

PARAGON STAR SOCCER COMPLEX

FINAL DEVELOPMENT PLAN LEE'S SUMMIT, MO

MEP SUPPLEMENTAL INFORMATION



JUNE 03, 2019

PART 1 - SPORTS FIELD LIGHTING

1.1 CUTSHEETS AND PRODUCT INFORMATION

1.2 PHOTOMETRICS

PART 2 - PARKING LOT LIGHTING

2.1 CUTSHEETS AND PRODUCT INFORMATION

2.2 PHOTOMETRICS (REFER TO SHEET E-200)

PART 3 - MECHANICAL EQUIPMENT

3.1 CUTSHEETS AND PRODUCT INFORMATION

A. RTUs

B. SPLIT SYSTEM UNITS

C. EXHAUST FANS



15303 Storm Drive • Austin, Texas 78734
(800) 500-3161 • www.sportlighting.com

Paragon Star Soccer Complex

Lee's Summit, Missouri - 3/13/19

(5) 360' x 225' Soccer Fields

****75FC Avg Maintained Light Level****

(1) 360' x 225' Soccer Field

****100FC Avg Maintained Light Level****

Multi-Purpose Area

****50FC Avg Maintained Light Level****

All Field 750w Sport LED - Per Design #: 19-8860-01

Includes 10 Year Warranty

Quantity	Description
10	70 Foot Mounting Height Steel Poles
12	80 Foot Mounting Height Steel Poles
2	80 Foot Mounting Height Steel Poles
2	70 Foot Mounting Height Steel Poles P1 & P2
2	70 Foot Mounting Height Steel Poles P3 & P4
4	18 Fixture Crossarms
6	20 Fixture Crossarms
4	23 Fixture Crossarms
2	32 Fixture Crossarms
2	(16/16) B2B 32 Fixture Crossarms
2	(23/20) B2B 43 Fixture Crossarms
4	(23/23) B2B 46 Fixture Crossarms
2	(27/24) B2B 51 Fixture Crossarms
2	(32/24) B2B 56 Fixture Crossarms
896	All Field 750 Watt Sport LED w/ Visor
4	AirMesh - Control Hub
896	Prewiring for Poles and Crossarms

Total Inc. Partial Install = \$2,468,000.00

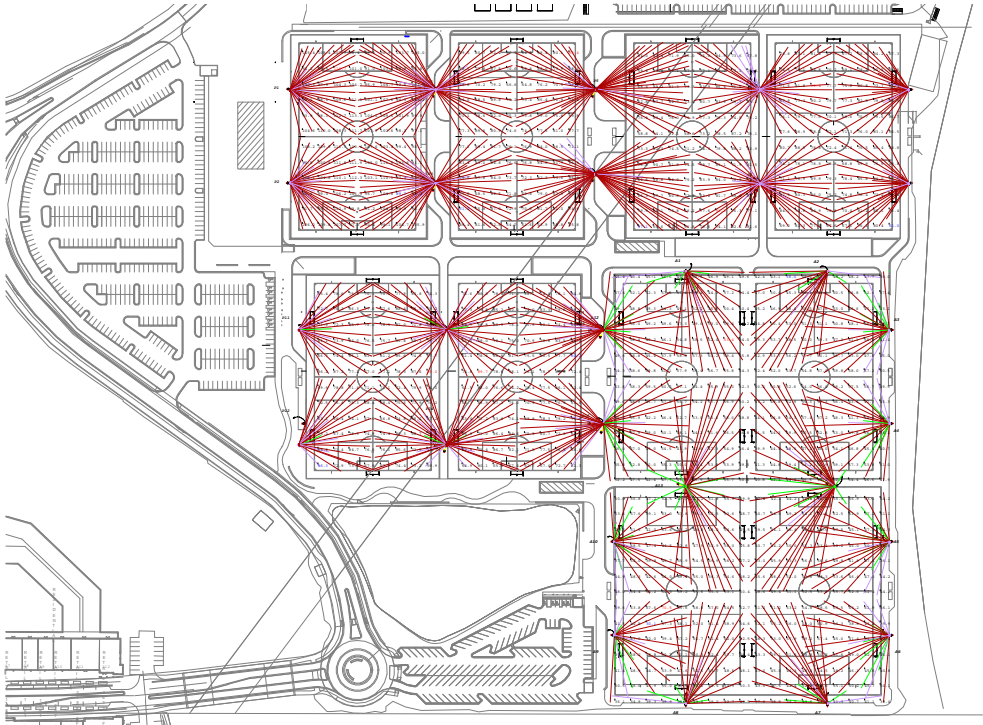
Adder: \$196,900.00 for NCAA National Broadcast Light Level for Field 1 (Design #19-8860-02)

Project Notes:

- * Price includes poles, prewired crossarms and light fixtures.
- * Price includes delivery to jobsite.
- * Price firm for 60 days.
- * Allow 3-4 weeks for delivery.
(Delivery process will begin once P.O. has been issued and the Voltage Verification & Design Approval forms have been properly filled out and returned)
- * Allow 6-8 weeks for installation.
- * Standard partial install foundations assume 2000 psi soil conditions. Any other conditions that may be present upon installation (i.e. rock, water, etc.) that cause additional foundation design or modification (i.e. rebar, casing, etc.) may require additional charges.
- * Pole locations must also be accessible and not obstructed by fencing, buildings, etc.
- * Price above does **NOT** include SALES or USE taxes.
- * A tax exemption certificate must be filed with Techline if applicable.
- * All work to be performed that requires a license, including but not limited to electrical & plumbing will be performed by individuals currently licensed in the proper jurisdiction. All proposals are based in bids by licensed individuals anticipated to perform the work.
- * LED Warranty Information:
 - Seller warrants that Equipment furnished or manufactured by Seller will be free from defects in material and workmanship for a period of 10 years from date of shipment. Seller will replace any defective material for the entire 10 year period.
 - Techline will make every effort to maintain any component of our sports lighting system for the entirety of the warranty period. Advances in technology and obsolescence of some components, including but not limited to; regulatory changes, cellular upgrades, and other items beyond our control, could possibly render this impossible for some components in the future. Techline will always make every effort to support our system as long as manufactured components are available.

Partial Installation Notes:

Includes: - Offloading equipment from trucks, spot placing in locations, auguring pole foundation holes, setting all pole stubs in holes, center/plumb/brace and backfill with 3000psi concrete, build out pole tops including mounting cross arm assemblies, mount/aim & wire all fixtures in place, crane rental to set all pole tops in place, final clean up.



Pole Summary		
Scene: GAME		
Poles	# Lums	MH
A01	18	80
A02	18	80
A03	20	80
A04	20	80
A05	20	80
A06	20	80
A07	18	80
A08	18	80
A09	20	80
A10	20	80
A11	20	80
A12	20	80
A13-L1	16	80
A13-L2	16	80
A14-L1	16	80
A14-L2	16	80
P01	32	70
P02	32	70
P03-F1	32	70
P03-F2	24	70
P04-F1	32	70
P04-F2	24	70
P05-F2	24	70
P05-F3	27	70
P06-F2	24	70
P06-F3	27	70
P07-F3	23	70
P07-F4	23	70
P08-F3	23	70
P08-F4	23	70
P09	23	70
P10	23	70
P11	23	70
P12	23	70
P13-F5	23	70
P13-F6	23	70
P14-F5	23	70
P14-F6	23	70
P15	23	80
P16	23	80

Pole Wattage Summary	
Scene: GAME	
Label	Total Watts
A01	13842
A02	13842
A03	15380
A04	15380
A05	15380
A06	15380
A07	13842
A08	13842
A09	15380
A10	15380
A11-P16	33067
A12-P15	33067
A13	24608
A14	24608
P01	24608
P02	24608
P03	43064
P04	43064
P05	39219
P06	39219
P07	35374
P08	35374
P09	17687
P10	17687
P11	17687
P12	17687
P13	35374
P14	35374
TOTAL	689024

Luminaire Schedule					
Scene: GAME					
Symbol	Qty	Label	LLF	Lum. Watts	Arrangement
	667	AF-750-2-57-NO	0.900	769	SINGLE
	151	AF-750-3-57	0.950	769	SINGLE
	78	AF-750-4-57	0.950	769	SINGLE

Calculation Summary											
Scene: GAME											
Label	Area Size	Units	Avg	Max	Min	Max/Min	# Pts	PtSpcLr	PtSpcTb	CV	UG
EGRESS	360'x225'	Fc	31.84	115.2	1.2	96.00	1768	15	15	0.74	4.42
LOT #1		Fc	51.17	63.4	38.0	1.67	252	30	30	0.11	1.44
LOT #2		Fc	50.32	70.5	30.1	2.34	252	30	30	0.15	2.25
SOCCER F1		Fc	102.54	116.7	89.7	1.30	96	30	30	0.06	1.18
SOCCER F2		Fc	75.69	90.4	61.2	1.48	96	30	30	0.10	1.41
SOCCER F3		Fc	76.94	91.1	57.1	1.60	96	30	30	0.10	1.42
SOCCER F4		Fc	77.20	91.4	61.0	1.50	96	30	30	0.08	1.32
SOCCER F5		Fc	75.16	89.0	56.3	1.58	96	30	30	0.09	1.31
SOCCER F6		Fc	75.10	89.7	60.2	1.49	96	30	30	0.10	1.43

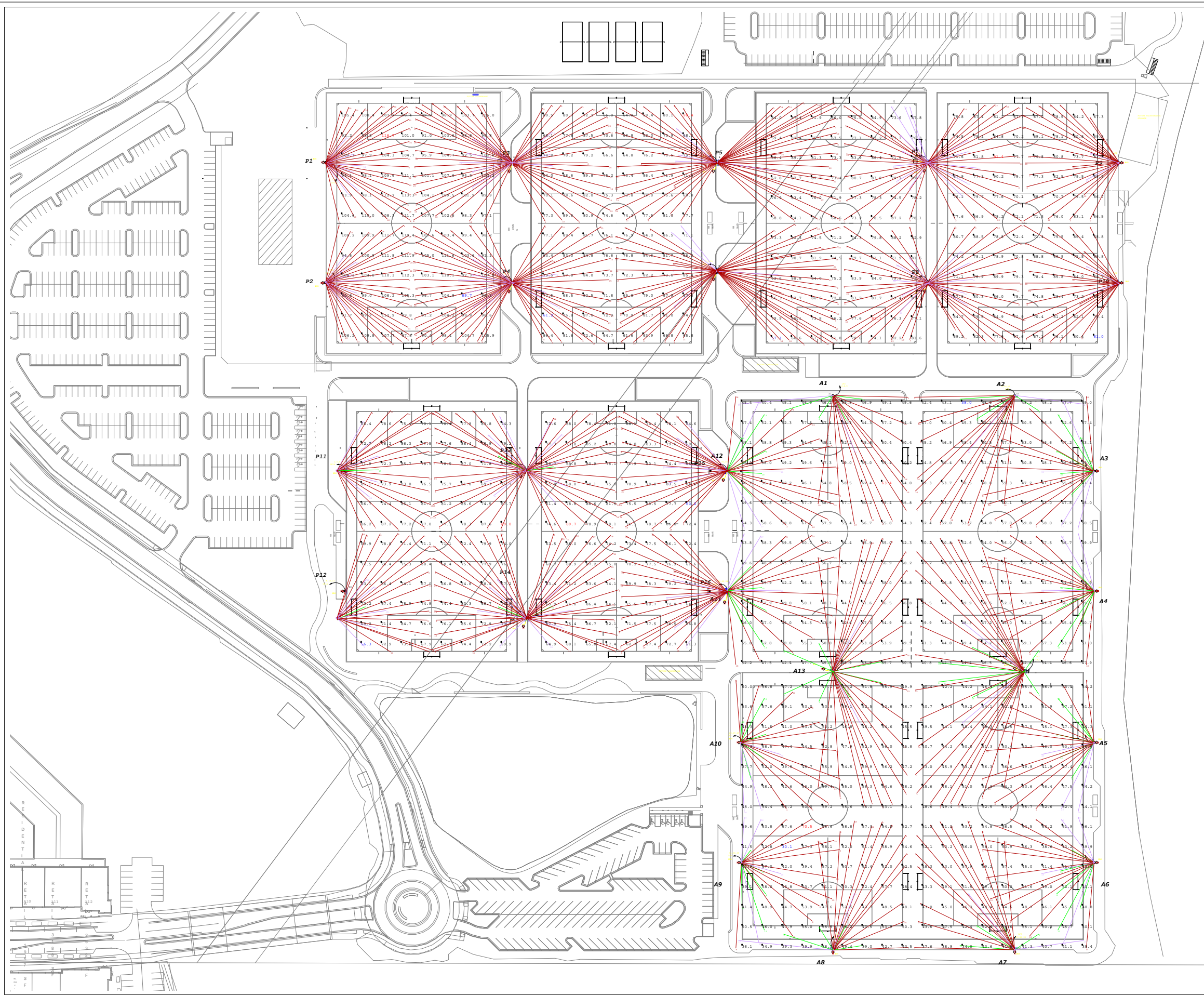


PARAGON STAR
SOCCER COMPLEX
LEE'S SUMMIT, MO
SOCCER
19-8860-01.AGI

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2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.
3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

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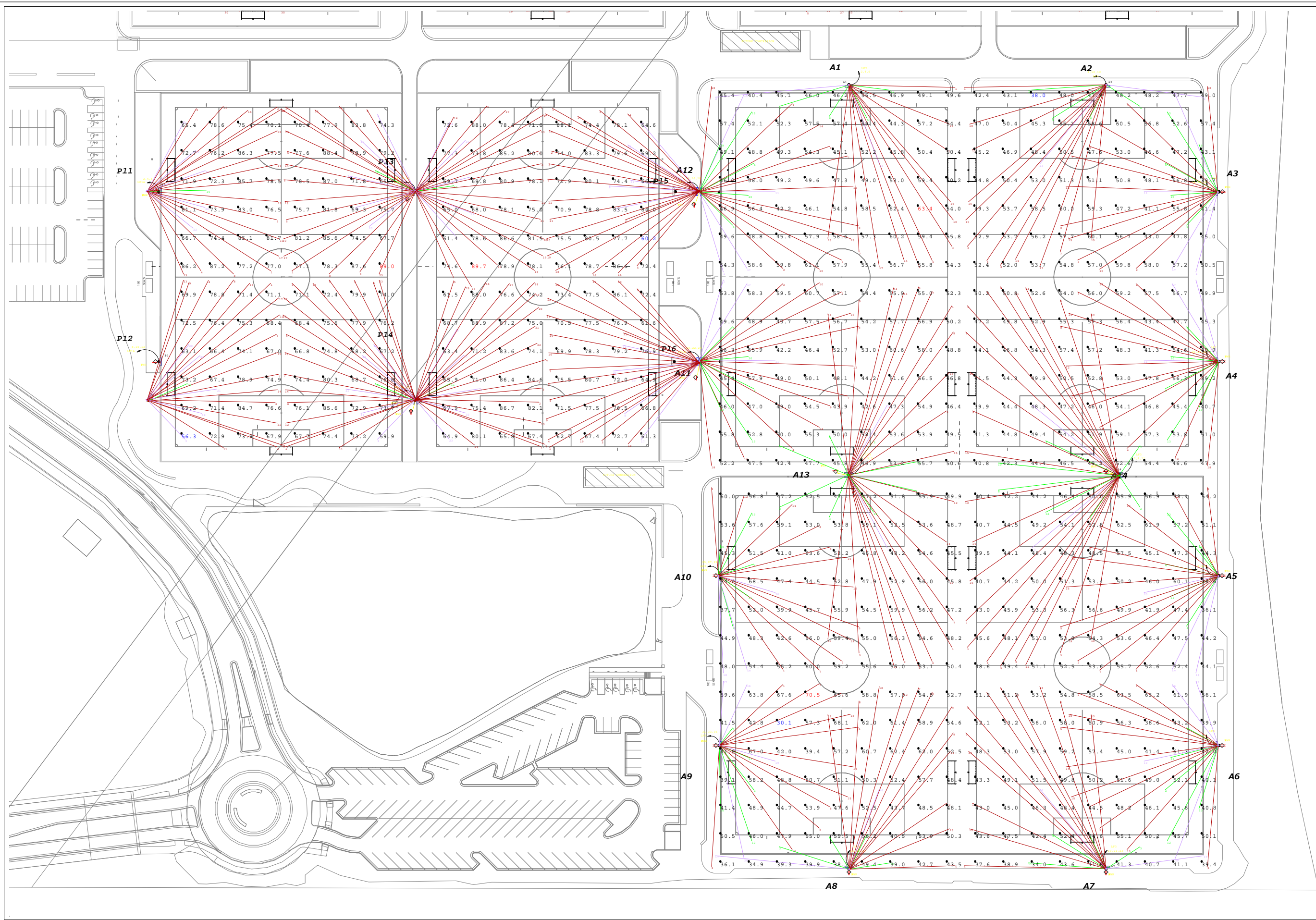




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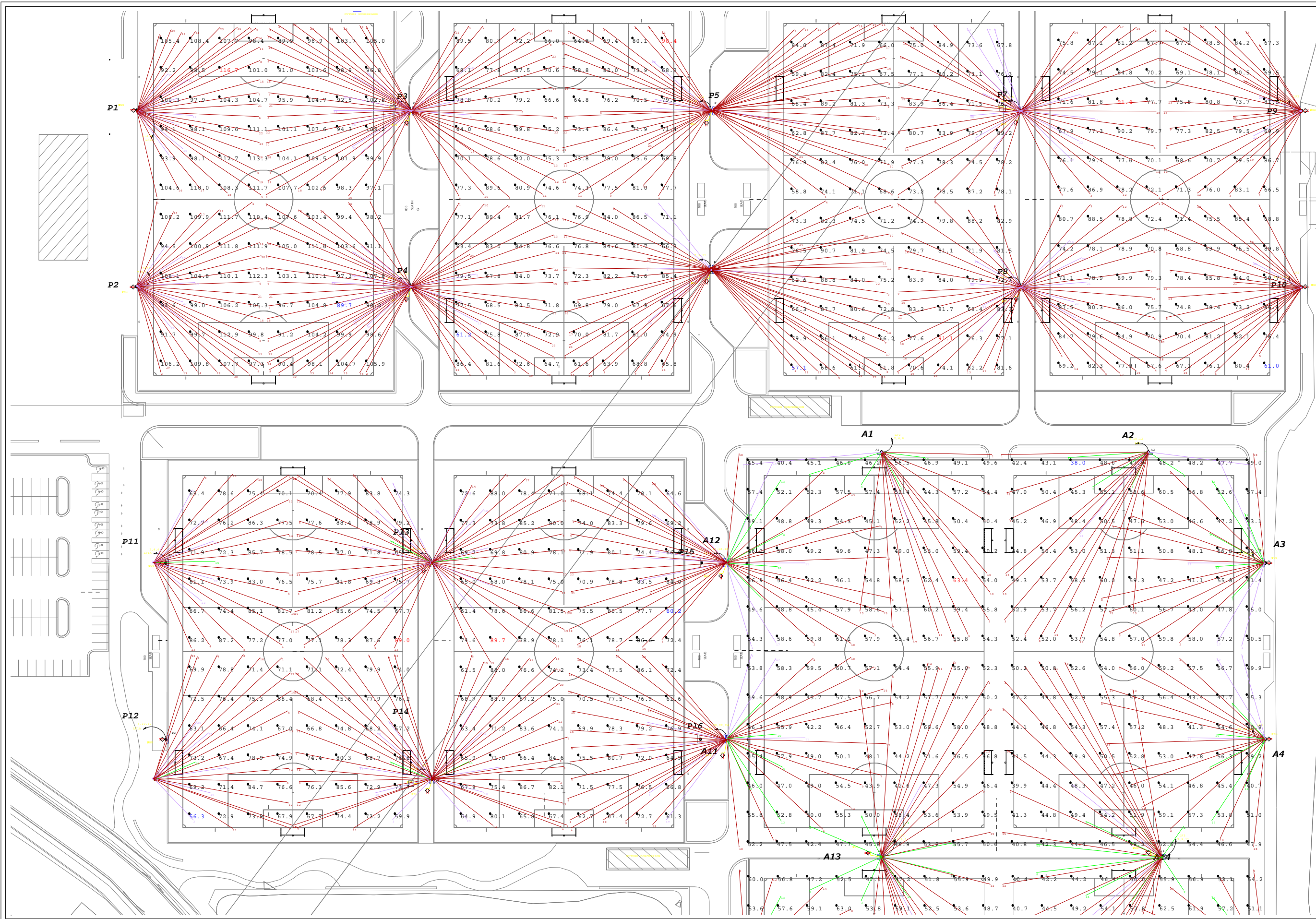
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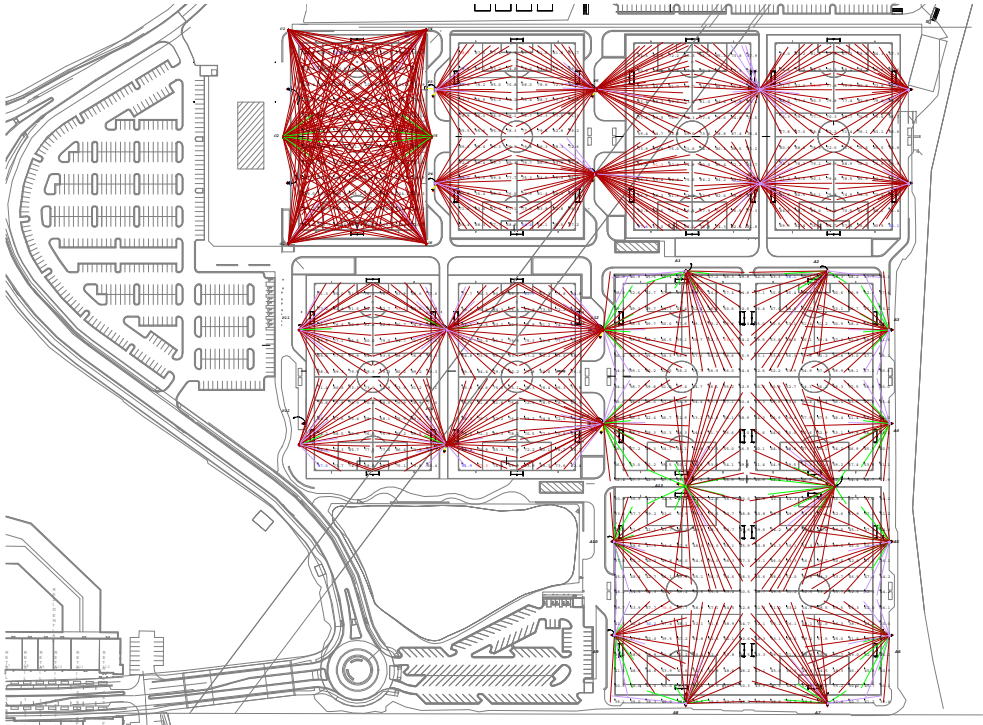
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A10	20	80
A11	20	80
A12	20	80
A13-L1	16	80
A13-L2	16	80
A14-L1	16	80
A14-L2	16	80
C1	26	70
C2	42	70
C3	26	70
C4	26	70
C5	42	70
C6	26	70
P03-F2	24	70
P04-F2	24	70
P05-F2	24	70
P05-F3	27	70
P06-F2	24	70
P06-F3	27	70
P07-F3	23	70
P07-F4	23	70
P08-F3	23	70
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P09	23	70
P10	23	70
P11	23	70
P12	23	70
P13-F5	23	70
P13-F6	23	70
P14-F5	23	70
P14-F6	23	70
P15	23	80
P16	23	80

Pole Wattage Summary	
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A04	15380
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A06	15380
A07	13842
A08	13842
A09	15380
A10	15380
A11-P16	33067
A12-P15	33067
A13	24608
A14	24608
C1	19994
C2	32298
C3	19994
C4	19994
C5	32298
C6	19994
P03	18456
P04	18456
P05	39219
P06	39219
P07	35374
P08	35374
P09	17687
P10	17687
P11	17687
P12	17687
P13	35374
P14	35374
TOTAL	735164

Luminaire Schedule					
Scene: GAME					
Symbol	Qty	Label	LLF	Lum. Watts	Arrangement
	741	AF-750-2-57-NO	0.900	769	SINGLE
	127	AF-750-3-57	0.950	769	SINGLE
	88	AF-750-4-57	0.950	769	SINGLE

Calculation Summary											
Scene: GAME											
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LOT #1		Fc	51.36	63.6	38.1	1.67	252	30	30	0.11	1.44
LOT #2		Fc	50.38	70.6	30.2	2.34	252	30	30	0.15	2.24
SOCCER F1		Fc	112.04	139.6	102.6	1.36	96	30	30	0.08	1.24
SOCCER F1 END		Fc	91.12	135.9	47.7	2.85	96	30	30	0.28	1.41
SOCCER F1 MAIN		Fc	105.07	120.1	83.5	1.44	96	30	30	0.08	1.25
SOCCER F2		Fc	79.97	98.7	64.4	1.53	96	30	30	0.10	1.33
SOCCER F3		Fc	77.29	91.3	57.6	1.59	96	30	30	0.10	1.41
SOCCER F4		Fc	77.31	91.6	61.1	1.50	96	30	30	0.08	1.32
SOCCER F5		Fc	77.46	93.1	57.0	1.63	96	30	30	0.09	1.30
SOCCER F6		Fc	75.01	87.3	61.9	1.41	96	30	30	0.09	1.41

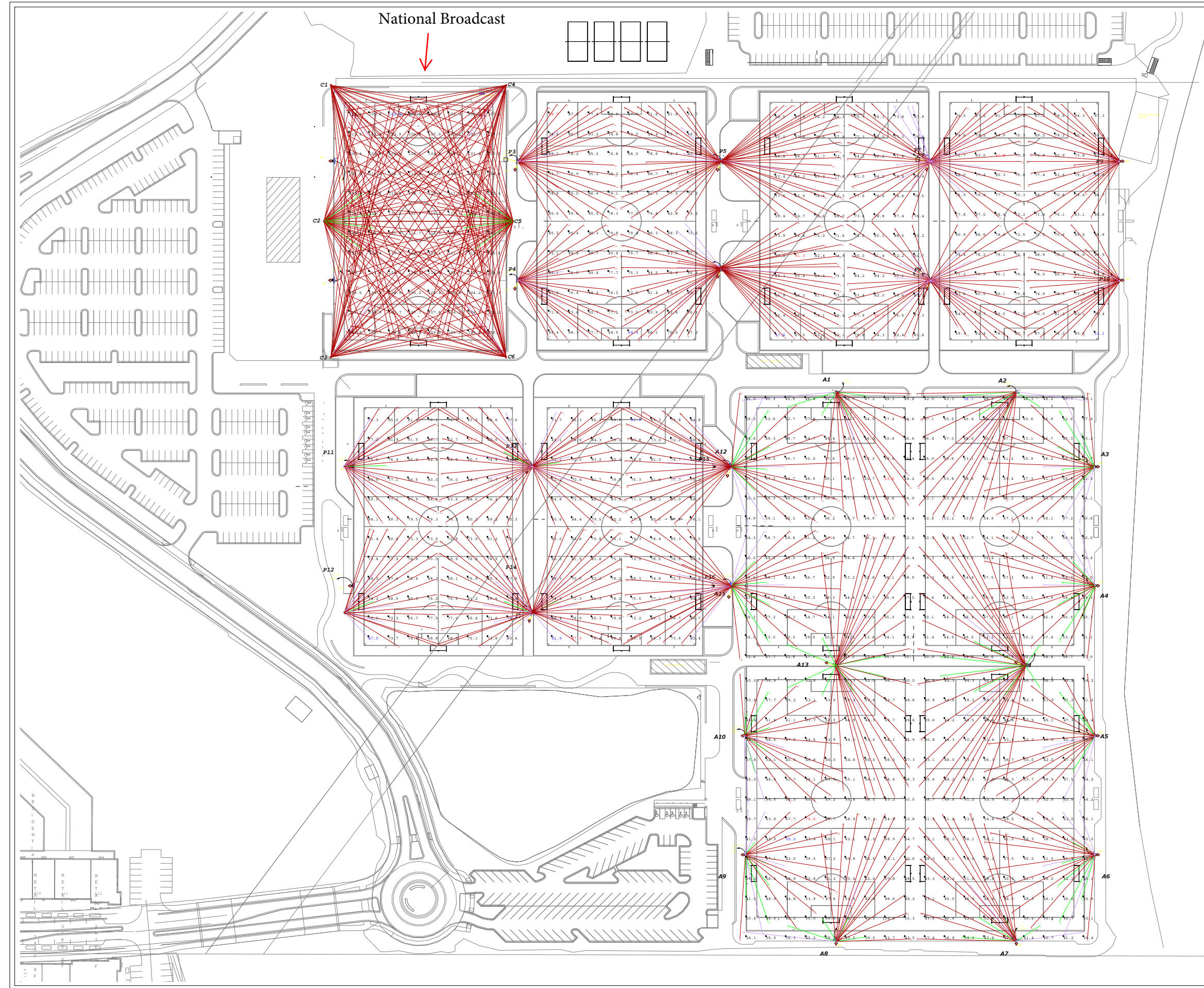


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SOCCER
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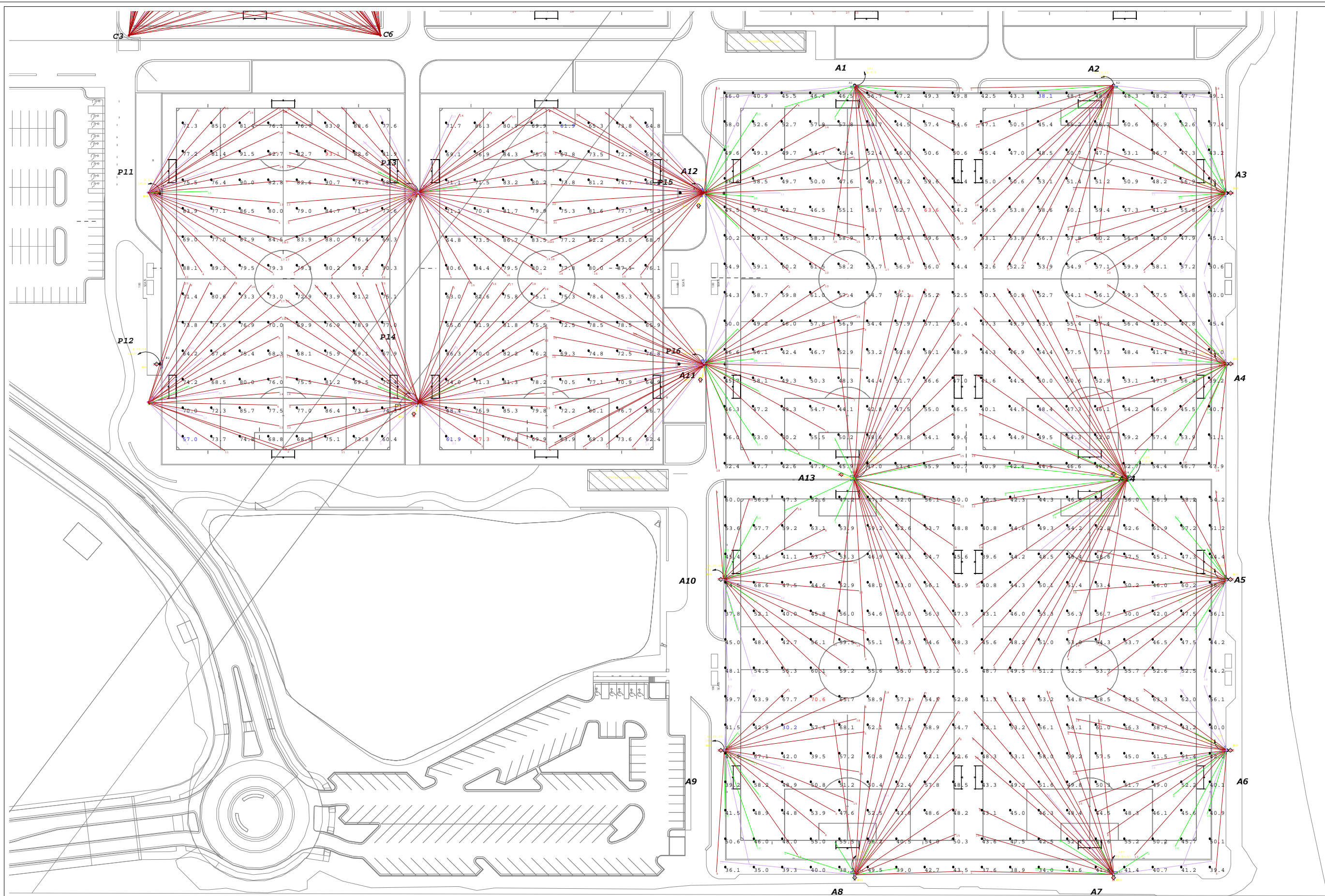




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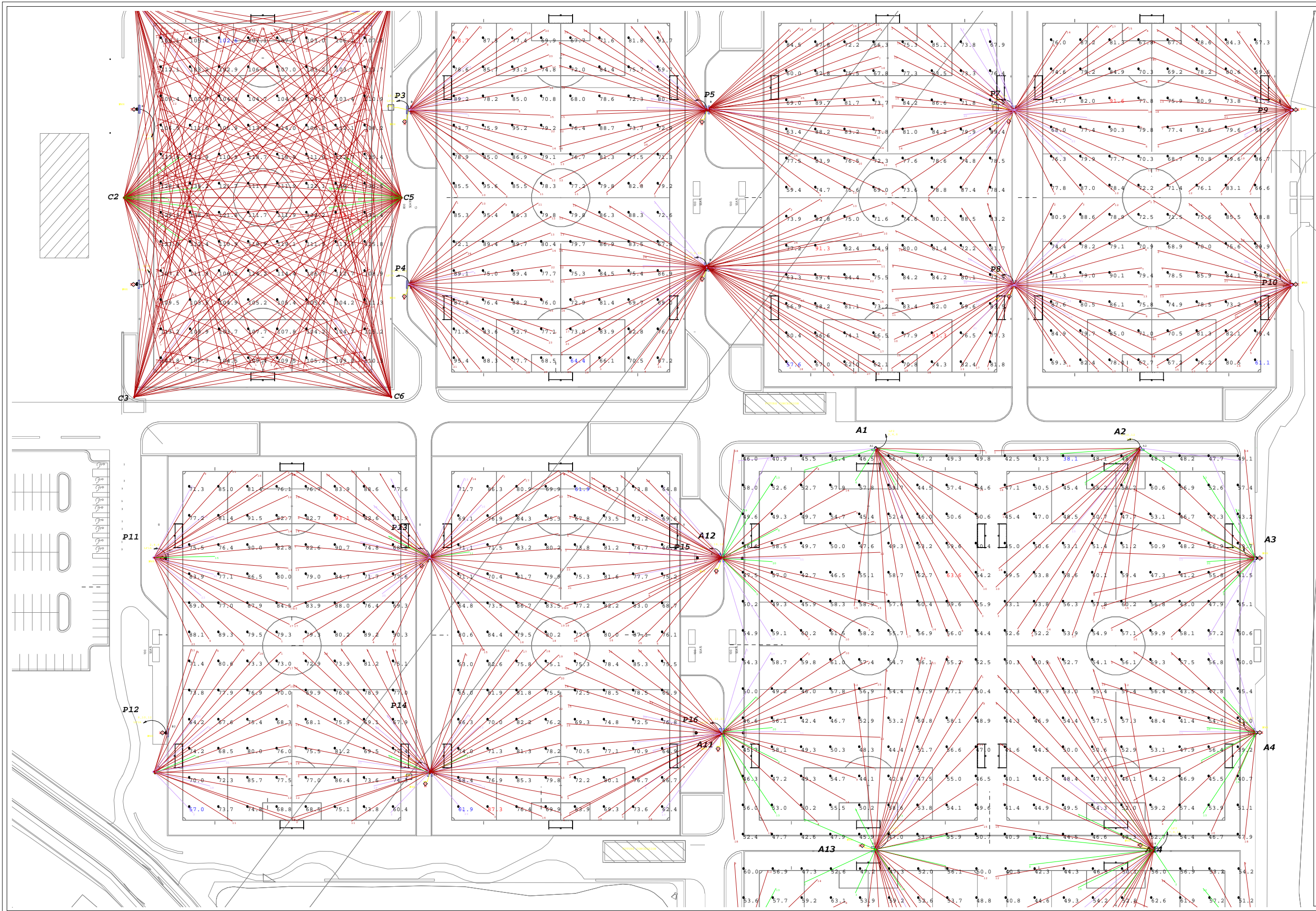
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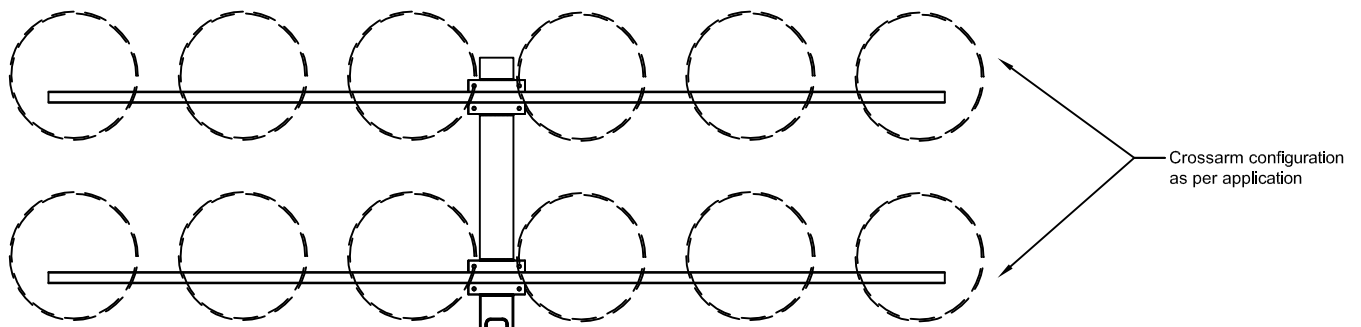
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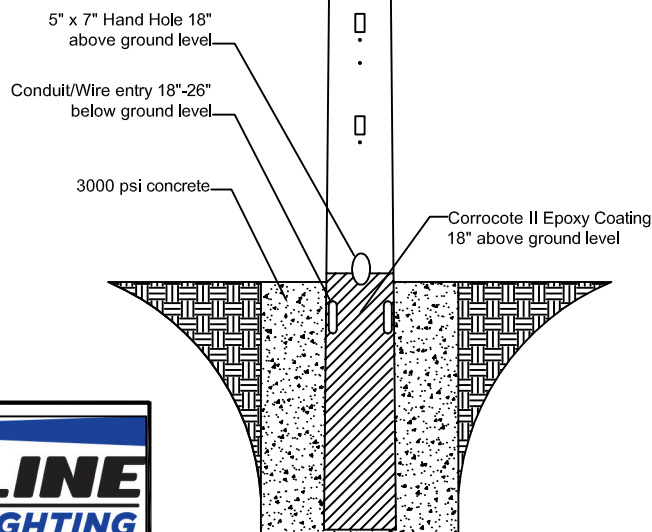
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TSL75HA	
Mounting Height	70' *
Overall Length	81'
Length A.G.L.	70' *
Burial Depth	11'
Tip Diameter	8.38"
Butt Diameter	22.0"
Pole Shape	Round Tapered

* dimension to bottom row of crossarm



** Hot-Dipped galvanized after fabrication to ASTM A123 specifications

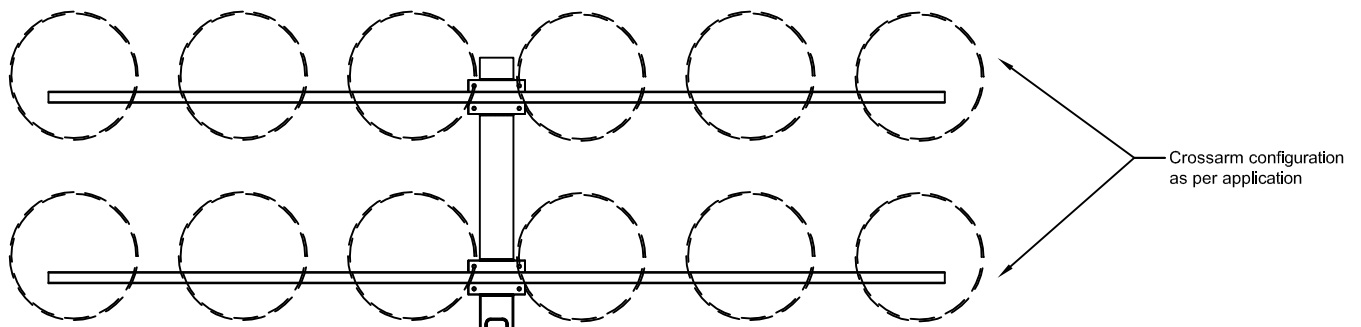
** NOT TO SCALE



15303 STORM DR.
AUSTIN, TX 78734
PHONE: (512) 977-8880
TOLL FREE: (800) 500-3161
FAX: (512) 977-8882

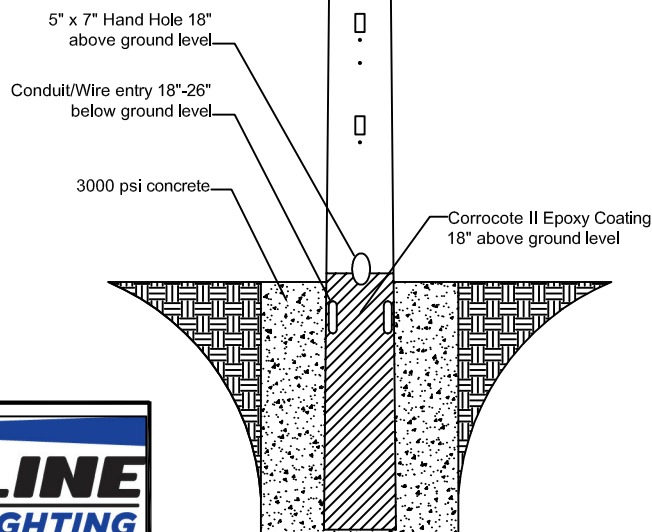
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DRAWING NUMBER: TSL 70-FIX	DRAWN BY: WW	

CONCRETE ENCASED
GALVANIZED STEEL POLE



TSL75MA	
Mounting Height	70' *
Overall Length	81'
Length A.G.L.	70' *
Burial Depth	11'
Tip Diameter	5.78"
Butt Diameter	17.76"
Pole Shape	Round Tapered

* dimension to bottom row of crossarm



** Hot-Dipped galvanized
after fabrication to
ASTM A123 specifications

** NOT TO SCALE

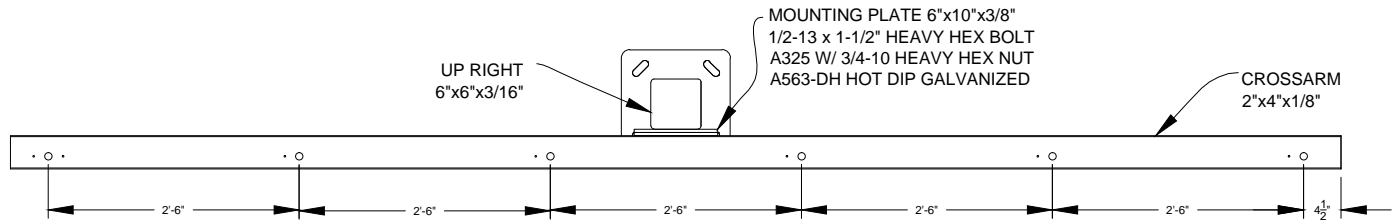


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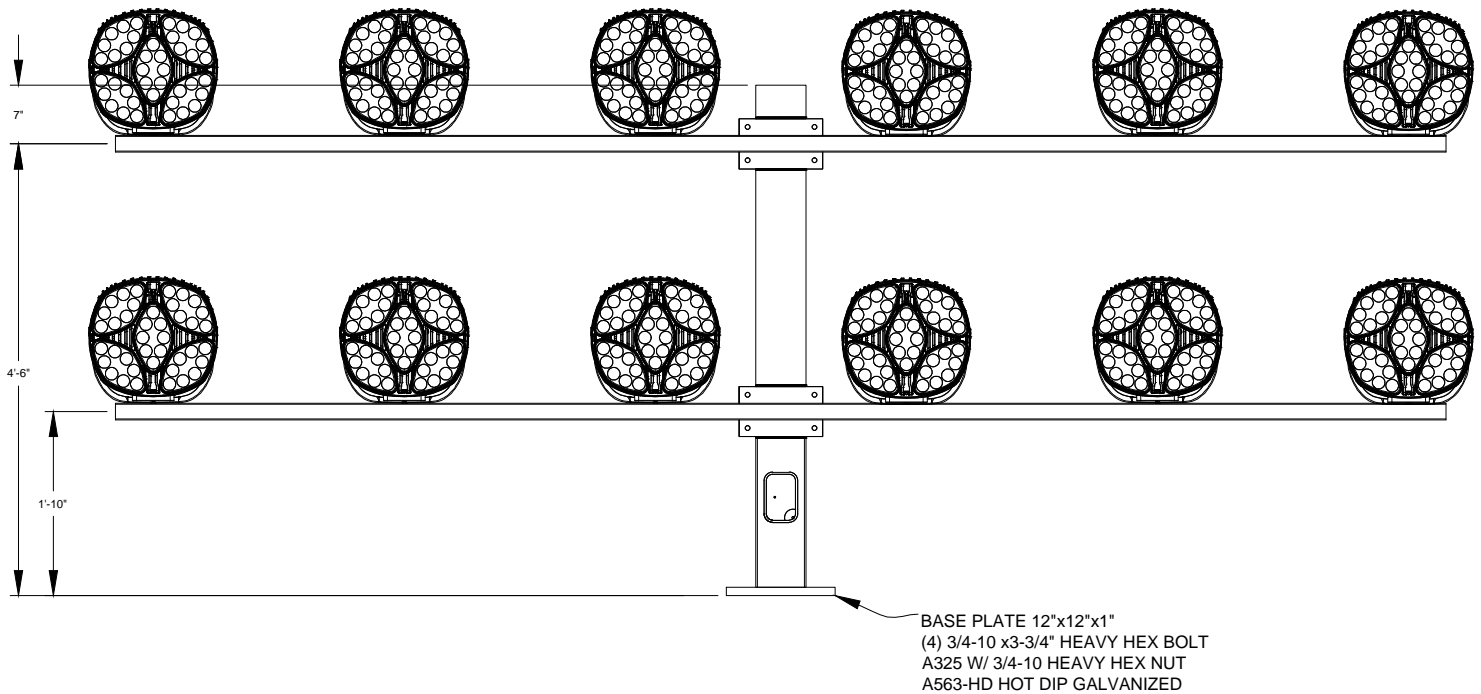
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DRAWING NUMBER: TSL 70-FIX	DRAWN BY: WW	

CONCRETE ENCASED
GALVANIZED STEEL POLE

TOP VIEW



FRONT VIEW



** Hot-Dip galvanized after fabrication to ASTM A123 specifications

** Assembly Weight: 826 lbs
Assembly EPA: 28.44 sq. ft.
(Including Fixtures)



** NOT TO SCALE

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PHONE: (512)977-8880
TOLL FREE: (800)500-3161
FAX: (512)977-8882

DATE:
7/14/15

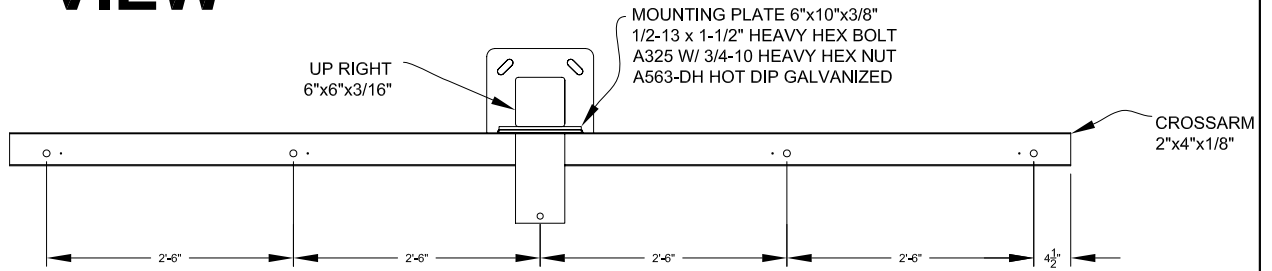
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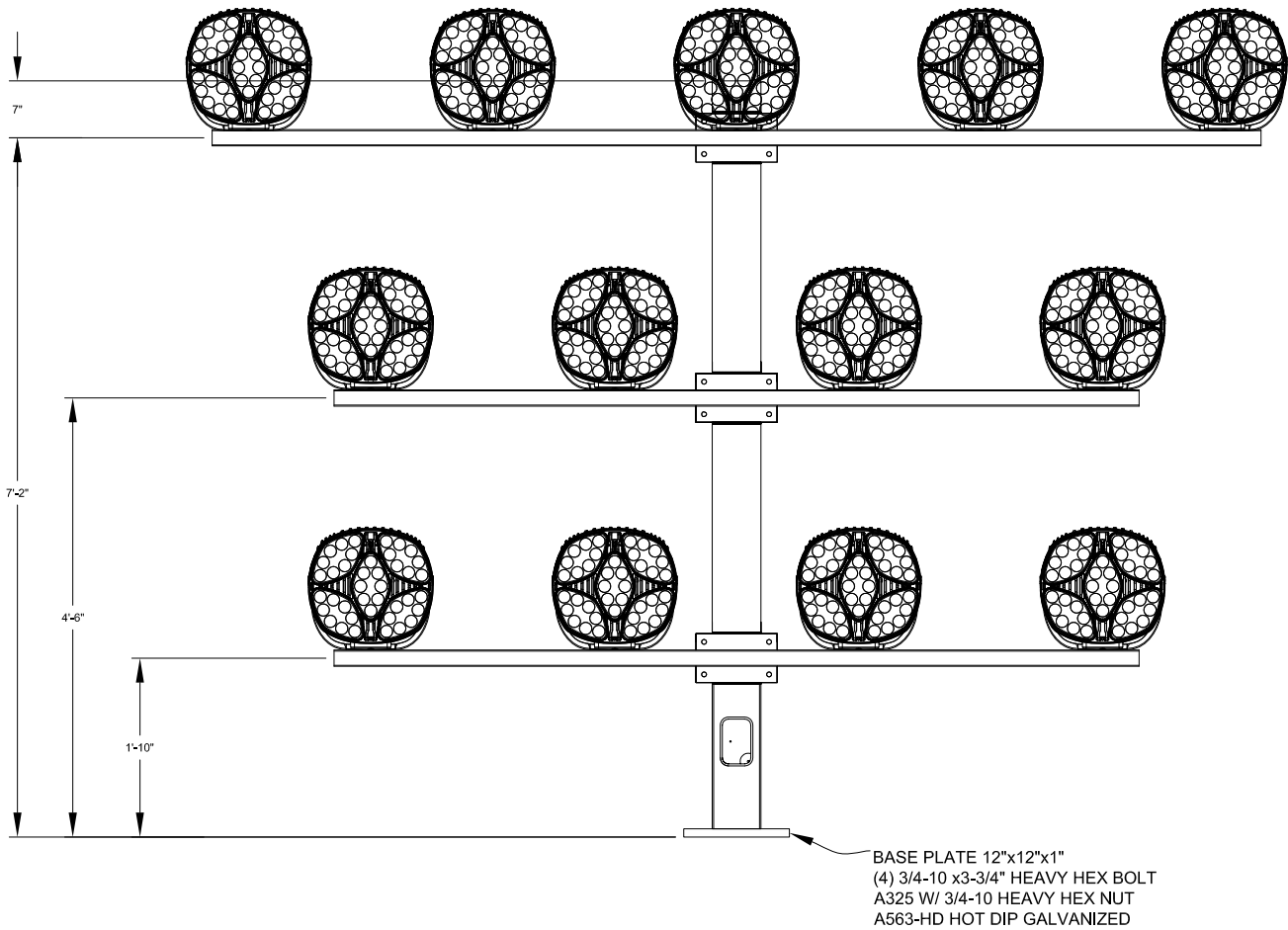
DRAWN BY:
WW

**12 FIXTURE CROSSARM
ASSEMBLY**

TOP VIEW



FRONT VIEW



** Hot-Dip galvanized after fabrication to ASTM A123 specifications

** Assembly Weight: 929 lbs
Assembly EPA: 32.36 sq. ft.
(Including Fixtures)



** NOT TO SCALE

15303 STORM DR.
AUSTIN, TX 78734
PHONE: (512)977-8880
TOLL FREE: (800)500-3161
FAX: (512)977-8882

DATE:
7/14/15

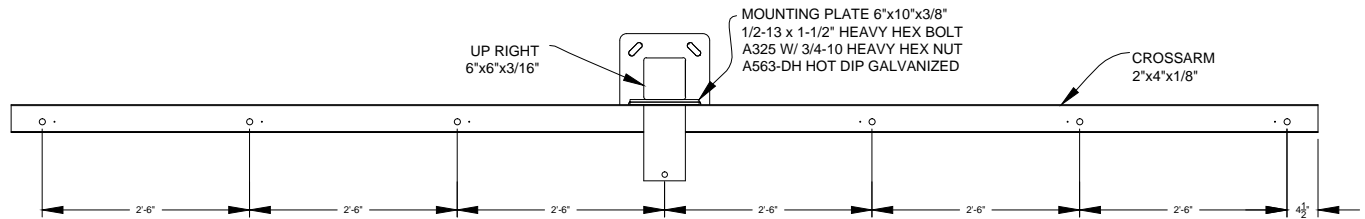
REV.: CHECKED BY:

DRAWING NUMBER:
TTA 13

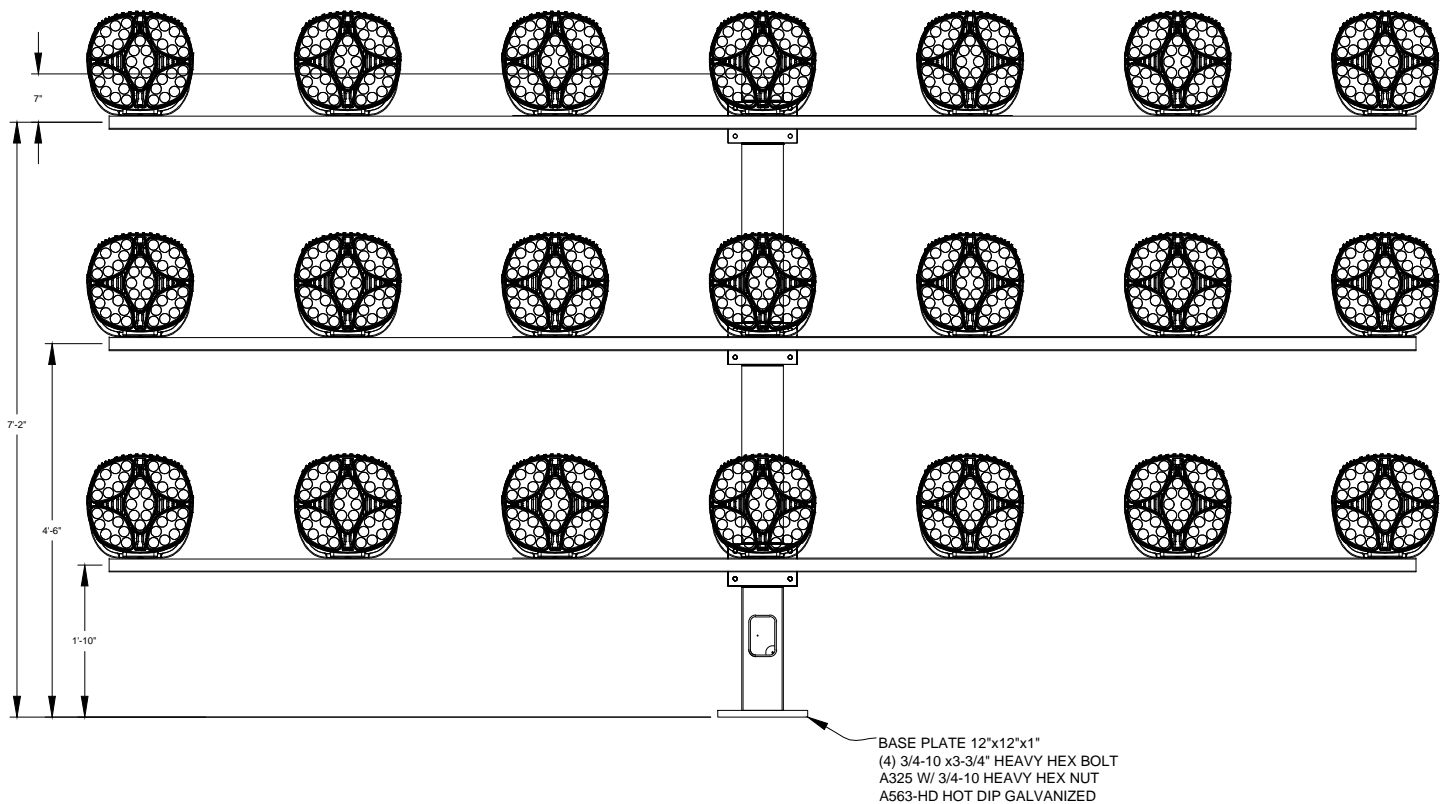
DRAWN BY:
WW

13 FIXTURE CROSSARM
ASSEMBLY

TOP VIEW



FRONT VIEW



** Hot-Dip galvanized after fabrication to ASTM A123 specifications

** Assembly Weight: 1,391 lbs
Assembly EPA: 48.89 sq. ft.
(Including Fixtures)



** NOT TO SCALE

15303 STORM DR.
AUSTIN, TX 78734
PHONE: (512)977-8880
TOLL FREE: (800)500-3161
FAX: (512)977-8882

DATE:
7/14/15

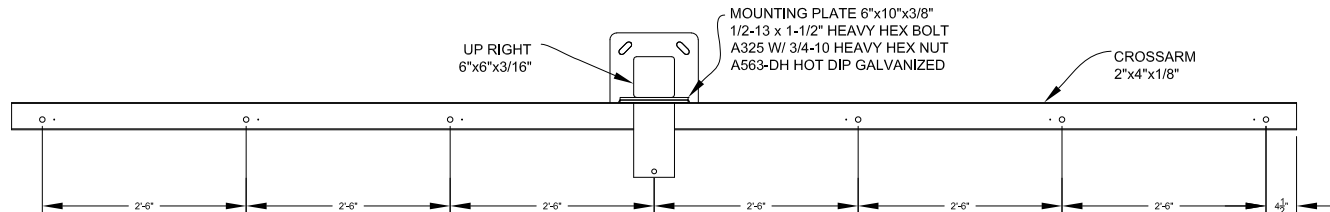
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TTA 21

REV.: CHECKED BY:

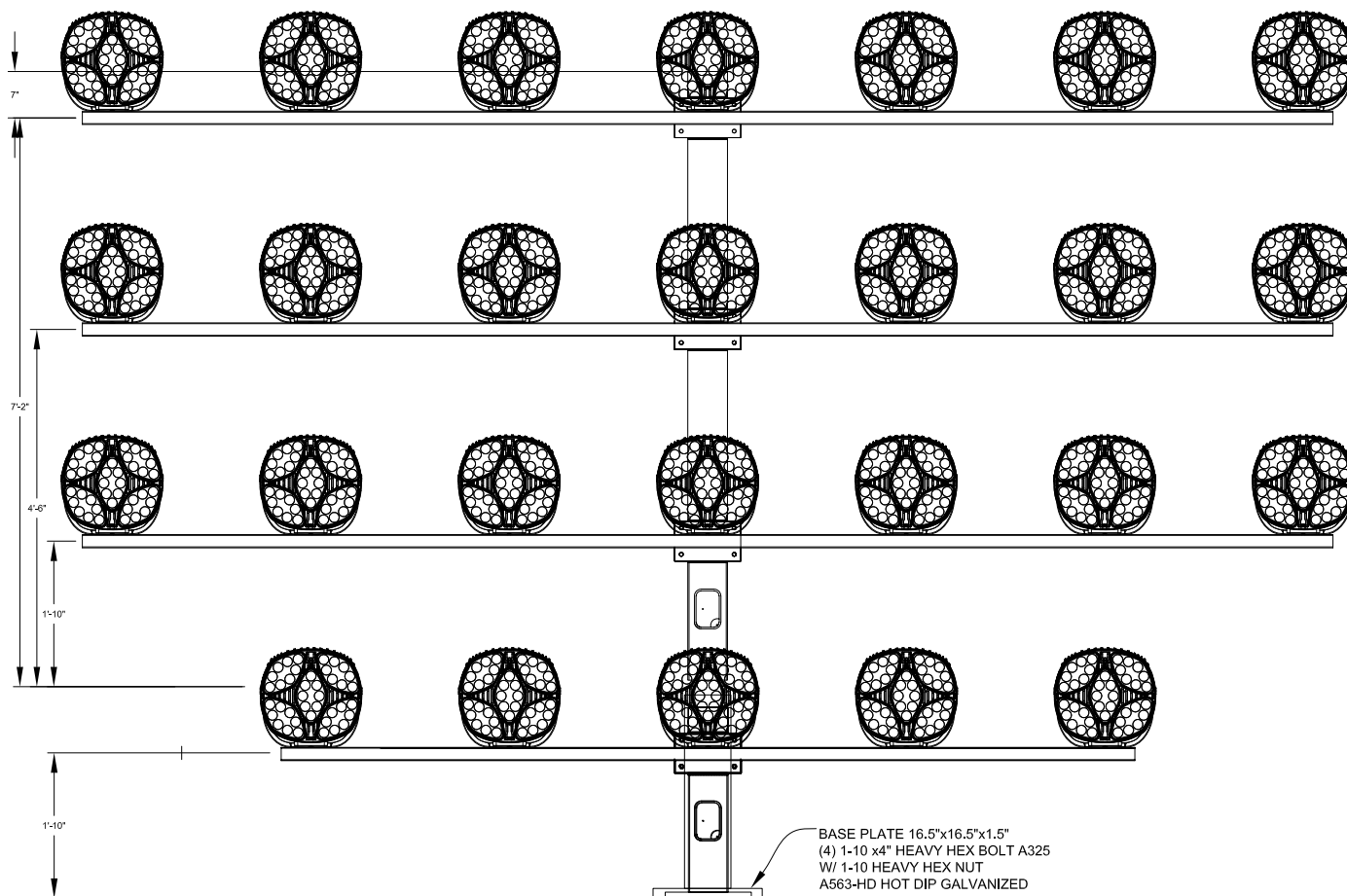
DRAWN BY:
WW

21 FIXTURE CROSSARM
ASSEMBLY

TOP VIEW



FRONT VIEW



** Hot-Dip galvanized after fabrication to ASTM A123 specifications



** NOT TO SCALE

15303 STORM DR.
AUSTIN, TX 78734
PHONE: (512)977-8880
TOLL FREE: (800)500-3161
FAX: (512)977-8882

DATE:
7/14/15

DRAWING NUMBER:
TTA 26

REV.: CHECKED BY:

DRAWN BY:
WW

26 FIXTURE CROSSARM
ASSEMBLY

Introducing the latest in LED sports lighting innovation



The All-Field 750 is the most versatile LED fixture available for your sporting venue.

Versatile mounting bracket is designed for ease of installation in new or retrofit applications

Weather-tight design ensures durability even in harsh environments

Solid-state design (no moving parts) provides maintenance free operation

Ability to monitor health and status of each light

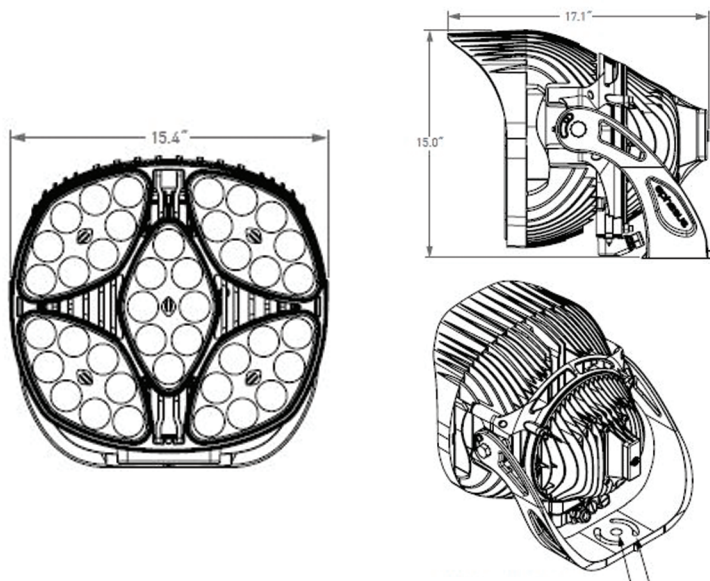
Low electromagnetic interference (EMI) noise generation eliminates interference with surrounding electrical systems

Wireless control options provide flexibility for operational usage and fan experience enhancements

Custom engineered optics direct light precisely where needed while minimizing glare.

Easy **RETROFIT** to your existing sports lighting system

Techline Sports Lighting introduces the All-Field 750 Sport LED fixture, the ideal solution for any setting including little league, municipal parks, high school, college and semi-professional outdoor sports venues. The All-Field 750 is the leading choice for all outdoor applications including football, soccer, tennis, baseball, softball, lacrosse, and field hockey. Maintenance free operation and precisely delivered HDTV quality light make the All-Field 750 the perfect choice for any application and provide an excellent return on investment.



PERFORMANCE SPECIFICATIONS

	All Field 750
Lumen Output ¹	>83,000 Lumens
System Watts	750 watts
Input Voltage (High)	277VAC - 480VAC
Input Voltage (Low)	120VAC - 240VAC
CCT	5700K
L70 Hours	>160,000 hours at 25° C
Operating Temp Range	-40°C to 55°C
Surge	6kV
IP Rating	IP66
NEMA Rating	NEMA 4X
Effective Projected Area	1.4 ft ²
Approximate Weight ²	45 lbs. (20.45 kgs)

The All-Field 750 Sport LED is available with wireless or wired control to provide operational, monitoring and entertainment capabilities. Entertainment options include individual LED cluster control and 0-10V dimming. Fixture connectivity options are available from standard wired DMX to wireless Air-Mesh technology. Cellular, WiFi, or Bluetooth link enables telemetry to monitor health and status of each sport LED fixture.

ORDERING OPTIONS

MODEL	WATTAGE	OPTICS	VOLTAGE	CONTROLS
AF	750	NEMA 2	VH - HIGH VOLTAGE	NC - NO CONTROLS
	550	NEMA 3	VL - LOW VOLTAGE	AM - AIR MESH
	400	NEMA 4		
		NEMA 5	SPILL CONTROL OPTION - EYELID	

1. The specifications listed were obtained under optimal testing conditions. Changes in options, features and conditions may result in slightly different performance specifications among fixtures.

2. Weight may vary depending on mounting bracket selection.

Clean power is required to ensure proper function and lifetime of LED fixtures. Prior to installation, an analysis should be performed to verify site power meets these requirements:

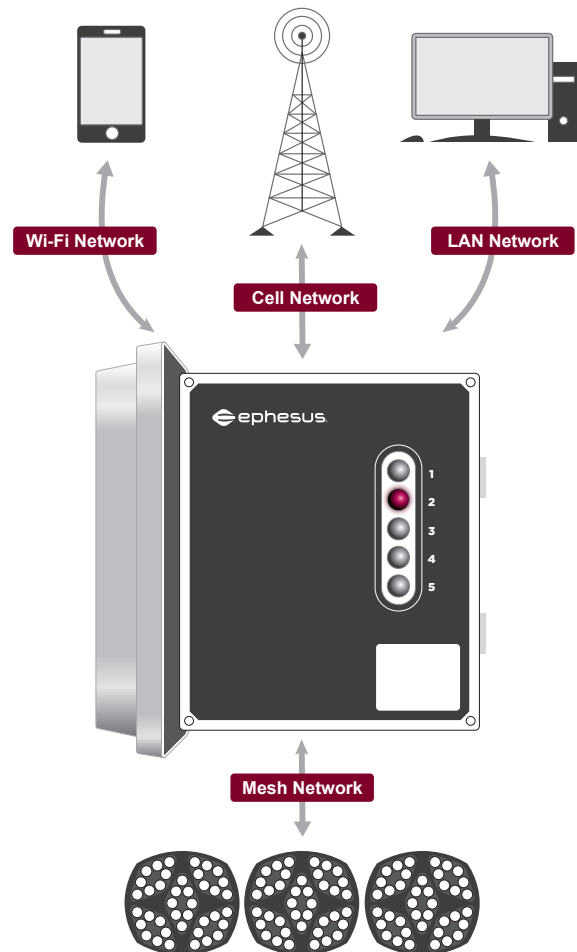
- High frequency voltage should be below -40dB or .01V between 3KH and 100KHz
- High frequency current should be below -50dB or .019A between 3KHz and 100KHz

Surge protection alone is not adequate. Techline Sports Lighting will not be liable for damage to fixtures due to poor power quality. Contact Techline Sports Lighting for more information.

The **AirMesh Hub** is a key component of the entire LED lighting system. It can switch lights off or on, or dim them to a specified level. Zones can be established so that lights in a particular area can be controlled separately from others. The system stores power data, behaviors, alarms and critical events locally for maintenance and troubleshooting.

Features & Benefits

- The Hub can be installed anywhere you need wireless, push-button control, such as in fieldhouses, controlrooms or on poles
- Five-button, pre-programmed switch provides easy control of all lights at specified dimming levels (0%, 25%, 50%, 75%, 100%)
- Hub can communicate via LAN connection, wi-fi, or through a cellular network*
- Weather-protected for outdoor venues
- Includes internal surge protection
- Enables optional dynamic scenes



POWER

90-150VAC
8W max, 6kV
surge protection



OPERATING PARAMETERS

-20°C to 55°C
IP65



RADIO

2.4GHz 82.15.4
Wi-Fi 2.4 Ghz
802.11 b/g/n



PHYSICAL

25lbs.
13.5" L X 15.5" W
7.7" H



CERTIFICATIONS

FCC/IC



ENCLOSURE

NEMA 4X, molded
fiberglass, with internal
gasket and stainless steel
latches, with ability to lock

AirMesh Function	Description
Maximum number of lights controlled by hub	Up to 1000
Maximum distance of fixture from location of hub	500 feet
Maximum allowable distance from one fixture to next	500 feet
Maximum number of programmable pre-set scenes	25 (5 per button)
individual light control	Yes, preprogrammed via 5-button hub. Additional scenes and light control obtained via Wi-Fi connection with hub
Health monitoring	Real-time monitoring of lighting status at the fixture and system level, outage notifications, storage of power consumption, temperature and other system parameters which can be retrieved for later analysis*
Remote Connectivity	Web interface can be accessed by direct Wi-Fi connection or through internet via Ethernet or built-in cellular*
Alerts	Email alerts available when connected to internet via Ethernet or built-in cellular*
Users	User and administrative accounts with multiple permission levels available
Sensors	Voltage-sourcing sensors can be added to the system to turn lights on/off with daylight or occupancy sensors. Multiple output levels in response to light sensors (daylight harvesting)
Map View	Ability to view light state (on/off/alarm) in graphical map/satellite view
Scheduling	Ability to schedule recurring events at fixed times or based on astronomical clock
Compatibility	Ability to add control modules to existing lighting fixtures to add Air-Mesh functionality to entire facility

Project Name:

Abilene Chrisitan University
 Addison High School
 Alvin ISD
 Amador Valley High School
 Anguilla Football Association
 Aqua Golf
 Atlanta Falcons
 Banquete High School
 Bay Village City Schools
 Beale Air Force Base
 Belleville West High School
 Billy Bowlegs Park
 Birmingham Community Charter School
 Bishop Kelley Stadium
 Brentwood School
 Brentwood School
 Brewster Field
 Brookville Park
 Brunswick High School
 Buhler High School
 Cabot High School
 Calhoun High School
 Camp Pendleton
 Campus High School
 Capitol Hill High School
 Castle Hill Park
 Castleberry High School
 Central Broward Regional Stadium
 Central Catholic High School
 Chaffey High School
 Charter Oak
 Citrus College
 City of Seguin
 Clovis High School
 Coalinga Chestnut Park
 Colonel Young Park
 CSULB Walters Pyramid
 Daylis Stadium - Wendy's Field
 Del Mar Golf
 Delsea Regional High School
 Detroit Monroe Coal Plant
 Devon Aire Park
 De Witt Clinton Park
 Diamond Bar High School
 Dickson High School
 Dimmitt High School
 Easter Michigan University
 Eaton Mobacorp Park
 Ecorse High School
 Ernest Debs Park
 Everett Field Park

Field Type:

Football
 Football
 Football
 Football
 Football
 Driving Range
 Football
 Football
 Football
 AFB
 Tennis
 Football, Soccer, Basketball
 Football
 Football
 Football, Tennis, Pool
 Softball
 Soccer, Tennis
 Tennis
 Softball
 Baseball
 Football
 Tennis
 Pool
 Tennis
 Gym
 Baseball
 Soccer
 Cricket
 Football
 Baseball
 Fixtures
 Football
 Fixtures
 Football
 Baseball
 Park
 Basketball
 Football
 Golf
 Football
 Plant Facility
 Basketball
 Park
 Pool
 Football
 Football
 Football
 Soccer
 Football
 Soccer
 Skate Park

City:

Abilene
 Addison
 Alvin
 Pleasanton
 The Valley
 Denver
 Atlanta
 Robstown
 Bay Village
 Beale AFB
 Belleville
 Ft. Myers
 Van Nuys
 Tulsa
 Los Angeles
 Los Angeles
 Belleair
 Bourough of Queens
 Brunswick
 Buhler
 Cabot
 Port Lavaca
 Oceanside
 Haysville
 Oklahoma City
 New York
 Ft. Worth
 Lauderhill
 San Antonio
 Chino
 Covina
 Glendora
 Seguin
 Freson
 Huron
 New York
 Long Beach
 Billings
 Del Mar
 Franklinville
 Belleville
 Miami
 New York
 Diamond Bar
 Dickson
 Dimmitt
 Ypsilanti
 Peach Tree City
 Ecorse
 Bell
 Newark

State/Country:

Texas
 Michigan
 Texas
 California
 Anguilla
 Colorado
 Georgia
 Texas
 Ohio
 California
 Illinois
 Florida
 California
 Oklahoma
 California
 California
 Florida
 New York
 Georgia
 Kansas
 Arkansas
 Texas
 California
 Kansas
 Oklahoma
 New York
 Texas
 Florida
 Texas
 California
 California
 California
 Texas
 California
 California
 New York
 California
 Montana
 California
 New Jersey
 Michigan
 Florida
 New York
 California
 Oklahoma
 Texas
 Michigan
 Georgia
 Michigan
 California
 Ohio

Fabens ISD	Baseball, Football, Softball	Fabens	Texas
Faith Academy	Football	Marble Falls	Texas
Foothill High School	Football	Pleasanton	California
Fort Bliss Stout Fitness Track	Football	Fort Bliss	Texas
Franklin & Marshall College	Football	Lancaster	Pennsylvania
Fullerton Community College	Pool	Fullerton	California
George Mason University	Tennis	Fairfax	Virginia
Gilpin County Schools	Football	Blackhawk	Colorado
Glynn County Stadium	Football	Brunswick	Georgia
Groom ISD	Football, Track	Groom	Texas
Habersham High School	Football	Habersham	Georgia
Hancock ANG Fitness Track	Track	Syracuse	New York
Hearne High School	Football	Hearne	Texas
Heritage High School	Football	New Haven	Indiana
Hobart and William Smith Colleges	Tennis	Geneva	New York
Hueneme High School	Football	Oxnard	California
Hutchinson High School	Football, Soccer	Hutchinson	Kansas
Icahn Stadium	Soccer / Multi	New York	New York
Infinity Park	Rugby Practice Field	Glendale	Colorado
Iowa Park High School	Baseball, Softball	Iowa Park	Texas
Iowa Tribe of Oklahoma	Campgrounds	Perkins	Oklahoma
Islip Marina Ballfields	Baseball	East Islip	New York
Jewish Life Center	Soccer	Palo Alto	California
John F. Kennedy Catholic High School	Football, Soccer	Sommers	New York
John Paul II Catholic HS	Football, Baseball	Greenville	North Carolina
Johnny Stevens	Fixtures Only	Wichita	Kansas
Jourdanton ISD	Football	Jourdanton	Texas
Junipero Serra High School	Football	Gardena	California
Keith Field	Baseball	Sagamore	Massachusetts
Kinkaid School	Football, Baseball	Houston	Texas
LA City College	Football, Soccer, Track, Softball	Los Angeles	California
Ladue Horton Watkins High School	Football	St. Louis	Missouri
Laguna Beach High School	Football	Escondido	California
Lancaster Bible College	Multi Sport Complex	Lancaster	Pennsylvania
LaSalle High School	Football	Cincinnati	Ohio
Lawrence Tech University	Football, Soccer, Lacrosse	Southfield	Michigan
Linden Park	Park	New York	New York
Little Rock AFB	AFB	Jacksonville	Arkansas
Logan Elm High School	Football, Soccer, Track	Circleville	Ohio
Marshall ISD	Baseball	Marshall	Texas
Martinsville Speedway	Race Track	Ridgeway	Virginia
McCarren Park	Baseball, Soccer	Brooklyn	New York
McFarland Park	Baseball	McFarland	California
McQueen High School	Football	Reno	Nevada
Medina High School	Football	Medina	Texas
Memorial Park	Baseball, Softball	Rockport	Texas
Miami Dolphins Hard Rock Stadium	Football	Miami	Florida
Miami Hard Rock Tennis	Tennis	Miami	Florida
Middle Creek Ranch	Tennis	Blanco	Texas
MLB Urban Youth Academy	Baseball	Dallas	Texas
Monarch High School	Tennis	Louisville	Colorado
Moscone Playground	Playground	San Francisco	California

Newark Memorial High School	Football	Newark	California
Northern Mariana Saipan Island	Soccer	Northern Mariana Island	Saipan
Norwood Ball Field	Field	Norwood	Pennsylvania
Olathe Soccer Complex	Soccer	Olathe	Kansas
Osceola High School	Football	Osceola	Arkansas
Owasso Public Schools	Football, Track, Baseball, Softball	Owasso	Oklahoma
Palisades Charter High School	Football	Pacific Palisades	California
Palm Beach Gardens	Soccer	Palm Beach Gardens	Florida
Pensacola Christian College	Baseball, Soccer	Pensacola	Florida
Piedmont High School	Football	Piedmont	California
Piqua High School	Football, Track	Piqua	Ohio
Pittsburg High School	Football	Coppell	Texas
Pond Creek Hunter High School	Football	Pond Creek	Oklahoma
Port Aransas Community Park	Baseball, Softball	Port Aransas	Texas
Purdue University	Football	West Lafayette	Indiana
Richmond International Raceway	Race Track	Richmond	Virginia
Rockport Memorial Park	Baseball, Softball	Rockport	Texas
San Jose State University	Golf Complex	San Jose	California
San Marcos Little League	Baseball	San Marcos	Texas
San Ysidro Port of Entry	Area	San Ysidro	California
Santa Fe High School	Football	Santa Fe	New Mexico
Santa Fe Trail USD	Football	Carbondale	Kansas
Savannah National Guard	Military Airport	Savannah	Georgia
Scrap Yard Sports Complex	Softball	Conroe	Texas
Sebring International Raceway	Race Track	Sebring	Florida
South Kitsap High School	Football	South Kitsap	Washington
Southeast High School	Football	Bradenton	Florida
Spanish Springs High School	Football	Reno	Nevada
Sparks High School	Football	Reno	Nevada
Spotsylvania High School	Field Hockey, Football	Spotsylvania	Virginia
Spring Hill High School	Baseball, Softball	Spring Hill	Kansas
Springfield High School	Football	Erdenheim	Pennsylvania
St. Joseph By the Sea	Baseball, Softball	Staten Island	New York
St. Margaret High School	Football	San Juan Capistrano	California
St. Mary's Central High School	Football	Bismark	North Dakota
Stigler Sports Complex	Baseball, Soccer	Stigler	Oklahoma
Texas A&M University, Commerce	Tennis	Commerce	Texas
Texas City Shooting Range	Shooting Range	Texas City	Texas
Trinity Prep High School	Football	Winter Park	Florida
Tulia High School	Football, Baseball, Softball	Tulia	Texas
Turner High School	Baseball	Kansas City	Kansas
Uintah High School	Baseball, Softball, Football	Vernal	Utah
University of North Texas	Tennis, Arena	Denton	Texas
Urbana University	Soccer	Urbana	Ohio
Valero Tank Yard	Yard	Beaumont	Texas
Valley View ISD	Softball	Valley View	Texas
Vernon-Verona-Sherill High School	Football	Verona	New York
Vicksburg Sports Complex	Multi Sport Complex	Vicksburg	Mississippi
Wamego USD 320	Football	Wamego	Kansas
Washoe County Schools	Football	Reno	Nevada
Weatherford High School	Baseball	Weatherford	Oklahoma
WESCO Beaumont	Tank Yard	Beaumont	Texas



LED INSTALLATIONS

White Oak Middle School

Woodland Springs Middle School

Workman Junior High School

Football

Football

Football

New Caney

Spring Hill

Arlington

Texas

Kansas

Texas

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics

Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical

LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting

STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 90° and 120° apart, the EA extended arm may be required. Refer to the

arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. **QUICK MOUNT ARM:** Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish

Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty

Five-year warranty.



GLEON GALLEON LED

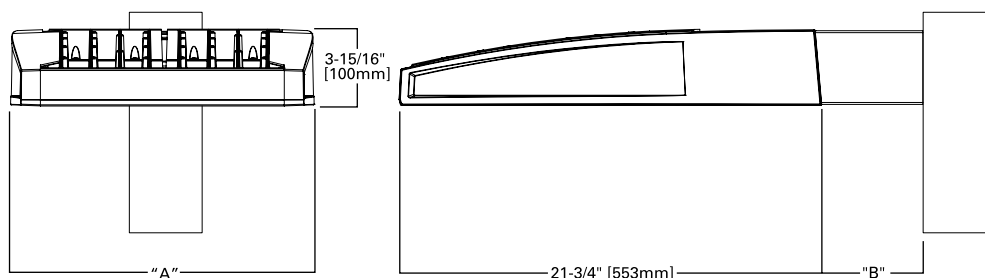
1-10 Light Squares
Solid State LED

AREA/SITE LUMINAIRE



LumenSafe Technology
[CLICK HERE](#)

DIMENSIONS

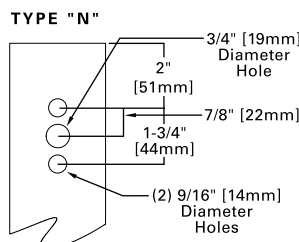


DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length ¹	Weight with Arm (lbs.)	EPA with Arm ² (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

DRILLING PATTERN



CERTIFICATION DATA

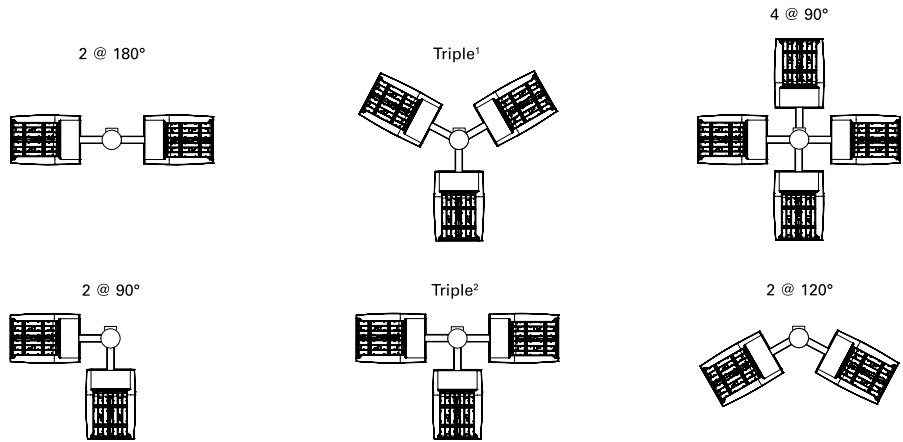
UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
IP66 Rated
DesignLights Consortium® Qualified*

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

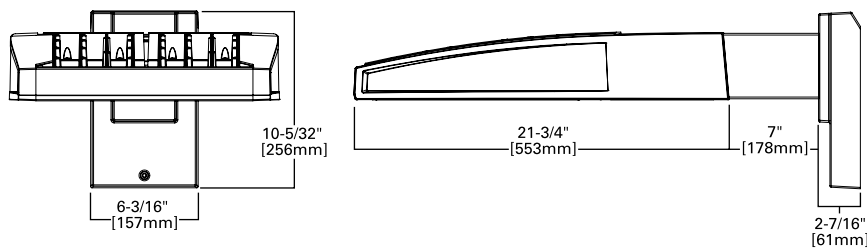
ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AF-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AF-10	16" Extended Arm (Required)	16" Extended Arm (Required)

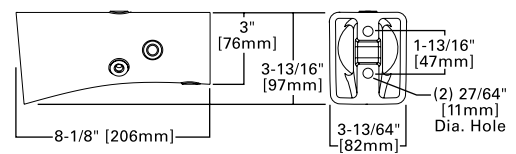


NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. 2 Round poles are 3 @ 90°.

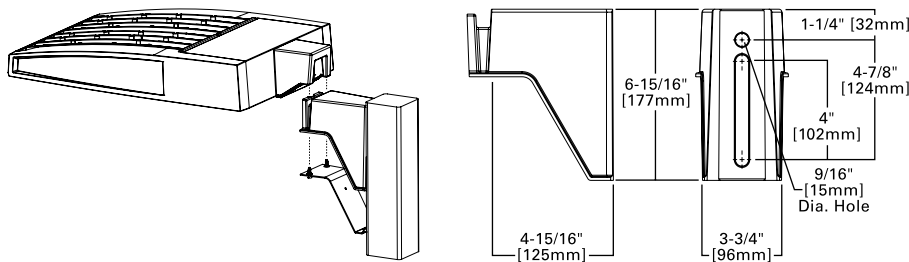
STANDARD WALL MOUNT



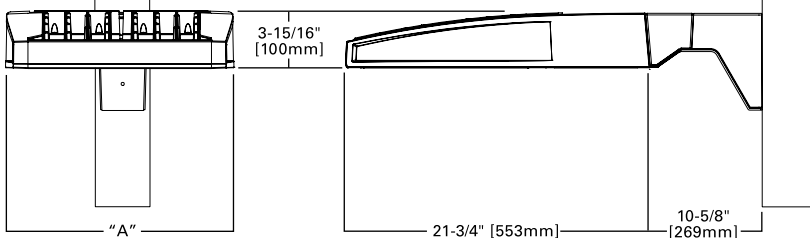
MAST ARM MOUNT



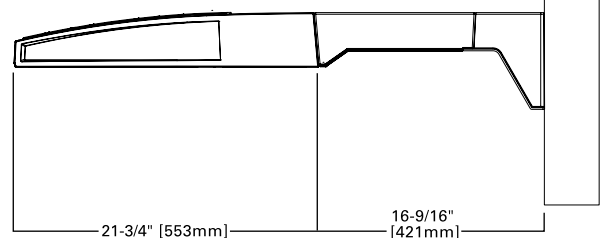
QUICK MOUNT ARM (INCLUDES FIXTURE ADAPTER)



QM Quick Mount Arm (Standard)



QMEA Quick Mount Arm (Extended)

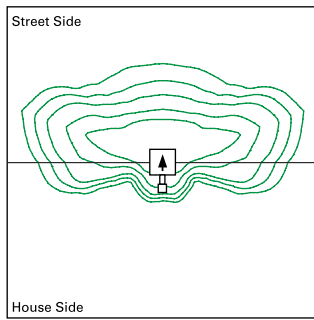


QUICK MOUNT ARM DATA

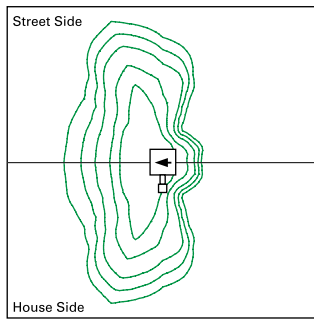
Number of Light Squares ^{1,2}	"A" Width	Weight with QM Arm (lbs.)	Weight with QMEA Arm (lbs.)	EPA (Sq. Ft.)
1-4	15-1/2" (394mm)	35 (15.91 kgs.)	38 (17.27 kgs.)	1.11
5-6 ³	21-5/8" (549mm)	46 (20.91 kgs.)	49 (22.27 kgs.)	
7-8	27-5/8" (702mm)	56 (25.45 kgs.)	59 (26.82 kgs.)	

NOTES: 1 QM option available with 1-8 light square configurations. 2 QMEA option available with 1-6 light square configurations. 3 QMEA arm to be used when mounting two fixtures at 90° on a single pole.

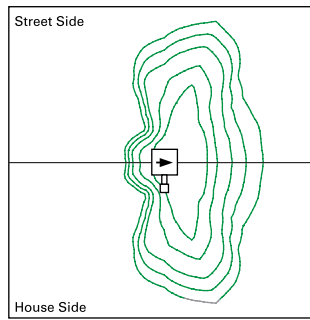
OPTIC ORIENTATION



Standard



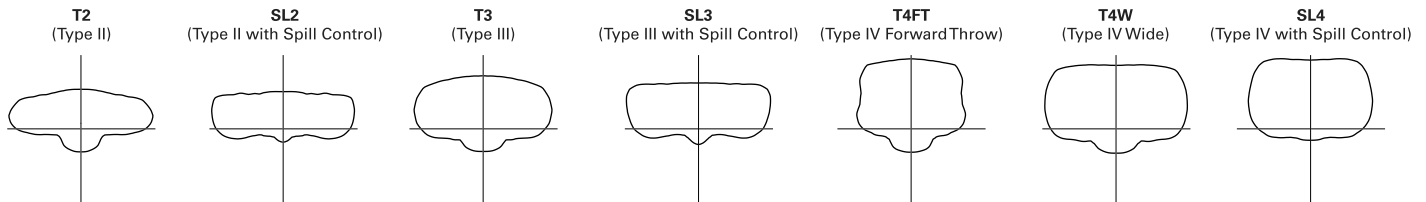
Optics Rotated Left @ 90° [L90]



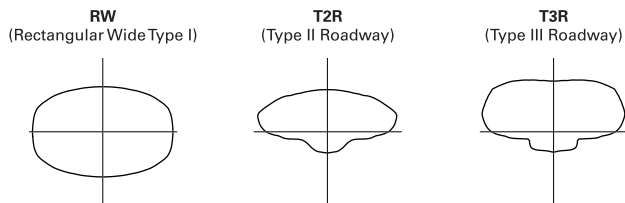
Optics Rotated Right @ 90° [R90]

OPTICAL DISTRIBUTIONS

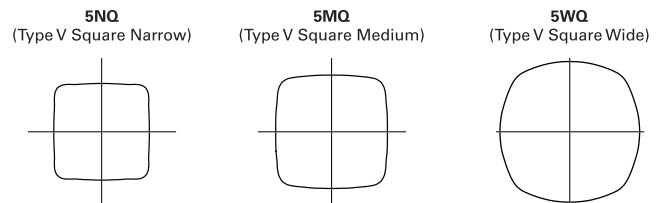
Asymmetric Area Distributions



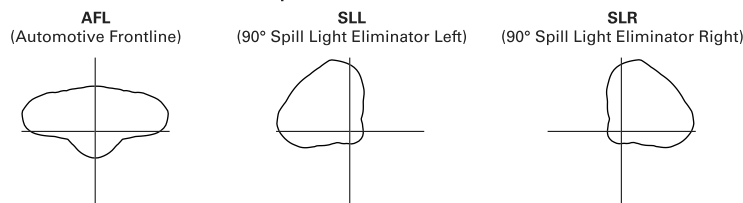
Asymmetric Roadway Distributions



Symmetric Distributions



Specialized Distributions

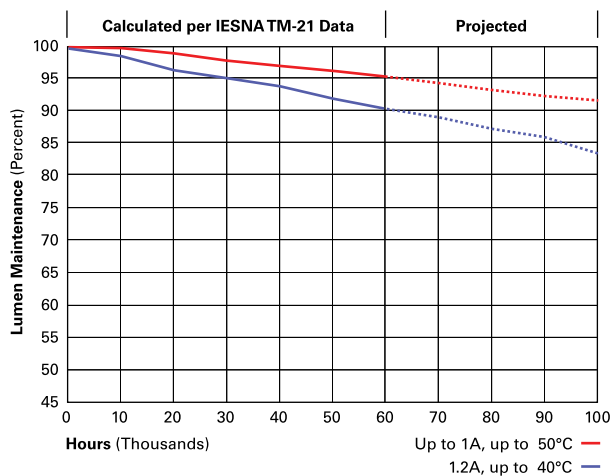


LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	416,000
1.2A	Up to 40°C	> 90%	205,000

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97




ORDERING INFORMATION

Sample Number: GLEON-AF-04-LED-E1-T3-GM-QM

Product Family ^{1,2}	Light Engine	Number of Light Squares ³	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	AF=1A Drive Current	01=1 02=2 03=3 04=4 05=5 ⁴ 06=6 07=7 ⁵ 08=8 ⁵ 09=9 ⁶ 10=10 ⁶	LED=Solid State Light Emitting Diodes	E1=120-277V 347=347V ⁷ 480=480V ^{7,8}	T2=Type II T2R=Type II Roadway T3=Type III T3R=Type III Roadway T4FT=Type IV Forward Throw T4W=Type IV Wide 5NQ=Type V Narrow 5MQ=Type V Square Medium 5WQ=Type V Square Wide SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right RW=Rectangular Wide Type I AFL=Automotive Frontline	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White	[Blank]=Arm for Round or Square Pole EA=Extended Arm ⁹ MA=Mast Arm Adapter ¹⁰ WM=Wall Mount QM=Quick Mount Arm (Standard Length) ¹¹ QMEA=Quick Mount Arm (Extended Length) ¹²
Options (Add as Suffix)					Accessories (Order Separately)		
7030 =70 CRI 3000K ¹³ 8030 =80 CRI 3000K ¹⁴ 7050 =70 CRI 5000K ¹³ 7060 =70 CRI 6000K ¹³ 600 =Drive Current Factory Set to Nominal 600mA ¹⁵ 800 =Drive Current Factory Set to Nominal 800mA ¹⁵ 1200 =Drive Current Factory Set to Nominal 1200mA ^{15,16} F=Single Fuse (120, 277 or 347V. Must Specify Voltage) FF=Double Fuse (208, 240 or 480V. Must Specify Voltage) 2L=Two Circuits ^{17,18} DIM=External 0-10V Dimming Leads ^{19,20} P=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Volatage) ²¹ PER7=NEMA 7-PIN Twistlock Photocontrol Receptacle ²¹ R=NEMA Twistlock Photocontrol Receptacle ²¹ AHD145=After Hours Dim, 5 Hours ²² AHD245=After Hours Dim, 6 Hours ²² AHD255=After Hours Dim, 7 Hours ²² AHD355=After Hours Dim, 8 Hours ²² HA=50°C High Ambient ²³ MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height ^{24,25} MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height ^{24,26} MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height ^{24,27} MS/DIM-L40W=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height (Wide Range) ^{24,28} MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height ^{24,25,29} MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height ^{24,26,29} MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height ^{22,27,29} MS/X-L40W=Bi-Level Motion Sensor, 21' - 40' Mounting Height (Wide Range) ^{24,28,29} MS-L08=Motion Sensor for ON/OFF Operation, Maximum 8' Mounting Height ^{24,25} MS-L20=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height ^{24,26} MS-L40=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height ^{24,27} MS-L40W=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height (Wide Range) ^{24,28} LWR-LW=LumaWatt Pro Wireless Sensor, Wide Lens for 8' - 16' Mounting Height ^{30,(A)} LWR-LN=LumaWatt Pro Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height ^{30,(A)} WOLC-7P-10A=WaveLinx Wireless Outdoor Lighting Control Module ^(B) L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right MT=Factory Installed Mesh Top TH=Tool-less Door Hardware LCF=Light Square Trim Plate Painted to Match Housing ³¹ HSS=Factory Installed House Side Shield ³² CE=CE Marking ³³					OA/RA1016 =NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027 =NEMA Photocontrol - 480V OA/RA1201 =NEMA Photocontrol - 347V OA/RA1013 =Photocontrol Shorting Cap OA/RA1014 =120V Photocontrol MA1252 =10kV Surge Module Replacement MA1036-XX =Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX =2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX =3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX =4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX =2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX =3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX =2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX =Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX =2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX =3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX =4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX =2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX =3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon FSIR-100 =Wireless Configuration Tool for Occupancy Sensor ³⁴ GLEON-MT1 =Field Installed Mesh Top for 1-4 Light Squares GLEON-MT2 =Field Installed Mesh Top for 5-6 Light Squares GLEON-MT3 =Field Installed Mesh Top for 7-8 Light Squares GLEON-MT4 =Field Installed Mesh Top for 9-10 Light Squares GLEON-QM =Quick Mount Arm Kit ¹⁰ GLEON-QMEA =Quick Mount Extended Arm Kit ¹¹ LS/HSS =Field Installed House Side Shield ^{32,33} WOLC-7P-10A =WaveLinx Outdoor Control Module (7-pin) ^{35,(B)}		

NOTES:
1 Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information. 2 DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details. 3 Standard 4000K CCT and minimum 70 CRI. 4 Not compatible with MS/4-LXX or MS/1-LXX sensors. 5 Not compatible with extended quick mount arm (QMEA). 6 Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA). 7 Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A. 8 Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems). 9 May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table. 10 Factory installed. 11 Maximum 8 light squares. 12 Maximum 6 light squares. 13 Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website. 14 Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website. 15 1 Amp standard. Use dedicated IES files for 600mA, 800mA and 1200mA when performing layouts. These files are published on the Galleon luminaire product page on the website. 16 Not available with HA option. 17 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in AF-02 through AF-04 requires a larger housing, normally used for AF-05 or AF-06. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table. 18 Not available with LumaWatt Pro wireless sensors. 19 Cannot be used with other control options. 20 Low voltage control lead brought out 18" outside fixture. 21 Not available if any "MS" sensor is selected. Motion sensor has an integral photocell. 22 Requires the use of P photocontrol or the PER7 or R photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information. 23 50°C lumen maintenance data applies to 600mA, 800mA and 1A drive currents. 24 The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information. 25 Approximately 22' detection diameter at 8' mounting height. 26 Approximately 40' detection diameter at 20' mounting height. 27 Approximately 60' detection diameter at 40' mounting height. 28 Approximately 100' detection diameter at 40' mounting height. 29 Replace X with number of Light Squares operating in low output mode. 30 LumaWatt Pro wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1 and LWP-PoE8 in appropriate quantities. See www.eaton.com/lighting for LumaWatt Pro application information. 31 Not available with house side shield (HSS). 32 Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected. 33 CE is not available with the LWR, MS, MS/X, MS/DIM, P, R or PER7 options. Available in 120-277V only. 34 One required for each Light Square. 35 Requires 7-pin NEMA twistlock photocontrol receptacle.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul
L=LumenSafe Technology* 	D=Dome Camera	C=Cellular, Customer Installed SIM Card A=Cellular, Factory Installed AT&T SIM Card V=Cellular, Factory Installed Verizon SIM Card S=Cellular, Factory Installed Sprint SIM Card R=Cellular, Factory Installed Rogers SIM Card W=Wi-Fi Networking w/ Omni-Directional Antenna E=Ethernet Networking

*Consult LumenSafe system pages for additional details and compatibility. Not available with 9-10 light square housing. Not available with 347V, 480V or high ambient options.

Figure 23. Cooling and gas/electric — 7.5 (dual compressor) to 10 tons standard efficiency, 6 to 8.5 tons high efficiency

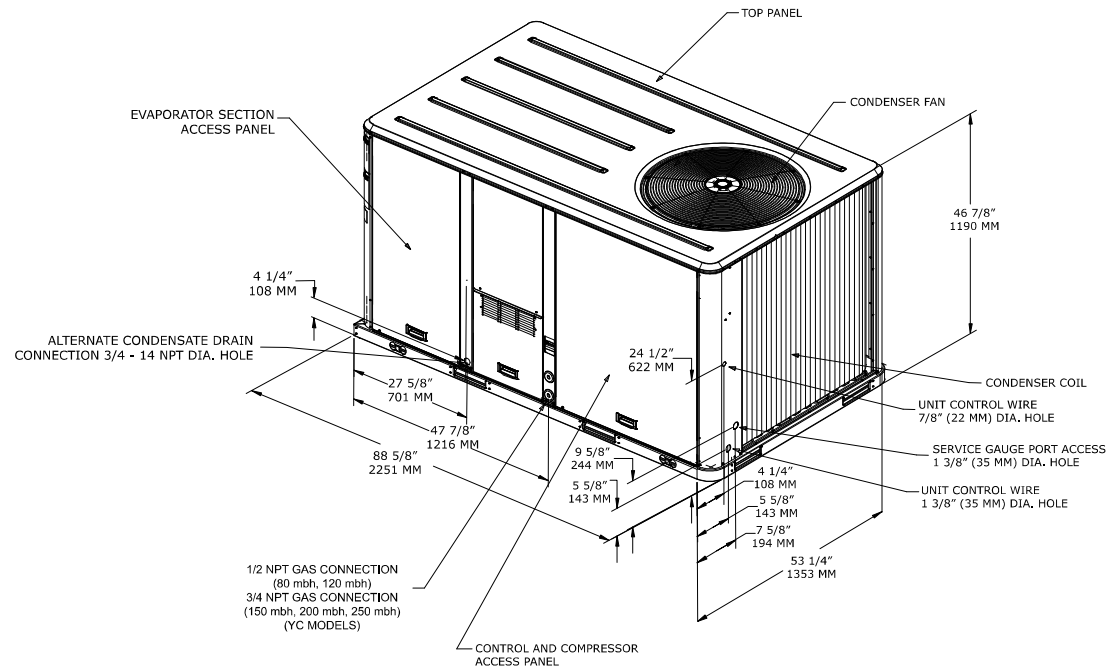
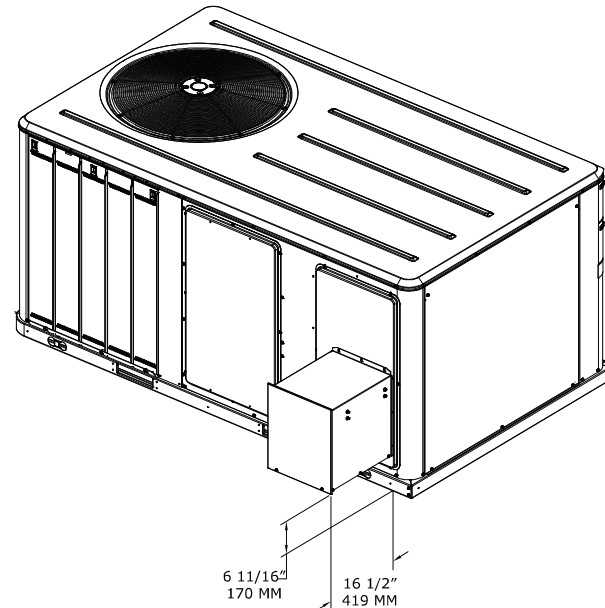


Figure 24. Cooling and gas/electric — 7.5 (dual compressor) to 10 tons standard efficiency, 6 to 8.5 tons high efficiency — power exhaust





General Data

Table 6. General data — 6 to 7.5 tons — standard efficiency

	6 Tons	7.5 Tons	7.5 Tons
	T/YSC072H3,4,W	Single Compressor T/YSC090H3,4,W	Dual compressor T/YSC092H3,4,W
Cooling Performance^(a)			
Gross Cooling Capacity	75,000	92,500	94,800
EER ^(b)	11.2	11.2	11.2
Nominal cfm/AHRI Rated cfm	2,400/2,100	3,000/2,400	3,000/2,325
AHRI Net Cooling Capacity	71,000	87,000	90,000
IEER (T/Y) ^(c)	12.9 / 12.7	12.9 / 12.7	12.9/12.7 ^(d)
System Power (kW)	6.36	7.77	8.04
Compressor			
Number/Type	1/Scroll	1/Scroll	2/Scroll
Sound			
Outdoor Sound Rating (dB) ^(e)	89	89	91
Outdoor Coil			
Type	Microchannel	Microchannel	Microchannel
Configuration	Full Face	Full Face	Face-split
Tube Size (in.)	0.71	1.00	0.71
Face Area (sq. ft.)	16.91	16.91	17.31
Rows/FPI (Fins per inch)	1/23	1/21	1/23
Indoor Coil			
Type	Lanced	Lanced	Lanced
Configuration	Full Face	Full Face	Face-split
Tube Size (in.)	0.3125	0.3125	0.3125
Face Area (sq. ft.)	9.89	9.89	12.36
Rows/FPI (Fins per inch)	3/16	4/16	3/16
Refrigerant Control	Thermal Expansion Valve	Thermal Expansion Valve	Thermal Expansion Valve
Drain Connection No./Size (in.)	1¾ NPT	1¾ NPT	1¾ NPT
Outdoor Fan			
Type	Propeller	Propeller	Propeller
No. Used/Diameter (in.)	1/26	1/26	1/26
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1
CFM	6,037	6400	6600
Motor HP	0.70	0.70	0.70
Motor RPM	1,100	1,100	1,100
Indoor Fan			
Type	FC Centrifugal	FC Centrifugal	FC Centrifugal ^(f)
No. Used/Diameter (in.)/Width (in.)	1/12x12	1/12x12	1/15x15 ^(g)
Drive Type/No. Speeds/RPM	Belt/Variable/1,750	Belt/Variable/1,750	Belt/Variable/1,750 ^(h)
Motor HP (Standard/Oversized)	1.0/2.0	1.0/3.0	1.0/3.0 ⁽ⁱ⁾
Motor Frame Size (Standard/Oversized)	56/56	56/56	56/56
Filters^(j)			
Type Furnished	Throwaway	Throwaway	Throwaway
Number Size Recommended	(4) 16x25x2	(4) 16x25x2	(4) 20x25x2
Refrigerant Charge^(k)			
lbs of R-410A	5.5	7.5	3.8/3.6
Heating Performance (Gas/ Electric Only)^(l)			
Heating Input			
Low Heat Input (Btu)	80,000	120,000	120,000
Mid Heat Input (Btu)	120,000	150,000/105,000	150,000/105,000
High Heat Input (Btu)	150,000/105,000	200,000/140,000	200,000/140,000
Heating Output			

Table 6. General data — 6 to 7.5 tons — standard efficiency (continued)

	6 Tons	7.5 Tons	7.5 Tons
	T/YSC072H3,4,W	Single Compressor T/YSC090H3,4,W	Dual compressor T/YSC092H3,4,W
Low Heat Output (Btu)	64,000	96,000	96,000 ^(m)
Mid Heat Output (Btu)	96,000	120,000/84,000	120,000/84,000 ^(m)
High Heat Output (Btu)	120,000/84,000	160,000/112,000	160,000/112,000 ^(m)
Steady State Efficiency %			
Low Heat Input (Btu)	80	80	80 ⁽ⁿ⁾
Mid Heat Input (Btu)	80	80	80 ⁽ⁿ⁾
High Heat Input (Btu)	80	80	80 ⁽ⁿ⁾
No. Burners			
Low Heat Output (Btu)	2	3	3
Mid Heat Output (Btu)	3	3	3
High Heat Output (Btu)	3	4	4 ^(o)
No. Stages			
Low Heat Input (Btu)	1	1	1
Mid Heat Input (Btu)	1	2	2
High Heat Input (Btu)	2	2	2
Gas Supply Line Pressure			
Natural (minimum/maximum)	4.5/14.0	4.5/14.0	4.5/14.0
LP (minimum/maximum)	11.0/14.0	11.0/14.0	11.0/14.0
Gas Connection Pipe Size (in.)			
Low Heat	1/2	1/2	1/2
Mid Heat	1/2	3/4	3/4
High Heat	3/4	3/4	3/4

- (a) Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air-Conditioner Equipment certification program, which is based on AHRI Standard 340/360.
- (b) EER is rated at AHRI conditions and in accordance with DOE test procedures.
- (c) Integrated Efficiency Ratio (IEER) is rated in accordance with AHRI Standard 340/360. The IEER rating requires that the unit efficiency be determined at 100%, 75%, 50% and 25% load (net capacity) at the specified in AHRI Standard.
- (d) 13.7 IEER for SZVAV option, 13.4 IEER for Title24 2 speed fan option.
- (e) Outdoor sound rating shown is tested in accordance with AHRI Standard 270. For additional information reference the outdoor sound power level data in the performance section.
- (f) For SZVAV / Title 24 Option, Backward Airfoil Plenum
- (g) For SZVAV / Title 24 Option, 1/23.03
- (h) For SZVAV / Title 24 Option, Plenum/Variable/1,700
- (i) For SZVAV / Title 24 Option, 2.75
- (j) Optional 2" MERV 8 and MERV 13 filters also available.
- (k) Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
- (l) Heating performance limit settings and rating data were established and approved under laboratory test conditions using American National Standards Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level. Applicable to gas/electric units only.
- (m) For SZVAV / Title24 Option, Low = 97,200, Mid = 121,500, High = 162,000
- (n) For SZVAV / Title24 Option, Steady State Efficiency = 81%
- (o) 5 burners for SZVAV / Title24 Option

SUBMITTAL DATA: PKA-A18GA & PUY-A18NHA
18,000 Btu/h WALL-MOUNTED AIR-CONDITIONING SYSTEM

Job Name:	Location:	Date:
Purchaser:	Engineer:	
Submitted to:	For <input type="checkbox"/> Reference <input type="checkbox"/> Approval <input type="checkbox"/> Construction	
Unit Designation:	Schedule No.:	

GENERAL FEATURES

- Limited warranty: five years on parts and defects and seven years on compressors
- Compact side-discharge outdoor unit
- Zone control
- Hard-wired, wall-mounted remote controller (PAR-21MAA)
- Automatic fan speed control
- Quiet operation – both, indoor and outdoor units
- Auto restart following a power outage
- Self check function
- Advanced microprocessor control

Rated capacity 18,000 Btu/h
 Minimum capacity 8,000 Btu/h
 Total input 2240 W
 SEER 14.1
 Power supply 208 / 230V, 1 Phase, 60 Hz
 Breaker size 15 A

Voltage

Indoor - outdoor S1-S2 AC 208/230V
 Indoor - outdoor S2-S3 DC 24V
 Indoor - remote controller DC

Indoor unit

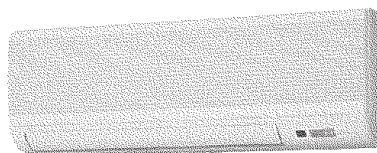
MCA 1 A
 Fan motor 0.33 F.L.A.
 Fan motor output 30 W
 Airflow (Lo-M1-M2-Hi) 320-350-390-425 Dry CFM
 290-315-350-380 Wet CFM
 Sound level (Lo-M1-M2-Hi) 36-38-41-43 dB(A)

DIMENSIONS	INCHES	MM
W	39	990
D	9-1/4	235
H	13-3/8	340

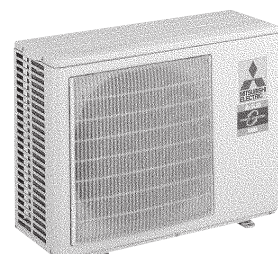
Weight (lbs/kg) 35 / 16
 Field drain pipe size I.D. (inches/mm) 3/4 / 19.05



Remote Controller: PAR-21MAA



Indoor Unit: PKA-A18GA



Outdoor Unit: PUY-A18NHA

Outdoor unit

Compressor DC inverter/twin rotary
 MCA 13
 Fan motor 0.35 F.L.A.
 Sound level 46 dB(A)

DIMENSIONS	INCHES	MM
W	31-1/2	800
D	13 + 7/8	330 + 23
H	23-5/8	600

Weight (lbs/Kg) 90 / 41
 Refrigerant type R410A
 Refrigerant pipe size O.D. (inches/mm)
 gas side 1/2 / 12.7
 liquid side 1/4 / 6.35
 Max. refrigerant pipe length (ft/m) 100 / 30
 Max. refrigerant pipe height difference (ft/m) 100 / 30
 Connection method flared

NOTES :

*1. Rating conditions (cooling)-indoor : D.B. 80°F, W.B. 67°F
 outdoor : D.B. 95°F, W.B. 75°F.

Operating range

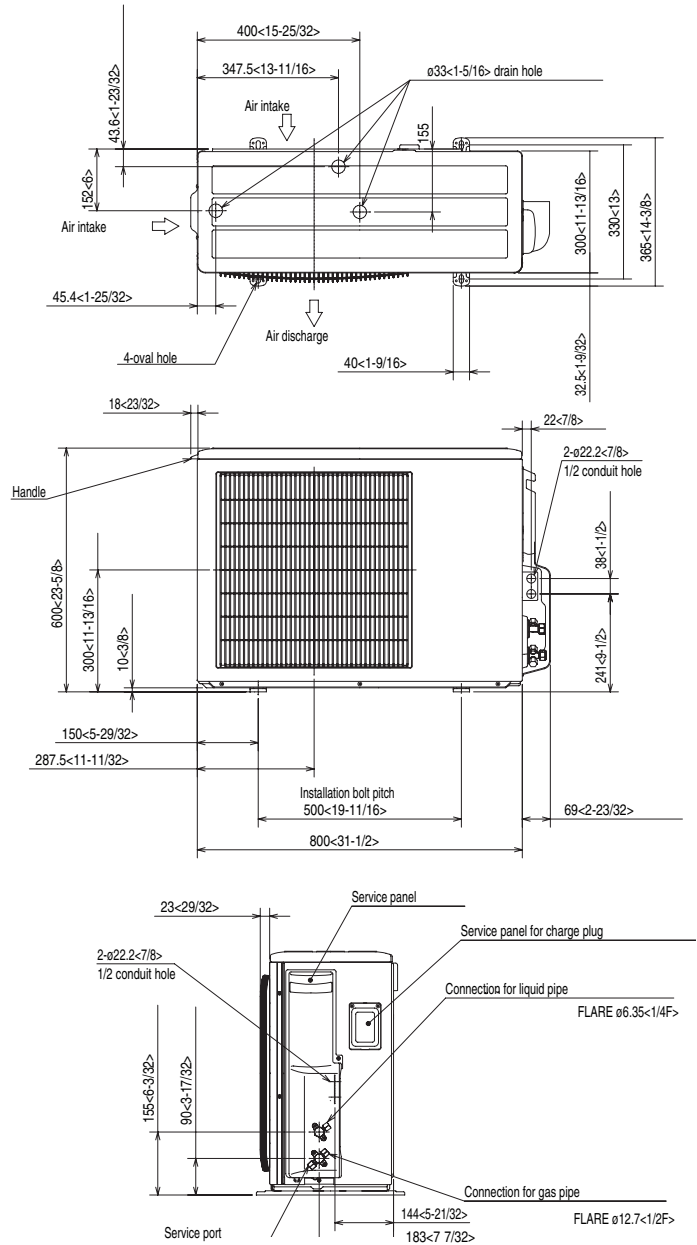
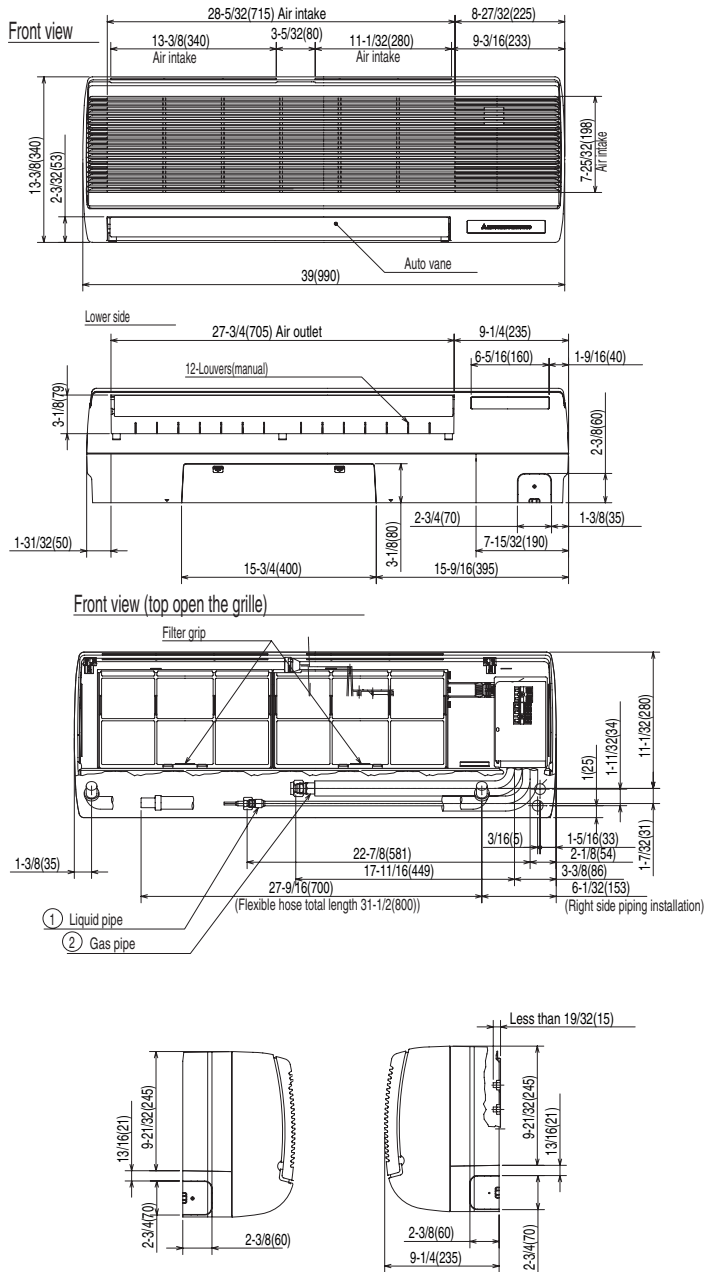
		Indoor intake air temp.	Outdoor intake air temp.
Cooling	Maximum	D.B. 95°F, W.B. 71°F	D.B. 115°F
	Minimum	D.B. 67°F, W.B. 57°F	D.B. 0°F *

* With wind baffle installed. If not installed, the minimum rated temperature is 23°FDB.



Notes:

DIMENSIONS: PKA-A18GA & PUY-A18NHA



HVAC Advanced Products Division
Mitsubishi Electric & Electronics USA, Inc.

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Suwanee, GA 30024
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Toll Free: 800-433-4822 (#3)
www.mehvac.com
Specifications are subject to change without notice.



COOK

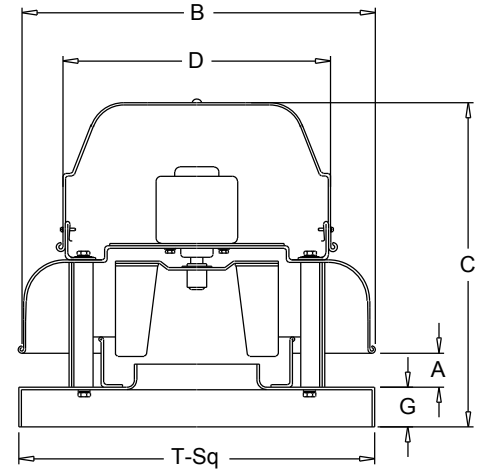


ACE-D

Downblast Centrifugal Exhaust Ventilator Roof Mounted/Direct Drive

STANDARD CONSTRUCTION FEATURES:

All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches (sizes 120 - 300) - Welded curb cap corners - Birdscreen - Permanently lubricated ball bearing motors - Corrosion resistant fasteners - Transit tested packaging.



Performance

Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power (KW)	FEG
101C28D (VF)	675	.500	1583	.116	-

Altitude (ft):0 Temperature (°F):70

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
69	70	74	68	63	59	54	50	70	59	9.2

Loren Cook Company certifies that the ACE shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

Performance certified is for installation type A: free inlet, free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in hemispherical sones at 5 ft. in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. The AMCA International licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.

The sound power level ratings shown are in decibels, referred to 10(-12) watts calculated per AMCA Standard 301. Values shown are for inlet Lwi and LwiA sound power levels for installation type A: free inlet, free outlet. Ratings do not include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA Standard 301. The dBA levels shown have been calculated for a distance of 5 ft in a hemispherical free field. The AMCA Certified Ratings Seal applies to sone ratings only. Octave Band, LwA and dBA levels are not AMCA International licensed.

Fan Curve Legend

CFM vs SP	—
CFM vs KW	—
Point of Operation	○
System Curve	---
Do Not Select	---

