

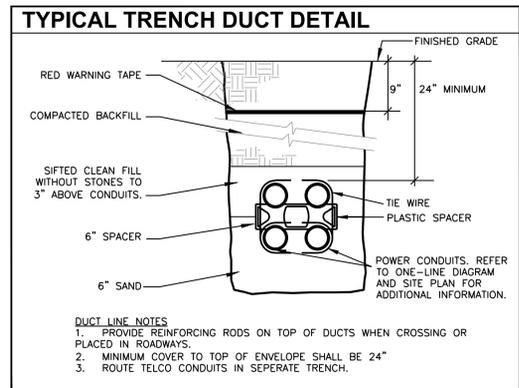
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Rev	Date	By	Description
1	7/17/19		CITY COMMENTS

**City of Buckeye**  
**Fire Station No. 705**  
30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

**2ND SUBMITTAL**  
Drawn/Checked By  
Date  
07-17-19  
Project Number  
**318009**  
Sheet Number  
**ELECTRICAL SYMBOL LIST**  
**E0.1**

FEEDER SCHEDULE		
NOTE: APPLIES TO ALL SHEETS		
ID	MAX. AMP	FEEDER SIZE
A1	20A	2#12 & 1#12GRD, 1/2" C
A2	20A	3#12 & 1#12GRD, 1/2" C
A3	20A	4#12 & 1#12GRD, 1/2" C
B1	30A	2#10 & 1#10GRD, 1/2" C
B2	30A	3#10 & 1#10GRD, 1/2" C
B3	30A	4#10 & 1#10GRD, 1/2" C
B4	30A	6#10 & 1#10GRD, 3/4" C
C1	40A	2#8 & 1#10GRD, 3/4" C
C2	40A	3#8 & 1#10GRD, 3/4" C
C3	40A	4#8 & 1#10GRD, 3/4" C
D1	60A	3#6 & 1#10GRD, 3/4" C
D2	60A	4#6 & 1#10GRD, 1" C
E1	80A	3#4 & 1#8GRD, 1 1/4" C
E2	80A	4#4 & 1#8GRD, 1 1/4" C
F1	100A	3#3 & 1#6GRD, 1 1/4" C
F2	100A	4#3 & 1#6GRD, 1 1/4" C
FT	100A	4#3 & 1#6GRD, 1 1/4" C (30KVA)
G1	125A	3#1 & 1#6GRD, 1 1/2" C
G2	125A	4#1 & 1#6GRD, 1 1/2" C
H1	150A	3#1/0 & 1#6GRD, 1 1/2" C
H2	150A	4#1/0 & 1#6GRD, 1 1/2" C
HT	150A	4#1/0 & 1#6GRD, 1 1/2" C (45KVA)
J1	175A	3#2/0 & 1#6GRD, 2" C
J2	175A	4#2/0 & 1#6GRD, 2" C
K1	200A	3#3/0 & 1#6GRD, 2" C
K2	200A	4#3/0 & 1#6GRD, 2" C
KT	200A	4#3/0 & 1#2GRD, 2" C (75KVA)
L1	225A	3#4/0 & 1#4GRD, 2" C
L2	225A	4#4/0 & 1#4GRD, 2 1/2" C
M1	250A	3-250MCM & 1#4GRD, 2 1/2" C
M2	250A	4-250MCM & 1#4GRD, 2 1/2" C
N1	300A	3-350MCM & 1#4GRD, 3" C
N2	300A	4-350MCM & 1#4GRD, 3" C
P1	400A	3-500MCM & 1#3GRD, 3" C
P2	400A	4-500MCM & 1#3GRD, 4" C
PT	400A	TWO SETS 4-3/0 & 1#1/0GRD, 2.5" C (112.5KVA)
R1	600A	TWO SETS OF 3-350MCM & 1#1GRD, 3" C
R2	600A	TWO SETS OF 4-350MCM & 1#1GRD, 3" C
S1	800A	TWO SETS OF 3-500MCM & 1#1/0GRD, 3" C
S2	800A	TWO SETS OF 4-500MCM & 1#1/0GRD, 4" C
T1	1000A	THREE SETS OF 3-500MCM & 1#2/0GRD, 3" C
T2	1000A	THREE SETS OF 4-500MCM & 1#2/0GRD, 4" C
U1	1200A	FOUR SETS OF 3-350MCM & 1#3/0GRD, 3" C
U2	1200A	FOUR SETS OF 4-350MCM & 1#3/0GRD, 4" C
V1	1600A	FOUR SETS OF 3-600MCM & 1#4/0GRD, 4" C
V2	1600A	FOUR SETS OF 4-600MCM & 1#4/0GRD, 4" C
W1	2000A	SIX SETS OF 3-500MCM & 1-250GRD, 3" C
W2	2000A	SIX SETS OF 4-500MCM & 1-250GRD, 4" C



### SPECIAL POWER SYMBOL LIST

**FLUSH RECTANGULAR FLOOR BOX - AUDIO/VISUAL**  
FLOOR BOX EQUAL TO HUBBELL CAT. CFB7G SERIES WITH DEVICES AND FLANGE AS REQUIRED BY TENANT: (2) CAT6 JACKS FOR VOICE/DATA, (1) HDMI CONNECTOR FOR AUDIO/VIDEO AND (2) DUPLEX RECEPTACLE. PROVIDE WITH 3/4" C. FOR POWER, 1.25" C. FOR DATA AND 2" C. FOR AUDIO/VISUAL TO ADJACENT WALL TO 3" ABOVE ACCESSIBLE CEILING SPACE. COORDINATE EXACT LOCATION AND PROVIDE SAW-CUT, TRENCH AND BACKFILL AS REQUIRED.

**FLUSH ROUND FLOOR BOX - POWER/DATA**  
FLOOR BOX EQUAL TO HUBBELL CAT. #S1SFB / S1SP4x4. PROVIDE 3/4" CONDUIT FOR POWER AND 1-1/4" CONDUIT FOR DATA TO ADJACENT WALL TO 3" ABOVE CEILING. COORDINATE EXACT LOCATION AND PROVIDE SAW-CUT, TRENCH AND BACKFILL AS REQUIRED. INTERIOR DESIGNER TO VERIFY FINISH AND SUB-PLATE AS NECESSARY.

**FLUSH RECTANGULAR FLOOR BOX - POWER/DATA**  
FLOOR BOX EQUAL TO HUBBELL, MODEL NO. PFB4G2 WITH (1) DUPLEX, BRUSHED ALUMINUM FLANGE AND COVER(S). PROVIDE 3/4" CONDUIT FOR POWER AND 1.25" CONDUIT FOR DATA TO ABOVE ACCESSIBLE CEILING. CONFIRM IT/DATA DEVICE TYPE PER IT PROJECT MANAGER. VERIFY FLANGE TYPE AND COVER WITH FLOOR FINISH, TENANT PROJECT MANAGER AND ARCHITECT.

**COMBINATION USB/DUPLEX RECEPTACLE**  
USB/DUPLEX DEVICE BY HUBBELL, MODEL NO. USB20X2. VERIFY COLOR WITH ARCHITECT.

**CARD READER**  
PROVIDE 2-SQUARE J-BOX AND 3/4" CONDUIT WITH 90° ELBOW IN ACCESSIBLE CEILING SPACE. VERIFY FINAL LOCATION WITH CITY PROJECT MANAGER AND ARCHITECT. COORDINATE INSTALLATION WITH CARD READER SUPPLIER.

**TV-POWER-DATA (WALL MOUNTED)**  
PROVIDE HUBBELL FLAT PANEL CONNECTION ENCLOSURE, MODEL NO. NSAV62M WITH COVER-NSAV6C AND STANDARD POWER KIT-NSOKP. PROVIDE (2) 1" DATA CONDUITS TO ABOVE CEILING. WHERE LOCATED IN A ROOM WITH FLOOR POWER/AV DEVICE, PROVIDE CONDUITS FROM FLOOR DEVICE TO WALL AV BOX AS INDICATED AT FLOOR DEVICE. VERIFY MOUNTING HEIGHT WITH ARCHITECT AND ARCHITECTURAL ELEVATION PLANS.

**NEW PHONE/DATA OPENING.** PROVIDE SINGLEGANG J-BOX WITH 3/4" CONDUIT TO 3" ABOVE CEILING/WALL LEVEL WITH NYLON BUSHING AND PULL STRING.

**FLUSH RECTANGULAR FLOOR BOX**  
FLOOR BOX EQUAL TO LEGRAND CAT. 818TCAL WITH (1) 880MP2. PROVIDE DUPLEX RECEPTACLE COVER PER OWNER. PROVIDE WITH FLANGE AS REQUIRED BY TENANT. PROVIDE WITH 3/4" C. FOR POWER TO ADJACENT WALL. COORDINATE EXACT LOCATION AND PROVIDE SAW-CUT, TRENCH AND BACKFILL AS REQUIRED.

**FLUSH RECTANGULAR FLOOR BOX**  
FLOOR BOX EQUAL TO LEGRAND CAT. 818TCAL WITH (1) 880MP2. PROVIDE DATA COVER PER OWNER. PROVIDE WITH FLANGE AS REQUIRED BY TENANT. PROVIDE WITH 1.5" C. FOR DATA INTO IT/ECC IDF (ROOM 107). COORDINATE EXACT LOCATION AND PROVIDE SAW-CUT, TRENCH AND BACKFILL AS REQUIRED.

### LIGHTING SENSOR LEGEND

**CONTROL SWITCHES:**

SENSOR SWITCH: WXS PDT SA WHITE (VACANCY SENSOR - STANDARD ROOM - LINE VOLTAGE)

SENSOR SWITCH: WXS PDT D WHITE (VACANCY SENSOR - 0-10V DIMMING - LINE VOLTAGE)

SENSOR SWITCH: WXS PDT 2P WHITE (TWO POLE ON/OFF VACANCY SENSOR - LINE VOLTAGE)

SENSOR SWITCH: sPDMRD WHITE (0-10V DIMMING SWITCHPOD SERIES - LINE VOLTAGE)

**CEILING MOTION SENSORS:**

SENSOR SWITCH: CMR PDT 10 D (CEILING MOTION SENSOR - EXTENDED RANGE/DIMMING - LINE VOLTAGE)

**nLIGHT SENSORS:**

nLIGHT: nPODM DX WHITE (DIMMING SWITCH - LOW VOLTAGE - nLIGHT)

nLIGHT: nPODM 2P DX WHITE (DIMMING VACANCY SENSOR - LOW VOLTAGE, SERVES AS ON/OFF/DIMMING AND LOW VOLTAGE OVERRIDE CONTROLS)

nLIGHT: nPOD GFX WHITE

nLIGHT: nPP16 D (POWER PACK - DIMMING - 0-10V)

nLIGHT: nPP16 D ER (UL924 EMERGENCY POWER PACK - DIMMING - 0-10V)

nLIGHT: nSP5 PCD ELV 120 (POWER PACK - ELECTRONIC LOW VOLTAGE DIMMING)

nLIGHT: nCM PDT 10 RJB (CEILING MOTION SENSOR - LOW VOLTAGE)

nLIGHT: nWV PDT 16 KIT (WALL MOTION SENSOR - LOW VOLTAGE)

nLIGHT: nCMB PDT 10 RJB ADCX (CEILING MOTION/PHOTOCELL SENSOR - LOW VOLTAGE)

nLIGHT: nCM6 RJB ADCX (HIGH BAY MOTION/PHOTOCELL SENSOR - LOW VOLTAGE)

nLIGHT: nCM ADCX RJB (DAYLIGHT CONTROL SENSOR - LOW VOLTAGE)

NOTE: INDIVIDUAL OFFICE SENSORS TO BE PROGRAMMED FOR MANUAL ON, AUTO OFF IN COMPLIANCE WITH 2009 IECC C405.2.2.2 OCCUPANCY SENSORS.

(#) DESIGNATES LIGHTING SWITCH DESIGNATION, WHERE APPLICABLE ON PLAN.

R# DESIGNATES LCP RELAY CONTROLLED, WHERE APPLICABLE ON PLAN.

PROVIDE FULL START UP PROGRAMMING AND UP TO 16 HOURS OF CUSTOMER TRAINING ON SYSTEM OPERATION AND FUNCTION.

CORRIDOR AND PATH OF EGRESS SENSORS SHALL BE PROGRAMMED, SO THAT THE MINIMUM LIGHTING LEVEL OF NIGHT-LIGHT (NL) FIXTURES MEET IBC 1006.2 EGRESS LIGHTING REQUIREMENTS.

### SYMBOL LEGEND

**LIGHTING: SEE FIXTURE SCHEDULE**

DOWNLIGHT FIXTURE - SURFACE OR PENDANT  
DOWNLIGHT FIXTURE - CEILING RECESS  
WALL MOUNTED FIXTURE  
EXIT LIGHT FIXTURE - SEE SCHEDULE FOR MOUNTING  
LIGHTING FIXTURE - PENDENT OR SURFACE  
LIGHTING FIXTURE - CEILING RECESS  
EMERGENCY AND/OR N.L. (NIGHT LIGHT) FIXTURE  
BATTERY OPERATED EMERGENCY LIGHT  
LIGHT TRACK WITH NUMBER OF FIXTURES INDICATED  
SITE AREA LIGHT FIXTURE  
BOLLARD OR LANDSCAPE FIXTURE

**WIRING DEVICES, PANELS AND RACEWAYS**

SINGLE POLE SWITCH WITH IDENTIFICATION LETTER  
OCCUPANCY SENSOR SWITCH  
THREE WAY SWITCH WITH IDENTIFICATION LETTER  
FOUR WAY SWITCH WITH IDENTIFICATION LETTER  
MANUAL STARTER  
KEY SWITCH  
DIMMER CONTROL SWITCH  
SWITCH WITH PILOT LIGHT  
SWITCH MOUNTING HEIGHT - 48" AFF. TO CENTER

SINGLE CONVENIENCE OUTLET- MOUNT 18" AFF. TO CENTER  
DUPLEX CONVENIENCE OUTLET- MOUNT 18" AFF. TO CENTER  
DOUBLE DUPLEX CONVENIENCE OUTLET- MOUNT 18" AFF. TO CENTER  
DUPLEX CONVENIENCE OUTLET- MOUNT 6" ABV COUNTER TO CENTER  
DUPLEX CONVENIENCE OUTLET- MOUNT AT CEILING OR ABOVE WINDOW

FLOOR TYPE SERVICE FITTING WITH INDICATED DEVICES  
GROUND FAULT INTERRUPTER RECEPTACLE- MOUNT 18" AFF. TO CENTER OR 6" ABV LAV TO CENTER WHERE APPROPRIATE.  
SPECIAL OUTLET WITH IDENTIFICATION, SEE SCHEDULE OR NOTE  
WALL CLOCK- MOUNT 12" BELOW CEILING.  
JUNCTION BOX  
POWER DISTRIBUTION PANELBOARD  
BRANCH CIRCUIT PANELBOARD  
EMERGENCY PANELBOARD  
SWITCHBOARD  
TRANSFORMER- SEE SCHEDULE  
CONDUIT CONCEALED IN CEILING OR WALL  
FLEXIBLE CONDUIT  
CONDUIT - UNDER FLOOR OR UNDER GROUND  
HOME RUN TO PANEL INDICATED

WIRING DESIGNATIONS, LONG SLASH IS NEUTRAL WIRE, SHORT SLASH IS PHASE WIRE, SLASH WITH DOT IS GROUND WIRE. #10 INDICATES AWG WIRE SIZE.

MOTOR-SEE EQUIPMENT DATA SCHEDULE  
DISCONNECT SWITCH WITH SIZE AND TYPE INDICATED  
MOTOR CONTROLLER- SEE EQUIPMENT DATA SCHEDULE  
MOTOR CONTROLLER WITH DISCONNECT SWITCH  
RELAY OR CONTACTOR  
PHOTO CELL  
TIME SWITCH  
CARD READER  
PUSHBUTTON- MOUNT 48" AFF.  
BLANK  
FURNITURE FEED  
HUBBELL TV BOX, HEIGHT BY ARCH.

### SPECIAL SYSTEMS

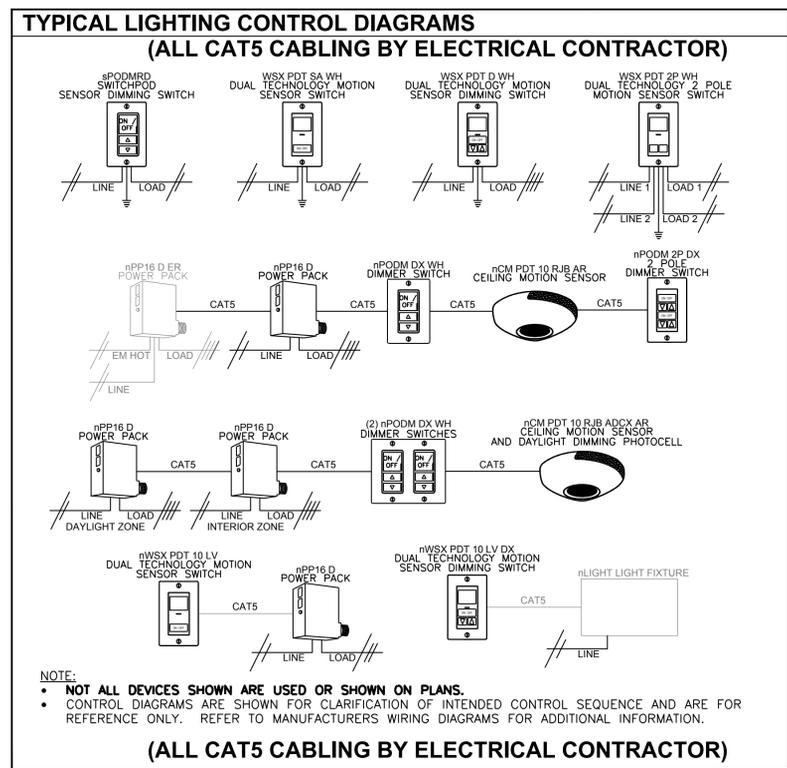
COMBINATION TELEPHONE/DATA OUTLET- MOUNT 18" AFF.  
COMBINATION FLOOR TELEPHONE/DATA OUTLET  
POWER/DATA POLE  
POWER/DATA FURNITURE WALL FEED  
FIRE ALARM MANUAL STATION- MOUNT 48" AFF.  
FIRE ALARM AUDIO/VISUAL SIGNAL- MOUNT 80" AFF.  
FIRE ALARM VISUAL SIGNAL- MOUNT 80" AFF.  
FIRE ALARM THERMAL DETECTOR  
FIRE ALARM SMOKE DETECTOR  
DUCT-MOUNTED FIRE ALARM SMOKE DETECTOR  
MAGNETIC DOOR HOLDER  
SPRINKLER WATER FLOW SWITCH  
SPRINKLER SUPERVISORY SWITCH  
MONITOR MODULE  
CONTROL MODULE  
TELEVISION OUTLET- MOUNT 18" AFF.  
CLOSED CIRCUIT VIDEO CAMERA OUTLET  
MAGNETIC DOOR SWITCH  
TELEPHONE BOARD  
INTERCOM OUTLET

**ONE-LINE DIAGRAM**

CIRCUIT BREAKER FRAME SIZE/ TRIP, POLE  
LOAD INTERRUPTER SWITCH  
FUSIBLE SWITCH- SW SIZE/ FUSE, 3 POLE  
GROUND FAULT RELAY OR OTHER TYPE RELAY AS NOTED  
CONTACTOR  
AUTOMATIC OR MANUALLY ACTUATED TRANSFER SWITCH  
TRANSFORMER  
CURRENT TRANSFORMER  
GROUND ELECTRODE

**ABBREVIATIONS:**

A AMPERE  
AFF ABOVE FINISHED FLOOR  
AFC AMP INTERRUPTING CAPACITY  
ATS AUTOMATIC TRANSFER SWITCH  
C CONDUIT  
CB CIRCUIT BREAKER  
E EMERGENCY  
FS FUSIBLE SWITCH  
GFI GROUND FAULT INTERRUPTER  
MLO MAIN LUGS ONLY  
MOP MAXIMUM OVERCURRENT PROTECTION  
NF NON FUSED  
NL NIGHT LIGHT  
P POLE  
PH PHASE  
PNL PANEL  
UNL UNLESS NOTED OTHERWISE ON PLANS  
WP WEATHERPROOF



### ELECTRICAL SHEET INDEX

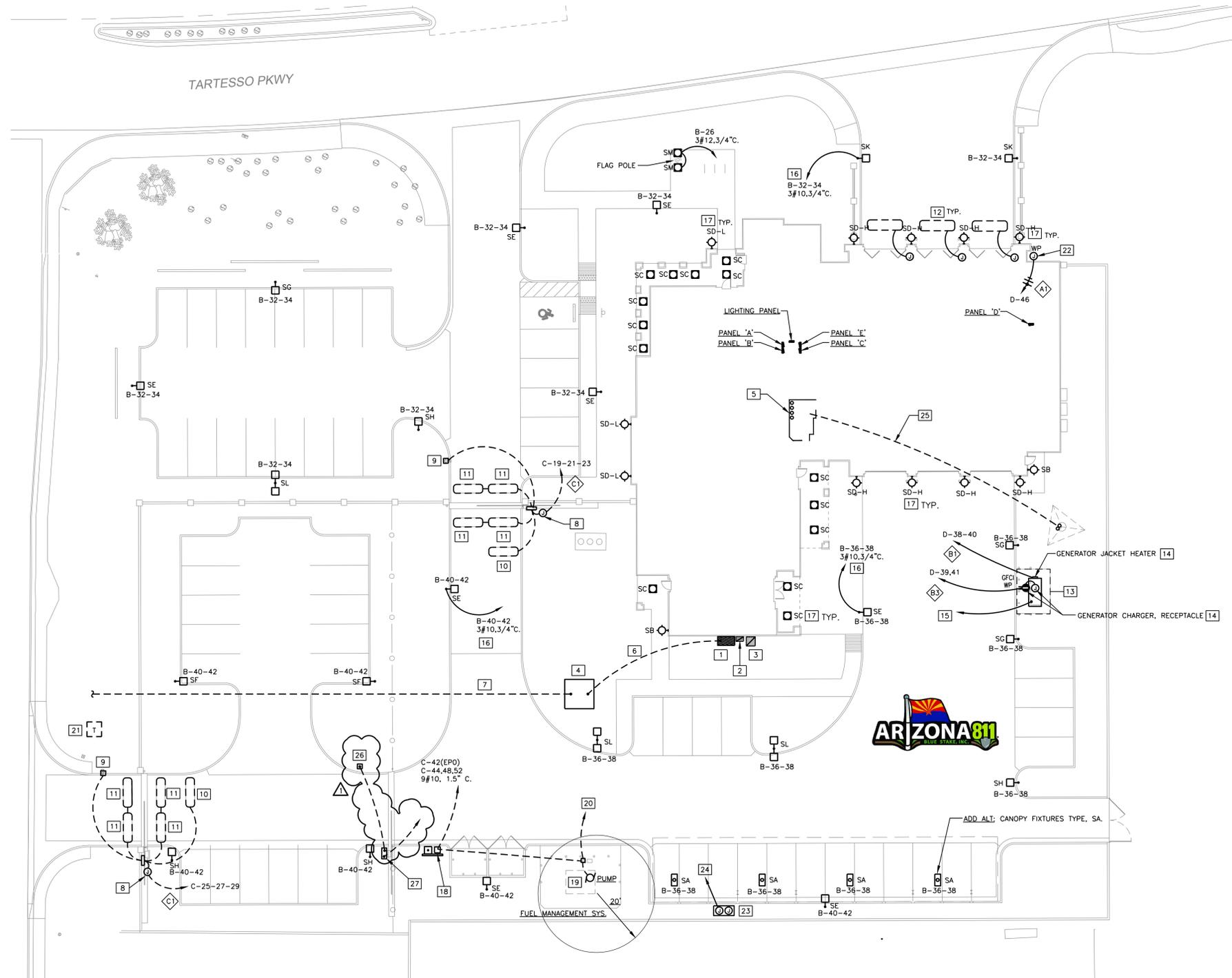
E1.1	ELECTRICAL SITE PLAN
E1.2	SITE PHOTOMETRIC PLAN
E1.3	PHOTOMETRIC DETAILS
E1.4	PHOTOMETRIC CUTSHEETS
E2.1	LIGHTING PLAN
E2.2	LIGHTING FIXTURE SCHEDULE & IECC CALCS
E3.1	POWER PLAN
E3.2	MECHANICAL EQUIPMENT POWER PLAN
E4.1	DISPATCH SYSTEM PLAN
E4.2	DISPATCH SYSTEM DETAILS
E5.1	ONE-LINE DIAGRAM AND SYMBOLS
E5.2	PANEL SCHEDULES
E5.3	DETAILS

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Seal



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**ELECTRICAL SITE PLAN**

SCALE: 1"=20'-0"



**GENERAL NOTES**

- COORDINATE ALL SITE TRENCHING AND ROUTING OF CONDUITS WITH EXISTING CONTRACTOR/OWNER PRIOR TO COMMENCEMENT OF WORK TO AVOID EXISTING UNDERGROUND UTILITIES AND CONDITIONS.
- PROVIDE SAW-CUT, BORING, AND TRENCHING AS REQUIRED TO COMPLETE SCOPE OF WORK SHOWN. RETURN ALL CONCRETE, ASPHALT AND EARTH GRADING BACK TO ORIGINAL OR MATCHING CONDITION. REFER TO TYPICAL TRENCH DETAIL FOR ADDITIONAL INFORMATION.
- PROVIDE #14 COPPER INSULATED TRACER WIRE SECURELY ATTACHED AT 8" ON CENTER OR WRAPPED AROUND NONMETALLIC CONDUITS AND LINES AND HAVE 12" OF WIRE EXPOSED ON ONE END PER BLUE STAKE LAW ARS 40-360.
- PROVIDE COMPLETE MANDREL TESTING OF ALL UNDERGROUND CONDUITS AND PROVIDE 250 POUND TENSILE STRENGTH MULE TAPE WITH TRACER WIRE.
- PROVIDE 48"-36" SWEEPS ON CONDUIT RUNS WITH NO MORE THAN TWO 90 DEGREE SWEEPS PER RUN.
- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE REPRESENTATIVE UTILITY COMPANIES WITHIN (2) WEEKS OF AWARD OF CONTRACT AND SHALL FURNISH EACH REPRESENTATIVE (2) COMPLETE SET OF CONSTRUCTION DOCUMENTS, TRENCH ROUTING, SERVICE LOCATIONS, ETC. WITH UTILITY COMPANY DESIGN CONSTRUCTION DRAWINGS AND SPECIFICATIONS PRIOR TO COMMENCING REQUIRED WORK.

**KEY NOTES**

- SERVICE ENTRANCE SECTION ON HOUSEKEEPING PAD. REFER TO ONE LINE DIAGRAM ON SHEET E5.1. PRIOR TO CONSTRUCTION, OBTAIN APPROVAL OF LOCATION OF SES FROM POWER COMPANY. ARRANGE PULL SECTION IN ORDER TO ACHIEVE 25 FEET MINIMUM OF CONDUCTOR LENGTH BETWEEN POWER COMPANY SECONDARY AND LANDING LUGS IN PULL SECTION.
- AUTOMATIC TRANSFER SWITCH. REFER TO ONE LINE DIAGRAM ON SHEET E5.1.
- DISTRIBUTION SECTION DS-1. REFER TO ONE LINE DIAGRAM ON SHEET E5.1.
- PROPOSED LOCATION OF UTILITY COMPANY TRANSFORMER. PROVIDE TRANSFORMER PAD PER POWER COMPANY. FIELD VERIFY EXACT LOCATION WITH POWER COMPANY. PROVIDE PRIMARY CONDUITS FOR NEW POWER COMPANY TRANSFORMER. COORDINATE WITH CIVIL AND APS.
- APPROXIMATE LOCATION OF TELEPHONE, CABLE AND DATA EQUIPMENT MOUNTING BOARD. REFER TO SHEET E3.1 FOR ADDITIONAL INFORMATION. PROVIDE TWO 4" CONDUITS TO TELEPHONE COMPANY PEDESTAL. PROVIDE TWO 2" CONDUITS TO CABLE COMPANY POINT OF CONNECTION. COORDINATE WITH RESPECTIVE UTILITY COMPANY FOR POINTS OF CONNECTION. STUB UP CONDUITS 6" ABOVE FINISHED FLOOR IN EQUIPMENT ROOM.
- (2) 4" SECONDARY CONDUITS FROM UTILITY TRANSFORMER TO BUILDING SES. SECONDARY CONDUITS TO BE BURIED 36" FROM FINISH GRADE. REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
- (2) 4" POWER COMPANY PRIMARY CONDUITS FROM UTILITY PRIMARY POINT OF CONNECTION TO UTILITY TRANSFORMER. PRIMARY CONDUITS TO BE BURIED 48" FROM FINISH GRADE. COORDINATE WITH APS AS REQUIRED.
- GATE OPERATOR. PROVIDE IN-GRADE PULL-BOX AND CONNECTION TO SMART TOUCH CONTROL PANEL, DRIVE RAIL, TRAVEL STOPS, PHOTO EYES, SAFETY EDGE, LOOPS, KEYPAD, OPTICON PHOTOSENSOR, LIMIT SWITCHES, ETC. AS REQUIRED. PROVIDE CONCRETE BASE PER MFR'S RECOMMENDATION. PROVIDE CONNECTION TO OVERRIDE SWITCH IN AT KITCHEN. REFER TO SHEET E3.1.
- GATE KEYPAD. PROVIDE CONNECTION TO GATE OPERATOR PER MANUFACTURER'S RECOMMENDATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR INSTALLATION AND ADDITIONAL DETAILS.
- FREE EXIT LOOP #12 TWISTED STRANDED WIRE WITH DIRECT BURIAL JACKET.
- OBSTRUCTION LOOP: #12 TWISTED STRANDED WIRE WITH DIRECT BURIAL JACKET.
- OBSTRUCTION LOOP: #12 TWISTED STRANDED WIRE WITH DIRECT BURIAL JACKET. REFER TO OVERHEAD DOOR WIRING DIAGRAM ON SHEET E5.2 FOR ADDITIONAL INFORMATION. COORDINATE FINAL LOCATION WITH MESA PROJECT MANAGER.
- ENGINE GENERATORS AND WEATHERPROOF HOUSING. REFER TO ONE LINE DIAGRAM AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE CONNECTION TO ENGINE GENERATOR JACKET HEATER, BATTERY CHARGER. PROVIDE RECEPTACLE INSIDE GENERATOR HOUSING.
- PROVIDE 1" CONDUIT WITH PULL STRING TO GENERATOR ANNUNCIATOR PANEL AT DINING ROOM.
- ROUTE LIGHTING CIRCUIT VIA LIGHTING CONTACTOR. REFER TO SHEET E2.2 FOR ADDITIONAL INFORMATION. CIRCUITING SHALL NOT VARY FROM THAT SHOWN ON PLAN WITHOUT APPROVAL FROM PROJECT COORDINATOR.
- BUILDING MOUNTED LIGHTS. SEE SHEET E2.1 FOR LIGHTING FIXTURE CIRCUIT(S).
- PROVIDE WEATHERPROOF PULL-BOX WITH 6-POLE CONTACTOR WITH 120V COIL FOR EMERGENCY FUEL SYSTEM SHUT-OFF. PROVIDE 120V FUEL SYSTEM WP EOP PUSH-BUTTON CONNECTED TO CONTACTOR. PROVIDE SWITCHED NEUTRAL BREAKERS AT PANEL PER NEC 514.11(A) AND 514.11(C). LABEL EPO 'EMERGENCY FUEL PUMP SHUTOFF.' PROVIDE ON CONCRETE PAD WITH STRUT FRAME. MOUNT SIGN ON STRUT - FACING DRIVE.
- PROVIDE THREADED CONDUIT PER NEC 514.B. SEAL CONDUIT AT DISPENSER PER NEC 514.9. PROVIDE CONNECTION TO PUMP PER MANUFACTURER'S REQUIREMENTS. SEE TYPICAL CLASSIFICATION AND CLEARANCE DETAILS ON SHEET E5.3 FOR ADDITIONAL INFORMATION.
- PROVIDE (3) 1.5" CONDUITS WITH PULL-STRING TO COMM ROOM FOR FUEL SYSTEM COMMUNICATION AND LEAK DETECTION. COORDINATE FINAL ROUGH-IN AT TANK AND COMM ROOM WITH INSTALLER AND PROJECT MANAGER.
- REMOVE EXISTING RESIDENTIAL TRANSFORMER. COORDINATE WITH APS FOR RELOCATION / REMOVAL OF TRANSFORMERS AND PRIMARY FEEDERS.
- PROVIDE 120V CONNECTION TO IRRIGATION CONTROLLER.
- PROVIDE IN-GROUND PULL-BOX FOR CONNECTION TO FUTURE PV SYSTEM. CAP AND TAPE OFF UNUSED WIRES IN BELL BOX FOR CONNECTION TO FUTURE CANOPY LIGHTS.
- PROVIDE 2" CONDUIT FROM PULL-BOX TO SES LOCATION FOR FUTURE PV SYSTEM. COORDINATE PV CONDUIT STUB UP LOCATION WITH ARCHITECT AND OWNER.
- PROVIDE CONDUITS FROM MONOPOLE TO IT ROOM. SEE SHEET E4.1 FOR ADDITIONAL INFORMATION.
- PROVIDE 3/4" CONDUIT WITH PULL-STRING FROM GATE OPERATOR PULL-BOX TO IN-GROUND PULL-BOX FOR POWER/DATA TO FUTURE GATE PEDESTAL.
- PROVIDE 1" CONDUIT WITH PULL-STRING FROM ELECTRICAL ROOM (RM 110) TO IN-GROUND PULL-BOX FOR POWER/DATA TO FUTURE GATE OPERATOR. STUB CONDUIT IN ELECTRICAL ROOM 6" ABOVE FINISH FLOOR.

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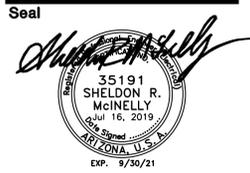
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**2ND SUBMITTAL**

Drawn/Checked By	-- /--
Date	07-17-19
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Sheet Number	SITE ELECTRICAL PLAN

**E1.1**

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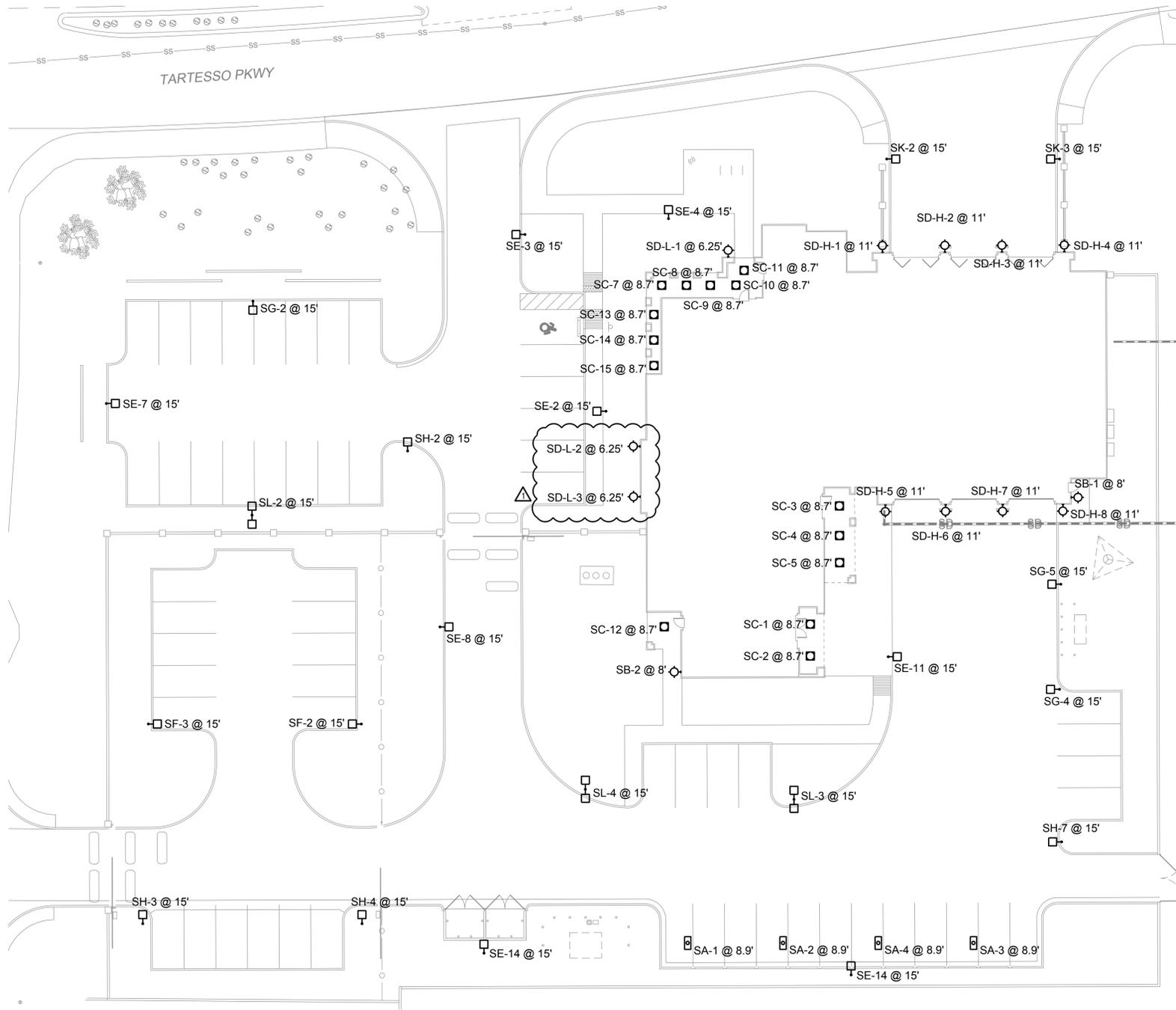
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**07-17-19**  
Project Number  
**318009**  
Sheet Number  
PHOTOMETRIC PLAN

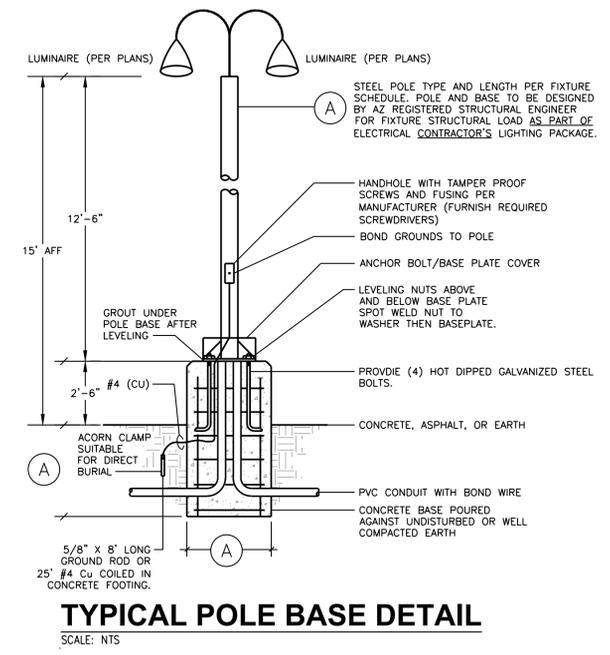
**E1.2**

**AKRIBIS**  
ENGINEERING, L.L.C.  
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P: (602) 393-0201 F: (602) 393-0202  
DRAWN BY: WS CHECKED BY: SM JOB NUMBER: 19024  
FOR QUESTIONS PLEASE CALL: WILLIAM SHORTY



**SITE PHOTOMETRICS PLAN**  
SCALE: 1"=20'-0"

No.	Label	MH
1	SA	8.90
2	SA	8.90
3	SA	8.90
4	SA	8.90
1	SB	8.00
2	SB	8.00
1	SC	8.70
2	SC	8.70
3	SC	8.70
4	SC	8.70
5	SC	8.70
7	SC	8.70
8	SC	8.70
9	SC	8.70
10	SC	8.70
11	SC	8.70
12	SC	8.70
13	SC	8.70
14	SC	8.70
15	SC	8.70
1	SD-H	11.00
2	SD-H	11.00
3	SD-H	11.00
4	SD-H	11.00
5	SD-H	11.00
6	SD-H	11.00
7	SD-H	11.00
8	SD-H	11.00
1	SD-L	6.25
2	SD-L	6.25
3	SD-L	6.25
1	SE	15.00
2	SE	15.00
3	SE	15.00
4	SE	15.00
7	SE	15.00
8	SE	15.00
11	SE	15.00
14	SE	15.00
2	SF	15.00
3	SF	15.00
2	SG	15.00
4	SG	15.00
5	SG	15.00
2	SH	15.00
3	SH	15.00
4	SH	15.00
7	SH	15.00
2	SK	15.00
3	SK	15.00
2	SL	15.00
3	SL	15.00
4	SL	15.00



File: \\server-akribis\Projects\2019\19024 - Buckeye Fire Station 705\E\19024 E12 E13 E14.dwg  
Date Printed: Jul 16, 2019 - 4:05:16PM  
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Seal



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Rev	Date	By	Description
1	7/17/19	-	CITY COMMENTS

**City of Buckeye**  
**Fire Station No. 705**  
3051 W. Tartesso Pkwy.  
Buckeye, AZ 85396

2ND SUBMITTAL

Drawn/Checked By

-- /--

Date

07-17-19

Project Number

318009

Sheet Number  
PHOTOMETRIC DETAILS

**E1.3**

**AKRIBIS**  
ARCHITECTURAL • PLUMBING • ELECTRICAL  
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Symbol	Label	QTY	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Polar Plot
SA	SA	4	DSXSC LED 10C 700 40K ASY MVOLT	DSX SURFACE CANOPY FIXTURE WITH 1 LIGHT ENGINE, 700mA DRIVER, 4000K LEDs, ASY OPTIC.	LED	1	2794	0.95	26	Max: 1726cd
SB	SB	2	WST LED P1 40K VF MVOLT	WST LED, Performance package 1, 4000 K, visual comfort forward throw, MVOLT	LED	1	1639	0.95	12	Max: 1013cd
SC	SC	14	EVO 40/10 6AR MD LD	4000K, 1000LM, CR180, 6IN CLEAR, MED DIST, MATTE DIFFUSE	LED	1	973	0.95	11.75	Max: 1248cd
SD-H	SD-H	8	Avista AVI-AS-4H Light Engine Only	5050 LUMENS	LED - 4K TEMP	1	5051	0.5	60.3	
SD-L	SD-L	1	Avista AVI-AS-4L Light Engine Only	3420 LUMENS	LED - 4L TEMP	1	3429	0.5	40.85	
SE	SE	8	EML25 ST GCF 49LED 350mA 40K R2	LED 1 MODULE, 49 LED'S, 350mA 4000K TYPE2	ONE 58-WATT LED, DOWNLIGHT POS.	1	4994	0.95	58.6	Max: 3109cd
SF	SF	2	EML25 ST GCF 49LED 350MA/40K SR3	AERIS LED ARCHITECTURAL AREA LIGHT WITH 49 4000K LEDS OPERATED AT 350MA AND PRECISION MOLDED ACRYLIC TYPE III LENS	ONE 59-WATT LED	1	4642	0.95	59	Max: 3069cd
SG	SG	4	EML25 ST GCF 49LED 350MA 40K SR4	LED, 1 MODULE, 49 LED, 350mA, 4000K, TYPE 4 OPTIC, TEMP 47.6C.	ONE 58-WATT LED, AIMED DOWN POS.	1	4964	0.95	58.8	
SH	SH	3	EML25 ST GCF 49LED 350MA/40K SR5	AERIS LED ARCHITECTURAL AREA LIGHT WITH 49 4000K LEDS OPERATED AT 350MA AND PRECISION MOLDED ACRYLIC TYPE V LENS	ONE 59-WATT LED	1	4749	0.95	59	Max: 2147cd
SK	SK	2	EML25 ST GCF 63LED 530MA 40K R2	LED, 1 MODULE 63 LED 530mA, 4000K TYPE 2 OPTIC	ONE 109-W LED, DOWNLIGHT POS.	1	8135	0.95	109.9	
SL	SL	3	EML25 ST CGF 49LED 350MA 40K R2	EH16 GCF LED 1 MODULE, 49 LED'S, 350mA 4000K TYPE2	ONE 58-WATT LED, DOWNLIGHT POS.	1	4994	0.95	117.2	Max: 3109cd

### TYPE "SB"

#### WST LED Architectural Wall Sconce

**Specifications Luminaire**  
Height: 8-1/2" (21.59 cm)  
Width: 17" (43.18 cm)  
Depth: 10-3/16" (26.5 cm)  
Weight: 20 lbs (9.1 kg)

**Optional Back Box (PBBW)**  
Height: 8.49" (21.56 cm)  
Width: 17.01" (43.21 cm)  
Depth: 1.20" (3.05 cm)

**Optional Back Box (BBW)**  
Height: 4" (10.2 cm)  
Width: 5-1/2" (14.3 cm)  
Depth: 1-1/2" (3.8 cm)

**Capable Luminaire**  
This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.  
• All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency  
• This luminaire is A+ Certified when ordered with DTL\* controls marked by a shaded background. DTL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability1  
• This luminaire is part of an A+ Certified solution for ROAM\* or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background  
To learn more about A+, visit [www.acuitybrands.com/aplus](http://www.acuitybrands.com/aplus).  
See ordering tree for details.  
A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately. [Link to Roam](#); [Link to DTL](#), [Link to XPoint](#)

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • [www.lithonia.com](http://www.lithonia.com)  
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### TYPE "SA"

#### D-Series LED Surface Canopy

**Specifications**  
Length: 17-3/4" (45.1 cm)  
Width: 8-1/2" (21.4 cm)  
Height: 3-7/16" (8.7 cm)  
Weight: 16 lbs (7.2 kg)

**Ordering Information**  
EXAMPLE: DSXSC LED 20C 700 40K TSM MVOLT SRM DWXHD

Series	LEDs	Drive current	Color temperature	Distribution	Package	Mounting	Options	Finish
DSXSC LED	10C 10 LEDs (one engine) <sup>1,2</sup>	350 350mA	30K 3000K	TSE Type X, mtr/mtr <sup>3</sup>	MVOLT1 120*	SRM Surface mount	Shipped installed DWG 0-10V dimming driver (no controls) RS Haze-side shield housing (not SF Step face (120, 277, 300V) <sup>10</sup> DF Double face (226, 240, 480V) <sup>10</sup> PR350SS Motion/ambient sensor, 15-30' mounting height <sup>11</sup> SPD Separate suppression <sup>12</sup> XAD XPoint Wireless enabled <sup>13</sup> CTMH Cover fresh matches housing <sup>13</sup>	DWHD White DWAD Natural DDBD Dark bronze

**Motion Sensing**  
The motion/ambient sensor options (PR350SS or PR350SSD) have 360° of passive infrared sensing and adjustable bi-level dimming to save energy when there are no occupants.

**Mounting Options**  
Surface Mounting

**Accessories**  
Order and priced separately.  
DSXSCD DIMMER: Required for DM or marked face only, white (typical MBM)

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### TYPE "SC"

#### Gotham Architectural Downlighting LED Downlights

**6" Evo<sup>®</sup> Downlight**  
Solid-State Lighting

**OPTICAL SYSTEM**  
• Self-forged semi-specular, matte-diffuse or specular finishing trim  
• Patented Bounding Ray™ optical design (U.S. Patent No. 5,800,050)  
• 45° cutoff to source and source image  
• Top-down flash characteristic  
• Photocromatic lens integral to light engine

**Mechanical System**  
• 16-gauge galvanized steel construction; maximum 1-1/2" ceiling thickness  
• Telescope mounting base maximum of 30° and minimum of 15° - preadjusted, 4" vertical adjustment  
• Toolless adjustments post installation  
• Junction box capacity: 8 (4 in, 4 out) 112AWG rated for 90°C  
• Light engine and driver accessible through aperture

**Electrical System**  
• Fully serviceable and upgradeable lensed LED light engine  
• 70% lumen maintenance at 60,000 hours  
• Tested according to LM-79 and LM-80 standards  
• Overload and short circuit protected  
• 2.5 SDCM, 85 CRI typical, 90+ CRI optional

**LISTINGS**  
• Features are CSA certified to meet US and Canadian standards; wet location, covered ceiling

**WARRANTY**  
• 5-year limited warranty. Complete warranty terms located at: [www.acuitybrands.com/CustomerResources/terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/terms_and_conditions.aspx)

Note: Actual performance may differ as a result of end user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C.

**EXAMPLE: EVO 35/10 6AR MW LSS MVOLT E21**

Series	Color temperature	Nominal lumen values	Aperture/Trim color	Distribution	Finish	Voltage
EVO	27/ 2700 K	19 1000 lumens	SR Clear	WB Very narrow (0.5° x/m)	LSS Semi-specular	MVOLT 120
	30/ 3000 K	15 1500 lumens	SP Pewter	NB Narrow (0.7° x/m)	LD Matte-diffuse	277
	35/ 3500 K	20 2000 lumens	SWR Wheat	MD Medium (0.9° x/m)	LS Specular	347F
	40/ 4000 K	25 2500 lumens	SR Gold	MD Medium wide (1.0° x/m)		
		30 3000 lumens	SW White	WB Wide (1.2° x/m)		
			SWR Black			
			SWR White anti-microbial			

**Driver<sup>2</sup>**

Options	Options	Options
EZ1 etdLED ECOdrive 0-10V dimming driver. Minimum dimming range level 1%	SP Single top	80TP Backline generator transfer device
EZB etdLED SOLDrive 0-10V dimming driver. Minimum dimming level <1%.	TW White painted flange	CRIM High CRI (90+)
EDAB etdLED SOLDrive DALI dimming driver. Minimum dimming level <1%.	TRBL Black painted flange	CP Chicago plenum
EDDB etdLED POWERdrive DMX with ROM (remote device management). Minimum dimming level <1%. Includes termination resistor.	EL Emergency battery pack with integral test switch	RRL RELOC™-ready luminaire connector. enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to 600, for complete nomenclature.
EXA1 XPoint Wireless, etdLED ECOdrive 1% dimming, 0-10V. Refer to XPoint tech sheet.	ELR Emergency battery pack with remote test switch	
EXAB XPoint Wireless, etdLED SOLDrive <1% dimming, 0-10V. Refer to XPoint tech sheet.	NPS00EZ slight* dimming pack controls 0-10V etdLED drivers.	
ECOS2 <sup>4</sup> Lutron® Hi-Lume® 2-wire forward-phase dimming driver. Minimum dimming level 1%	NPS00ZEK <sup>4</sup> slight* dimming pack controls 0-10V etdLED drivers. IR controls features on emergency circuit.	
ECDS <sup>2</sup> Lutron® Hi-Lume® 3-wire or EcoSystem™ dimming driver. Minimum dimming level 1%	WS <sup>5</sup> 100 wireless monitoring and reporting system	

One Lithonia Way • Conyers, Georgia 30012 | P. 800.315.6862 | [gothamlighting.com](http://gothamlighting.com)  
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### TYPE "SD-H/SD-L"

#### D623 LED LUMINAIRE

1/10/17/18

D623  
LED

**DESCRIPTION:**  
 The D623 Luminaire is a versatile six sided post top luminaire that is best suited for poles under 10' in height. Powered by Amerlux's patented AVISTA™ LED system with options for intensity, distribution and color.

**INSTALLATION:**  
 The luminaire will mount to a 3" OD post or tenon with 6/16" black oxide coated stainless steel set screws to ensure a solid connection.

**ELECTRICAL:**

- Over voltage and short circuit protected driver
- Series connected 10W/200mA surge protector
- Automatic AC incoming voltage sensing (120-277V)
- Over voltage and short circuit protection
- 0-10v dimming

**DISTRIBUTION:**

- Symmetric (SY)
- Asymmetric (AS)
- Street Optic (SO)

**LED BOARD DRIVE CURRENT:**

- 500ma (500M)
- 700ma (700M)
- 1200ma (1200M)

**CCT:**

- 2700K (27)
- 3000K (30)
- 4000K (40)

**L70:**  
50,000+

**EPA:**  
181

**ACCESSORIES:**

- Dark-to-dawn PhotoCell (PCL)
- Controls Capable Harness (CCH)

**ETL listed, suitable for wet locations.**

**LENSES:**

- Clear Acrylic (CA)
- Textured Acrylic (TA)

**FINISH:**  
 Durable thermoset polyester powdercoat finish in the following:

- Satin Black (BLK)
- Classic Bronze (CLB)
- Glass Textured Bronze (GBZ)
- Green (GRN)
- Glass Textured Black (GTB)
- Textured Black (TBK)
- Glass Textured Green (TGR)

5 year limited warranty  
AMERLUX LED

Amerlux, LLC • P: 878-880-000 • www.amerlux.com  
 Amerlux reserves the right to change details that do not affect overall function and performance.

### TYPE "SD-H/SD-L"

#### Wall Brackets

amerlux exterior

800.354.8096 • Fax: 251.597.5441 • www.amerlux.com

All wall brackets are constructed of corrosion resistant cast aluminum (A319 Alloy).

All brackets have a nominal 3" OD tenon for luminaire mounting, and four holes in the back plate for mounting to the wall. (Wall mounting hardware is not included, due to the wide variety of backing materials. Customer should determine the appropriate anchoring hardware based on the wall material.)

Ordering Guide

Finish  
WB04 - BLK  
Part Number

**Finish:**  
 The fixture will be finished with a premium quality, durable thermoset polyester powdercoat for a durable finish.

**Standard solid colors are:**  
 GRN - Green  
 CLB - Classic Bronze  
 TBK - Textured Black  
 BLK - Satin Black

**Premium finishes are:**  
 GTG - Granite Green  
 ATC - Antique Copper  
 WTC - White

BR-10

### TYPE "SE-SF-SG-SH-SK-SL"

#### ANTIQUE STREET LAMPS

#### EML25 LED MUNICH PENDANT

CATALOG #  
PROJECT  
TYPE

This European shaped pendant or wall mount luminaire consists of a driver housing and skirt with an internal light engine with a choice of two lens options.

- Choice of a flat or sag glass lens
- Stainless steel hardware
- Driver and Light engine assembly mount on a removable assembly plate and are furnished with quick-disconnect plug for ease of installation and maintenance
- CSA listed and labeled as suitable for wet locations
- TGIC powder coat finish
- Mounts via 1-1/2" NPT threaded swivel nipple to the Urban 4" or 5" diameter arms (specify PNJ6 option when ordering 4" arm); see arm specification sheets for details on mounting options.

**Max EPA:** 1.86 sq feet  
**Max Height:** 26-1/2" (67.3cm)  
**Max Width:** 25" (63.5cm)  
**Max Weight:** 60 lbs (27.2 kg)  
**Listing:** CSA listed for wet locations

Sample Catalog number:  
**EML25 ST 49LED 350MA 3K GCF MVOLT R3 SF DBL**  
 Fixture Base Source & Wattage Color Temp Lens Option Voltage Distrib. Options Finish

EML25	ST	49LED 350MA	3K	GCF	MVOLT	R2	SF	DBL
	RT	49LED 325MA	4K	GCSG	120	R3	DF	DDB
	FT	63LED 350MA	5K		208	R4	SPD	DNA
		63LED 525MA			240	R5		DWH
					277			CS
					347			CM
					480			ANBK
								ANDB
								ANDG
								ANVG

Data is considered accurate as of the revision date shown.  
 Antique Street Lamp reserves the right to modify specifications without notice.

EML25 LED  
 Rev: 6/14  
 Antique Street Lamps™ | 3823 Columbus Road | Granville, OH 43033 | Phone: 1-800-410-8899 | www.antiquestreetlamps.com  
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### TYPE "SM"

#### PARADOX 4

#### 4" Architectural In-Grade LED (Line Voltage)

**Specifications**

L:	5"
W:	4"
H:	102 mm
H:	203 mm

**IP67**

**DESCRIPTION**  
 Hydrel's Paradox Series sealed modular in-grade luminaires are multi-purpose units designed for up lighting architectural and landscape features. These units can be flush mounted into a variety of substrates including concrete or tile, landscape materials, and are IC rated up to 35 watts for wood or insulation applications as well. They are ideal when aperture size or luminaire depth is a priority.

**ORDERING INFORMATION**      EXAMPLE: PDX4 B 9LED WHT53K MVOLT 5P FLC 12S TKO LPI

PDX4	B	9LED	WHT53K	MVOLT	SP
Model*	Material*	LED Array*	LED Color*	Voltage*	Light Distribution*
PDX4	SS	Stainless Steel	WHT53K	Cool White	120V
	BSS	Brushed Stainless Steel	WHT53K	Neutral White	MVOLT*
	B	Bronze	WHT30K	Warm White	
			AMB	Amber	LED
			BLU	Blue	SP
			GRN	Green	MFL
			RED	Red	Medium Flood

FLC	12S	TKO	LPI	Listing
Lens*	Conduit Entries*	Accessories	Options	Lamp*
FLC	Flat Lens Clear	Internal	LDM	LED Array
FLCAS	Flat Lens Clear, Anti-Slip	TKO	TKO	LED Array Included
FLCSR	Flat Lens Clear, Frosted, Slip Resistant	TKO	TKO	LED Array Included

Suitable For Wet Locations

\*Required Catalogs  
 Notes:  
 1. 120Volt power supply is magnetic and dimmable using standard incandescent dimming controls when ordered with LDM option.  
 2. MVOLT = 120/277 electronic power supply, non-dimmable.  
 3. Only for use in 60Hz applications.  
 4. Only for use in 50Hz applications.

NOTE: Hydrel Reserves The Right To Modify Specification Without Notice. Any dimension on this sheet is to be assumed as a reference dimension. \*Used for information purposes only. It does not govern manufacturing or inspection requirements. \* ANSI Z39.5-1978

HYDREL      20660 Nordhoff St., Suite B • Chatsworth, CA 91311 • www.hydel.com      ©2014 Acuity Brands Lighting, Inc. 5/27/14  
 Phone: 866.533.9901 • Fax: 866.533.3291      PDX4\_LINEV\_LED

318009  
Buckeye FS 705

## Perلمان

Architects of Arizona  
 4808 N. 24th Street Ste. 100  
 Phoenix, Arizona 85016  
 480.951.5900    480.951.3045 f  
 perlmanaz.com

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Rev	Date	By	Description
1	7/17/19	-	CITY COMMENTS

## City of Buckeye

### Fire Station No. 705

30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

2ND SUBMITTAL

Drawn/Checked By: -- /--

Date: 07-17-19

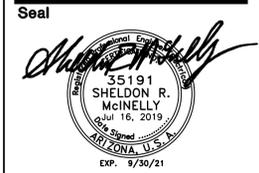
Project Number: 318009

Sheet Number: PHOTOMETRIC CUTSHEETS

# E1.4

DRAWN BY: WS    CHECKED BY: SM    JOB NUMBER: 19024  
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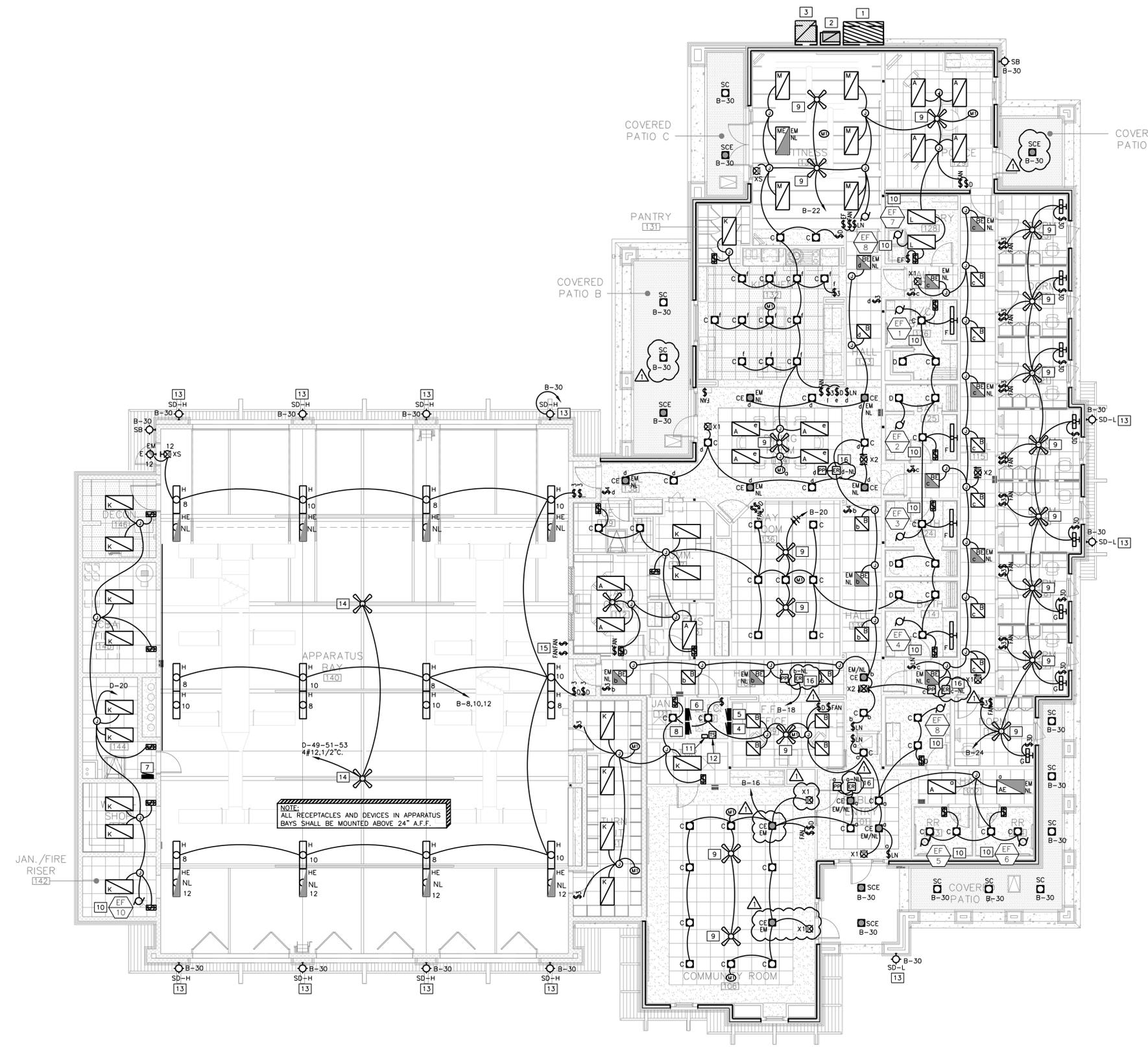
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**GENERAL NOTES**

- WHERE EQUIPMENT DESIGNATION SYMBOL IS SHOWN, REFER TO HVAC/PLUMBING EQUIPMENT SCHEDULE SHEET E5.2 FOR CONTROL/FEDDER, OCP INFORMATION AND SOURCE PANEL. REFER TO PANEL SCHEDULES (E5.# SERIES SHEETS) FOR CIRCUITING (TYPICAL).
- REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS OF FIXTURES AND SWITCHES. COORDINATE ALL FINAL MOUNTING HEIGHTS AND/OR LOCATIONS AS REQUIRED WITH ARCHITECTURAL DETAILS, ELEVATIONS AND MILLWORK CONTRACTOR.
- MC CABLE FOR LIGHTING FIXTURE WHIP ONLY. NO MC CABLE IN WALLS OR RUNS FROM PANELBOARD(S). ALL RUNS SHALL BE IN EMT CONDUIT.
- WHERE ROOM HAS HARD LID CEILINGS, ALL LOW VOLTAGE CABLING SHALL BE RUN IN CONDUIT FOR FUTURE ACCESS.
- DEVICE COLORS SHALL BE WHITE.
- ELECTRICAL CONTRACTOR SHALL LABEL ALL DEVICES: J-BOXES, RECEPTACLES, POWER POLES, POWER WHIPS WITH CIRCUIT DESIGNATION.
- BRANCH CIRCUITING SHALL BE MINIMUM #12 AWG WITH MINIMUM 1/2" CONDUIT.
- HOMERUN CIRCUITS MAY BE COMBINED INTO COMMON CONDUITS WHERE ALLOWED BY NEC. PROVIDE DEDICATED NEUTRALS WHEN FEEDING AFCI OR GFCI CIRCUIT BREAKERS. PROVIDE COMMON TRIP HANDLES IF COMBINING CIRCUITS AND SHARING NEUTRAL CONDUCTORS.
- PROVIDE NON SWITCH LEG TO ALL EMERGENCY LIGHTING FIXTURES BATTERIES.
- REFER TO SHEETS E1.1 AND E1.2 FOR EXTERIOR LIGHTING.
- REFER TO SHEET E2.2 FOR LIGHTING FIXTURE SCHEDULE, IECC CALCULATIONS AND TYPICAL WIRING DIAGRAMS.

**KEY NOTES**

- ELECTRICAL SERVICE ENTRANCE SECTION. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- AUTOMATIC TRANSFER SWITCH. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- DISTRIBUTION SWITCHBOARD, DS-1. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- PANEL A.
- PANEL B.
- PANEL C.
- PANEL D.
- PANEL E.
- PROVIDE CEILING FAN RATED JUNCTION BOX AND SUPPORT PER NEC 422.18. REFER TO SENSOR LEGEND FOR CEILING FAN LIGHT/FAN CONTROL TYPE.
- REFER TO HVAC / PLUMBING EQUIPMENT SCHEDULE AND GENERAL NOTE #1 FOR ADDITIONAL INFORMATION.
- LIGHTING CONTACTOR FOR EXTERIOR LIGHTING FIXTURES. REFER TO CONTROL DIAGRAM ON SHEET E2.2 FOR ADDITIONAL INFORMATION.
- PROVIDE INTERMATIC (OR EQUAL) TIME CLOCK FOR CONTROL OF TYPE "SD-H" AND "SD-L" LIGHTING FIXTURES. SET TIME CLOCK TO SWITCH ON WITH EXTERIOR BUILDING MOUNTED LIGHTING FIXTURES AND TO TURN OFF AT 11:00PM TO COMPLY WITH THE ARIZONA DARK SKY ORDINANCE. SEE SHEET E2.2 FOR ADDITIONAL INFORMATION.
- PROVIDE SEPARATE LEG OF LIGHTING CIRCUIT ROUTED THROUGH TIME CLOCK TO CONTROL TYPE "SD-H" AND "SD-L" LIGHTING FIXTURES. REFER TO SHEET E2.2 CONTROL DIAGRAM FOR ADDITIONAL INFORMATION.
- ADD ALI: PROVIDE 10' CEILING FAN BY 'BIG ASS FAN'. VERIFY FINISH WITH OWNER / ARCHITECT. PROVIDE JUNCTION BOX AND SUPPORTS FOR 'BIG ASS FAN' PER NEC 314.24(D) & 422.18.
- ADD ALI: 'BIG ASS FAN' CONTROLLER. PROVIDE 1/2" CONDUIT FROM CONTROLLER TO BIG ASS FANS. COORDINATE FINAL CONTROL TYPE AND LOCATION WITH GENERAL CONTRACTOR AND ARCHITECT.
- PROVIDE 'NL-X' ZONE FOR MINIMUM LIFE SAFETY EGRESS LIGHT LEVELS THROUGHOUT SPACE WHEN UNOCCUPIED AND SHALL BE CONTROLLABLE WHEN SPACE IS OCCUPIED.



NOTE:  
ALL RECEPTACLES AND DEVICES IN APPARATUS BAYS SHALL BE MOUNTED ABOVE 24" A.F.F.

**LIGHTING PLAN**

SCALE: 1/8"=1'-0"



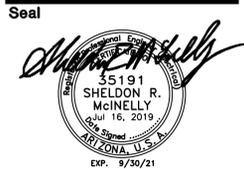
File: \\server-akribis\Projects\2019\19024 - Buckeye Fire Station 705\E\19024 E21 E22.dwg  
Date Printed: Jul 16, 2019 - 4:05:23PM Printed By: trac

**AKRIBIS**  
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3231 SOUTH COUNTRY CLUB WAY, STE. 102, TEMPE, ARIZONA, 85282  
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DRAWN BY: WS CHECKED BY: SM JOB NUMBER: 19024  
FOR QUESTIONS PLEASE CALL: WILLIAM SHORRY

**2ND SUBMITTAL**  
Drawn/Checked By: -- /--  
Date: 07-17-19  
Project Number: 318009  
Sheet Number: LIGHTING PLAN  
**E2.1**

**City of Buckeye**  
**Fire Station No. 705**  
30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

Rev	Date	By	Description
A	7/17/19		CITY COMMENTS



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**COMcheck Software Version 4.1.1.0**  
**Exterior Lighting Compliance Certificate**

**Project Information**  
Energy Code: 2012 IECC  
Project Title: Fire Station No. 705  
Project Type: New Construction  
Exterior Lighting Zone: 2 (Residentially zoned area)

Construction Site: 30551 W. Tartesso Pkwy. Buckeye, AZ 85396  
Owner/Agent: Perلمان Architects of Arizona 4808 N. 24th St. Suite 100 Phoenix, AZ 85016 480-951-5900  
Designer/Contractor: AKRIBIS Engineering, LLC. 3132 S. Country Club Way Suite 102 Tempe, AZ 85282

**Allowed Exterior Lighting Power**

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
DRIVEWAY (Driveway)	3500 R2	0.06	Yes	210
NW PARKING (Parking area)	10500 R2	0.06	Yes	630
SE PARKING (Parking area)	27180 R2	0.06	Yes	1631
SIDEWALK (Walkway >= 10 feet wide)	4500 R2	0.14	Yes	630
CANOPIES (Entry canopy)	950 R2	0.25	Yes	238
Total Tradable Watts (a) =				3338
Total Allowed Watts (b) =				3338
Total Allowed Supplemental Watts (b) =				600

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.  
(b) A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

**Proposed Exterior Lighting Power**

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps / Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
DRIVEWAY ( Driveway 3500 R2): Tradable Wattage				
LED 4: SD-H: WALL MTD LED HIGH OUTPUT: Other:	1	4	61	244
LED 10: SK: SINGLE HEAD SITE POLE: LED Roadway-Parking Unit 110W:	1	2	110	220
NW PARKING ( Parking area 10500 R2): Tradable Wattage				
LED 6: SE: ANTIQUE STREET LAMP: Other:	1	3	59	177
LED 8: SG: SINGLE HEAD SITE POLE: LED Roadway-Parking Unit 67W:	1	1	59	59
LED 9: SH: SINGLE HEAD SITE POLE: LED Roadway-Parking Unit 67W:	1	1	59	59
LED 11: SL: DUAL HEAD SITE POLE: LED Roadway-Parking Unit 118W:	2	1	120	120
SE PARKING ( Parking area 27180 R2): Tradable Wattage				
LED 1: SA: SURFACE PARKING CANOPY: Other:	1	4	26	104
LED 4: SD-H: WALL MTD LED HIGH OUTPUT: Other:	1	4	61	244
LED 6: SE: ANTIQUE STREET LAMP: Other:	1	3	59	177
LED 7: SF: SINGLE HEAD SITE POLE: LED Roadway-Parking Unit 67W:	1	2	59	118
LED 8: SG: SINGLE HEAD SITE POLE: LED Roadway-Parking Unit 67W:	1	2	59	118
LED 9: SH: SINGLE HEAD SITE POLE: LED Roadway-Parking Unit 67W:	1	3	59	177
LED 11: SL: DUAL HEAD SITE POLE: LED Roadway-Parking Unit 118W:	2	2	120	240
SIDEWALK ( Walkway >= 10 feet wide 4500 R2): Tradable Wattage				
LED 2: SB: WALL MOUNTED SCIENCE: Other:	1	2	12	24
LED 6: SE: ANTIQUE STREET LAMP: Other:	1	1	59	59
LED 5: SD-L: WALL MTD LED LOW OUTPUT: Other:	1	3	41	123
CANOPIES ( Entry canopy 950 R2): Tradable Wattage				
LED 3: SC: RECESSED DOWNLIGHT: Other:	1	14	19	266
Total Tradable Proposed Watts =				2529

**Exterior Lighting PASSES: Design 36% better than code**

**Exterior Lighting Compliance Statement**  
Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**COMcheck Software Version 4.1.1.0**  
**Interior Lighting Compliance Certificate**

**Project Information**  
Energy Code: 2012 IECC  
Project Title: Fire Station No. 705  
Project Type: New Construction

Construction Site: 30551 W. Tartesso Pkwy. Buckeye, AZ 85396  
Owner/Agent: Perلمان Architects of Arizona 4808 N. 24th St. Suite 100 Phoenix, AZ 85016 480-951-5900  
Designer/Contractor: AKRIBIS Engineering, LLC. 3132 S. Country Club Way Suite 102 Tempe, AZ 85282

**Additional Efficiency Package(s)**  
Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

**Allowed Interior Lighting Power**

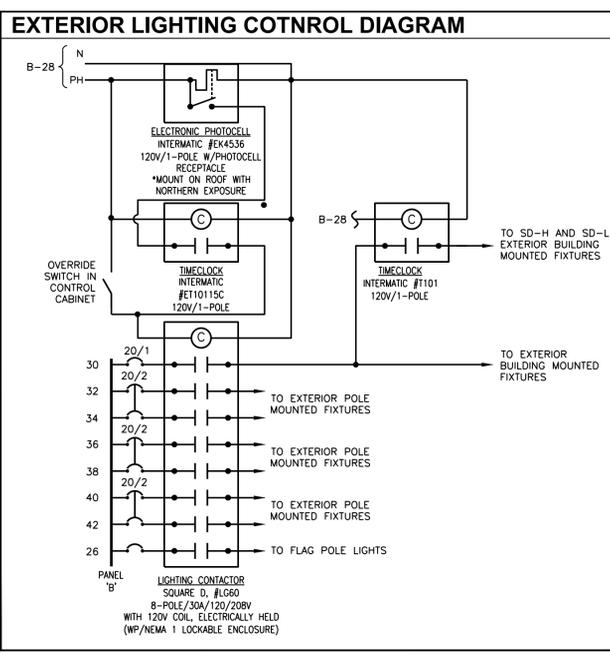
A Area Category	B Floor Area (R2)	C Allowed Watts / R2	D Allowed Watts (B X C)
1-Fire station	13240	0.71	9400
Total Allowed Watts =			9400

**Proposed Interior Lighting Power**

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps / Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Fire station				
LED 1: A: 2X4 DIR./IND TROFFER: Other:	1	13	30	390
LED 2: B: 2X2 DIR./IND TROFFER: Other:	1	20	31	620
LED 3: C: RECESSED DOWNLIGHT: Other:	1	51	17	867
LED 4: D: RECESSED SHOWER DOWNLIGHT: Other:	1	4	17	68
LED 5: F: 4' VANITY LED FIXTURE: Other:	1	4	36	144
LED 6: G: 2' WALL MOUNTED LED DORM FIXT.: Other:	1	8	17	134
LED 7: H: HIGH BAY FIXTURE: Other:	1	24	100	2400
LED 8: K: 2X4 LED GRID TROFFER: Other:	1	17	30	515
LED 9: L: 2X4 LED GYP TROFFER: Other:	1	2	30	61
LED 10: M: 2X4 LED SURFACE TROFFER: Other:	1	6	30	182
Total Proposed Watts =				5380

**Interior Lighting PASSES: Design 43% better than code**

**Interior Lighting Compliance Statement**  
Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.



**LIGHTING FIXTURE SCHEDULE**

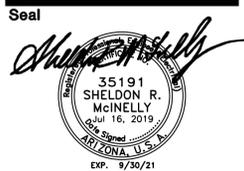
TYPE	DESCRIPTION	MANUFACTURER AND CATALOG NUMBER	MOUNTING	DIMMABLE		LAMP DATA			VOLT	NOTES
				YES / NO	VOLTAGE	QUAN.	WATT	TYPE		
<b>INTERIOR LIGHTING</b>										
A	2X4 DIR./IND TROFFER	LITHONIA: 2AVL4 30L MDR E21 LP835	R	Y	0-10V	1	30	LED	FWF	120 -
AE	2X4 DIR./IND TROFFER W/ EM BATTERY	LITHONIA: 2AVL4 30L MDR E21 LP835 EL14L	R	Y	0-10V	1	30	LED	FWF	120 2
B	2X2 DIR./IND TROFFER	LITHONIA: 2AVL2 30L MDR E21 LP835	R	Y	0-10V	1	31	LED	FWF	120 -
BE	2X2 DIR./IND TROFFER W/ EM BATTERY	LITHONIA: 2AVL4 30L MDR E21 LP835 EL14L	R	Y	0-10V	1	31	LED	FWF	120 2
C	RECESSED DOWNLIGHT	INTENSE: SSG64DR L3 358 / IC630 W SFW	R	Y	0-10V	1	17	LED	FWF	120 -
CE	RECESSED DOWNLIGHT W/ EM BATTERY	INTENSE: SSG64DR L3 358 EM7 / IC630 W SFW	R	Y	0-10V	1	17	LED	FWF	120 2
D	RECESSED SHOWER DOWNLIGHT	INTENSE: SSG64DR L3 358 / IC632 W SFW CR	R	Y	0-10V	1	17	LED	FWF	120 -
E	EXTERIOR EMERGENCY EGRESS	LITHONIA: AFN DB EXT	W	N	-	1	21	LED	FWF	120 1,3
F	4' VANITY LED FIXTURE	PRUDENTIAL: S1 LED35 SO 4 WA YGW UNV SUR ND	W	N	-	1	36	LED	FWF	120 1,3
G	2' WALL MOUNTED LED DORM FIXTURE	AXIS: TBWDILED 650 400 80 35 SO 2 W UNV DP 1	W	Y	0-10V	1	16.7	LED	FWF	120 1,3
H	HIGH BAY FIXTURE	LITHONIA: IBL 12L WD SD125 120 LP840 LAHOSZU DWH	S	Y	0-10V	1	100	LED	FWF	120 1
HE	HIGH BAY FIXTURE W/ EM BATTERY	LITHONIA: IBL 12L WD SD125 120 LP840 I2412 LAHOSZU DWH	S	Y	0-10V	1	100	LED	FWF	120 1.2
K	2X4 LED GRID TROFFER	LITHONIA: EPANL 24 40LHE 35K	R-GRID	Y	0-10V	1	30.3	LED	FWF	120 -
L	2X4 LED GYP TROFFER	LITHONIA: EPANL 2X4 400LM 80CRI 35K MIN10 ZT MVOLT DGA24	R-GYP	Y	0-10V	1	30.3	LED	FWF	120 -
M	2X4 LED SURFACE TROFFER	LITHONIA: EPANL 2X4 400LM 80CRI 35K MIN10 ZT MVOLT DGA24 2X4PANLACG	P	Y	0-10V	1	30.3	LED	FWF	120 1
ME	2X4 LED SURFACE TROFFER W/ EM BATTERY	LITHONIA: EPANL 2X4 400LM 80CRI 35K MIN10 ZT MVOLT DGA24 E10WCP 2X4PANLACG	P	Y	0-10V	1	30.3	LED	FWF	120 1.2
X1	EXIT SIGN - SINGLE FACE	LITHONIA: EDGR - 1 - GMR-EL	R	-	-	1	-	LED	FWF	120 -
X2	EXIT SIGN - DOUBLE FACE	LITHONIA: EDGR - 2 - GMR-EL	R	-	-	1	-	LED	FWF	120 -
XS	EXIT SIGN - SURFACE - SINGLE FACE	LITHONIA: EDG - 1 - GMR-EL	S	-	-	1	-	LED	FWF	120 1
<b>EXTERIOR SITE LIGHTING</b>										
SA	D-SERIES LED SURFACE PARKING CANOPY	LITHONIA: DSXSC-LED 10C 700 40K ASY MVOLT SRM DDBXD	S	N	-	1	26	LED	LED	208 -
SB	WALL MOUNTED SCIENCE	LITHONIA: WST LED P1 40K VF MVOLT DDBXD	W	N	-	1	12	LED	LED	120 -
SC	6' EVO LED RECESSED DOWNLIGHT - 1000 LUMEN	GOTHAM: EVO 40/10 6AR MD LD MVOLT E21	R	N	-	1	19	LED	LED	120 -
SCE	6' EVO LED RECESSED DOWNLIGHT - 1000 LUMEN	GOTHAM: EVO 40/10 6AR MD LD MVOLT E21 EL	R	N	-	1	19	LED	LED	120 -
SD-H	WALL MTD LED FULLY SHIELDED (HIGH OUTPUT)	AMERILUX: D623 LED WA AVI AS 4H CLB WITH WALL BRACKET: WBR05 CLB	W	N	-	1	61	LED	LED	120 1,3
SD-L	POLE MTD LED FULLY SHIELDED (LOW OUTPUT)	AMERILUX: D623 LED WA AVI AS 4L CLB WITH WALL BRACKET: WBR05 CLB	W	N	-	1	41	LED	LED	120 1,3
SE	ANTIQUÉ STREET LAMP	ANTIQUE STREET LAMP: EML25 ST GCF 49LED 350mA 40K R2 FINISH WITH POLE: EPAX 22.5 S4S6 EAJ4/1	P	N	-	1	59	LED	LED	208 3.4
SF	SINGLE HEAD SITE POLE	ANTIQUE STREET LAMP: EML25 ST 49LED 350mA 40K GCF MVOLT R3 FINISH WITH POLE: EPAX 22.5 S4S6 EAJ4/1	P	N	-	1	59	LED	LED	208 3.4
SG	SINGLE HEAD SITE POLE	ANTIQUE STREET LAMP: EML25 ST 49LED 350mA 40K GCF MVOLT R4 FINISH WITH POLE: EPAX 22.5 S4S6 EAJ4/1	P	N	-	1	59	LED	LED	208 3.4
SH	SINGLE HEAD SITE POLE	ANTIQUE STREET LAMP: EML25 ST 49LED 350mA 40K GCF MVOLT R5 FINISH WITH POLE: EPAX 22.5 S4S6 EAJ4/1	P	N	-	1	59	LED	LED	208 3.4
SK	SINGLE HEAD SITE POLE	ANTIQUE STREET LAMP: EML25 ST 63LED 530mA 40K GCF MVOLT R2 FINISH WITH POLE: EPAX 22.5 S4S6 EAJ4/2	P	N	-	1	110	LED	LED	208 3.4
SL	DUAL HEAD SITE POLE	ANTIQUE STREET LAMP: TWIN, EML25 ST 49LED 350mA 40K GCF MVOLT R2 FINISH WITH POLE: EPAX 22.5 S4S6 EAJ4/2	P	N	-	2	120	LED	LED	208 3.4
SM	RECESSED INGRADE ACCENT LIGHT-SPOT	HYDREL: PD4 B 9LED WHT41K MVOLT SP FLC 12S TKO LPI	GROUND	N	-	1	9	LED	LED	120 -
<b>MOUNTING</b> ① R: RECESSED • W: WALL • S: SURFACE • E: EXTERIOR <b>LAMP TYPE</b> ② F: FLUORESCENT • MH: METAL HALIDE • I: INCANDESCENT • CF: COMPACT FLUORESCENT • LED: LIGHT EMITTING DIODE • FWF: FURNISHED WITH FIXTURE										
<b>GENERAL NOTES:</b> 1. PROVIDE BALLAST/DORMER DISCONNECT PER NEC 410.130(G) FOR LIGHTING FIXTURES. 2. PROVIDE DIMMER CONTROL COMPATIBLE WITH DIMMING FIXTURE. WHERE INDICATED ON PLANS. 3. EXTERIOR LIGHTING SUBSTITUTIONS: FOR SITE LIGHT FIXTURES, IF SUBSTITUTED, THE CONTRACTOR SHALL PROVIDE COMPLETE PHOTOMETRIC CALCULATIONS INCLUDING POINT AND SUMMARY OF STATS WITH FIXTURE SUBMITTAL PACKAGE. <b>NOTES:</b> 1. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR FIXTURE MOUNTING HEIGHT. 2. PROVIDE WITH DIMMABLE/SWITCHABLE EMERGENCY BATTERY PACK WITH MINIMUM 90-MINUTE OPERATION. 3. VERIFY FIXTURE FINISH PRIOR TO ORDERING. 4. PROVIDE POLE HEIGHT FOR FINAL POLE MOUNTED FIXTURE WITH BOTTOM OF FIXTURE AT 25'-0" AFF.										
AKRIBIS ENGINEERING, LLC - JOB NO. 19024										

Rev	Date	By	Description
1	7/17/19	-	CITY COMMENTS

**City of Buckeye**  
**Fire Station No. 705**  
30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

**2ND SUBMITTAL**  
Drawn/Checked By \_\_\_\_\_  
Date \_\_\_\_\_  
Project Number **318009**  
Sheet Number **E2.2**  
LIGHTING FIXTURE SCHEDULE & IECC CALCS

**AKRIBIS ENGINEERING, L.L.C.**  
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DRAWN BY: WS CHECKED BY: SM JOB NUMBER: 19024  
FOR QUESTIONS PLEASE CALL: WILLIAM SHORRY



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Rev	Date	By	Description
A	7/17/19	-	CITY COMMENTS

**City of Buckeye**  
**Fire Station No. 705**  
30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

**2ND SUBMITTAL**

Drawn/Checked By: -- /--

Date: 07-17-19

Project Number: 318009

Sheet Number: POWER PLAN

**E3.1**

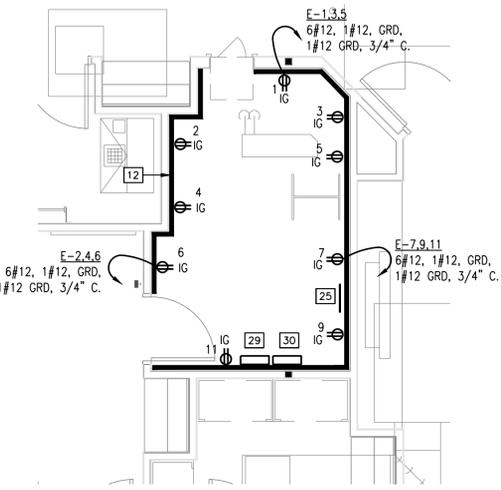
**AKRIBIS**  
ARCHITECTURAL • PLUMBING • ELECTRICAL  
ENGINEERING, L.L.C.  
3231 SOUTH COUNTRY CLUB WAY, STE. 102, TEMPE, ARIZONA, 85282  
P: (602) 393-0201 F: (602) 393-0202  
DRAWN BY: WS CHECKED BY: SM JOB NUMBER: 19024  
FOR QUESTIONS PLEASE CALL: WILLIAM SHORRY

**GENERAL NOTES**

1. DEVICE MOUNTING HEIGHTS ARE SHOWN FOR REFERENCE ONLY. COORDINATE ALL FINAL MOUNTING HEIGHTS AND/OR LOCATIONS AS REQUIRED WITH ARCHITECTURAL DETAILS, ELEVATIONS AND MILLWORK CONTRACTOR.
2. ALL RECEPTACLES IN THE APPARATUS BAY - 140, JAN. CLOSET - 142, WORKSHOP - 143 AND SCBA - 145 SHALL BE MOUNTED AT A MINIMUM HEIGHT OF 24" ABOVE FINISHED FLOOR.
3. HOMERUN CIRCUITS MAY BE COMBINED INTO COMMON CONDUITS WHERE ALLOWED BY NEC. PROVIDE DEDICATED NEUTRALS WHEN FEEDING AFCI OR GFCI CIRCUIT BREAKERS. PROVIDE COMMON TRIP HANDLES IF COMBINING CIRCUITS AND SHARING NEUTRAL CONDUCTORS.

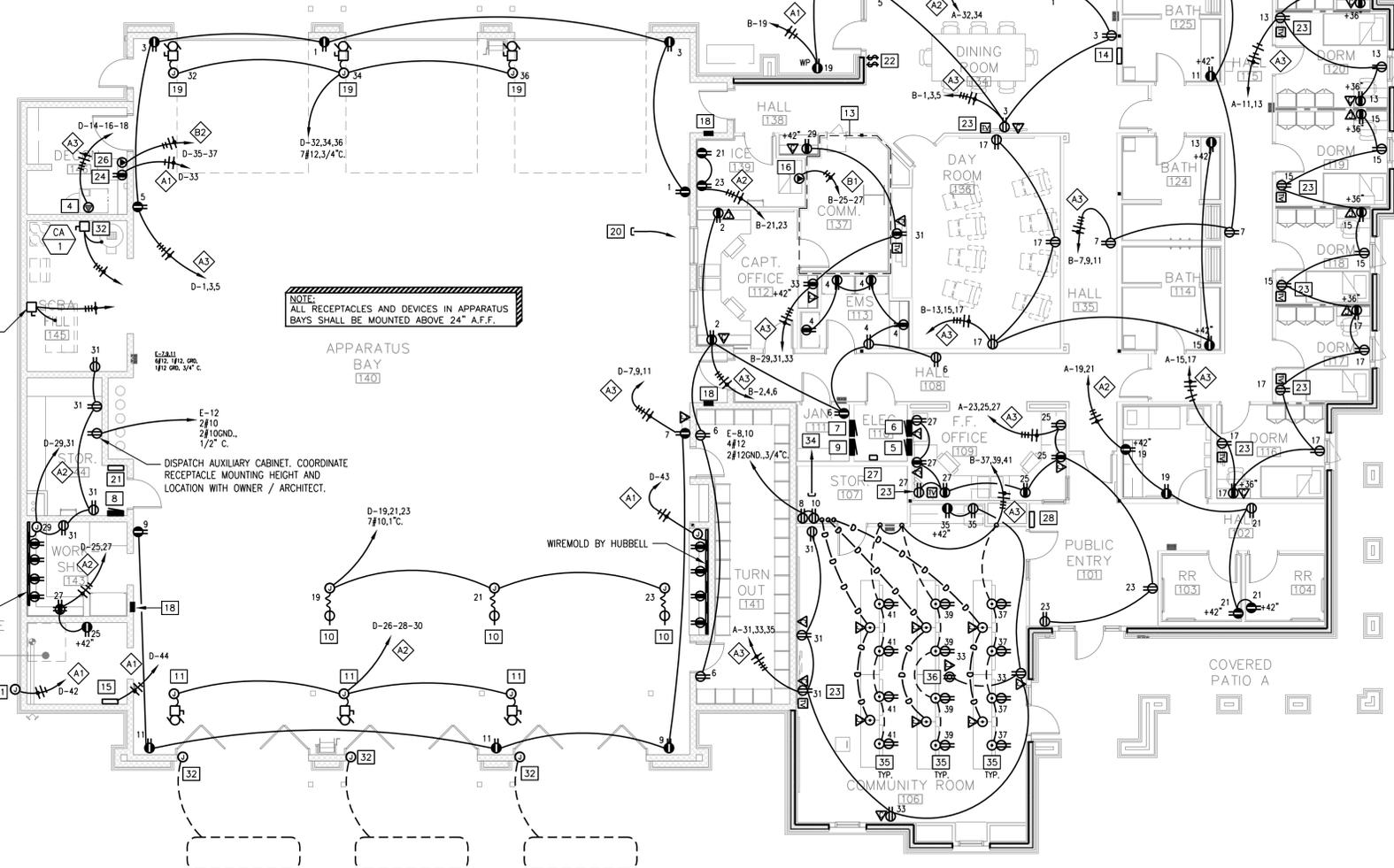
**KEY NOTES**

1. SERVICE ENTRANCE SECTION. REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION. VERIFY EXACT LOCATION WITH ARCHITECTURAL PLANS.
2. AUTOMATIC TRANSFER SWITCH. REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
3. DISTRIBUTION SWITCHBOARD, DS-1. REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
4. EXTRACTOR: COORDINATE NEMA CONFIGURATION / PLUG TYPE WITH OWNER/MANUFACTURER. LOCATION TO BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
5. PANEL A.
6. PANEL B.
7. PANEL C.
8. PANEL D.
9. PANEL E.
10. PROVIDE INDUSTRIAL CORD REEL WITH 30 AMP RECEPTACLE. MOUNT FROM STRUCTURE. REFER TO SHEET E5.3 FOR ADDITIONAL INFORMATION. COORDINATE LOCATION WITH LIGHTING FIXTURES AND MECHANICAL EQUIPMENT.
11. APPARATUS BAY DOOR OPENER: 3/4 HP @ 208V/3 PH. FURNISH AND INSTALL 30A/3P DISCONNECT SWITCH WITH CLASS RK1 FUSES PER MANUFACTURER'S REQUIREMENTS. STARTER INTEGRAL WITH UNIT. REFER TO OVERHEAD DOOR WIRING DIAGRAM, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR CONTROL WIRING AND ADDITIONAL INFORMATION.
12. PROVIDE 3/4" FIRE RATED TMB GRADE PLYWOOD MOUNTING BOARD TO COVER ALL WALLS OF ROOM. VERIFY EXACT LOCATIONS OF ALL RECEPTACLES PRIOR TO ROUGH-IN WITH CITY PROJECT MANAGER.
13. SEE LARGE SCALE PLAN THIS SHEET FOR ADDITIONAL ELECTRICAL REQUIREMENTS IN ITD AND COMMUNICATIONS ROOMS.
14. PROVIDE REMOTE ANNUNCIATOR FOR GENERATOR. PROVIDE CONTROL CIRCUITING FROM GENERATOR AND ATS AS REQUIRED BY GENERATOR/ATS MANUFACTURER.
15. FIRE ALARM CONTROL PANEL.
16. PROVIDE RECEPTACLE FOR ICE MAKER. VERIFY RECEPTACLE CONFIGURATION WITH SUPPLIER.
17. PROVIDE CONNECTION TO RANGE AND RANGE HOOD/LIGHT AND FAN/LIGHT SWITCHES. ELECTRICAL CONTRACTOR SHALL COORDINATE ROUGH-IN LOCATIONS OF ALL COMPONENTS FOR FINAL SELECTED SYSTEM. RECEPTACLE IS APPROXIMATELY 10.5" AFF TO CENTER OF RECEPTACLE PER MANU. REFER TO DETAIL A ON SHEET E5.3 FOR HOOD AND RANGE CONNECTION INFORMATION.
18. PROVIDE RECESSED OVERHEAD DOOR CONTROLLERS. REFER TO DIAGRAM ON SHEET E5.2 FOR DETAILS.
19. APPARATUS BAY DOOR OPENER: 3/4 HP @ 120V/1 PH. FURNISH AND INSTALL 30A/3P DISCONNECT SWITCH WITH CLASS RK1 FUSES PER MANUFACTURER'S REQUIREMENTS. STARTER INTEGRAL WITH UNIT. REFER TO OVERHEAD DOOR WIRING DIAGRAM, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR CONTROL WIRING AND ADDITIONAL INFORMATION.
20. PROVIDE 2.5" EMPTY CONDUIT FROM DISTRIBUTION SECTION DS-1 TO STRUCTURE IN APPARATUS BAY. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION. VERIFY EXACT LOCATION OF STUBBOUT WITH ARCHITECT.
21. PROVIDE 18" BY 18" BY 8" NEMA 1, PIANO HINGED, LOCKABLE CABINET WITH A COMPLETE SET OF DUPLICATE FUSES FOR EACH SWITCH IN S.E.S AND DS-1. MOUNT ABOVE LIGHTING CONTACTOR.
22. (2) GATE OPERATOR SWITCH FOR (2) SITE ACCESS GATE OVERRIDES. REFER TO SHEET E1.1 FOR ADDITIONAL INFORMATION. PROVIDE ENGRAVED LABEL ON SWITCHES.
23. MOUNT RECEPTACLE AND CABLE TV OUTLET AT 18" BELOW FINISHED CEILING.
24. PROVIDE DUPLEX RECEPTACLE FOR WASHER AT +48" AFF UNO.
25. PROVIDE 1/4" BY 2" BY 24" COPPER GROUNDING BUSS BAR WITH 1" INSULATED BUSHINGS MOUNTED ON PLYWOOD BACKBOARD AS DIRECTED BY CITY PROJECT MANAGER. PROVIDE #4 AWG COPPER INSULATED CONDUCTOR TO BUILDING SYSTEM GROUND. DO NOT COMBINE GROUND CONDUCTORS.
26. PROVIDE DRYER RECEPTACLE. MOUNT AT 48" AFF UNO.
27. LIGHTING CONTACTOR. REFER TO WIRING DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
28. PROVIDE REMOTE FIRE ALARM SYSTEM ANNUNCIATOR.
29. PROVIDE CABLE TV CABINET. REFER TO SHEET E5.2 FOR DETAILS AND ADDITIONAL INFORMATION. PROVIDE CONDUITS FROM TELCO/CABLE PEDESTAL. REFER TO SHEET E1.1 FOR ADDITIONAL INFORMATION.
30. CARD READER SYSTEM. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROVIDE CONNECTION TO RECEPTACLE CIRCUIT AS REQUIRED.
31. PROVIDE CONNECTION TO FIRE ALARM BELL. VERIFY EXACT LOCATION WITH SUPPLIER PRIOR TO INSTALLATION.
32. PROVIDE CONNECTION TO COMPRESSOR. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
33. PROVIDE 3/4" CONDUIT AND SINGLE GANG BOX AT DOOR CONTROLLER ABOVE DOOR FOR DOOR OBSTRUCTION LOOP. COORDINATE FINAL ROUGH-IN LOCATION WITH DOOR VENDOR AND ARCHITECT.
34. PROVIDE CONDUIT(S) FROM COMMUNICATION ROOM 137 AND INTO ROOM 107 FOR IT/IDF EQUIPMENT. VERIFY CONDUIT SIZE AND EXACT LOCATION OF STUB OUT WITH ARCHITECT / OWNER.
35. PROVIDE FLOOR BOX. REFER TO PARTIAL SYMBOL LEGEND ON SHEET E0.1 FOR ADDITIONAL INFORMATION.
36. PROVIDE CEILING MOUNTED RECEPTACLE FOR PROJECTOR. COORDINATE EXACT LOCATION WITH ARCHITECT.



**DATA/COMM. ROOM PLAN**

SCALE: 1/4" = 1'-0"



**POWER PLAN**

SCALE: 1/8" = 1'-0"



Seal



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Rev	Date	By	Description
A	7/17/19	-	CITY COMMENTS

**City of Buckeye**  
**Fire Station No. 705**  
30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

**2ND SUBMITTAL**

Drawn/Checked By

-- /--

Date

07-17-19

Project Number

**318009**

Sheet Number

MECHANICAL EQUIPMENT /  
POWER PLAN

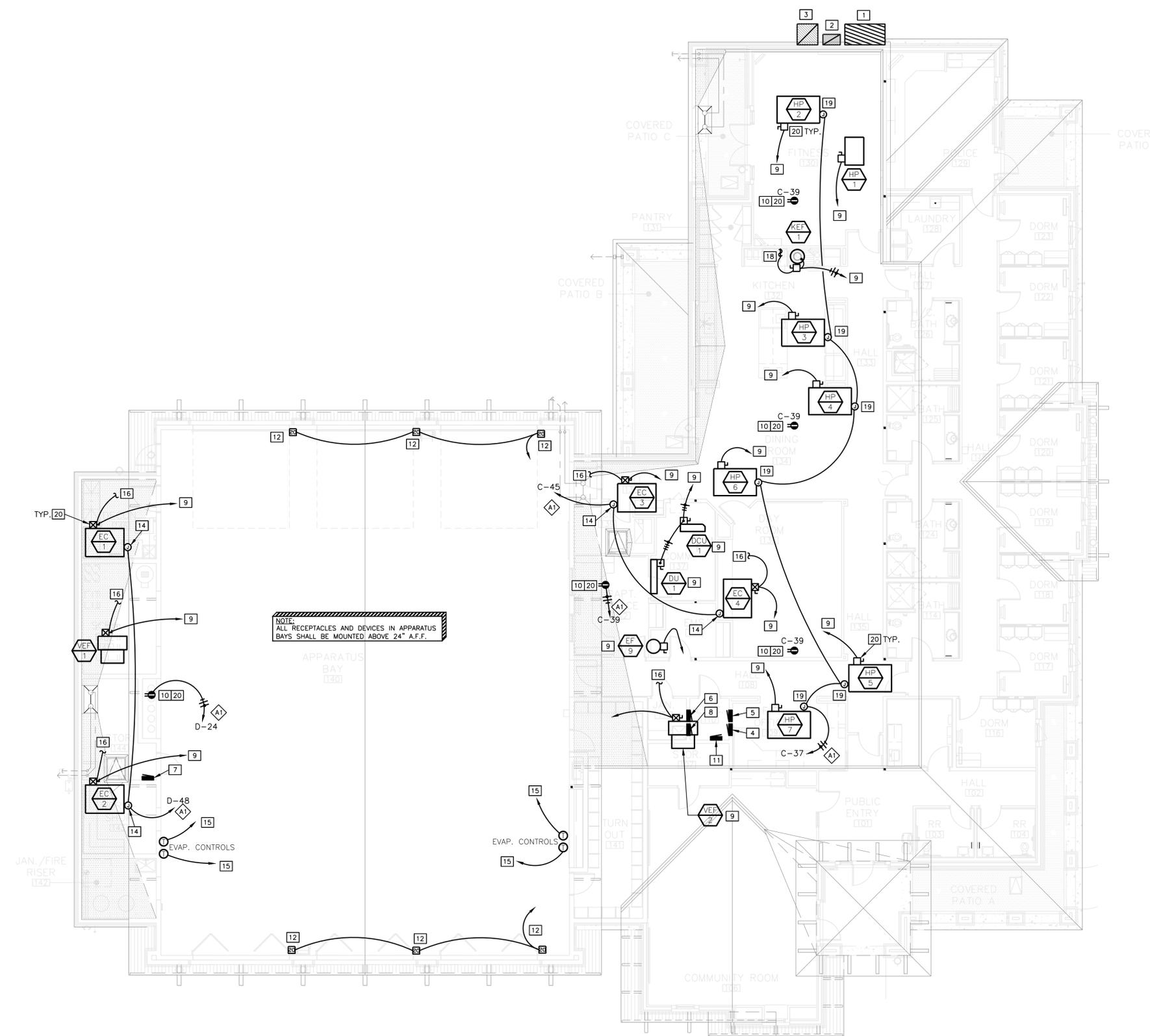
**E3.2**

**GENERAL NOTES**

- WHERE EQUIPMENT DESIGNATION SYMBOL IS SHOWN, REFER TO HVAC/PLUMBING EQUIPMENT SCHEDULE (**SHEET E5.2**) FOR CONTROL/FEEDER, OCP INFORMATION AND SOURCE PANEL. REFER TO PANEL SCHEDULES (**SHEET E5.2**) FOR CIRCUITING (TYPICAL).
- DEVICE MOUNTING HEIGHTS ARE SHOWN FOR REFERENCE ONLY. COORDINATE ALL FINAL MOUNTING HEIGHTS AND/OR LOCATIONS AS REQUIRED WITH ARCHITECTURAL DETAILS, ELEVATIONS AND MILLWORK CONTRACTOR.
- COORDINATE LOCATION OF ALL EQUIPMENT WITH OTHER TRADES AND ARCHITECTURAL DETAILS.

**KEY NOTES**

- SERVICE ENTRANCE SECTION, REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION. VERIFY EXACT LOCATION WITH ARCHITECTURAL PLANS.
- AUTOMATIC TRANSFER SWITCH, REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
- DISTRIBUTION SWITCHBOARD, DS-1, REFER TO ONE LINE DIAGRAM ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
- PANEL A.
- PANEL B.
- PANEL C.
- PANEL D.
- PANEL E.
- REFER TO GENERAL NOTE #1 AND HVAC/PLUMBING EQUIPMENT SCHEDULE FOR FEEDER, SOURCE AND UNIT DISCONNECT INFORMATION.
- PROVIDE ROOF MOUNTED MAINTENANCE RECEPTACLE, TO BE GFCI, FULLY WP. LOCATE WITHIN 25 FEET OF ALL MECHANICAL EQUIPMENT.
- CLIMATEC CONTROL PANEL. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR. REFER TO MECHANICAL PLANS AND HVAC/PLUMBING EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
- PROVIDE DOOR SWITCH WITH INTERFACE TO CLIMATEC CONTROL PANELS.
- PROVIDE 120V CONNECTION TO EC PUMP CONTROL.
- PROVIDE J-BOX AND 3/4" CONDUIT TO CLIMATEC PANELS FOR EC PUMP/FAN MANUAL CONTROL.
- PROVIDE INTERFACE/CONTROL 3/4" CONDUIT WITH PULL STRING TO CLIMATEC CONTROL PANEL AT ROOM 110. COORDINATE WITH MECHANICAL PLANS AND CLIMATEC VENDOR/CONTRACTOR.
- PROVIDE CONNECTION TO THERMOSTAT. VERIFY EXACT LOCATION WITH MECHANICAL PLANS. COORDINATE WITH MECHANICAL CONTRACTOR. REFER TO CONTROL DIAGRAM ON SHEET E5.3.
- PROVIDE MOTOR RATED SWITCH FOR KITCHEN EXHAUST FAN KEF-1. MOUNT ADJACENT TO HOOD LIGHT SWITCH. PROVIDE ENGRAVED LABEL "KITCHEN HOOD FAN".
- PROVIDE 120V CONNECTION TO DUCT SMOKE DETECTORS INTERLOCK FOR SIMULTANEOUS UNIT SHUT-DOWN. VERIFY FINAL CONNECTION LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.
- PROVIDE STRUT RACK FOR MOUNTING HVAC DISCONNECT SWITCHES AND MAINTENANCE RECEPTACLE.

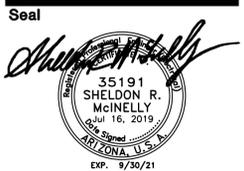


**MECH / POWER PLAN**

SCALE: 1/8"=1'-0"



3231 SOUTH COUNTRY CLUB WAY, STE. 102, TEMPE, ARIZONA, 85282  
P: (602) 393-0201 F: (602) 393-0202  
DRAWN BY: WS CHECKED BY: SM JOB NUMBER: 19024  
FOR QUESTIONS PLEASE CALL: WILLIAM SHORRY



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**GENERAL NOTES**

1. ALL EXTERIOR SPEAKERS SHALL BE MOUNTED AT 13'-0" AFF.
2. INSTALL 3/4" CONDUITS WITH PULL STRING FOR ALL VOICE, DATA AND CABLE TV OUTLETS.
3. SEE SHEET E4.2 FOR DISPATCH SYSTEM DETAILS.

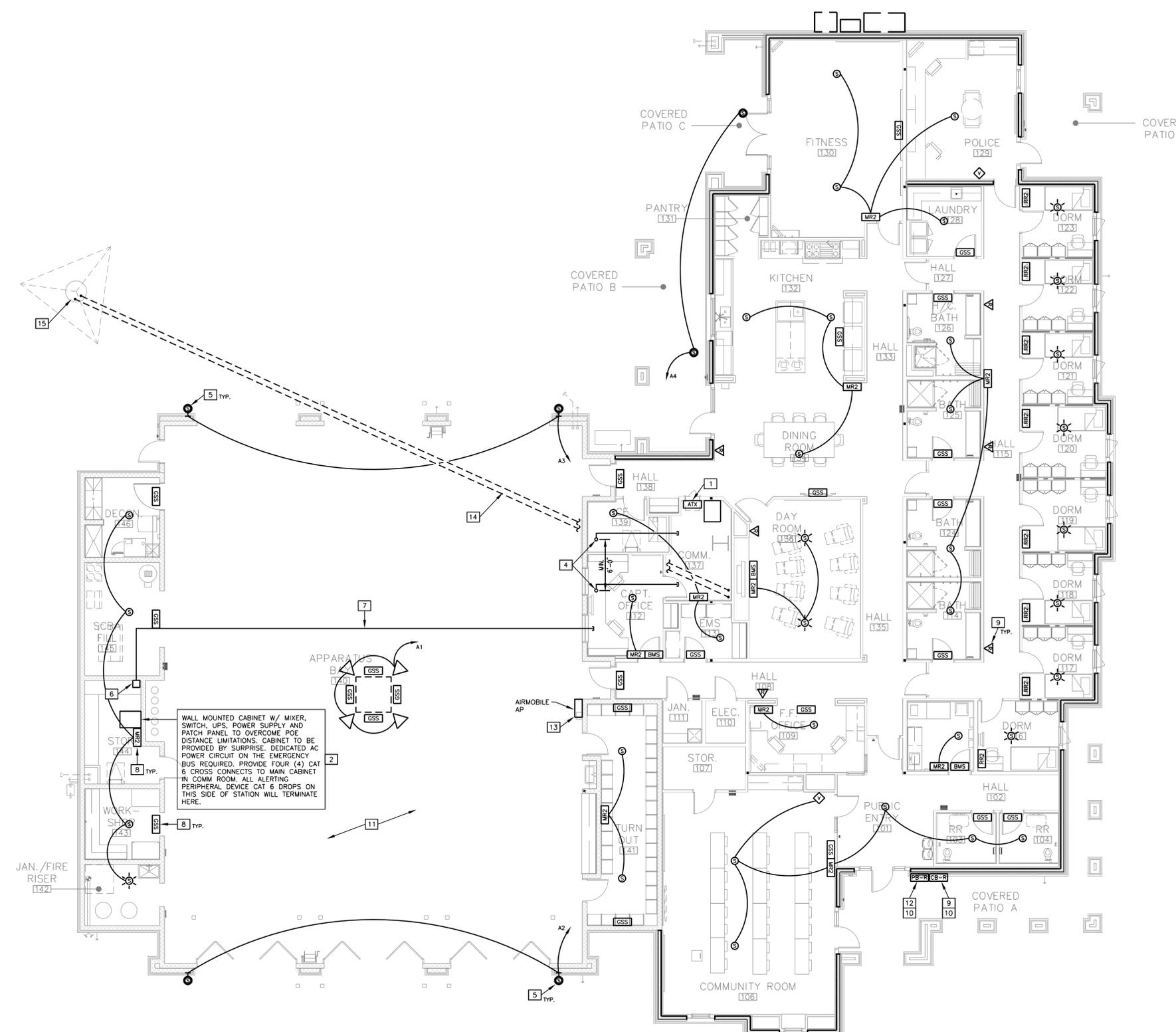
**KEY NOTES**

1. PROVIDE WIDE AREA DISPATCH CABINET.
2. PROVIDE AUXILIARY CABINET PER PHOENIX FIRE DEPARTMENT DISPATCH. REFER TO POWER PLAN FOR POWER RECEPTACLE. PROVIDE #2 AWG COPPER GROUND TO SES GROUNDING ELECTRODE SYSTEM.
3. PROVIDE DORM REMOTE.
4. PROVIDE ROOF PENETRATIONS FOR WIDE AREA DISPATCH ANTENNA. COORDINATE LOCATION OF PENETRATIONS WITH MECHANICAL AND ARCHITECTURAL PLANS. VERIFY EXACT LOCATION WITH DISPATCH SYSTEM SUPPLIER. PROVIDE #2 AWG COPPER GROUND TO SES GROUNDING ELECTRODE SYSTEM.
5. MOUNT AT +13'-0" AFF OR AS SHOWN ON ARCHITECTURAL ELEVATIONS.
6. PROVIDE 12" BY 12" BY 8" JUNCTION BOX LOCATED IN CEILING FOR WIDE AREA DISPATCH SYSTEM CABLING.
7. PROVIDE ONE (1) 3" CONDUIT FROM JUNCTION BOX TO WIDE AREA DISPATCH CABINET IN ROOM 137.
8. PROVIDE CABLING TO DISPATCH CABINET VIA JUNCTION BOX IN ROOM 144.
9. RINGDOWN EMERGENCY PHONE. VERIFY LOCATION PRIOR TO ROUGH-IN.
10. PHONE CABLING IN 3/4" C. TO TMB.
11. ALL CABLING IN APPARATUS BAY SHALL BE INSTALLED IN CONDUIT.
12. PROVIDE WEATHERPROOF PUSH BUTTON AT DOOR WITH 3/4" CONDUIT TO DISPATCH CABINET IN COMMUNICATIONS ROOM.
13. COORDINATE AIRMOBILE AP EQUIPMENT LOCATION WITH FINAL DISPATCH LAYOUT FROM PHOENIX FIRE DEPARTMENT.
14. FROM MONOPOLE TO COMMUNICATIONS ROOM 137. PROVIDE STRAIGHT RUN OF (1) 3" CONDUIT AND (1) 3" CONDUIT WITH LONG RADIUS/SWEEP ELBOWS. RUN SHALL BE SHORTEST DIRECT ROUTE POSSIBLE. COORDINATE WITH STRUCTURAL FOOTINGS.
15. 80' TOWER AND INCLUDE (2) 3" CONDUITS FOR DATA AND DISPATCH COMMUNICATION. ALL CONDUIT TO BE ALIGNED IN THE LOWER RIGHT HAND CORNER OF COMMUNICATION ROOM.

\*\*\* STATION ALERTING EQUIPMENT LAYOUT, DEVICE LOCATIONS AND TYPES SUBJECT TO CHANGE UPON REVIEW OF FINAL PLAN SET \*\*\*

- DISPATCH SYSTEM NOTES**
1. PROVIDE TWO (2) 1 1/4"-2" RIGID TYPES, SPACED 4'-6" APART AND MOUNTED TO PARAPET WALL FOR ALERTING SYSTEM ANTENNAS.
  2. PROVIDE TWO (2) 1 1/4" CONTINUOUS CONDUIT RUNS FROM COMM ROOM TO ROOFTOP ANTENNA LOCATION. PROVIDE WEATHER HEADS CAPABLE OF THREE (3) 1/2" COAX FOR EACH PENETRATION.
  3. PROVIDE ANTENNA MAST BONDING TO THE BUILDING GROUND SYSTEM. REQUIRES A SEPARATE ROOF PENETRATION.
  4. PROVIDE MASTER GROUND BUS IN THE COMM ROOM BONDED TO THE BUILDING GROUND SYSTEM.
  5. PROVIDE A DEDICATED 20 AMP CIRCUIT ON THE EMERGENCY BUS IN THE COMM ROOM FOR THE ALERTING CABINET.
  6. PROVIDE INFRASTRUCTURE TO BRING ONE (1) COPPER RING-DOWN CIRCUIT TO THE STATION.

SYMBOL	DESCRIPTION
ATX	G2 ATX STATION CONTROLLER
CB-R	CALL BOX - RED
PB-R	PUSH BUTTON - RED
GSS	G2 24" MESSAGE SIGN
RR2	G2 ROOM REMOTE 2
MR2	G2 MESSAGE REMOTE 2 (MOUNTED ABOVE ACCESSIBLE CEILING SPACE)
BMS	BETA BRITE (MS)
☀	G2 LED SPEAKER FLUSH MOUNT
⊙	SPEAKER, WEATHER-PROOF
⊙	SPEAKER, FLUSH MOUNT
◇	VOLUME CONTROL
▽	RED PHONE
▽	HORN SPEAKER



WALL MOUNTED CABINET W/ MIXER, SWITCH, UPS, POWER SUPPLY AND PATCH PANEL TO OVERCOME POE DISTANCE LIMITATIONS. CABINET TO BE PROVIDED BY SUPPLIER. DEDICATED AC POWER CIRCUIT ON THE EMERGENCY BUS REQUIRED. PROVIDE FOUR (4) CAT 6 CROSS CONNECTS TO MAIN CABINET IN COMM ROOM. ALL ALERTING PERIPHERAL DEVICE CAT 6 DROPS ON THIS SIDE OF STATION WILL TERMINATE HERE.

**DISPATCH SYSTEM PLAN**

SCALE: 1/8"=1'-0"

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Date Printed=Jul 16, 2019 - 4:05:31PM Printed By=traci

**City of Buckeye**  
**Fire Station No. 705**  
30551 W. Tartesso Pkwy.  
Buckeye, AZ 85396

**2ND SUBMITTAL**

Drawn/Checked By

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Date

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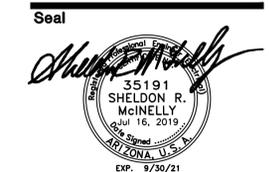
318009

Sheet Number

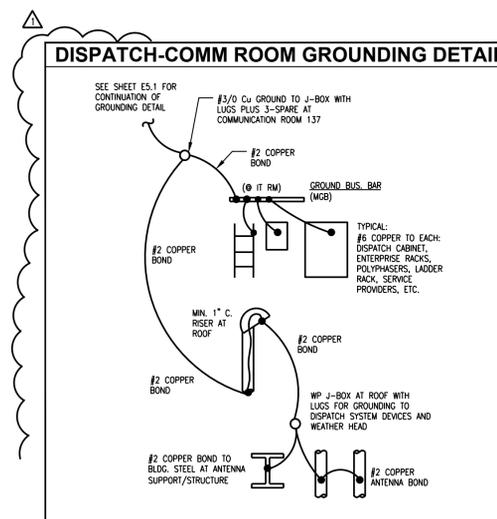
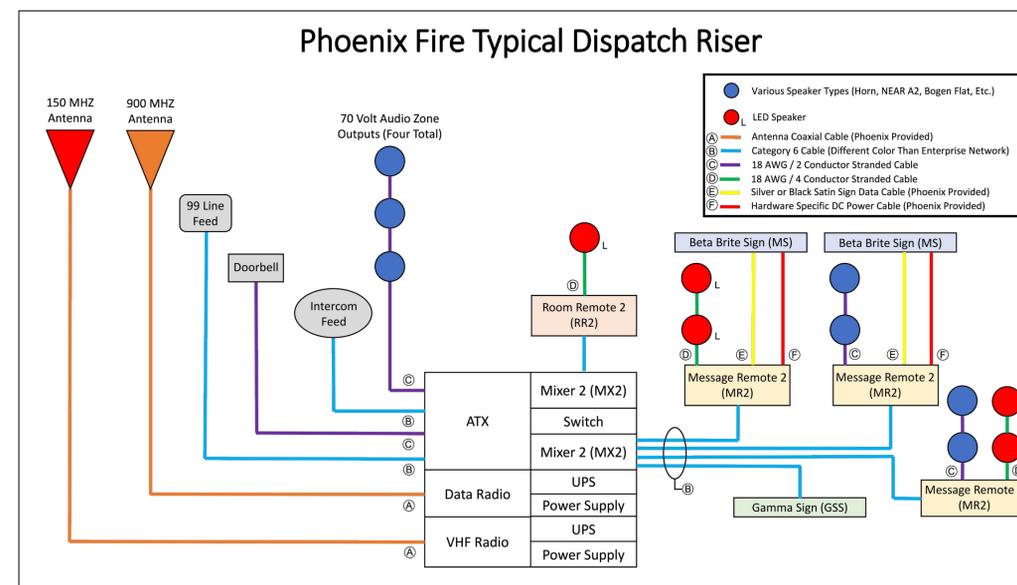
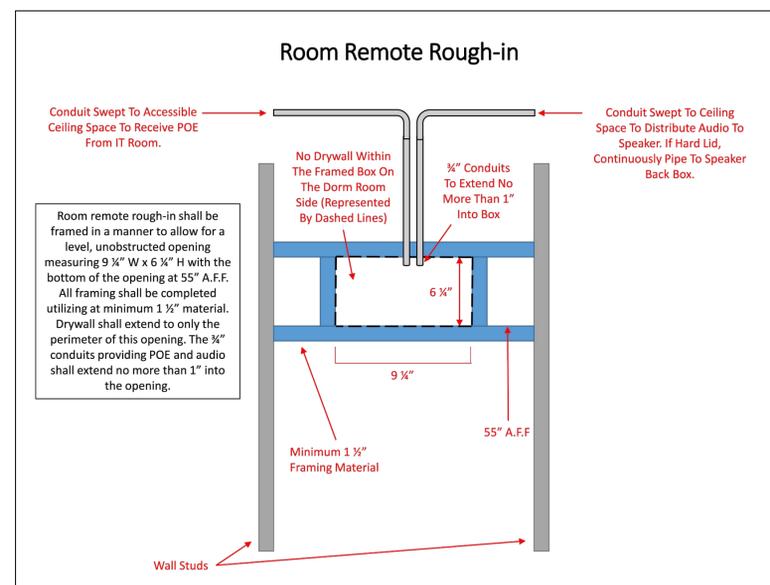
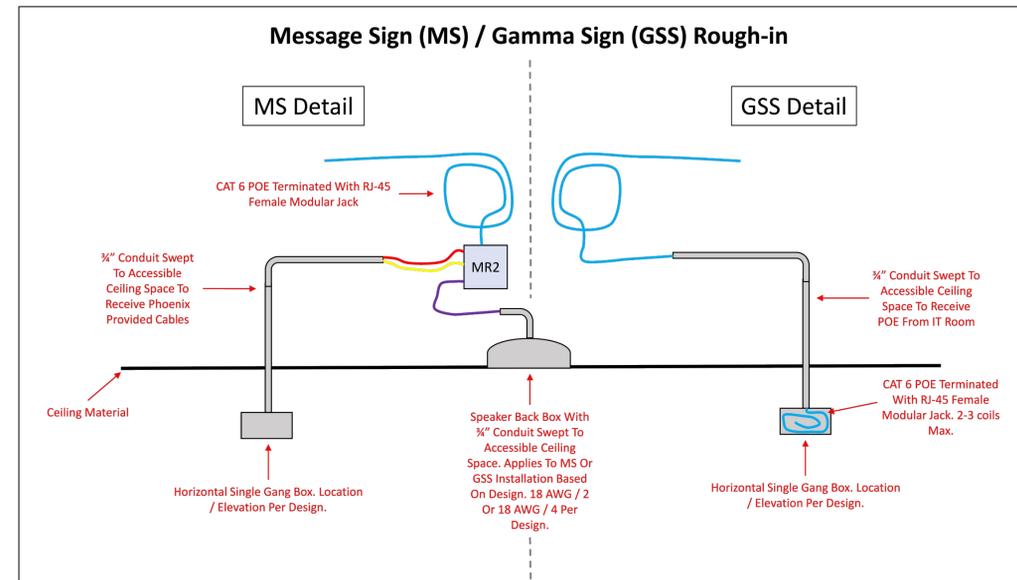
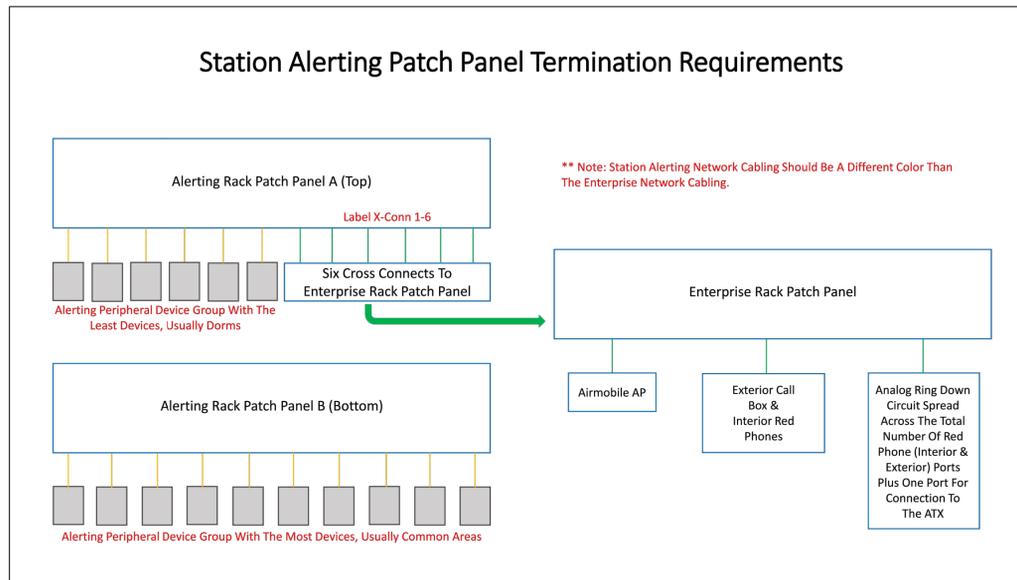
DISPATCH SYSTEM PLAN

**E4.1**

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### ANTENNA / MAIN GND BUSS NOTES

**ROOF MOUNTED ANTENNA MAST GROUNDING**

- BONDING TO THE GROUNDING ELECTRODE SYSTEM SHALL USE AT LEAST TWO DOWN CONDUCTORS
- DOWN-CONDUCTORS SHALL BE ROUTED TO THE GROUNDING ELECTRODE SYSTEM FROM OPPOSITE SIDES OF THE ROOF. DOWN-CONDUCTORS SHALL BE PHYSICALLY SEPARATED FROM ONE ANOTHER AS MUCH AS PRACTICAL
- GROUNDING DOWN-CONDUCTORS SHALL BE SIZED AS FOLLOWS:
- THE CONDUCTOR SHALL BE A 2 AWG OR COARSER, BARE, COPPER.
- GROUNDING DOWN-CONDUCTORS SHALL BE PROTECTED FROM PHYSICAL DAMAGE
- GROUNDING DOWN-CONDUCTORS SHALL NOT BE REQUIRED TO BE INSULATED. INSULATED CONDUCTORS ARE RECOMMENDED WHEN THE GROUNDING CONDUCTOR MAY COME INTO
- INCIDENTAL CONTACT WITH OTHER METALLIC OBJECTS.
- GROUNDING DOWN-CONDUCTOR SHALL BE RUN IN AS STRAIGHT A LINE AS IS PRACTICAL.
- GROUNDING DOWN-CONDUCTORS SHALL HAVE A MINIMUM BEND RADIUS OF 8 IN. AND THE INCLUDED ANGLE SHALL NOT EXCEED 90 DEGREES.
- GROUNDING DOWN-CONDUCTORS SHALL BE SECURELY FASTENED AT INTERVALS NOT EXCEEDING 3 FT.

**COMMUNICATIONS ROOM BUSS BAR**

- THE MGB GROUNDING CONDUCTOR SHALL BE #2 AWG MINIMUM, AND SHALL NOT BE SMALLER THAN THE LARGEST GROUND BUS CONDUCTOR OR EQUIPMENT GROUNDING ELECTRODE CONDUCTOR CONNECTED TO THE MGB.
- THE MGB GROUNDING CONDUCTOR SHALL BE SECURED TO THE MGB BY EXOTHERMIC WELDING, LISTED COMPRESSION TWO-HOLE LUG, OR IRREVERSIBLE COMPRESSION-TYPE CONNECTION DEVICE.
- THE MGB GROUNDING CONDUCTOR SHALL BE BONDED TO THE EXTERNAL GROUNDING ELECTRODE SYSTEM WITH AN EXOTHERMIC WELD OR A LISTED IRREVERSIBLE COMPRESSION DEVICE.
- WHERE EXPOSED TO PHYSICAL DAMAGE, THE MGB GROUNDING CONDUCTOR SHALL BE PROTECTED AND THE CONDUCTOR OR ITS ENCLOSURE SHALL BE SECURELY FASTENED TO THE SURFACE ON WHICH IT IS CARRIED.
- THE MGB GROUNDING CONDUCTOR SHOULD BE FREE OF ANY SPLICES.
- THE MGB GROUNDING CONDUCTOR SHALL BE RUN TO THE GROUNDING ELECTRODE SYSTEM IN A DIRECT MANNER WITH NO SHARP BENDS OR NARROW LOOPS. THE GROUNDING CONDUCTOR BEND ANGLES (INCLUDED ANGLE) SHALL NOT BE LESS THAN 90 DEGREES NOR HAVE A BENDING RADIUS OF LESS THAN 8 IN.
- WHEN ROUTING THE MGB GROUNDING CONDUCTOR THROUGH A PERIMETER WALL TO THE EXTERNAL GROUNDING ELECTRODE SYSTEM, THE GROUNDING CONDUCTOR SHOULD BE ROUTED THROUGH THE WALL IN A PVC OR FLEXIBLE NON-METALLIC CONDUIT SLEEVE AT A 45 DEGREE ANGLE TOWARDS THE GROUNDING ELECTRODE SYSTEM.

REFERENCES: MOTOROLA R56, (2005 GROUND), SECTIONS 4.8 AND 5.1.3 PER REQUIREMENTS OF CITY OF PHOENIX FIRE DEPARTMENT TECHNICAL SERVICES.

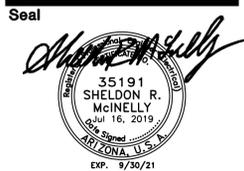
Rev	Date	By	Description
A	7/17/19		CITY COMMENTS

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**Fire Station No. 705**  
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DISPATCH SYSTEM DETAILS

**E4.2**

**AKRIBIS**  
ENGINEERING, L.L.C.  
3231 SOUTH COUNTRY CLUB WAY, STE. 102, TEMPE, ARIZONA, 85282  
P: (602) 393-0201 F: (602) 393-0202  
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Rev	Date	By	Description
1	7/17/19		CITY COMMENTS

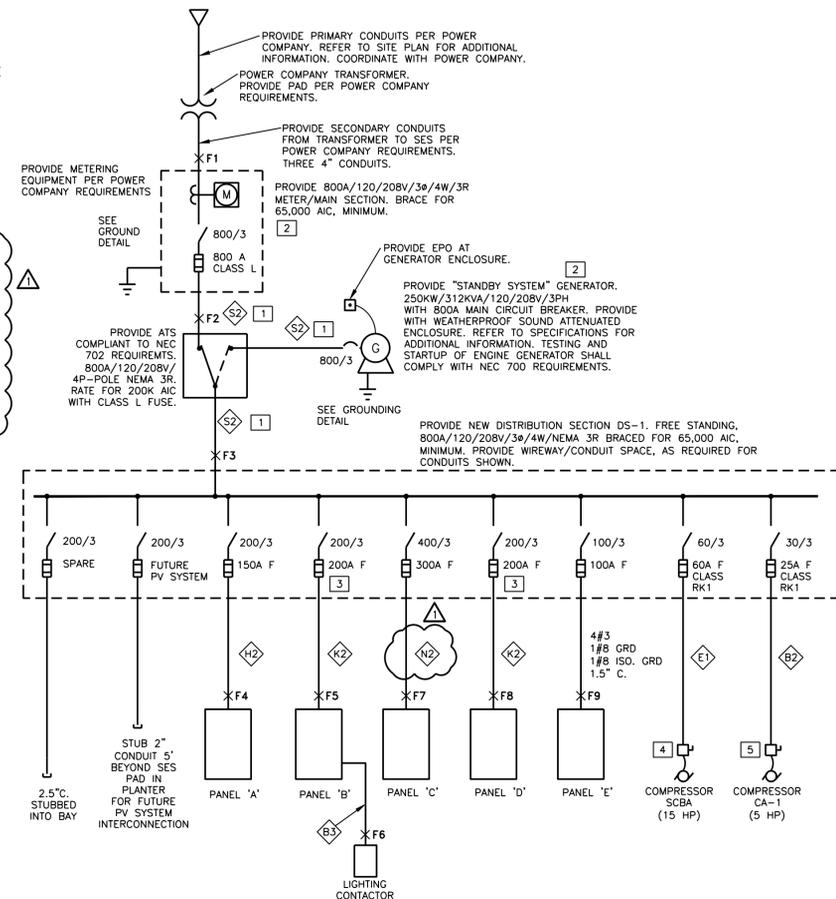
FEEDER SCHEDULE		
NOTE: NOT ALL MAY APPLY TO THIS SHEET.		
ID	MAX. AMP	FEEDER SIZE
A1	20A	2#12 & 1#12GRD, 1/2" C
A2	20A	3#12 & 1#12GRD, 1/2" C
A3	20A	4#12 & 1#12GRD, 1/2" C
B1	30A	2#10 & 1#10GRD, 1/2" C
B2	30A	3#10 & 1#10GRD, 1/2" C
B3	30A	4#10 & 1#10GRD, 1/2" C
C1	40A	2#8 & 1#10GRD, 3/4" C
C2	40A	3#8 & 1#10GRD, 3/4" C
C3	40A	4#8 & 1#10GRD, 3/4" C
D1	60A	2#6 & 1#10GRD, 3/4" C
D2	60A	4#6 & 1#10GRD, 1" C
E1	80A	3#4 & 1#8GRD, 1 1/4" C
E2	80A	4#4 & 1#8GRD, 1 1/4" C
F1	100A	3#3 & 1#8GRD, 1 1/4" C
F2	100A	4#3 & 1#8GRD, 1 1/4" C
FT	100A	4#3 & 1#8GRD, 1 1/4" C (30KVA)
G1	125A	3#1 & 1#6GRD, 1 1/2" C
G2	125A	4#1 & 1#6GRD, 1 1/2" C
H1	150A	3#1/0 & 1#6GRD, 1 1/2" C
H2	150A	4#1/0 & 1#6GRD, 1 1/2" C
HT	150A	4#1/0 & 1#6GRD, 1 1/2" C (45KVA)
J1	175A	3#2/0 & 1#6GRD, 2" C
J2	175A	4#2/0 & 1#6GRD, 2" C
K1	200A	3#3/0 & 1#6GRD, 2" C
K2	200A	4#3/0 & 1#6GRD, 2" C
KT	200A	4#3/0 & 1#2GRD, 2" C (75KVA)
L1	225A	3#4/0 & 1#4GRD, 2" C
L2	225A	4#4/0 & 1#4GRD, 2 1/2" C
M1	250A	3-250MCM & 1#4GRD, 2 1/2" C
M2	250A	4-250MCM & 1#4GRD, 2 1/2" C
N1	300A	3-350MCM & 1#4GRD, 3" C
N2	300A	4-350MCM & 1#4GRD, 3" C
P1	400A	3-500MCM & 1#3GRD, 3" C
P2	400A	4-500MCM & 1#3GRD, 4" C
PT	400A	4-500MCM & 1#1/0GRD, 4" C (112.5KVA)
R1	600A	TWO SETS OF 3-350MCM & 1#1GRD, 3" C
R2	600A	TWO SETS OF 4-350MCM & 1#1GRD, 3" C
S1	800A	TWO SETS OF 3-500MCM & 1#1/0GRD, 3" C
S2	800A	TWO SETS OF 4-500MCM & 1#1/0GRD, 4" C

**GENERAL NOTES:**

- REFER TO FAULT CURRENT CALCULATION FOR SERIES RATING.
- MANUFACTURER SHALL PROVIDE A SERIES RATED SYSTEM WHERE INDICATED. PROVIDE ALL SERIES RATING LABELS AND DOCUMENTATION PER NEC 110-22 AND 240.86(B).
- NO DESIGN CHANGES MAY BE MADE TO THE SYSTEM WITHOUT PRIOR APPROVAL OF THE DESIGN ENGINEER & THE ELECTRICAL INSPECTOR.
- PROVIDE 75" TERMINATIONS ON EQUIPMENT AND GEAR.
- ALL CONDUCTORS, BUSSING AND TERMINATION LUGS SHALL BE COPPER.
- PROVIDE ALL ARC-FLASH LABELING AS REQUIRED PER NEC 110.16.
- CONTRACTOR SHALL SUBMIT S.E.S. SHOP DRAWINGS TO APS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR ALL UNDERGROUND EXTERIOR CONDUIT, IN SLABS, BELOW SLABS ON GRADE, AND IN CONCRETE OR MASONRY WALLS. ALL BENDS OVER 30 DEGREES SHALL BE MADE WITH WRAPPED INTERMEDIATE METAL CONDUIT. USE LONG SWEEP FITTINGS FOR ALL 90 DEGREE BENDS. ALL CONDUIT, EXCEPT THAT USED FOR COMMUNICATIONS, SHALL BE PROVIDED WITH A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
- ALL BELOW GRADE CONDUIT SHALL BE INSTALLED A MINIMUM OF 24 INCHES BELOW FINISHED GRADE. BELOW GRADE CONDUIT SHALL BE 3/4 INCH DIAMETER, MINIMUM.
- ALL WIRING SHALL BE IN CONDUIT. RIGID OR INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR ALL CONDUIT LARGER THAN 2 INCH. WHERE SUBJECT TO MOISTURE OR WHERE SUBJECT TO PHYSICAL DAMAGE, ELECTRICAL METALLIC TUBING (EMT) MAY BE USED FOR INTERIOR, PROTECTED CONDUIT, 2 INCHES IN SIZE AND SMALLER.

**KEYED NOTES:**

- PROVIDE RIGID STEEL CONDUIT.
- PROVIDE SIGN INDICATING TYPE AND LOCATION OF ON-SITE EMERGENCY POWER SOURCES.
- PROVIDE FUSE TYPE AS REQUIRED FOR A SERIES RATED SYSTEM.
- PROVIDE 60A/240V/3P/GD MOTOR RATED NON-FUSIBLE DISCONNECT SWITCH. PROVIDE CONNECTION TO EQUIPMENT INDICATED.
- PROVIDE 30A/240V/3P/GD MOTOR-RATED, NON-FUSIBLE DISCONNECT SWITCH. REFER TO HVAC/PLUMBING SCHEDULE ON SHEET E5.2 FOR ADDITIONAL INFORMATION.

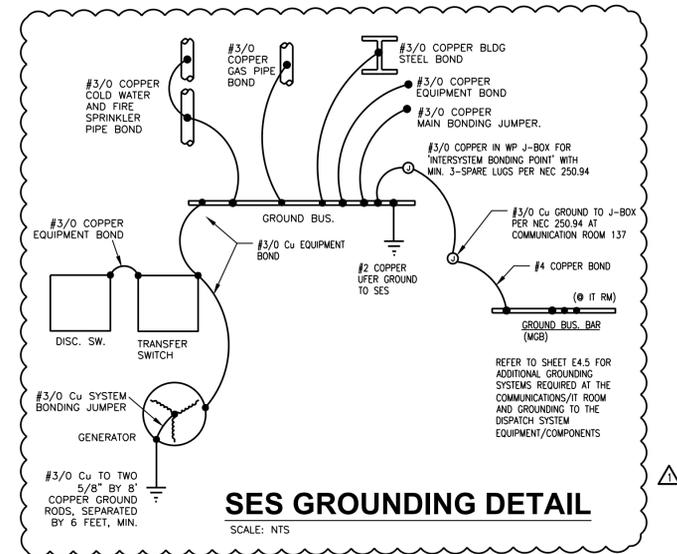


**ONE LINE DIAGRAM**

SCALE: NTS

ELECTRICAL LOAD CALCULATION			
SES			
SES VOLTAGE =	120/208V		
SES AMPERAGE RATING =	800		
<b>LOADS</b>	<b>ΦA</b>	<b>ΦB</b>	<b>ΦC</b>
PANEL A	11.85	11.65	8.43
PANEL B	9.58	10.91	10.26
PANEL C	26.36	26.34	23.44
PANEL D	19.37	17.41	17.00
PANEL E	4.25	4.25	4.38
COMPRESSOR CA-1	2.00	2.00	2.00
COMPRESSOR SCBA @ 125%	6.93	6.93	6.93
<b>TOTAL KVA :</b>	<b>80.34</b>	<b>79.49</b>	<b>72.44</b>
<b>TOTAL AMPS:</b>	<b>669</b>	<b>662</b>	<b>604</b>
SES IS RATED FOR 800 AMPS AT 120/208V			

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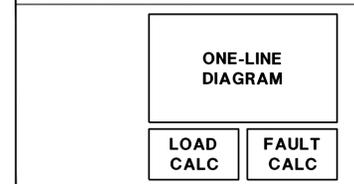
**SES GROUNDING DETAIL**

SCALE: NTS

FAULT CURRENT CALCULATION - SES									
© 2010-2019 AKRIBIS Engineering, L.L.C. 281									
Fault	F1	F2	F3	F4	F5	F6	F7	F8	F9
Location	SES	ATS	DS-1	PANEL A	PANEL B	CON-TACTOR	PANEL C	PANEL D	PANEL E
AFC (from source)	53011	53011	53011	53011	53011	53011	53011	53011	53011
Conductor size	500 MCM	500 MCM	#1/0	#3/0	#10	350 MCM	#3/0	#3	#3
Conductor type	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu
Length	7	110	110	110	10	105	160	105	
# of Sets	2	2	1	1	1	1	1	1	
Type of Conduit	STEEL	STEEL	PVC	PVC	STEEL	PVC	PVC	PVC	
C value	22185	22185	9317	13923	981	22736	13923	4802	
Voltage primary	208	208	208	208	208	208	208	208	
Voltage secondary (xfmr)									
xfmr impedance									
xfmr kva									
F Factor	0.10	0.10	5.21	3.40	4.50	2.04	5.07	9.65	
Multiplier	0.91	0.91	0.16	0.22	0.18	0.33	0.16	0.09	
Calculated Fault Current	53011	48214	8534	11813	9630	17446	8729	4977	
Rated (Series/Fully)		Fully Rated @ 65K	Fully Rated @ 10K	Series @ 65/10K	Series @ 10K	Fully Rated @ 22K	Fully Rated @ 10K	Fully Rated @ 10K	

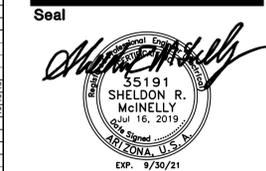
NOTE: CONDUCTOR LENGTHS SHOWN IN THIS CALCULATION ARE SHORTEST DISTANCE DIRECT ROUTE AND SHALL NOT BE USED FOR BIDDING PURPOSES.

**SHEET LEGEND**



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**E5.1**



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PANEL D		AMPACITY: 200		MAINS: MLO		KAIC: 10		RATING: Fully @ 10K								
		VOLTAGE: 120/208V		NEMA: 1		MOUNTING: SURF		PANEL CIRCUITS: 54								
LOAD	NO.	M	C	N	R	L	C/B	PHASE	C/B	L	R	N	C	M	NO.	LOAD
APP. BAY REC	1						20/1	1.72							2	[A] EC-1 & EC-2
APP. BAY REC	3						20/1	1.72							4	2 @ 1.5 HP
APP. BAY REC	5						20/1								6	
APP. BAY REC	7						20/1	3.26							8	[A] VEF-1
APP. BAY REC	9						20/1	3.26							10	7.5 HP
APP. BAY REC	11						20/1								12	
SPARE	13						30/1	1.20							14	EXTRACTOR RM 146
SPARE	15						30/1	1.20							16	
SPARE	17						30/1	1.20							18	
CORD REEL	19						30/1	2.40			0.30				20	LIGHTING / EF10
CORD REEL	21						30/1	2.20			0.10				22	DB-1 & CP-1
CORD REEL	23						20/1	2.00							24	MAIN RECEIPT
REC. RM 142	25						20/1	1.84							26	CHD OPERATORS
REC. RM 143	27						20/1	2.02							28	
WIREMOLD RM 143	29						20/1	2.86							30	
REC. RM 143-145	31						20/1	2.38							32	CHD OPERATOR
WASHER RM 146	33						30/1	2.86							34	CHD OPERATOR
DRYER RM 146	35						30/1	4.16							36	CHD OPERATOR
	37						2	4.00							38	GENSET JACKET MTR.
GENSET BATT. CHGR	39						20/1	2.70							40	
GENSET REC & MAINT. REC	41						20/1	0.48							42	[B] FIRE BELL & DUCT DET.
WIREMOLD RM 140	43						20/1	1.70							44	[B] FACP
SPACE	45							0.50							46	IRRIGATION CONTROLLER
SPACE	47							0.50							48	EC-1/2 PUMPS
BIG ASS FAN	49	0.50					20	0.50							50	SPARE
APP. BAY	51	0.50						0.50							52	SPARE
	53	0.50						0.50							54	SPARE

**PER NEC 210.4(B)**  
PROVIDE COMMON TRIP HANDLES FOR ALL MULTI-CIRCUIT CONDUIT RUNS.

NOTES:  
[A] PROVIDE HACR C/B FOR HVAC LOAD.  
[B] PROVIDE RED LOCK ON DEVICE.

LIGHTING LOAD @ 125% = 0.38 0.00 0.00 KVA  
RECEPTACLES (TST 10KVA @ 100% + REMAINDER @ 50%) = 4.39 2.80 3.90 KVA  
NON-CONTINUOUS LOAD @ 100% = 6.38 6.38 4.98 KVA  
CONTINUOUS LOAD @ 125% = 0.00 0.00 0.00 KVA  
MOTORS + 25% OF LARGEST MOTOR = 8.23 8.23 8.13 KVA  
TOTAL PANEL D DEMAND = 19.37 17.41 17.00 KVA  
TOTAL DEMAND AMPS = 161.41 145.08 141.68 AMPS

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PANEL E		AMPACITY: 100		MAINS: MLO		KAIC: 10		RATING: Fully @ 10K								
		VOLTAGE: 120/208V		NEMA: 1		MOUNTING: FLUSH		PANEL CIRCUITS: 24								
LOAD	NO.	M	C	N	R	L	C/B	PHASE	C/B	L	R	N	C	M	NO.	LOAD
IT DATA ROOM REC	1						20/1	2.00							2	IT DATA ROOM REC.
IT DATA ROOM REC	3						20/1	2.00							4	IT DATA ROOM REC.
IT DATA ROOM REC	5						20/1								6	IT DATA ROOM REC.
IT DATA ROOM REC	7						20/1	1.50							8	DF RM 107
IT DATA ROOM REC	9						20/1	1.50							10	DF RM 107
IT DATA ROOM REC	11						20/1	1.50							12	DEPATCH AUX CAB. RM 144
SPACE	13							0.00							14	SPARE
SPACE	15							0.00							16	SPARE
SPACE	17							0.00							18	SPARE
SPACE	19							0.00							20	SPACE
SPACE	21							0.00							22	SPACE
SPACE	23							0.00							24	SPACE

**PER NEC 210.4(B)**  
PROVIDE COMMON TRIP HANDLES FOR ALL MULTI-CIRCUIT CONDUIT RUNS.

NOTES:  
1. PROVIDE 100% ISOLATED GROUND BUS.

LIGHTING LOAD @ 125% = 0.00 0.00 0.00 KVA  
RECEPTACLES (TST 10KVA @ 100% + REMAINDER @ 50%) = 0.50 0.50 0.00 KVA  
NON-CONTINUOUS LOAD @ 100% = 0.00 0.00 0.00 KVA  
CONTINUOUS LOAD @ 125% = 3.75 3.75 4.38 KVA  
MOTORS + 25% OF LARGEST MOTOR = 0.00 0.00 0.00 KVA  
TOTAL PANEL E DEMAND = 4.25 4.25 4.38 KVA  
TOTAL DEMAND AMPS = 35.42 35.42 36.46 AMPS

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HVAC/PLUMBING EQUIPMENT SCHEDULE														
UNIT ID	TONS	HP	KW	FLA	VOLTAGE	PHASE	DISC.	FUSE	SOURCE	FEEDER	NOTES			
HP-1	2	-	-	16.4	208	1	30A	25A RK1	C	2#10, 1#10 GRD, 3/4" C.	1, 2			
HP-2	3	-	-	16.6	208	3	30A	25A RK1	C	3#10, 1#10 GRD, 3/4" C.	1, 2			
HP-3	4	-	-	19.7	208	3	30A	25A RK1	C	3#10, 1#10 GRD, 3/4" C.	1, 2			
HP-4	4	-	-	19.7	208	3	30A	25A RK1	C	3#10, 1#10 GRD, 3/4" C.	1, 2			
HP-5	4	-	-	19.7	208	3	30A	25A RK1	C	3#10, 1#10 GRD, 3/4" C.	1, 2			
HP-6	4	-	-	19.7	208	3	30A	25A RK1	C	3#10, 1#10 GRD, 3/4" C.	1, 2			
HP-7	6	-	-	28.0	208	3	60A	35A RK1	C	3#8, 1#12 GRD, 3/4" C.	1, 2			
DCU-1	-	-	-	12.8	208	1	30/2	20A RK1	C	2#10, 1#10 GRD, 3/4" C.	1, 2			
DU-1	-	-	-	0.5	208	1	30/3	NF	DCU-1	3#12, 1#12 GRD, 3/4" C.	3			
VEF-1	-	7.5	-	24.2	208	3	60	35A RK1	D	3#6, 1#10 GRD, 3/4" C.	4, 8			
VEF-2	-	7.5	-	24.2	208	3	60	35A RK1	C	3#6, 1#10 GRD, 3/4" C.	4, 8			
EF-1	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-2	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-3	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-4	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-5	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-6	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-7	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
EF-8	-	FRACT.	-	1.8	120	1	TS	N/A	B	PER PLAN	-			
EF-9	-	1/6	-	4.4	120	1	30	5A RK1	C	2#12, 1#12 GRD, 1/2" C.	7			
EF-10	-	FRACT.	-	0.7	120	1	TS	N/A	B	PER PLAN	-			
KEF-1	-	1/3	-	7.2	120	1	30	9A RK1	C	2#12, 1#12 GRD, 1/2" C.	-			
EC-1	-	1.5	-	6.6	208	3	30	10A RK1	D	3#12, 1#12 GRD, 3/4" C.	5, 8			
EC-2	-	1.5	-	6.6	208	3	30	10A RK1	D	FED WITH MAU-1	5, 8			
EC-3	-	1.5	-	6.6	208	3	30	10A RK1	C	3#12, 1#12 GRD, 3/4" C.	5, 8			
EC-4	-	1.5	-	6.6	208	3	30	10A RK1	C	3#12, 1#12 GRD, 3/4" C.	5, 8			
CA-1	-	5	-	16.7	208	3	30	20A RK1	DS-1	3#10, 1#10 GRD, 3/4" C.	-			
CP-1	-	1/12	-	-	120	1	TS	-	D	2#12, 1#12 GRD, 3/4" C.	6			
DB-1	-	-	-	0.1	-	1	TS	-	D	FED WITH CP-1	6			

NOTES:  
1. PROVIDE GD, WP DISCONNECT SWITCH.  
2. FUSE PER MANUFACTURER NAME PLATE RATING.  
3. PROVIDE 3 POLE, NF DISCONNECT SWITCH PER MANUFACTURER'S REQUIREMENTS.  
4. PROVIDE NEMA 3R, SIZE 1 COMBINATION STARTER.  
5. PROVIDE NEMA 3R, SIZE 00 COMBINATION STARTER.  
6. PROVIDE MOTOR RATED SWITCH.  
7. FAN TO RUN CONTINUOUSLY 24/7.  
8. PROVIDE COMBINATION DISCONNECT SWITCH / STARTER WITH 120V COIL AND INTERLOCK WITH CLIMATEC CONTROLS. REFER TO MECHANICAL PLANS FOR SEQUENCE OF OPERATION WITH DOOR SWITCHES.

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PANEL A		AMPACITY: 150		MAINS: MLO		KAIC: 10		RATING: Fully @ 10K								
		VOLTAGE: 120/208V		NEMA: 1		MOUNTING: SURF		PANEL CIRCUITS: 42								
LOAD	NO.	M	C	N	R	L	C/B	PHASE	C/B	L	R	N	C	M	NO.	LOAD
LAUNDRY REC RM 128	1						20/1	0.78							2	FITNESS TV REC RM 130
WASHER RM 128	3						20/1	1.68							4	FITNESS REC RM 130
LAUNDRY REC RM 128	5						20/1								6	FITNESS REC RM 130
DRYER RM 128	7						20/1	2.86							8	FITNESS REC RM 130
	9						2	2.68							10	FITNESS REC RM 130
[A] DORM REC. 122, 123	11						20/1	1.68							12	FITNESS EDF RM 130
[A] DORM REC. 120, 121	13						20/1	1.88							14	KITCHEN REC RM 132
[A] DORM REC. 118, 119	15						20/1	1.88							16	KITCHEN REC RM 132
[A] DORM REC. 116, 117	17						20/1	2.28							18	KITCHEN MW REC RM 132
REC. 105	19						20/1	2.28							20	KITCHEN MW REC RM 132
REC. 102, 103, 104	21						20/1	1.58							22	RANGE & HOOD 132
REC. 101 & EDF	23						20/1	0.96							24	KITCHEN REC RM 132
REC. 109	25						20/1	1.74							26	KITCHEN REF REC RM 132
REC. 109	27						20/1	1.92							28	KITCHEN REF REC RM 132
SPARE	29						30/1	1.20							30	KITCHEN REF REC RM 132
COMMUNITY REC RM 106	31						20/1	0.90							32	KITCHEN REC
COMMUNITY REC RM 106	33						20/1	1.74							34	KITCHEN REC RM 132
COMMUNITY REC RM 106	35						20/1	1.34							36	KITCHEN REC RM 132
POLIC REC. RM 129	37						20/1	1.74							38	KITCHEN DISPDRW RM 132
POLIC REC. RM 129	39						20/1	0.54							40	SPARE
POLIC REC. RM 129	41						20/1	0.98							42	SPARE

**PER NEC 210.4(B)**  
PROVIDE COMMON TRIP HANDLES FOR ALL MULTI-CIRCUIT CONDUIT RUNS.

NOTES:  
[A] PROVIDE COMBINATION AFCI CIRCUIT BREAKER.

LIGHTING LOAD @ 125% = 0.00 0.00 0.00 KVA  
RECEPTACLES (TST 10KVA @ 100% + REMAINDER @ 50%) = 4.20 3.87 3.23 KVA  
NON-CONTINUOUS LOAD @ 100% = 6.90 7.40 5.20 KVA  
CONTINUOUS LOAD @ 125% = 0.75 0.00 0.00 KVA  
MOTORS + 25% OF LARGEST MOTOR = 0.00 0.38 0.00 KVA  
TOTAL PANEL A DEMAND = 11.85 11.65 8.43 KVA  
TOTAL DEMAND AMPS = 98.73 97.08 70.24 AMPS

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PANEL B		AMPACITY: 200		MAINS: MLO		KAIC: 10		RATING: Series @ 65/10K								
		VOLTAGE: 120/208V		NEMA: 1		MOUNTING: FLUSH		PANEL CIRCUITS: 42								
LOAD	NO.	M	C	N	R	L	C/B	PHASE	C/B	L	R	N	C	M	NO.	LOAD
[C] DINING REC RM 134	1						20/1	1.86							2	REC. RM 112
[C] DINING REC RM 134	3						20/1	0.36								

