR ED17 METAL HALIDE, HORIZONTAL POS.	Ltl10238H.ies	12800	0.72	425

REVIEWING SUBMISSIONS

- Catalog Cuts of Luminaires on Plan?



Notes: Job: Type:

AVALUME

GENERAL DESCRIPTION: The EMCO Avalume is a rectilinear area luminaire defined by its sleek rounded profile and rugged construction. The housing is one-piece, diecast aluminum and mounts directly to a pole or wall without the need of a separate support arm. The multifaceted arc-image duplicating optical systems provide IES Types III and IV distributions. The door frame is single-piece diecast aluminum and retains an optically clear tempered flat glass lens. The luminaire is completely sealed and gasketed preventing intrusion from moisture, dust and insects. The Avalume luminaires are finished with a fade and abrasion resistant TGIC powdercoat.
CUTOFF PERFORMANCE: Flat glass lens luminaires provide full cutoff performance.

ORDERING

PREFIX	CONFIGURATION	DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

CONFIGURATION

1	Single Pole Mount
2	Twin Pole Mount at 180°
2@90	Twin Pole Mount at 90°
3	3-way Pole Mount at 90°
3@120	3-way Pole Mount at 120°
4	4-way Pole Mount
W	Wall Mount
WS	Wall Mount with Surface Conduit

DISTRIBUTION

3	IES Type III
F	IES Type IV Forward Throw

NOTE: Type III reflectors ship as Type F. Removal of an insert converts the reflector to Type 3.

5	IES Type V
MTS	Medium Throw with Solite™ Lens *Fluorescent only.*

WATTAGE

150HPS	100MH[1]	250PSMH	*MTS Optics only*	
250HPS	150MH[1]	320PSMH[1]	(2)60CF[2]	*HPS - High Pressure Sodium*
400HPS	175MH	350PSMH[1]	(3)42TRF[2]	*MH - Metal Halide*
	250MH	400PSMH[1]		*PSMH - Pulse Start Metal Halide*
	400MH[1]			*CF - Compact Fluorescent*
				TRF - Triple Tube Compact Fluorescent

1. Requires BT28 / E28 mogul base lamp
2. Fluorescent luminaires feature electronic ballasts that accept 120V through 277V, 50hz to 60hz, input. Specify "UNIV" voltage for 120V through 277V.

VOLTAGE

120, 208, 240, 277, 347, 480, UNIV *Fluorescent only.*

FINISH

BRP	Bronze Paint
BLP	Black Paint
WP	White Paint
NP	Natural Aluminum Paint
BGP	Beige Paint
OC	Optional Color Paint *Specify RAL designation ex: OC-RAL7024.*
SC	Special Color Paint *Specify. Must supply color chip.*

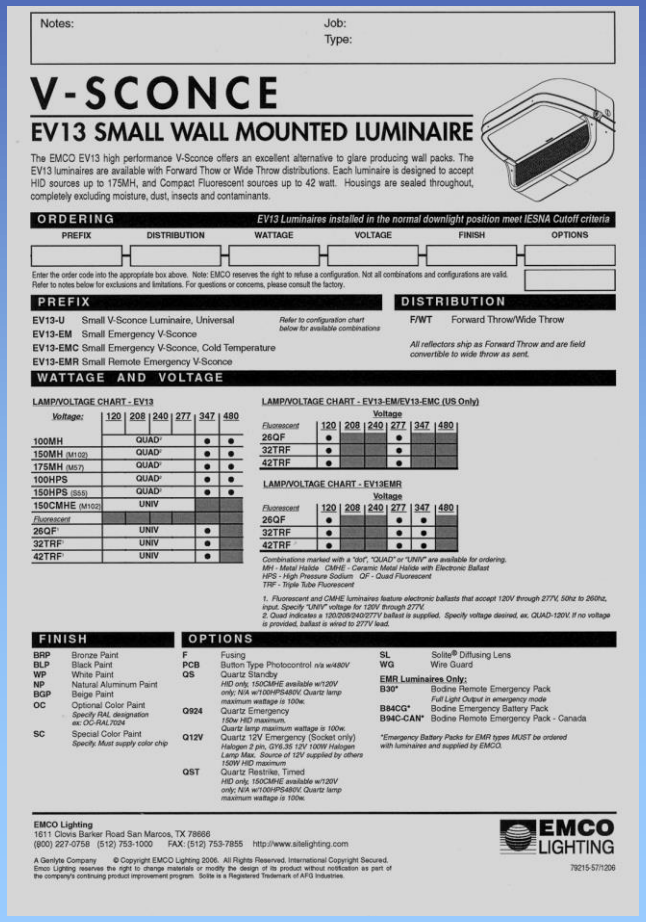
OPTIONS *(All are Field Installed)*

HS	External House Side Shield
LF	In-Pole/In-Line Fusing *Kit includes In-Line Fuses.*
PC	Locking Type Photocontrol Receptacle w/Photocontrol *Not available with 480V.* **PCR**
	Locking Type Photocontrol Receptacle
MF	Mast Arm Fitter *Requires 2 3/8" O.D. Mast Arm.*
PTF2	Pole Top Fitter 2 .375" X 4"
PTF3	Pole Top Fitter 3" - 3.5" X 6"
PTF4	Pole Top Fitter 3.5" - 4" X 6"
QS	Quartz Standby *150w quartz maximum. Not available with 480V.*
QST	Quartz Standby - Timed Delay *150w quartz maximum. Not available with 480V.*
WG	Wire Guard
POLY	External Polycarbonate Shield *250w maximum.*

EMCO Lighting
1611 Clovis Barker Road
San Marcos, TX 78666
(800) 227-0758
(512) 753-1000
FAX: (512) 753-7855
www.sitelighting.com

A Genlyte Company

79215-56/0607



Notes: Job: Type:

V-SCONCE

EV13 SMALL WALL MOUNTED LUMINAIRE

The EMCO EV13 high performance V-Sconce offers an excellent alternative to glare producing wall packs. The EV13 luminaires are available with Forward Throw or Wide Throw distributions. Each luminaire is designed to accept HID sources up to 175MH, and Compact Fluorescent sources up to 42 watt. Housings are sealed throughout, completely excluding moisture, dust, insects and contaminants.

ORDERING *EV13 Luminaires installed in the normal downlight position meet IESNA Cutoff criteria*

PREFIX	DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS

Enter the order code into the appropriate box above. Note: EMCO reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX

EV13-U	Small V-Sconce Luminaire, Universal
EV13-EM	Small Emergency V-Sconce
EV13-EMC	Small Emergency V-Sconce, Cold Temperature
EV13-EMR	Small Remote Emergency V-Sconce

Refer to configuration chart below for available combinations

DISTRIBUTION

F/WT	Forward Throw/Wide Throw

All reflectors ship as Forward Throw and are field convertible to wide throw as sent.

WATTAGE AND VOLTAGE

LAMP/VOLTAGE CHART - EV13

Voltage:	120	208	240	277	347	480
100MH	QUAD[1]			●		●
150MH (M102)	QUAD[1]			●		●
175MH (M57)	QUAD[1]			●		●
100HPS	QUAD[1]			●		●
150HPS (S55)	QUAD[1]			●		●
150CMHE (M102)	UNIV					
Fluorescent						
26QF[2]	UNIV			●		
32TRF[2]	UNIV			●		
42TRF[2]	UNIV			●		

LAMP/VOLTAGE CHART - EV13-EM/EV13-EMC (US Only)

	Voltage					
Fluorescent	120	208	240	277	347	480
26QF	●			●		
32TRF	●			●		
42TRF	●			●		

LAMP/VOLTAGE CHART - EV13EMR

	Voltage					
Fluorescent	120	208	240	277	347	480
26QF	●			●	●	
32TRF	●			●	●	
42TRF	●			●	●	

Combinations marked with a "dot", "QUAD" or "UNIV" are available for ordering.
MH - Metal Halide CMHE - Ceramic Metal Halide with Electronic Ballast
HPS - High Pressure Sodium QF - Quad Fluorescent
TRF - Triple Tube Fluorescent

1. Fluorescent and CMHE luminaires feature electronic ballasts that accept 120V through 277V, 50hz to 266hz, input. Specify "UNIV" voltage for 120V through 277V.
2. Quad indicates a 120/208/240/277V ballast is supplied. Specify voltage desired, ex. QUAD-120V. If no voltage is provided, ballast is wired to 277V lead.

FINISH

BRP	Bronze Paint
BLP	Black Paint
WP	White Paint
NP	Natural Aluminum Paint
BGP	Beige Paint
OC	Optional Color Paint *Specify RAL designation ex: OC-RAL7024*
SC	Special Color Paint *Specify. Must supply color chip*

OPTIONS

F	Fusing
PCB	Button Type Photocontrol *n/a w/480V*
QS	Quartz Standby *HID only. 150CMHE available w/120V only; N/A w/100HPS480V. Quartz lamp maximum wattage is 100w.*
Q924	Quartz Emergency *150w HID maximum. Quartz lamp maximum wattage is 100w.*
Q12V	Quartz 12V Emergency (Socket only) *Halogen 2 pin, GY6.35 12V 100W Halogen Lamp Max. Source of 12V supplied by others 150W HID maximum*
QST	Quartz Restrike, Timed *HID only. 150CMHE available w/120V only; N/A w/100HPS480V. Quartz lamp maximum wattage is 100w.*
SL	Solite® Diffusing Lens
WG	Wire Guard

EMR Luminaires Only:

B30*	Bodine Remote Emergency Pack *Full Light Output in emergency mode*
B84CG*	Bodine Emergency Battery Pack
B94C-CAN*	Bodine Remote Emergency Pack - Canada

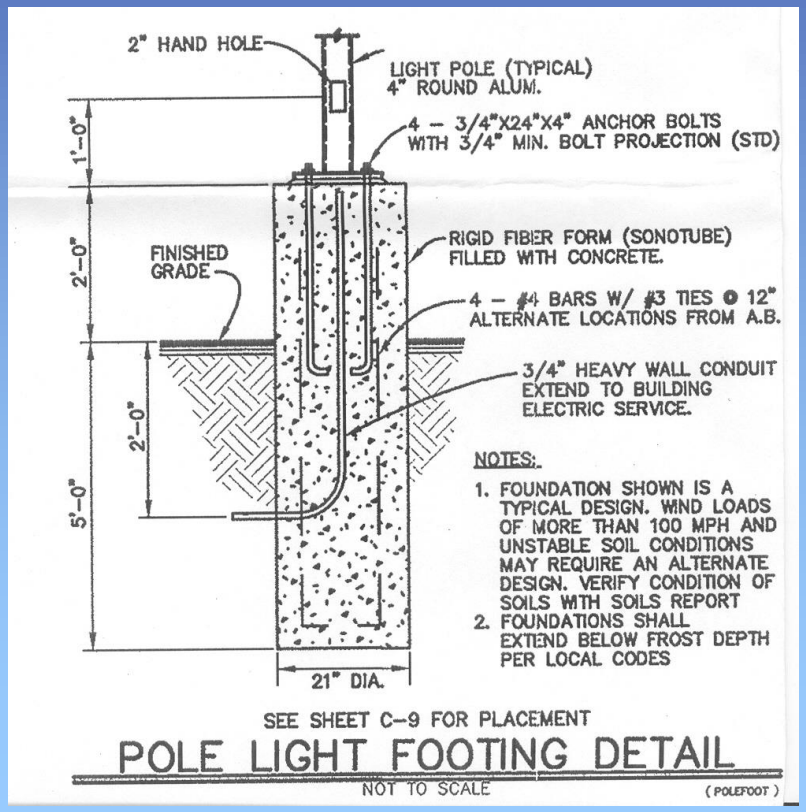
**Emergency Battery Packs for EMR types MUST be ordered with luminaires and supplied by EMCO.*

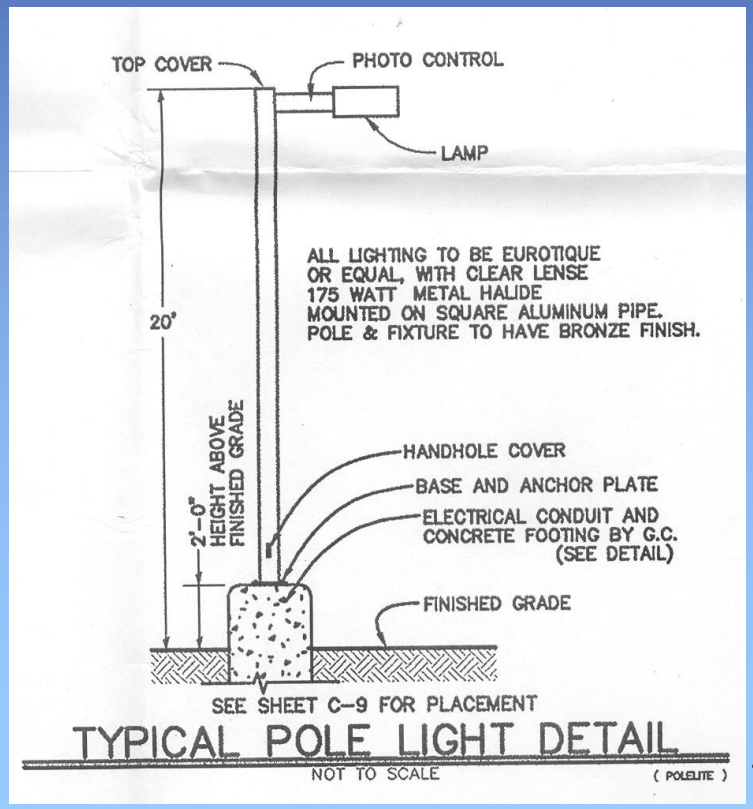
EMCO Lighting
1611 Clovis Barker Road San Marcos, TX 78666
(800) 227-0758 (512) 753-1000 FAX: (512) 753-7855 http://www.sitelighting.com

79215-57/1206

REVIEWING SUBMISSIONS

- Mounting heights per ordinance?
- Poles Protected?





REVIEWING SUBMISSIONS

- On/Off Control Specified?
  - Turn-off time settings?
  - Type of device?

Mechanical Timeclock

Does not reset time after outage

Battery Backup

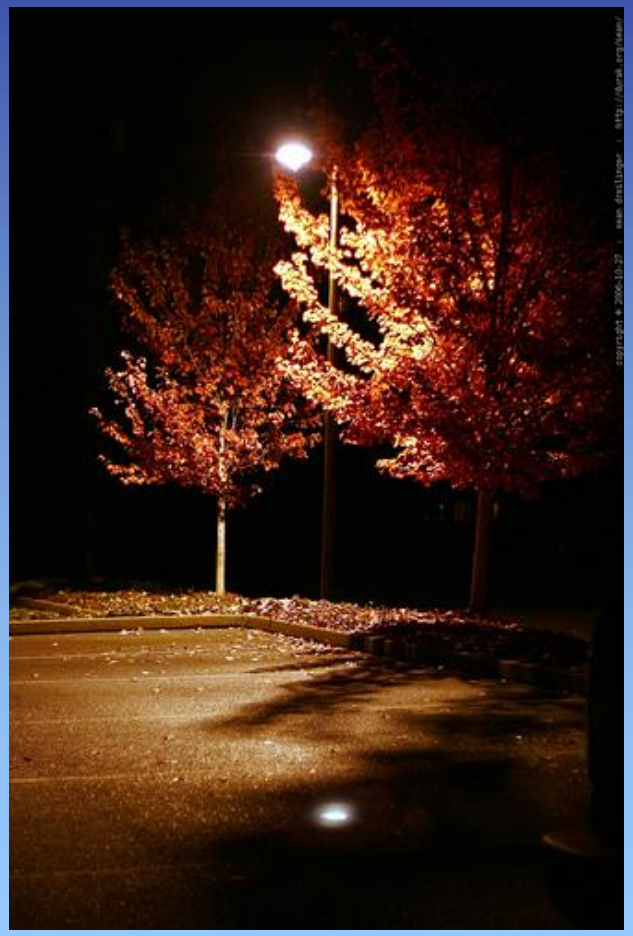
Programmable Controller

REVIEWING SUBMISSIONS

- Security (dusk-to-dawn) Lighting
  - All-night fixtures clearly marked on plan?
  - Number-of-fixtures allowance to remain on not exceeded?
  - Properly circuited to achieve results?

REVIEWING SUBMISSIONS

- Tree conflicts?
  - Luminaires plotted on landscape plan?
  - Will trees, initially or at maturity, block intended light distribution?
  - Would a less dense tree variety help?



INSPECTIONS & COMPLIANCE MONITORING

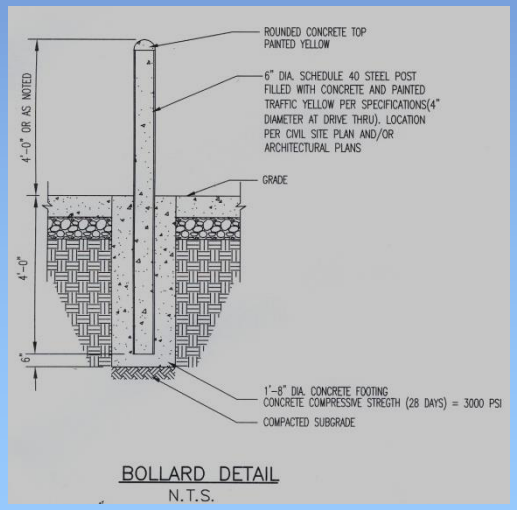
Conducting post-install inspection

- Fixtures and lamps as specified?
  - Fixtures have the same appearance as cut? Hard to be sure at 20’ up
  - If in doubt, ask for evidence, e.g., packing slips or invoices
  - If footcandles vary significantly from approved plan, it’s likely not the specified fixture.

INSPECTIONS & COMPLIANCE MONITORING

Conducting post-install inspection

- Poles located per approved plan?
  - Relocated poles excessively alter uniformity?
  - Protected from backing vehicles?
  - Fixtures aimed straight down?
  - Poles plumb?

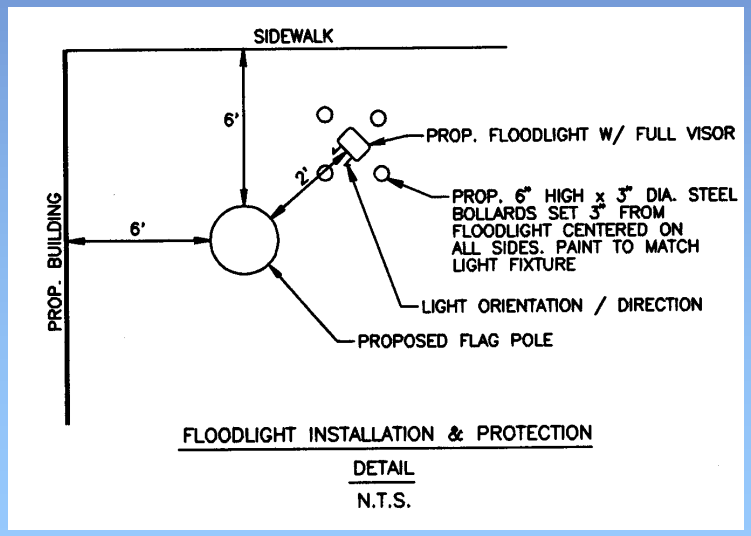


INSPECTIONS & COMPLIANCE MONITORING

Conducting post-install inspection

- Floodlights aimed and protected as specified?

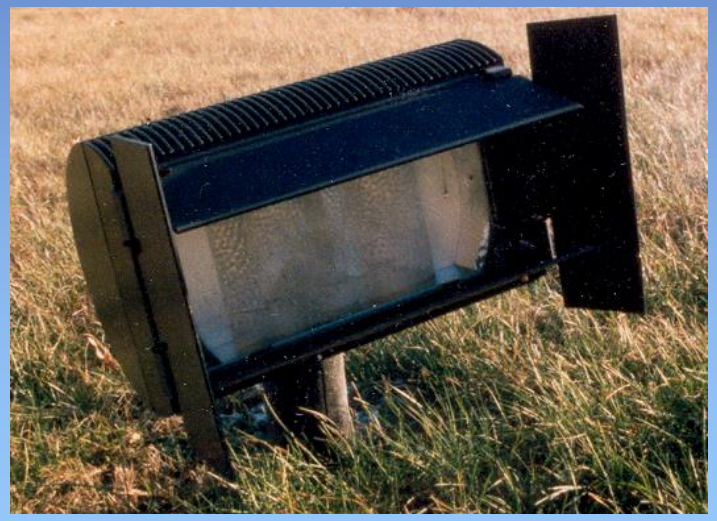
Lawn Maintenance Casualty



INSPECTIONS & COMPLIANCE MONITORING

Conducting post-install inspection

- Accessories installed?



Shields Installed as Specified?

INSPECTIONS & COMPLIANCE MONITORING

Conducting post-install inspection

- Mounting heights as specified?

Inexpensive Mounting-Height Measuring Devices

INSPECTIONS & COMPLIANCE MONITORING

Conducting post-install inspection

- Illuminances as predicted on plan?
  - Measure hot spots and dark spots
    - Don’t block light from reaching meter
  - Measure horizontal and vertical fc at property lines for light trespass conformance.

INSPECTIONS & COMPLIANCE MONITORING

Conducting post-install inspection

- Lighting control usually in electrical closet
- After-hours lighting scheme as specified?
  - Controller properly set?
  - Controller have memory backup?
  - Photocell aimed in right direction?

INSPECTION & COMPLIANCE MONITORING

- Undiscovered mistakes made during construction often come back to bite the municipality.

RESPONDING TO COMPLAINTS

When you receive a complaint

- Someone has a gripe, someone doesn't care
  - Is the complaint valid or petty?
  - Is there ordinance language that covers the issue?
  - Is there a simple amicable fix?

RESPONDING TO COMPLAINTS

When you receive a complaint

- Assessing glare – It's your call
  - Is it annoying?
  - Is it excessive?
  - Is it dangerous?
  - Is it unnecessary?
  - Is it easily remedied?

RESPONDING TO COMPLAINTS

When you receive a complaint

- Measuring light trespass with meter
  - Stand at boundary, aim meter at luminaire, or
  - Take reading on side of house receiving the light.

RESPONDING TO COMPLAINTS

When you receive a complaint

- Measuring light trespass with meter

  Konica-Minolta T-10

  - Range: 0.001 – 29,990 footcandles
  - Price: $969

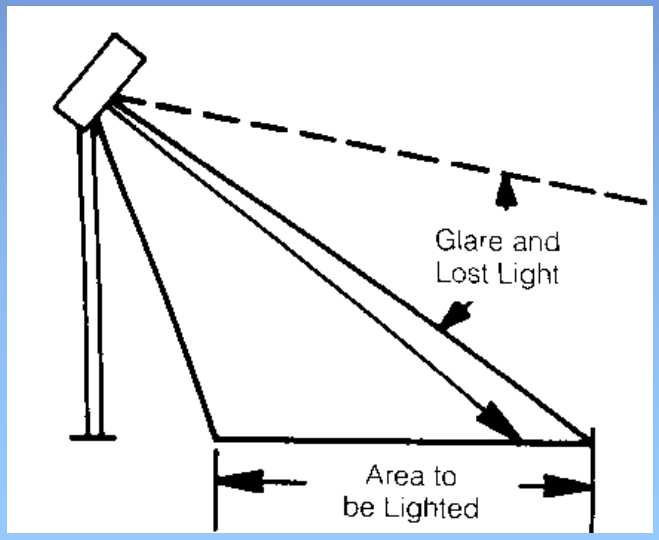
  Cooke Cal-Light 400

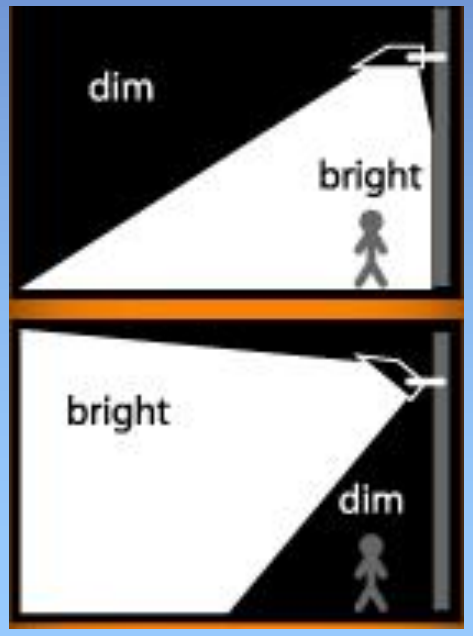
  - Range: 0.1 – 40,000 fc
  - Price: $395

RESPONDING TO COMPLAINTS

When you receive a complaint

- Simple remedial solutions to require:
  - Reaiming down to 45º or less



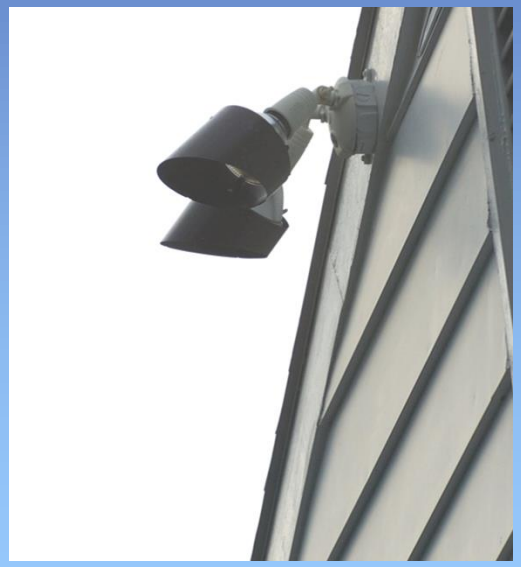


RESPONDING TO COMPLAINTS

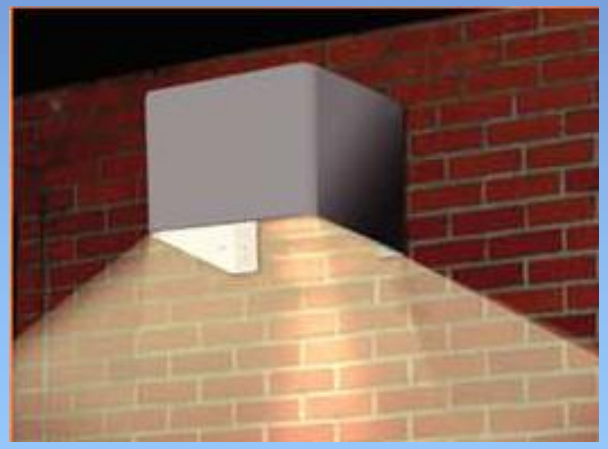
When you receive a complaint

- Simple remedial solutions to require:
  - Shielding

Barn Doors



PAR Shields



Wallpack Shield

RESPONDING TO COMPLAINTS

When you receive a complaint

- Simple remedial solutions to require:
  - Shielding a barn or dusk-to-dawn light

Replace Refractor with Reflector

Add Light Blocker
or Paint Refractor

Replace Photocell
w/ Photocell/Timer

RESPONDING TO COMPLAINTS

When you receive a complaint

- Simple remedial solutions to require:
  - Lowering of wattage if incandescent or self-ballasted CFL
    - 40-watt incandescent or 9-watt CFL often plenty
    - HPS, mercury and metal halide wattages cannot be lowered just by changing lamp.

RESPONDING TO COMPLAINTS

When you receive a complaint

- Some remedial solutions to require:
  - Use of motion sensor or interval timer or time clock set for 10:30 p.m. shutoff

Photocell-
Motion Sensor

Interval
Timer

Basic
Timeclock

Photocell-
Timer

RESPONDING TO COMPLAINTS

Thanking a neighbor for lighting up your bedroom all night.

CONCLUSION

You now have the tools you'll need to help create and maintain a friendlier nighttime environment in your community.

CONCLUSION

If the POLC can be of further help to you or your municipality in upgrading your ordinance or answering questions, don't hesitate to contact us polcouncil@gmail.com or visit our website at: www.polcouncil.org where you'll find a ton of helpful resources on lighting.

Thank You!