

# SCOTTSDALE PLAZA RESORT EXISTING LIGHTING PHOTOMETRIC STUDY



# Prepared for:

Highgate Hotel, L.P. 870 Seventh Avenue, Second Floor New York, NY 10018

Site Address:

7200 North Scottsdale Road Scottsdale, AZ 85253

Prepared by:

Creative Designs in Lighting 15982 North 78<sup>th</sup> Street, Suite A Scottsdale, AZ 85260

# SCOPE

Creative Designs in Lighting was contracted to measure existing light levels, develop an inventory of exterior light fixtures, and prepare a photometric study to determine a baseline for the planned renovation of the property.

# **DOCUMENTS**

An ALTA survey was provided in CAD format from Aaron Woodward of Rider Levett Bucknall. No additional as-built documents were provided by the client. CDL did locate some original as-built information on-line that included architectural drawings from 1983, however no electrical drawings or lighting drawings were included in the sets. These documents are available on the website for the Town of Paradise Valley and were forwarded to Mr. Woodward for use in the proposed renovations.

# SITE VERIFICATION

CDL made several site visits during daylight hours and after sunset to inventory existing exterior lighting fixtures. The ALTA survey was instrumental in locating many fixtures shown, but there were a substantial number of fixtures that were located that did not show on the survey (and a small number of fixtures that were shown on the study that are no longer there).

# REPRESENTATIVE PHOTOMETRIC LIGHT LEVEL MEASUREMENTS

The light meter used for this study is the Extech 401025 and measurements were taken in footcandles.



<u>Perimeter Light Trespass</u> - Light trespass levels were read at the property lines at 5'-0" above grade with light meter aimed into the property. In summary, all perimeter points measured read 0.1fc or less since generally all lights were located at least 13' from the property line (exceptions

to this were internally illuminated signage and three fixtures at the Scottsdale Road frontage near the porte cochere).

Ground Plane Light Levels - Other light levels measured throughout the property were taken at the ground level with the sensor aimed up. The majority of areas beyond parking areas and pedestrian pathways measured 0.1fc or less. The highest light levels were found on the tennis courts peaking around 28.0fc.

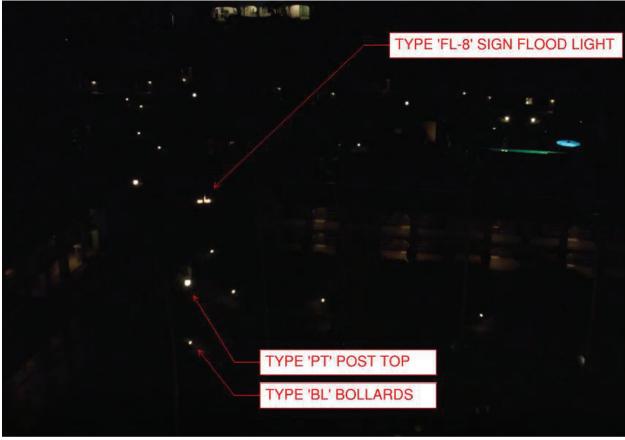
# PHOTOMETRIC MODEL

The software utilized for the photometric model is Visual Lighting 2020 r2. The program utilizes \*.ies files to model the lighting output of each fixture type. The ies.\* files used in the program were selected to most closely model the existing light fixture output (note- \*.ies files for the actual fixture types were not available from the manufacturers that were identified or the manufacture and model numbers were not available). Light fixtures included in the photometric model were those that added light to ground plane, so the following were excluded from the model:

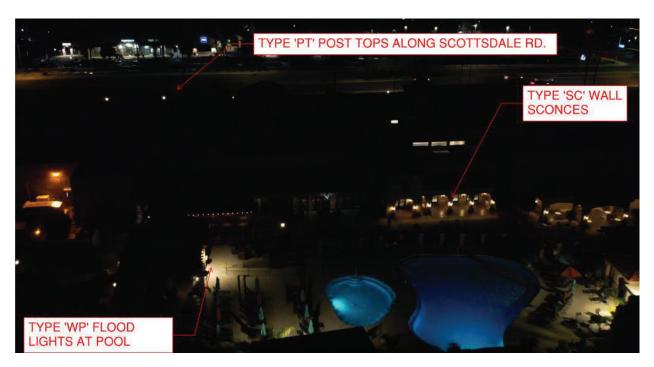
- Flood lights and landscape lights that were aimed upwards.
- Downlights and sconces located under canopies or overhangs (considered to be within the building perimeter).
- Lighting within pools and water features.
- Signage that is internally illuminated or flood lighted externally.

Photometric meshes were calculated on 10' X 10' grids and masked out within building perimeters.

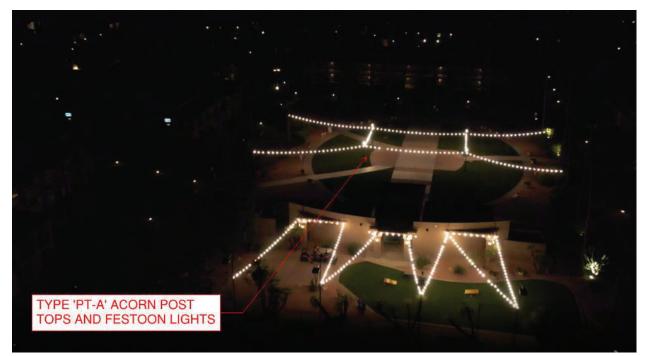
# **AERIAL PHOTOS WITH COMMENTARY**



The overall lighting brightness of the post top fixtures lenses was significantly brighter than the surfaces they were intended to illuminate (ground levels and building faces). This caused glare amidst the generally low light surroundings. This aerial photo shows the effect of seeing the fixture brightness, but very little illuminated from it.



The pool deck is illuminated by wall packs and flood lights and is not uniformly illuminated. Building mounted sconces provide additional lighting at building entrances.



Post top "acorn" lights and festoon lights illuminate the event lawn with soft uniform lighting. Besides the tennis courts, this is the brightest area on site. Note that there are additional floodlights mounted on palm trees for additional event lighting that were not energized in this photo.

# **FIXTURE SCHEDULE**

The following matrix is an inventory of the type of light fixtures discovered on site.

IMAGE	TYPE	DESCRIPTION	QUANTITY
	TYPE 'PT'  2 <sup>nd</sup> AVENUE PLAZA SERIES	POST TOP FIXTURE (1) A-LAMP, E26 BASE 5' MTD ON 3" ROUND POLE DARK BRONZE TRANSLUCENT LENS	107
	TYPE 'PT-2'  2 <sup>nd</sup> AVENUE PLAZA SERIES	POST TOP FIXTURE (2) A-LAMP, E26 BASE 5' MTD ON 3" ROUND POLE DARK BRONZE TRANSLUCENT LENS	7
	TYPE 'PT-1'  2 <sup>nd</sup> AVENUE PLAZA SERIES	SAME AS PT-2 EXCEPT SINGLE SIDE MOUNTED FIXTURE	1
	TYPE 'TC'	TENNIS COURT SPORTS LIGHTER FIXTURE METAL HALIDE LAMP GREEN FINISH SINGLE HEAD	7
	TYPE 'TC-2'	TENNIS COURT SPORTS LIGHTER FIXTURE METAL HALIDE LAMP GREEN FINISH TWO HEAD	4

TYPE 'PA' SIMILAR TO AAL FEDERAL GLOBE	POST TOP ACORN FIXTURE AT EVENT LAWN	4
TYPE 'CT-1'	COLUMN MTD 3-BULB, E26 (T.B.V.) CLEAR LENS	3
TYPE 'CT-G'	COLUMN MTD. LANTERN ON GABION WALL	4

TYPE 'PL'  KICHLER  ECLIPSE SERIES	PATH LIGHT AT LANDSCAPE OPEN-AIR ARCADE	6
TYPE 'BL'  KICHLER  UFO SERIES  (DISCONTINUED)	BOLLARD LOW VOLTAGE PATHWAY BOLLARD WITH FROSTED GLASS IN 360 DEGREE DISTRIBUTION. NOT DARK SKY RATED.	241

TYPE 'BL-S'  KICHLER  UFO SERIES-SMALL  (DISCONTINUED)	BOLLARD LOW VOLTAGE PATHWAY BOLLARD WITH FROSTED GLASS IN 360 DEGREE DISTRIBUTION. NOT DARK SKY RATED.	22
TYPE 'BL-G'	SAME AS TYPE 'BL' WITH ADDED GABION WALL ENCLOSURE	7

# FLOOD LIGHTS

IMAGE	TYPE	DESCRIPTION	QUANTITY
	TYPE 'FL-1'	GROUND MTD. FLOOD LIGHT PAR 30 LAMP, E26 BASE DARK BRONZE NO LENS	41
	TYPE 'FL-2'	GROUND MTD. FLOOD LIGHT LITHONIA INTEGRAL LED DARK BRONZE FROSTED LENS	11
	TYPE 'FL-3'	GROUND MTD. FLOOD LIGHT HIGH PRESSURE SODIUM LAMP (T.B.V.) DARK BRONZE CLEAR LENS	2

TYPE 'FL-4'	STANCION MTD. FLOOD LIGHT INTEGRAL LED GRAY CLEAR LENS	3
TYPE 'FL-5'	STANCION MTD. FLOOD LIGHT INTEGRAL LED DARK BRONZE CLEAR LENS	3
TYPE 'FL-6'	STANCION MTD. LANDSCAPE ACCENT MR16 DARK BRONZE (OR SAND AT ENTRY) CLEAR LENS	9
TYPE 'FL-7'	STANCION MTD. LANDSCAPE ACCENT INTEGRAL LED DARK BRONZE CLEAR LENS	2
TYPE 'FL-8'	J-BOX MTD. WEATHER PROOF "PORCELAIN" SOCKET PAR 38 LED, E26 BASE SHROUDED IN MOST LOCATIONS	41
TYPE 'FL-8-2'	J-BOX MTD. WEATHER PROOF "PORCELAIN" SOCKET 2-HEADED PAR 38 LED, E26 BASE SHROUDED IN MOST LOCATIONS	18

	TYPE 'FL-9'	STANCION MTD. LANDSCAPE LIGHT SAND COLOR	2
	TYPE 'FL-F'	FLAG POLE UPLIGHT FLOODS	3
	TYPE 'FL-H'	WIDE LANDSCAPE FLOOD LIGHT GROUND MTD.	1
	TYPE 'FL-T'	SMALL LANDSCAPE FLOOD LIGHT GROUND MTD.	20
3	TYPE 'TB'	TREE MOUNTED BULLET ACCENT LANDSCAPE LIGHTS	16
	TYPE 'FL-FOUNTAIN'	SUBMERSIBLE NICHE LIGHT INTEGRAL LED	NOT QUANTIFIED

# WALL PACKS

IMAGE	TYPE	DESCRIPTION	QUANTITY
	TYPE 'SC'  2ND AVENUE PLAZA SERIES	DECORATIVE WALL SCONCES (VARIOUS SIZES)	69 (NOTE- ADDITIONAL SCONCES LOCATED IN COVERED PATIOS
417.431 A	TYPE 'SGN'	WALL PACK COMPACT FLUORESCENT (T.B.V.)	24
	TYPE 'WP'	WALL PACK VARIOUS SIZES HPS (T.B.V.)	10
	TYPE 'FT'	FESTOON LIGHTING	7 locations

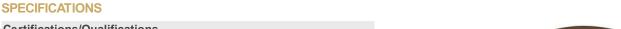
TYPE 'TD'	TREE MTD. DOWNLIGHTS	2

# **SELECT FIXTURE CUTSHEETS**

The following fixture cutsheets were found to match existing light fixtures. Not all fixture cutsheets were able to be tracked down without as-built information or model number information available.

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# TYPE 'BL'



Dimensions Height 28.75" Width 8.00"  Electrical Operating Voltage Range 9-15 VAC Voltage 12V  Light Source Delivered Lumens 224 Lamp Included Included Lamp Type LED Light Source LED Max or Nominal Watt 3.57W  Mounting/Installation Location Rating Wet  Photometrics Color Rendering Index 73 Delivered Efficacy (Lumens/Watt) Kelvin Temperature 28.75"	Certifications/Qualifications	
Height 28.75" Width 8.00"  Electrical Operating Voltage Range 9-15 VAC Voltage 12V  Light Source Delivered Lumens 224 Lamp Included Included Lamp Type LED Light Source LED Max or Nominal Watt 3.57W  Mounting/Installation Location Rating Wet  Photometrics Color Rendering Index 73 Delivered Efficacy (Lumens/Watt) 64		www.kichler.com/warranty
Operating Voltage Range 9-15 VAC Voltage 12V  Light Source Delivered Lumens 224 Lamp Included Included Lamp Type LED Light Source LED Max or Nominal Watt 3.57W  Mounting/Installation Location Rating Wet  Photometrics Color Rendering Index 73 Delivered Efficacy (Lumens/Watt) 64	Height	
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Location Rating Wet  Photometrics  Color Rendering Index 73  Delivered Efficacy (Lumens/Watt) 64	Delivered Lumens Lamp Included Lamp Type Light Source	Included LED LED
Color Rendering Index 73 Delivered Efficacy (Lumens/Watt) 64	G	Wet
	Color Rendering Index Delivered Efficacy (Lumens/Watt)	64



Housing	
Primary Material	ALUMINUM
Product/Ordering Information	

SKU 16133AZT28

Finish Textured Architectural Bronze

UPC 783927481335

#### **Finish Options**

Textured Architectural Bronze





TYPE 'PA'

- Reliable, efficient operation
- Type 2, 3, 4, 5 distributions
- 3000K, 4000K and 5000K CCT
- 0-10V dimming ready
- Integral surge protection

• Scaled family members





1. LUM	INAIRE 2. DECORATIVE 3. GLOBE 4. O STYLE STYLE	PTICAL SYSTEM 5	. COLOR TEMP	6. DRIVER	7. COLOR	8. OPTIONS	9. MOUNTING
	IINAIRE Il scale housing – LED) ver a 4"/100mm O.D. pole	FS2 (Double fus	IS e holder, fuse by others) se holder, fuse by others) aptor slips over a 3"/75 r	nm O.D. by 4"/1	00 mm		usings is cast aluminum, A356 alloy.
RB (Rib Fit	ORATIVE STYLE ter Design) tter Design )	long. Secur TA23 (Tenon ad ALF (Cast filigre PHC (Integral b.	o slip over a 5"/125mm ( es to the pole with four su daptor, slips over a 2 3/8' ne basket.) utton type photo control s	ainless steel set O.D. by 4"/100r	screws mm tenon)	<ul><li>with a silicon</li><li>All internal as steel.</li></ul>	e acrylic and sealed to the housing e gasket on the top and bottom. nd external hardware are stainless tional cast filigree basket are painted ising.
STANDA SAL (One-		available to p applications r spec sheet an		tection for ou le 24. For cor on, visit <u>www</u>	itdoor mplete	to a die-cast an injection r stainless stee • LED optics ar be mounted	g diode (LED) assembly are sealed anodized aluminum heat sink with molded silicone rubber gasket and I bezel, IP66. e injection molded PMMA acrylic and to a metal printed circuit board with a ormal coating over the panel surface
Y4-36LEI Y5-36LEI		POLE MOUN					nall accept 120 thru 277 50/60Hz inp integral surge protection and wire
3K (Warr. 4K (Neut 5K (Brigh	OR TEMPERATURE  In White, 3000K output)  Ital White, 4000K output)  In White, 5000K output)	Bolts to the s 5"/125mm DI TRA1M TRA55 TRA57  WALL MOUI  WMA1M WMA35U	TRA1L TRA56 <b>(4" or</b> TRA6U	TRA5U		temperature interface with Stand	trols.  L recognized, have a minimum starti of -30°C and have a 0-10v dimming on a dimming range of 10-100%.  lard Input Black (+)  White (-)  Green (GND)  siray Dimming Lead (-) ple Dimming Lead (+)  Ima Max
450 (450) 7. COLO BLS BLT DBS DBT GTT LGS LGT PSS VGT WHS WHT CC'	Black Gloss Smooth Black Matte Textured Dark Bronze Gloss Smooth Dark Bronze Matte Textured Graphite Matte Textured Light Grey Gloss Smooth Light Grey Matte Textured Platinum Silver Gloss Smooth Verde Green Matte Textured White Gloss Smooth White Matte Textured Custom Color	PIER MOUNT PM1	WMA56	WMA52	7	Drivers shall I ≤20% at full of <20.0 Am     Drivers shall I sourcing dim known comp     Thermal sheil configuration abnormally e conditions.     Surge protectsurge current	nave a power factor ≥.90 and THD of load with an inrush current maximum ps maximum at 230VAC.  not be compatible with current mers, consult factory for current list of atible dimming systems d will be provided with all as for added protection in the event of excessively high ambient temperature tor are U.L. recognized and have a strating of 10,000 Amps using the dard 8/20uSec wave and surge rating
	ult factory for custom color, e and corrosive finish	Visit www.aa Specification	al.net for Arms, Pole n Guide	s & Accesso	<u>ries</u>		



#### **SPECIFICATIONS (CONT.)**

#### **CONTROLS**

- SCP are have an integral surge protection device with a currentt rating of 10,000 Amps using the industry standard 8/20uSec wave and sure rating of 372J
- Sensor not intended for use with additional photocontrol, wireless control or dimming systems.

#### **SERVICING**

• The electrical assembly are mounted to a prewired internal service tray and accessed by releasing the service latch to allow the fixture to hinge open into a service position.

#### **FINISH**

- Luminaire finish are consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder
- Luminaire finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.

#### CERTIFICATION

• Luminaire are listed with ETL for outdoor, wet location use, UL1598, UL 8750 and Canadian CSA Std. C22.2 no.250. IP66.

# WARRANTY / TERMS AND CONDITIONS OF SALE

Download:

http://www.hubbelllighting.com/resources/warranty/

AAL reserves the right to change product specifications without notice.

#### DIMENSIONS

#### FGS

HEIGHT: 36" 914mm LENGTH: 14" 356mm 14" WIDTH: 356mm WEIGHT: 22 lbs EPA:





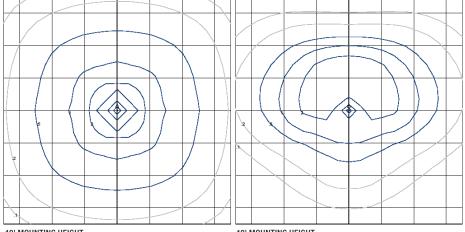
#### PERFORMANCE DATA (36 LEDS, 450 MA DRIVE CURRENT, 53 WATTS)

				5K					4K					3K				DRIVE	SYSTEM
	TYPE	LENS	LUMENS	LPW	В	U	G	LUMENS	LPW	В	U	G	LUMENS	LPW	В	U	G	CURRENT (mA)	WATTS
Г	T2		5183	71	2	4	3	5125	70	2	4	3	4997	68	2	4	3		
	T3		4667	64	1	4	2	4615	63	1	4	2	4499	62	1	4	2	45	53
Г	T4	SAL	5083	70	1	4	2	5026	69	1	4	2	4900	67	1	4	3	45	53
	T5		4645	64	3	4	2	4593	63	3	4	2	4478	61	2	4	2		
				FI					AV					21/					

				10.15	٠.		L .	_	.000			•	_		• •		· 1	
5K			4K				3K											
	CCT Average 5100K			4200K					3000K									
Γ	CCT Range 4600K – 5600			3800K – 4600K				2800K – 3175K										
	CRI Minimum ≤70		≤70				≤80											

#### FGS-RB-SLG-Y5-36LED-5K-450

#### FGS-RB-SLG-Y3-36LED-5K-450



10' MOUNTING HEIGHT

10' MOUNTING HEIGHT

# IES files can be found at www.aal.net

AMBIENT TEMP.	0	25,000	50,000	*TM-21-11	100,000	REPORTED
				60,000		L70 (HRS)
25°C/77°F	100%	97%	96%	95%	93%	>60,000
40°C/104°F	100%	95%	93%	92%	89%	>60,000

TYPE 'PL'

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# **SPECIFICATIONS**

Certifications/Qualifications	
	www.kichler.com/warranty
Dimensions	
Height Width	18.50" 4.50"
Electrical	
Operating Voltage Range Voltage	12 VAC 12V
Light Source	
Lamp Included Lamp Type Max or Nominal Watt # of Bulbs/LED Modules	Included S8 WEDGE 24.40 1
Mounting/Installation	
Lead Wire Length Location Rating	37" CUL_12V

### **FIXTURE ATTRIBUTES**

Housing	
Primary Material	ALUMINUM
Product/Ordering Information	
SKU	15323AZT
Finish	Textured Architectural Bronze
UPC	783927105019

# **Finish Options**



Textured Architectural Bronze



Textured Black









# 10" WIDE PLAZA LANTERN WALL SCONCE | 128018



TYPE 'SC' **AND SIMILAR DESIGN FOR TYPE** 'PT' AND 'PT-2'

# **ADDITIONAL INFORMATION**

Availability:: Custom Crafted In Yorkville, New York Please Allow 56 Days

Item Maximum Height:: 25"

Item Length or Depth:: 5.5" Depth **Dimensions and Weight** 

Item Width or Depth:: 10" Width

Item Weight:: 11 lbs. Base Type:: <u>E26</u>

Lens Color:: Travertine Idalight

Lamping Quantity:: 1

**Shape:**: <u>A19</u> Wattage:: 60

Family:: Plaza Lantern Other

Metal Finish:: Hanna Copper





**10" WIDE PLAZA LANTERN WALL SCONCE | 158273** 

TYPE 'SC'



# **ADDITIONAL INFORMATION**

Availability:: Custom Crafted In Yorkville, New York Please Allow 56 Days

Item Maximum Height:: 36"

Dimensions and Weight

Item Length or Depth:: 10" Depth

Item Width or Depth:: 10" Width

Item Weight:: 17 lbs.

Base Type:: <u>E26</u>

Lens Color:: Frosted Seeded Glass

Shape:: A19 Wattage:: 40

Other Family:: Plaza Lantern

Metal Finish:: Smoke





14" WIDE PLAZA LANTERN WALL SCONCE | 146468

TYPE 'SC'



# **ADDITIONAL INFORMATION**

Availability:: Custom Crafted In Yorkville, New York Please Allow 56 Days

Item Minimum Height:: "
Item Maximum Height:: "
Item Length or Depth:: "Depth

Dimensions and Weight Item Length or Square:: "Length

Item Width or Depth:: "Width

Item Weight:: 52 lbs.

**Lens Color::** Frosted Seeded Glass

Other Family:: Plaza Lantern
Metal Finish:: Smoke

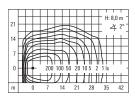


[A60]

 $\textbf{IOS}^{\$} \textbf{ Innovative Optical System:}$ 

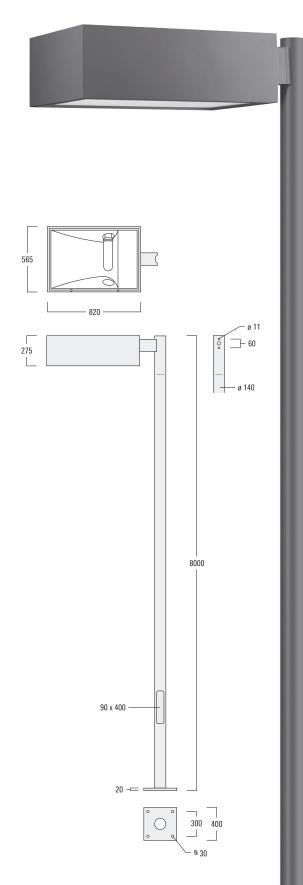
[A60] Asymmetric 'forward throw' distribution

[A60]			lm	Gear	kg
SBL480	HRI-T 1000W/N/Sc/E40*	138-9302	100000	[HPF]	33.0



[A60]

TM-C 80 poles			kg
for 1 x SBL480	270-9200	TM-C 80 140.1	175.0
for 2 x SBL480 (180°)	270-9201	TM-C 80 140.2B	175.0
for 2 x SBL480 (90°)	270-9202	TM-C 80 140.2L	180.0



<sup>\*</sup> Radium.

#### SINGLE COURT SYSTEMS - HIT

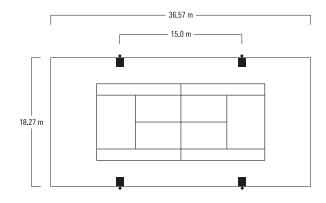
#### Recreational

- Four poles
- 8 m mounting height

An economic solution suitable for recreational and residential developments, such as condominiums and resorts etc. Excellent illuminance and uniformity values in both, the principal (PPA) and the total (TPA) playing areas.

Statistics*	PPA	TPA
Eave	333 lx	280 lx
Emax	419 lx	419 lx
Emin	216 lx	80 lx
$U_1$	0.65	0.29
$U_2$	0.52	0.19

Equipment list		Quantity
138-9302	SBL480 [A60] tennis court luminaire	4
270-9200	TM-C 80 140.1 pole	4
TE8706	HRI-T 1000W/N/Sc/E40** high output metal halide lamp	4



#### **Club Competition**

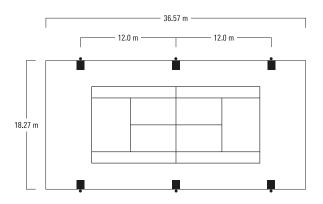
- Six poles
- 8 m mounting height

The perfect system for top class club competition and commercial tournaments.

Outstanding performance in the playing volume and throughout the area of play.

Statistics*	PPA	TPA
Eave	417 lx	394 lx
Emax	467 lx	467 lx
Emin	335 lx	274 lx
$U_1$	0.80	0.70
U <sub>2</sub>	0.72	0.59

Equipment list		Quantity
138-9302	SBL480 [A60] tennis court luminaire	6
270-9200	TM-C 80 140.1 pole	6
TE8706	HRI-T 1000W/N/Sc/E40** high output metal halide lamp	6



<sup>\*</sup> The principal playing area (PPA) is defined as the lined area, measuring 10.97 m x 23.77 m. The total playing area (TPA) covers the larger area of action and typically measures 18.27 m x 36.57 m. For both the PPA and the TPA, respective calculation grids as defined by Australian Standard AS2560.2.1-2003 have been applied. Illuminance values and uniformity ratios have been calculated at 1.0 m above ground level. A maintenance factor of 0.8 has been applied.

<sup>\*\*</sup> Radium.

# **MULTIPLE COURT SYSTEM - HIT**

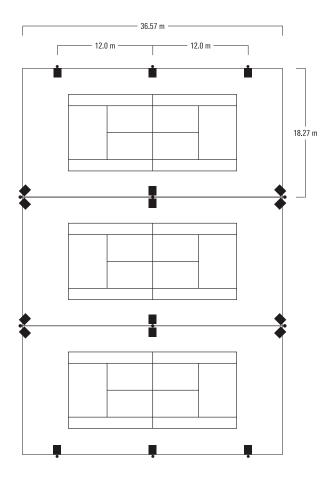
# **Club Competition**

- Twelve poles
- 8 m mounting height

The multi-court system provides competition quality play for clubs as well as hotels, resorts, etc. The pole positions ensure safety for players. Courts can be switched individually, thereby allowing energy efficient and cost saving operation.

Statistics*	Outer PPA	Outer TPA	Inner PPA	Inner TPA
Eave	388 lx	379 lx	362 lx	367 lx
Emax	470 lx	519 lx	455 lx	509 lx
Emin	286 lx	252 lx	259 lx	259 lx
$U_1$	0.74	0.66	0.71	0.70
$U_2$	0.61	0.49	0.57	0.51

Equipment list		Quantity
138-9302	SBL480 [A60] tennis court luminaire	18
270-9200	TM-C 80 140.1 pole	6
270-9201	TM-C 80 140.2B pole	2
270-9202	TM-C 80 140.2L pole	4
TE8706	HRI-T 1000W/N/Sc/E40** high output metal halide lamp	18



applied. Illuminance values and uniformity ratios have been calculated at 1.0 m above ground level. A maintenance factor of 0.8 has been applied.

\*\* Radium.

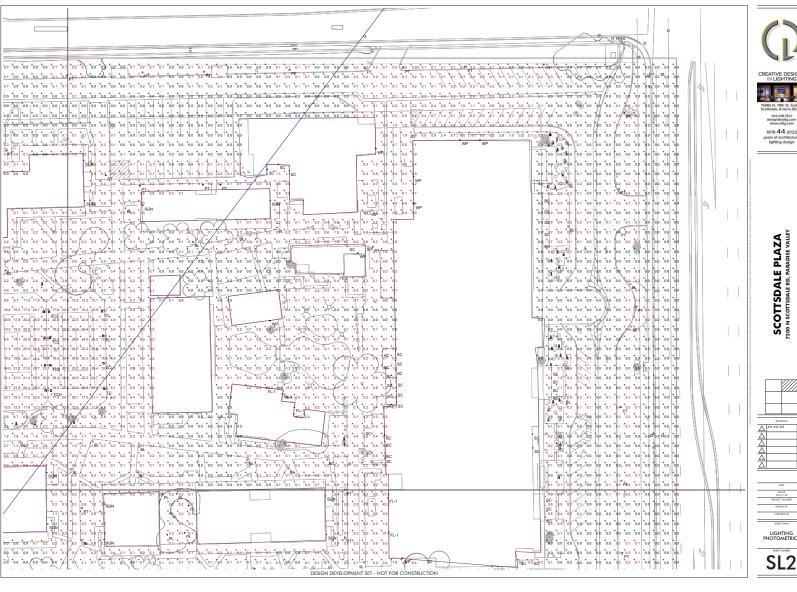
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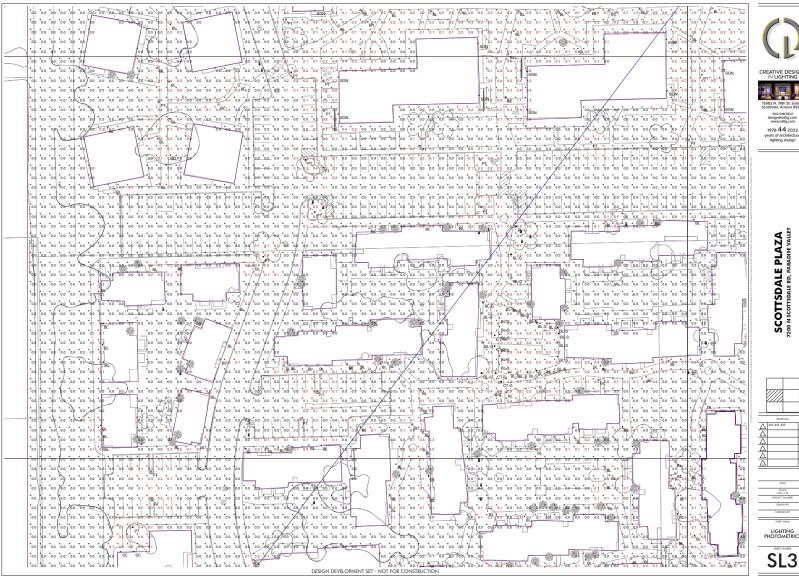
1978 44 2022 lears of architectural lighting design

SCOTTSDALE PLAZA



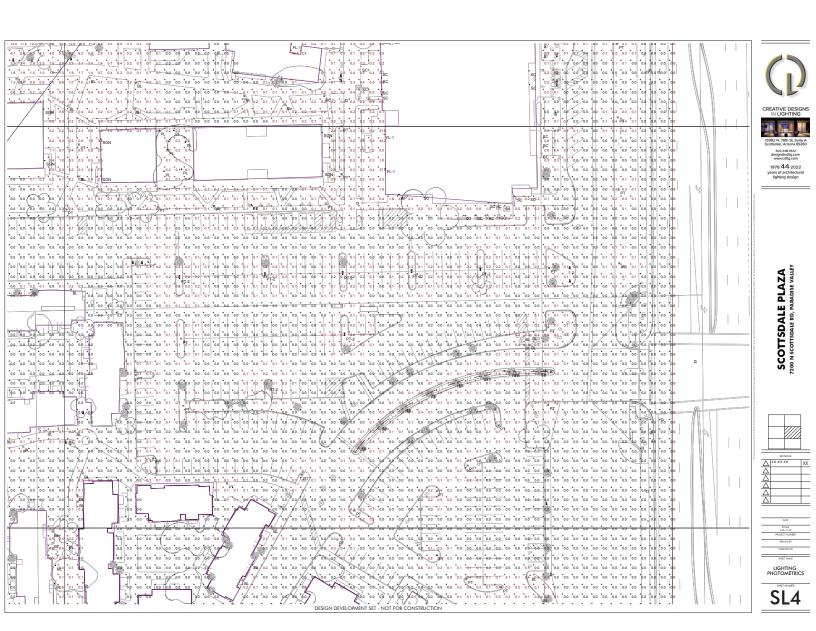


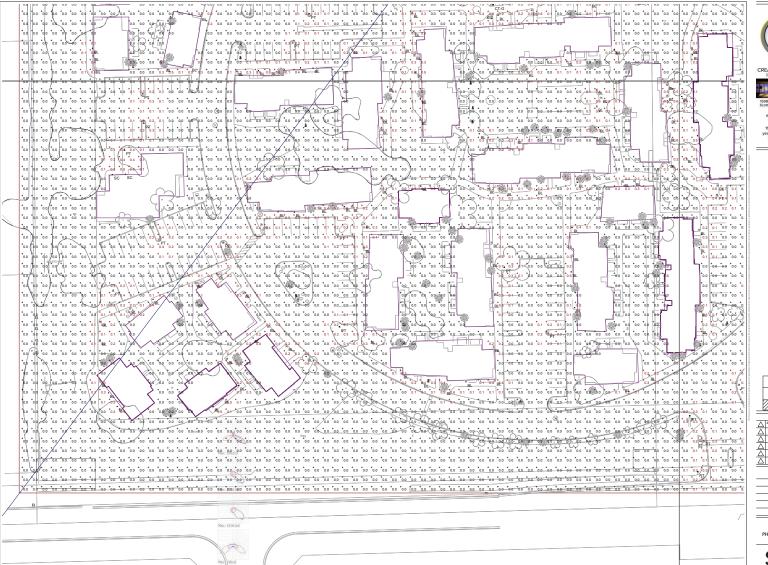






1978 44 2022 lears of architectural lighting design

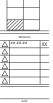








SCOTTSDALE PLAZA
7200 N SCOTTSDALE RD, PARADISE VALLEY



SCHE NAME

PROJECT NAME

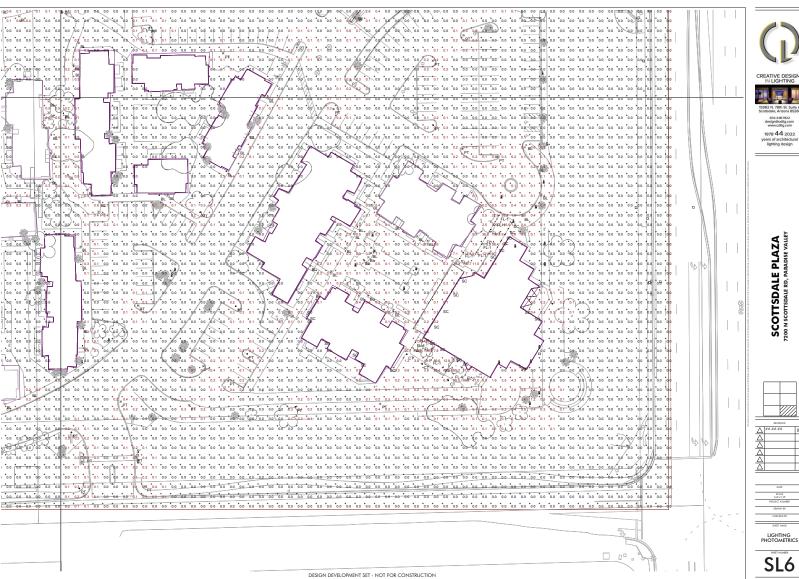
DRAIN BY

ORCHED BY

SHETT NAME

LIGHTING
PHOTOMETRICS

SL5





1978 44 2022 ears of architectural lighting design





