GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST CALIFORNIA CODE OF REGULATIONS (CCR), NATIONAL ELECTRICAL CODE EDITION AND ALL APPLICABLE LOCAL CODES AND REGULATIONS.
2. ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS IN COMPLIANCE TO UL REQUIREMENTS TO ACCOMMODATE CONDUCTORS SHOWN.
3. WHERE WIRE SIZES ARE INDICATED ON PLANS, FOR INDIVIDUAL CIRCUITS, THE WIRE SIZE INDICATED SHALL APPLY TO THE COMPLETE CIRCUIT, UNLESS OTHERWISE NOTED.
4. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF MECHANICAL, PLUMBING AND OTHER EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO ANY WORK.
5. CONTRACTOR SHALL EXTEND WIRING FROM ALL JUNCTION BOXES, SWITCHES, ETC. AND MAKE FINAL CONNECTION AS REQUIRED TO ALL BUILDING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.
6. LOCATION OF LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS. AT OR NEAR DOORS, INSTALL SWITCHES ON SIDE OPPOSITE TO DOOR HINGE. VERIFY FINAL HINGE LOCATION IN FIELD PRIOR TO ANY WORK.
7. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OR OTHER TRADES RELATING TO WORK TO VERIFY SPACE IN WHICH WORK WILL BE INSTALLED. MAINTAIN HEADROOM AND MINIMUM CODE REQUIRED WORKING CLEARANCES AT ALL TIMES.
8. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL WALL OUTLET BOXES FOR SWITCHES, BELL/STROBES, FIRE ALARM PULL STATIONS. RECEPTACLES ETC. WITH CABINETS, FURNITURE, EQUIPMENT ETC., TO AVOID CONFLICT.
9. WHERE ELECTRIC MOTORS OR HEATERS ARE INSTALLED IN HUNG CEILINGS, PROVIDE DISCONNECT SWITCH IN HUNG CEILING WITHIN REACH FROM ACCESS POINT.
10. FURNISH APPROVED EXPANSION FITTINGS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.
11. FURNISH PULL STRING IN EACH RACEWAY RUN OVER 10' IN LENGTH, IN WHICH PERMANENT WIRING IS NOT INSTALLED.
12. NOT MORE THAN THREE LIGHTING OR CONVIENENCE OUTLET CIRCUITS ARE PERMITTED IN ONE CONDUIT, PROVIDE SEPARATE CONDUIT FOR EACH HOMERUN INDICATED ON THE DRAWING, UNLESS INDICATED OTHERWISE.
13. PROVIDE PULL BOXES WHEREVER NECESSARY TO FACILITATE PULLING OF CONDUCTORS. COORDINATE LOCATIONS OF BOXES WITH OTHER TRADES TO AVOID CONFLICT. PULL BOXES SHALL BE ACCESSIBLE. THE SIZE OF PULL BOX SHALL COMPLY WITH N.E.C. REQUIREMENTS.
14. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILING SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURES.
15. SEE MECHANICAL AND PLUMBING DRAWINGS AND SPECIFICATION FOR ADDITIONAL CONNECTION REQUIREMENTS TO CONTROL PANELS, CONTROL TRANSFORMERS, POWER FOR CONTROL SYSTEM EP AND PE SWITCHES, TIME CLOCKS, VALVES, STATS, RELAYS, DUCT SMOKE DETECTOR LOCATIONS, ETC. INDICATED ON CONTROL WIRING DIAGRAMS. ELECTRICAL CONTRACTOR SHALL VERIFY FINAL CONTROL WIRING REQUIREMENTS WITH MECHANICAL AND PLUMBING CONTRACTORS PRIOR TO ANY WORK AND PROVIDE ALL NECESSARY DEVICES AND CONNECTIONS AS REQUIRED.
16. ALL EXTERIOR ELECTRICAL DEVICES AND EQUIPMENT INCLUDING THOSE THAT ARE EXPOSED TO OUTSIDE ENVIRONMENT (UP TO 16') SHALL BE WEATHERPROOF TYPE, NEMA 3R.
17. NO CONDUIT RUNS SHALL BE ALLOWED IN CONCRETE SLABS. ALL CONDUITS WILL BE PLACED ABOVE ACCESSIBLE CEILING SPACES UNLESS SPECIFICALLY INDICATED TO BE UNDERGROUND.
18. LIGHTING, POWER, TELEPHONE AND COMMUNICATIONS OUTLETS SHALL NOT BE PLACED BACK-TO-BACK.
19. WHERE MORE THAN ONE LIGHT SWITCH OCCURS AT SAME LOCATION, SWITCHES SHALL BE MOUNTED IN A MULTIPLE GANG BOX UNDER A SINGLE COVER PLATE. PLATES WITH MORE THAN (3) LIGHT SWITCHES SHALL BE LABELED TO INDICATE THE LIGHT FIXTURES CONTROLLED.
20. DISCONNECT SWITCHES SHALL BE MOUNTED ON INDIVIDUAL SUPPORTS, OR OTHERWISE DIRECTLY ON EQUIPMENT, PROVIDED NO MODIFICATION TO EQUIPMENT IS NECESSARY.
21. ALL ELECTRICAL POWER LIGHTING, TELEPHONE OR SIGNAL WIRING IN FIRE RATED WALL IS TO BE INSTALLED IN A METALLIC CONDUIT SYSTEM.
22. ALL ELECTRIC MATERIAL SHALL BE LISTED BY "UL" FOR THE TYPE OF APPLICATION AND "UL" LABEL SHALL APPEAR ON ALL ELECTRICAL EQUIPMENT.
23. CONTACT UTILITY COMPANIES FOR SCOPE OF WORK PRIOR TO SUBMITTING BID; INCLUDE UTILITY CHARGES IF ANY.
24. ALL DISTRIBUTION AND CONTROL EQUIPMENT (SUCH AS CB's, SWITCHES, CONTACTORS, ETC.), TERMINATIONS SHALL BE FULLY RATED PER UL AS FOLLOWS:

    a. 125A OR LESS : 60°C OR MORE;
    b. MORE THAN 125A : 75°C OR MORE.
25. CONDUCTORS SHALL HAVE UNDERWRITER'S LABORATORIES, INC.(UL) LISTED, 600 VOLT INSULATION OF TYPE SPECIFIED BELOW OR ELSEWHERE IN THE SPECIFICATIONS. CONDUCTORS SHALL BE COPPER.

    1. BRANCH CIRCUITS - LIGHTING AND POWER.

    a. #10 AWG AND SMALLER, SOLID WIRE TYPE THW OR THHN/THWN, THHW(THHN FOR DRY LOCATION ONLY).
    b. #8 AWG TO #2 AWG, STRANDED TYPE THW OR THHN/THHW.
    c. #1 AWG AND LARGER, STRANDED TYPE XHHW.

    2. FEEDERS : TYPE THW OR THHN/THWN, OR XHHW.
26. PROVIDE GREEN INSULATED GROUNDING CONDUCTOR IN EACH RACEWAY INCLUDING CONDUITS, PLUG STRIPS, WIREMOLD. SIZE OF GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 250.
27. WIRING METHOD SHALL BE EMT ABOVE GROUND AND MOUNTED IN CONCEALED SPACES AND SCHEDULE-40 PVC FOR UNDERGROUND INSTALLATION. USE RIGID WHEN ENCASED IN CONCRETE OR SUSCEPTIBLE TO DAMAGE.
28. USE 10AWG CONDUCTORS FOR 20 AMPERE, 120V BRANCH CIRCUITS LONGER THAN 75 FEET.
    USE 10AWG CONDUCTORS FOR 20 AMPERE, 277V BRANCH CIRCUITS LONGER THAN 200 FEET.

ABBREVIATIONS

A	AMPERE	MULTI	MULTI-METER SECTION
AF	AMPERE FRAME RATING (CIRCUIT BREAKER)	MV	MEDIUM VOLTAGE
AFF	ABOVE FINISHED FLOOR	NC	NORMALLY CLOSED
AFG	ABOVE FINISHED GRADE	NEC	NATIONAL ELECTRICAL CODE
AFU	AMPERE FUSE RATING (FUSE)	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
AIC	AMPERE INTERRUPTING CAPACITY	NEW (N)	NEW, TO BE FURNISHED AND INSTALLED BY CONTRACTOR
AS	AMPERE SWITCH RATING (FUSE)		
AT	AMPERE TRIP RATING (CIRCUIT BREAKER)		
AWG	AMERICAN WIRE GAUGE		
BKBD	BACKBOARD	NF	NON-FUSED
BLDG	BUILDING	NIC	NOT IN CONTRACT
BKR	BREAKER	N/L	NIGHT LIGHT
C	CONDUIT	NO	NUMBER, NORMALLY OPEN
CB	CIRCUIT BREAKER	NTS	NOT TO SCALE
CKT	CIRCUIT	OC	ON CENTER
CFSD	COMBINATION FIRE SMOKE DAMPER	OD	OUTSIDE DIAMETER
CO	CONDUIT ONLY	P	POLE
CONC	CONCRETE	PB	PULL BOX
CT	CURRENT TRANSFORMER	PF	POWER FACTOR
CU	COPPER	PNL	PANEL
℄	CENTERLINE	POC	POINT OF CONNECTION
DISC	DISCONNECT	PP	POWER POLE
DSBN	DISTRIBUTION SECTION	PWR	POWER
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	QUAD	QUADRUPLEX
EA	EACH	QTY	QUANTITY
EC	ELECTRICAL CONTRACTOR	REQD	REQUIRED
EM	EMERGENCY	REQMT	REQUIREMENT
EMT	ELECTRICAL METALLIC TUBING	RGS	RIGID GALVANIZED STEEL
EXIST, (E)	EXISTING	RMC	RIGID METALLIC CONDUIT
EXO	EXTERNAL OPERABLE DISCONNECT	RM	ROOM
F	FUSE	RNC	RIGID NONMETALLIC CONDUIT
FA	FIRE ALARM	SHT	SHEET
FACP	FIRE ALARM CONTROL PANEL	SN	SOLID NEUTRAL
FF	FINISHED FLOOR	SPEC	SPECIFICATIONS
FG	FINISHED GRADE	SPDT	SINGLE POLE, DOUBLE THROW
FLA	FULL LOAD CURRENT	SPST	SINGLE POLE, SINGLE THROW
FLUOR	FLUORESCENT	SW	SWITCH
GEN	GENERATOR	SWBD	SWITCHBOARD
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TC	TIME CLOCK
GFP	GROUND FAULT PROTECTION	TEL	TELEPHONE
GND	GROUND	TERM	TERMINAL
HOA	HAND-OFF-AUTOMATIC	TP	TEMPORARY POLE
HP	HORSE POWER	TYP	TYPICAL
HV	HIGH VOLTAGE	UGPS	UNDERGROUND PULL SECTION
IDF	INTERMEDIATE DISTRIBUTION FRAME	UL	UNDERWRITERS LABORATORY
IG	ISOLATED/INSULATED GROUND	UPS	UNINTERRUPTIBLE POWER SUPPLY
INCAND	INCANDESCENT	UON	UNLESS OTHERWISE NOTED
ISC	SHORT CIRCUIT CURRENT AVAILABLE IN RMS SYMMETRICAL AMPERES	V	VOLT, VOLTAGE
		VA	VOLT-AMPERE
J-BOX	JUNCTION BOX	VFC	VARIABLE FREQUENCY CONTROLLER
KCMIL	THOUSAND CIRCULAR MILS	VFD	VARIABLE FREQUENCY DRIVE
KW	KILOWATT	W	WATT
KV	KILO VOLT	WH	WATT-HOUR
KVA	KILO VOLT-AMPERE	WP	WEATHERPROOF
LDC	LOCAL DISTRIBUTION CABINET	WT	WEATHERTIGHT
LDF	LOCAL DISTRIBUTION FRAME	WW	WIREWAY
LCL	LONG CONTINUOUS LOAD	XP	EXPLOSION PROOF
LTG	LIGHTING	Z	IMPEDANCE
LV	LOW VOLTAGE	4W	FOUR-WIRE
MFR	MANUFACTURER	3W	THREE-WIRE
MAX	MAXIMUM	SS	JUNCTION BOX
MCC	MOTOR CONTROL CENTER		(4 11/16" SQUARED X2 1/8" DEEP)
MIN	MINIMUM	'	DIAMETER, PHASE
MH	MANHOLE / METAL HALIDE	#	NUMBER
M/M	METER AND MAIN SECTION	°C	DEGREE CELSIUS
(E)	EXISTING DEVICE TO REMAIN	(RL)	REMOVE EXISTING DEVICE AND RELOCATE AS SHOWN ON PLAN
(R)	REMOVE EXISTING DEVICE AND ASSOCIATED CONDUIT AND WIRE	(NL)	NEW LOCATION OF RELOCATED DEVICE

LIGHTING LEGEND AND SYMBOLS

SYMBOL	DESCRIPTION
FN 2ab	1'X4' RECESSED LUMINAIRE. FN INDICATES LUMINAIRE TYPE - REFER TO LUMINAIRE SCHEDULE, TYPICAL. SUBSCRIPT 2ab REFERS TO CIRCUIT AND SWITCH LEG 'a' AND 'b'.
FNE	1'X4' RECESSED LED LUMINAIRE WITH 90MIN. EMERGENCY BATTERY BACKUP
	LED HIGH-BAY FIXTURE
	FLUORESCENT STRIP FIXTURE
	FLUORESCENT STRIP FIXTURE WITH "BLACK LIGHT" LAMP
	SURFACE MOUNTED DOUBLE FACE EXIT SIGN (UNIVERSAL ARROWS INDICATED AS NEEDED)
	SURFACE MOUNTED SINGLE FACE EXIT SIGN (UNIVERSAL ARROWS INDICATED AS NEEDED)
Sa,cb	SWITCH, SINGLE POLE 20A. MOUNTED 48" A.F.F. TO TOP OF DEVICE. SUBSCRIPTS INDICATE THE FOLLOWING: M - MOTOR RATED, K - KEY OPERATED 3 - THREE WAY, D - DIMMER SWITCH 4 - FOUR WAY, T - TIMED SWITCH a, b, c, ETC. - DESIGNATES SWITCH-LEGS CONTROLLED AND QUANTITY OF SWITCHES AT EACH LOCATION.
	OCCUPANCY SENSOR, DUAL-TECHNOLOGY, SURFACE CEILING MOUNTED. LEVITON MODEL #OSC20-MOW. PROVIDE WITH POWER PACK(S) AS REQUIRED.
	DUAL TECHNOLOGY OCCUPANCY SENSOR, SURFACE WALL MOUNTED 180° U.O.N. LEVITON MODEL #OSSMT-GD (FOR SINGLE POLE SWITCHING) & LEVITON MODEL #OSSMD-GD FOR (DUAL SWITCHING)
1 AB	LOW-VOLTAGE OVERRIDE SWITCH. NUMBER INDICATES OVERRIDE SWITCH. A,B,C, ETC. DESIGNATES ZONE AS SHOWN ON LIGHTING ZONE SCHEDULE.
S ab	LOW-VOLTAGE SWITCH. MOUNTED 48" A.F.F. TO TOP OF DEVICE. a, b, c, ETC. - DESIGNATES SWITCH-LEGS CONTROLLED AND QUANTITY OF SWITCHES AT EACH LOCATION.

SIGNAL LEGEND AND SYMBOLS

SYMBOL	DESCRIPTION
	DATA OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST IDF/MDF.
W	TELEPHONE OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST COMMUNICATIONS CABINET OR TELEPHONE BACKBOARD. "W" INDICATES +42" A.F.F. UNLESS OTHERWISE NOTED.
	COMBINATION TELEPHONE & DATA OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST IDF/MDF, COMMUNICATIONS CABINET, OR TELEPHONE BACKBOARD.
	COMBINATION TELEPHONE & DATA OUTLET BOX 4S, MOUNTED HEIGHT HORIZONTALLY ABOVE COUNTER TOP PER ARCHITECTURAL PLANS OR APPROVAL STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF NEAREST IDF/MDF, COMMUNICATIONS CABINET, OR TELEPHONE BACKBOARD.
	FLUSH FLOOR MOUNTED COMBINATION TELEPHONE & DATA OUTLET BOX, U.O.N.
TV	TELEVISION OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL WIRE. IF INSTALLED IN AREA WITH EXPOSED STRUCTURE ABOVE OR HARD LID CEILING, PROVIDE 3/4" C.O. BACK TO LOCATION OF CABLE TELEVISION TERMINAL OR COMMUNICATIONS CABINET.

APPLICABLE CODES

1. 2013 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2. 2013 CALIFORNIA BUILDING CODE (CBC),PART 2, TITLE 24 C.C.R. (IBC WITH AMENDMENTS)
3. 2013 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R. (NEC WITH AMENDMENTS)
4. 2013 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R. (UMC WITH AMENDMENTS)
5. 2013 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R. (UPC WITH AMENDMENTS)
6. 2013 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R. (IFC WITH AMENDMENTS)
7. 2013 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
8. 2013 TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
9. 2013 CALIFORNIA ENERGY CODE (PART 6, TITLE 24 C.C.R.)
10. 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC), PART 11, TITLE 24 C.C.R.

NOTE TO CONTRACTOR

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

SHEET INDEX

SHEET NUMBER	SHEET TITLE
E0.0	ELECTRICAL LEGENDS & NOTES
E0.1	LUMINAIRE SCHEDULE
E0.2	SINGLE LINE DIAGRAM
E0.3	PANEL SCHEDULES
E1.0	POWER FLOOR PLAN
E2.0	LIGHTING FLOOR PLAN
E2.1	ENLARGED LIGHTING PLANS
E2.2	EGRESS PHOTOMETRIC PLAN
E3.0	ELECTRICAL ROOF PLAN
E4.0	ELECTRICAL SPECIFICATIONS

POWER LEGEND AND SYMBOLS

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	DOUBLE DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS, GFCI TYPE) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) WITH MOUNTING HEIGHT HORIZONTALLY ABOVE COUNTER TOP PER ARCHITECTURAL PLANS OR APPROVAL.
	DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS, GFCI TYPE) WITH MOUNTING HEIGHT HORIZONTALLY ABOVE COUNTER TOP PER ARCHITECTURAL PLANS OR APPROVAL.
	CA TITLE 24 COMPLIANT DUPLEX RECEPTACLE OUTLET, HALF-CONTROLLED, CONVENIENCE, WITH PERMANENT MARKING. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	CA TITLE 24 COMPLIANT DOUBLE DUPLEX RECEPTACLE OUTLET, HALF-CONTROLLED, CONVENIENCE, WITH PERMANENT MARKING. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
WP	WEATHERPROOF DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	DUPLEX RECEPTACLE OUTLET, SINGLE SPLIT-CIRCUIT SWITCHED. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	SURFACE MOUNTED DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N.
	RECESSED CEILING MOUNTED DUPLEX RECEPTACLE OUTLET, CONVENIENCE. (20 AMPS, 125 VOLTS) U.O.N.
	ABOVE CEILING, CONCEALED, JUNCTION BOX, WITH COVER, PER NATIONAL ELECTRICAL CODE (NEC) TABLE 314.16(A)/(B), 4" SQUARE DEEP, WITH PLASTER RING.
H	RECESSED WALL MOUNTED JUNCTION BOX, WITH COVER, PER NATIONAL ELECTRICAL CODE (NEC) TABLE 314.16(A)/(B), 4" SQUARE DEEP, WITH PLASTER RING.
	DUPLEX RECEPTACLE, FLUSH IN FLOOR, WATERTIGHT JUNCTION BOX (HINGED BRASS COVER: 20 AMP, 120 VOLT, 2-POLE, 3-WIRE) U.O.N.
	DOUBLE DUPLEX RECEPTACLE, FLUSH IN FLOOR, WATERTIGHT JUNCTION BOX (20 AMP, 120 VOLT, 2-POLE, 3-WIRE) U.O.N.
	JUNCTION BOX, FLUSH IN FLOOR, WATERTIGHT (HINGED BRASS COVER: 20 AMP, 120 VOLT, 2-POLE, 3-WIRE) U.O.N.
L5-30R	SPECIALTY OUTLET. VERIFY NEMA CONFIGURATION AS NOTED ON PLANS.
OR	BRANCH PANELBOARD, WALL MOUNTED, SEE PLANS AND SCHEDULE. (SURFACE MOUNTED)
	BRANCH PANELBOARD, WALL MOUNTED, SEE PLANS AND SCHEDULE. (RECESSED MOUNTED)
	MAIN SWITCHBOARD, POWER OR LIGHT, FLOOR STANDING ENCLOSURE, (SEE SINGLE LINE DIAGRAM AND LOAD SUMMARY)
F2	DISCONNECT SWITCH H.P. RATED 600 VOLTS RATED. "F" INDICATES FUSE TYPE. FUSES PER APPROVED MANUFACTURERS SHOP DRAWINGS.
	MAGNETIC MOTOR STARTER H.P. RATED (NUMBER INDICATES NEMA SIZE)
+96" OR 7'-6" AFF	MOUNTING HEIGHT FROM FINISHED FLOOR TO BOTTOM LINE OF OUTLET OR EQUIPMENT. FOR LIGHT FIXTURES, IT IS TO BOTTOM OF FIXTURE.
	CONDUIT TURNED DOWN
	CONDUIT TURNED UP
	CONDUIT STUBBED AND CAPPED
	RACEWAY CONCEALED IN WALLS OR ABOVE CEILING
	CONDUIT CONCEALED IN OR UNDER FLOOR, COORDINATE WITH G.C.: OR, BURIAL CONDUIT UNDERGROUND IN SCHEDULE - 40 PVC UNLESS NOTED OTHERWISE. VERIFY DEPTH AND TRENCHING WITH G.C.
DETAIL No. SHEET No.	DETAIL REFERENCE
EQUIPMENT ID. No.	EQUIPMENT REFERENCE
(E)	EXISTING CONDUIT AND WIRING TO REMAIN
(R)	PULL-OUT WIRES AND ABANDON CONDUIT. CUT AND CAPPED FLUSH WALL OR SLAB.
E	EXISTING CONDUIT TO REMAIN
R	EXISTING CONDUIT AND WIRE TO BE REMOVED
PR	ELECTRICAL UTILITY PRIMARY
SC	ELECTRICAL UTILITY SECONDARY
T	UTILITY TELEPHONE
OH	TEMPORARY OVERHEAD CABLING
A-1,3	HOMERUN TO CIRCUITS #1 AND #3 IN PANEL "A". (CROSSMARKS INDICATE NUMBER OF PHASES AND NEUTRAL. PROVIDE GROUND WIRE.)
	3/4" CONDUIT WITH 2 #12 & 1 #12 GND WIRES
	3/4" CONDUIT WITH 3 #12 & 1 #12 GND WIRES
	3/4" CONDUIT WITH 4 #12 & 1 #12 GND WIRES
	3/4" CONDUIT WITH 5 #12 & 1 #12 GND WIRES
#10	3/4" CONDUIT WITH 2 #10 & 1 #10 GND WIRES (#10 INDICATING WIRE SIZE)
#10	3/4" CONDUIT WITH 3 #10 & 1 #10 GND WIRES (#10 INDICATING WIRE SIZE)
#10	3/4" CONDUIT WITH 4 #10 & 1 #10 GND WIRES (#10 INDICATING WIRE SIZE)
#10	3/4" CONDUIT WITH 5 #10 & 1 #10 GND WIRES (#10 INDICATING WIRE SIZE)
#10	1" CONDUIT WITH 6 #10 & 1 #10 GND WIRES (#10 INDICATING WIRE SIZE)
	CONCEALED IN WALL OR CEILING
	GROUND WELL
	EXISTING (DASH INDICATES) ELECTRICAL EQUIPMENT
	TELEPHONE BACKBOARD 2'X4'X3/4" PLYWOOD. PROVIDE 2" CONDUIT TO TELEPHONE POC.
	MOLDED CASE CIRCUIT BREAKER
	SWITCH AND FUSE ASSEMBLY
	UTILITY COMPANY PULL SECTION LUGS
	GROUNDING CONNECTION TO MAIN BUILDING GROUND SYSTEM U.O.N.
N G	GROUNDING CONNECTION AT SWITCHGEAR/DISTRIBUTION BOARD WITH NEUTRAL BONDING.
M	IN-LINE UTILITY COMPANY METER
M	UTILITY METER WITH CIRCUIT TRANSFORMERS (CT'S) METER
SS	SOLID STATE DEVICE CONNECTED TO THE POWER DISTRIBUTION SYSTEM
GFT	GROUND FAULT PROTECTION DEVICE CONNECTED TO THE POWER DISTRIBUTION SYSTEM
T OR	TRANSFORMER WITH SECONDARY GROUND
200-D	CONDUIT WIRING DESCRIPTION PER FEEDER SCHEDULE ON OTHER PLAN
DD	DUCT MOUNTED SMOKE DETECTOR.
RF	CEILING MOUNTED RADIO FREQUENCY PLUG LOAD CONTROLLER.

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. WHEELER
No. E19480
EXP. 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA

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NO.	DATE	REVISION
1	0.26.15	PLAN CHECK SUBMITTAL
2	12.14.15	PLAN CHECK REVISIONS

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ELECTRICAL LEGENDS & NOTES

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

Get Air

S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

DATE	JOB NO.	DRAWN BY
03.04.15	AIR-2521	AN

DRAWING NO.
E0.0

15-355

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 2 of 6)
Project Name: Get Air Trampoline Park T.I.	Date Prepared: 12/10/2015

C. Summary of Allowed Lighting Power

Conditioned and Unconditioned space Lighting must not be combined for compliance

	Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
1.	**Installed** Lighting NRCC-LTI-01-E, page 4	+	18,564	**Installed** Lighting NRCC-LTI-01-E, page 4	+	305
2.	PORTABLE ONLY FOR OFFICES NRCC-LTI-01-E, page 3	+				
3.	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-	0	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-	0
4.	Adjusted **Installed** Lighting Power (row 1 plus row 2 minus row 3)	=	18,564	Adjusted **Installed** Lighting Power (row 1 minus row 3)	=	305
5.	Complies ONLY if **Installed ≤ Allowed**			Complies ONLY if **Installed ≤ Allowed**		
6.	**Allowed** Lighting Power Conditioned NRCC-LTI-03-E, page 1		37,193	**Allowed** Lighting Power Unconditioned NRCC-LTI-03-E, page 1		616

D. Declaration of Required Installation Certificates

Declare by selecting yes for all Installation Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	Form/Title	
✔		NRCI-LTI-01-E - Must be submitted for all buildings	☐ Field Inspector
	✔	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐ Field Inspector
	✔	NRCI-LTI-03-E - Must be submitted for a line-voltage track lighting integral current limiter, or for a supplementary overcurrent protection panel used to energize only line-voltage track lighting, to be recognized for compliance.	☐ Field Inspector
	✔	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	☐ Field Inspector
	✔	NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐ Field Inspector
	✔	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐ Field Inspector

E. Declaration of Required Certificates of Acceptance

Declare by checking all of the Certificates of Acceptance that will be submitted. (Retain copies and verify forms are completed and signed.)

CA Building Energy Efficiency Standards - 2013 Nonresidential Compliance — May 2015

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 1 of 6)
Project Name: Get Air Trampoline Park T.I.	Date Prepared: 12/10/2015

A. General Information

Climate Zone: 9	Conditioned Floor Area : 37,798		
	Unconditioned Floor Area : 880		
Building Type:	☑ Nonresidential	☐ High-Rise Residential	☐ Hotel/Motel
☐ Schools	☐ Relocatable Public Schools	☐ Conditioned Spaces	☑ Unconditioned Spaces
Phase of Construction:	☐ New Construction	☐ Addition	☑ Alteration
Method of Compliance:	☐ Complete Building	☑ Area Category	☐ Tailored

Project Address: S.E. Quadrant, Pomona 60 Fwy at Corona Expressway

B. Lighting Compliance Documents (select yes for each document included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance documents, refer to the Nonresidential Manual published by the California Energy Commission.

YES	NO	FORM	TITLE
✔		NRCC-LIT-01-E	Certificate of Compliance. All Pages required on plans for all submittals.
✔		NRCC-LIT-02-E	Lighting Controls, Certificate of Compliance, and PAF Calculation. All Pages required on plans for all submittals.
✔		NRCC-LIT-03-E	Indoor Lighting Power Allowance
	✔	NRCC-LIT-04-E	Tailored Method Worksheets
	✔	NRCC-LIT-05-E	Line Voltage Track Lighting Worksheets

CA Building Energy Efficiency Standards - 2013 Nonresidential Compliance — May 2015

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 4 of 6)
Project Name: Get Air Trampoline Park T.I.	Date Prepared: 12/10/2015

G. Installed Portable Luminaires in Offices – Exception to Section 140.6(a)

☐ This section shall be filled out ONLY for portable luminaires in offices (As defined in §100.1). All other planned portable luminaires shall be documented on next page of this compliance form.
☐ This section is used to determine if greater than 0.3 watts of portable lighting is planned for any office
☐ Fill out a separate line for each different office. Small offices that are typical (having the same general and portable lighting) may be grouped together. This allowance shall not be traded between offices having different lighting systems.

Office Portable Luminaire Schedule	Office Installed Portable Luminaire Watts Per Square Foot							Office Location	Field Inspector	
1	2	3	4	5	6	7	8	9	10	
Complete Luminaire Description (i.e., LED, under cabinet, furniture mounted direct/indirect)	Watts per Luminaire	Number of Luminaires	Installed portable luminaire watts in this office (B x C)	Square Feet of this office	Watts per square foot (D / E)	If F ≤ 0.3, enter zero; if F > 0.3, (F-0.3)	E x G	Identify Office area in which these portable luminaires are installed	Pass	Fail
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
Total installed portable luminaire watts that are greater than 0.3 watts per square foot per office:								Enter sum total of all pages into NRCC-LTI-01-E; Page 1		

CA Building Energy Efficiency Standards - 2013 Nonresidential Compliance — May 2015

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 3 of 6)
Project Name: Get Air Trampoline Park T.I.	Date Prepared: 12/10/2015

YES	NO	Form/Title	
✔		NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐ Field Inspector
✔		NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐ Field Inspector
	✔	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐ Field Inspector

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:
☐ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

F. Indoor Lighting Schedule and Field Inspection Energy Checklist

☐ The actual indoor lighting power listed on this page and on the next page includes all installed permanent and planned portable lighting systems.
☐ When Complete Building Method is used for compliance, list each different type of luminaire on separate lines.
☒ When Area Category Method or Tailored Method is used for compliance, list each different type of luminaire by each different function area on separate lines
☐ Also include track lighting in schedule, and submit the track lighting compliance form (NRCC-LTI-05-E) when line-voltage track lighting is installed.

CA Building Energy Efficiency Standards - 2013 Nonresidential Compliance — May 2015

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 5 of 6)
Project Name: Get Air Trampoline Park T.I.	Date Prepared: 12/10/2015

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:
☐ **CONDITIONED SPACE** ☑ **UNCONDITIONED SPACE**

C. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule			Installed Watts					Location	Field Inspector [1]	
A	B	C	D		E	F		G	H	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast)	Watts per Luminaire	How wattage was determined: CEC Default from NA8	How wattage was determined: According to §130(c)	Number Luminaires	Total Installed Watts in this area (C x E)		Primary Function area in which these luminaires are installed	Pass	Fail
F1	118W LED Pendant Fixture	118.8	☐	☑	1	119		Electrical, Mechanical Room	☐	☐
F4	(2) 32W 4 ft T8 Elec	62.0	☐	☑	3	186		Electrical, Mechanical Room	☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
			☐	☐					☐	☐
INSTALLED WATTS PAGE TOTAL:							305	Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

CA Building Energy Efficiency Standards - 2013 Nonresidential Compliance — May 2015

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 05/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 5 of 6)
Project Name: Get Air Trampoline Park T.I.	Date Prepared: 12/10/2015

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

C. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule			Installed Watts					Location	Field Inspector [1]	
A	B	C	D		E	F		G	H	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast)	Watts per Luminaire	How wattage was determined: CEC Default from NA8	How wattage was determined: According to §130(c)	Number Luminaires	Total Installed Watts in this area (C x E)		Primary Function area in which these luminaires are installed	Pass	Fail
F1	118W LED Pendant Fixture	118.8	☐	☑	45	5,346		Exercise, Gymnasium	☐	☐
F1	118W LED Pendant Fixture	118.8	☐	☑	12	1,426		Lounge, Recreation	☐	☐
F3	20.5W 1' X 4' LED Fixture	20.5	☐	☑	6	123		Office > 250 sqft	☐	☐
F3	20.5W 1' X 4' LED Fixture	20.5	☐	☑	1	21		Corridor/Restroom/Support	☐	☐
F3	20.5W 1' X 4' LED Fixture	20.5	☐	☑	4	82		Electrical, Mechanical Room	☐	☐
F3/F3E	20.5W 1' X 4' LED Fixture	20.5	☐	☑	33	677		Corridor/Restroom/Support	☐	☐
F3E	20.5W 1' X 4' LED Fixture	20.5	☐	☑	5	103		Corridor/Restroom/Support	☐	☐
F4	(2) 32W 4 ft T8 Elec	62.0	☐	☑	174	10,788		Exercise, Gymnasium	☐	☐
			☐	☐					☐	☐
INSTALLED WATTS PAGE TOTAL:							18,564	Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

CA Building Energy Efficiency Standards - 2013 Nonresidential Compliance — May 2015

LUMINAIRE SCHEDULE

TYPE	VOLTS	WATTS/LUMENS	LAMPS	MOUNTING	FIXTURE DESCRIPTION	MANU.	CATALOG #	NOTES	SYMBOL
F1	277	118.8/12000	LED	PENDANT	PENDANT MOUNTED LED HIGH-BAY LIGHT FIXTURE WITH DIMMING DRIVER AND INTEGRAL MOTION SENSOR AND PHOTOCELL.	LITHONIA	JHBL 12000LM GL WD MVOLT GZ10 40K 80CRI CS89 MSEENWL DSCNWL DWH	PROVIDE WITH EMBEDDED MOTION SENSOR & PHOTOCELL	
F2	277	32/3675	LED	WALL MOUNTED	WALL MOUNTED LED VANITY FIXTURE WITH DIMMING DRIVER.	LIGHTWAY	VLXY-24-LED-U-32W-4-W2-WSA-DIM	COORDINATE COLOR OF FINISH WITH ARCHITECT	
F3	277	20.5/2150	LED	RECESSED	1'x4' RECESSED LED FIXTURE. PROVIDE WITH DIMMING DRIVER.	LITHONIA	GTL 4 F 20L 277 EZ1 LP840		
F3E	277	20.5/2150	LED	RECESSED	1'x4' RECESSED LED FIXTURE. PROVIDE WITH DIMMING DRIVER & 90-MIN. BATTERY BACKUP.	LITHONIA	GTL 4 F 20L 277 EZ1 LP840	PROVIDE WITH 1400 LUMEN 90 MIN. BATTERY BACKUP WITH INTEGRAL TEST SWITCH	
F4	277	62/6200	(2) 32W T8 4100K	SUSPENDED	FLUORESCENT STRIP FIXTURE. PROVIDE WITH ELECTRONIC BALLAST(S).	LITHONIA	ST814-1-32-C-FS-A12.125(INV)-E-U		
F4B	277	62/6200	(2) 32W T8 4100K	SUSPENDED	FLUORESCENT STRIP FIXTURE. PROVIDE WITH ELECTRONIC BALLAST(S).	LITHONIA	ST814-1-32-C-FS-A12.125(INV)-E-U	PROVIDE WITH BLACKLIGHT FLUORESCENT TUBES. PART #F32T8/BLB.	
F5E	277	4	LED (WITH UNIT)	UNIVERSAL CEILING/WALL PER PLANS	SURFACE MOUNTED THERMOPLASTIC EMERGENCY EXIT SIGN FIXTURE WITH 90-MIN. BATTERY BACKUP. FACE NUMBER & ARROW DIRECTION PER PLANS.	LITHONIA	LQC W * G EL N		
F6E	277	18	LED	SURFACE	SURFACE MOUNTED EMERGENCY WALL PACK FIXTURE WITH 90-MIN. BATTERY BACKUP	BEGHELLI	TA LED SE UNV AT R		

EQUALS SHALL BE CONSIDERED UPON SUBMITTAL REVIEW AND APPROVAL. PLEASE NOTE THAT IF AN ALTERNATE IS CONSIDERED:

1. THE CONTRACTOR IS COMPLETELY AND SOLELY RESPONSIBLE FOR ALL ASPECTS OF THE SUBSTITUTION INCLUDING UPDATING CONSTRUCTION DOCUMENTS, OBTAINING APPROVALS AND PERMITS FROM LOCAL AUTHORITY, AND COORDINATING WITH ALL TRADES TO ENSURE CHANGES TO AFFECTED BUILDING SYSTEM ARE ACCOUNTED FOR AND ACCEPTABLE TO THE ENGINEERING TEAM. CONTRACTOR SHALL ENSURE SUBSTITUTED EQUIPMENT MEETS OR EXCEEDS DESIGN INTENT REGARDING RATINGS, PERFORMANCE, DIMENSIONAL CLEARANCES, PHYSICAL DIMENSIONS (MAX/MIN), WEIGHT LIMITATIONS, AND OTHER ASPECTS, PROVING SUBSTITUTION IS SUITABLE TO THE APPLICATION. ENGINEERS WILL REVIEW THE RATING AND PERFORMANCE OF SUBSTITUTED EQUIPMENT ONLY AND WILL NOT ASSUME RESPONSIBILITY FOR SUBSTITUTION AT ANY LEVEL.
2. IF CONTRACTOR CANNOT MAKE SUBSTITUTED EQUIPMENT WORK IN THIS PROJECT, CONTRACTOR SHALL REVERT TO REQUIREMENTS OF PERMITTED CONSTRUCTION DOCUMENTS AT THEIR EXPENSE.
3. IT IS UNDERSTOOD BY ALL PARTIES THAT ANY SUBSTITUTIONS OF SPECIFIED PRODUCTS ARE DONE FOR THE PURPOSE OF COST SAVINGS TO THE OWNER. THEREFORE, ANY MATERIAL SUBSTITUTION OR DEVIATIONS PROPOSED BY THE CONTRACTOR SHALL BE INCLUDED WITH THE INITIAL BID AND SHALL SHOW A LINE ITEMS CREDIT TO THE OWNER FOR EACH SUBSTITUTION IN LIEU OF SPECIFIED PRODUCTS.

LUMINAIRE SCHEDULE NOTES

1. THE FIXTURE SCHEDULE INDICATES GENERAL DESCRIPTION OF LIGHTING FIXTURES AND MANUFACTURERS CATALOG NUMBERS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE CORRECT CEILING CONFIGURATION AND PROVIDE THE FIXTURES WITH ALL NECESSARY TRIMS AND MOUNTING HARDWARE SO THAT BOTH THE CEILING SYSTEM AND THE FIXTURE CONSTRUCTION MATCHES. PROVIDE SEISMIC HANGERS AS REQUIRED.
2. IT SHALL BE CONTRACTORS RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL LIGHTING FIXTURES AND TYPE OF CEILING WITH ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ANY WORK. SEE ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ANY WORK. SEE ARCHITECTURAL ELEVATION DRAWING FOR MOUNTING HEIGHTS OF WALL MOUNTED FIXTURES.
3. A JUNCTION BOX MUST BE PROVIDED WITH ALL EXIT LIGHTS CONNECTED TO MORE THAN ONE SET OF CONDUCTORS UNLESS THE EXIT LIGHT FIXTURE IS FURNISHED WITH AN APPROVED OUTLET BOX FOR THROUGH WIRING.
4. LIGHTING FIXTURE WIRING FOR ROOMS CONTROLLED BY MORE THAN ONE LIGHT SWITCH SHALL BE ARRANGED SO THAT THE OUTSIDE LAMPS ON EACH FIXTURE ARE CONTROLLED BY ONE SWITCH AND THE INSIDE LAMPS BY THE OTHER TO PROVIDE MULTI-LEVELS OF ILLUMINATION.
5. ALL FLUORESCENT LIGHTING FIXTURES SHALL BE PROVIDED WITH ELECTRONIC BALLASTS, MANUFACTURER PER SPECIFICATIONS OR APPROVED EQUAL.
6. BATTERY PACK EMERGENCY TEST SWITCHES SHALL BE INTEGRAL TO LIGHT FIXTURE. COORDINATION OF SWITCH LOCATION IS REQUIRED WITH DESIGN TEAM IF INTEGRAL INSTALLATION IS NOT POSSIBLE.
7. FIXTURES DESIGNATED AS EMERGENCY SHALL BE SUPPLIED WITH INTEGRAL BATTERY PACK CAPABLE OF POWERING TWO T8 LAMPS FOR 90 MINUTES WITH A TOTAL LIGHT OUTPUT OF 1100 LUMENS OR ONE F13 BIAX FOR 90 MINUTES WITH A TOTAL LIGHT OUTPUT OF 520 LUMENS.
8. ALL COMPACT FLUORESCENT LAMP BALLASTS SHALL BE HIGH POWER FACTOR. ALL TRIPLE TUBE COMPACT FLUORESCENT LAMPS INSTALLED INDOORS SHALL HAVE INSTANT ON TECHNOLOGY.
9. PROVIDE ALL REQUIRED MOUNTING HARDWARE ANCHORAGE AND SUPPORTS TO INSTALL LIGHTING FIXTURES.
10. PROVIDE SWIVEL BASE AND STEMS. LENGTHS AS REQUIRED TO MOUNT THE PENDANT MOUNTED FIXTURES. THE INSTALLATION SHALL COMPLY WITH TITLE 24 SEISMIC AND APPLICABLE UBC REQUIREMENTS.
11. THE CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERABLE LIGHTING SYSTEM AS PART OF THIS BUILDING CONTRACT.
12. THE LAMPS FOR THE SPECIFIED FLUORESCENT LIGHTING FIXTURES SHALL BE (**SEE LUMINAIRE SCHEDULE FOR COLOR TEMPERATURE):
    - F32T8/XL/SP/** (GE LIGHTING)
    - F32T8/TL/B**/XLL/ALTO (PHILIPS LIGHTING CO)
    - PL-C 13W/B**/4P/ALTO
    - PL-C 18W/4P/ALTO
    - PL-C 26W/B**/4P/ALTO
    - F14T5/B**/ALTO
    - F25T5/B**/HO/ALTO
    - F28T5/B**/ALTO
    - F54T5/B**/HO/ALTO
13. SUSPENSION SYSTEM FOR LIGHT FIXTURES WHICH HAVE PASSED SHAKING TABLE TESTS APPROVED BY THE OFFICE OF THE STATE OF ARCHITECT, OR WHICH, AS INSTALLED, ARE FREE TO SWING A MINIMUM OF 45° FROM THE VERTICAL IN ALL DIRECTIONS WITHOUT CONTACTING OBSTRUCTIONS. SHALL BE ASSUMED TO COMPLY WITH THE LATERAL FORCE REQUIREMENTS FOR SECTION 2305, PART 2, TITLE 24, CCR, UNLESS OF THE CABLE TYPE FREE SWING SUSPENSION SYSTEM SHALL HAVE A SAFETY WIRE OR CABLE ATTACHED TO THE FIXTURE AND STRUCTURE AT EACH SUPPORT CAPABLE OF SUPPORTING FOUR TIMES THE SUPPORTED LOAD.
14. FOR SUSPENDED AND SURFACE MOUNTED LIGHT FIXTURES, THE PRODUCT OF ICP NEED NOT EXCEED 12 FOR ANY VALUE OF 1.
15. LED LIGHT FIXTURES SHALL BE IN ACCORDANCE WITH IES, NFPA, UL, AS SHOWN ON THE DRAWINGS, AND AS SPECIFIED.
16. LED LIGHT FIXTURES SHALL BE REDUCTION OF HAZARDOUS SUBSTANCES (ROHS)-COMPLIANT.
17. LED DRIVERS SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED:
    - MINIMUM EFFICIENCY: 85% AT FULL LOAD.
    - MINIMUM OPERATING AMBIENT TEMPERATURE: -20 DEG C. (-4 DEG F.)
    - INPUT VOLTAGE: 120 – 277V (±10%) AT 60 HZ.
    - INTEGRAL SHORT CIRCUIT, OPEN CIRCUIT, AND OVERLOAD PROTECTION.
    - POWER FACTOR: >=0.95.
    - TOTAL HARMONIC DISTORTION: <=20%.
    - COMPLY WITH FCC 47 CFR PART 15.
18. LED MODULES SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED:
    - COMPLY WITH IES LM-79 AND LM-80 REQUIREMENTS.
    - MINIMUM CRI 80 AND COLOR TEMPERATURE 4000K UNLESS OTHERWISE SPECIFIED IN LUMINAIRE SCHEDULE.
    - MINIMUM RATED LIFE: 50,000 HOURS PER IES L70.
    - LIGHT OUTPUT LUMENS AS INDICATED IN THE LUMINAIRE SCHEDULE.
19. LED DOWNLIGHTS:
    - HOUSING, LED DRIVER, AND LED MODULE SHALL BE PRODUCTS OF THE SAME MANUFACTURER.
20. LED TROFFERS:
    - LED DRIVERS, MODULES, AND REFLECTOR SHALL BE ACCESSIBLE, SERVICEABLE, AND REPLACEABLE FROM BELOW THE CEILING.
    - HOUSING, LED DRIVER, AND LED MODULE SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

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NO.	DATE	REVISION
1	02.26.15	PLAN CHECK SUBMITTAL
2	12.14.15	PLAN CHECK REVISIONS

WHEELER & WHEELER
ARCHITECTS
ARCHITECTURE ■ INTERIORS ■ PLANNING
133 South Spring Street, Claremont, California 91711 909-624-5095 FAX 909-621-7757
PAUL R. WHEELER AIA AICP LICENSE C17280 MICHAEL W. WHEELER AIA AICP LICENSE C14283

LUMINAIRE SCHEDULE
TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:
Get Air
S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

DATE	JOB NO.	DRAWN BY
03.04.15	AIR-2521	AN

DRAWING NO.
E0.1

REGISTERED PROFESSIONAL ENGINEER — STEVEN D. TEDESCO — No. E19480 — EXP. 6-30-2017 — ELECTRICAL — STATE OF CALIFORNIA
275 W. Hospitality Lane, Suite #100
San Bernardino, CA 92408
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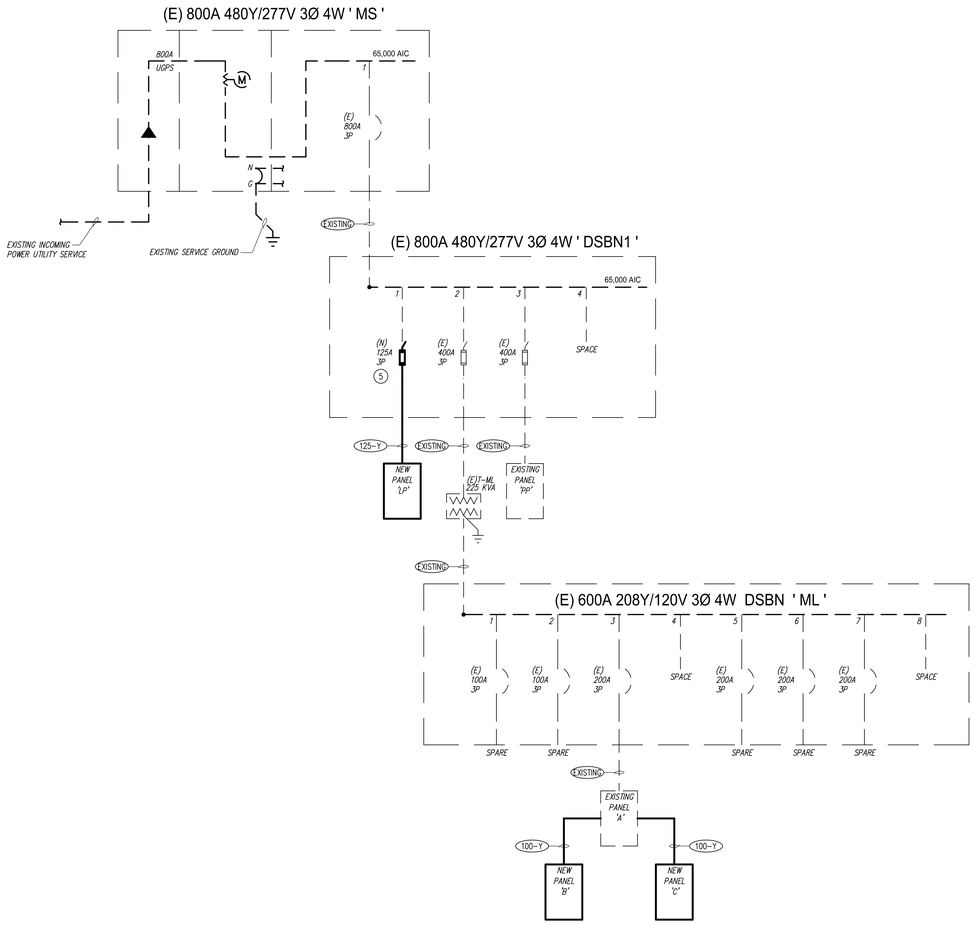
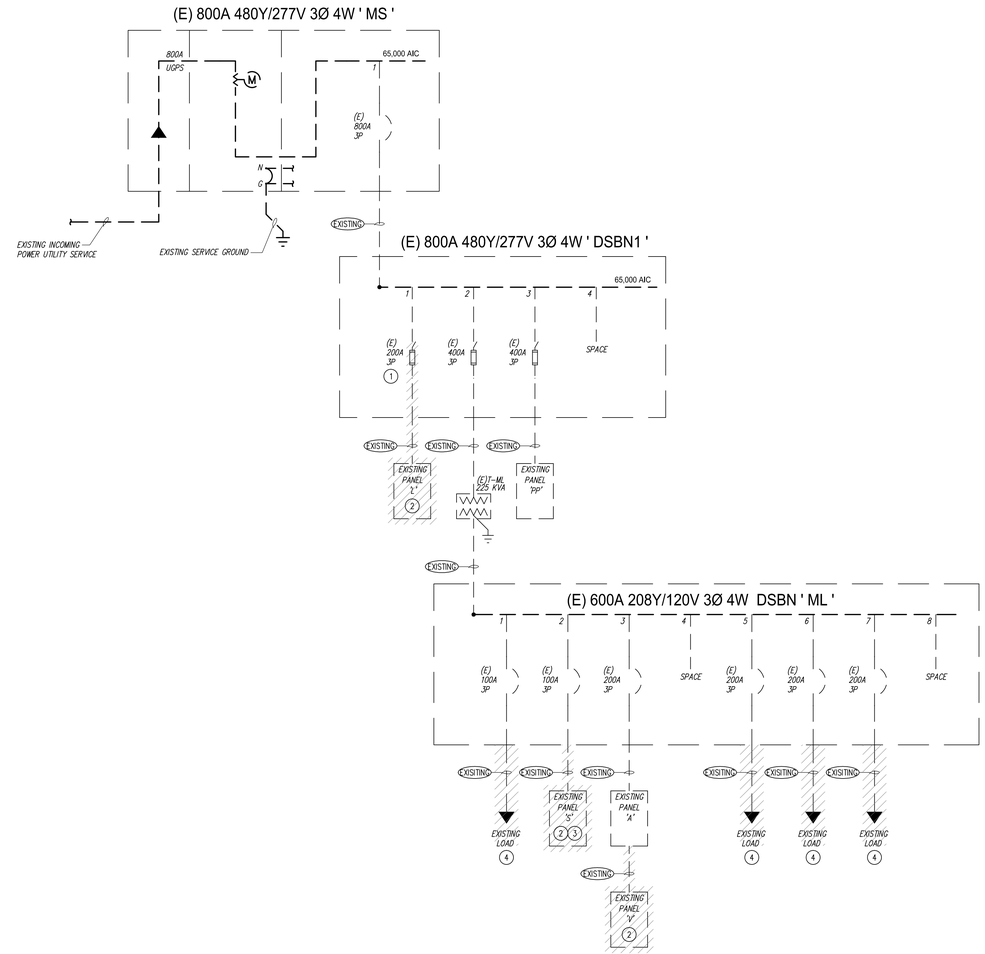
15-355



PROPOSED SINGLE LINE DIAGRAM | 3



EXISTING SINGLE LINE DIAGRAM | 1

GENERAL NOTES

1. REFER TO "GENERAL NOTES" ON ELECTRICAL LEGENDS AND NOTES SHEET FOR WIRING METHODS, MATERIALS, AND REQUIREMENTS.
2. ALL CIRCUIT BREAKERS, PANELBOARDS AND TRANSFORMERS SHALL BE OF THE SAME MANUFACTURER.
3. ALL GROUND CONNECTIONS SHALL BE CADWELD.
4. AVAILABLE FAULT AT SERVICE POINT SHALL BE CONSIDERED AT 65,000 RMS SYM.
5. ALL PANELBOARDS SHALL BE FULLY RATED FOR THE AVAILABLE FAULT UNLESS OTHERWISE NOTED.
6. WHEN APPLICABLE, OVERCURRENT DEVICE ENCLOSURES SHALL BE IDENTIFIED AS "SERIES RATED AND LABELED IN ACCORDANCE WITH NEC 110- 22. THE OVERCURRENT DEVICES SHALL BE AIC RATED PER MANUFACTURERS LABELING OF THE ELECTRICAL EQUIPMENT.
7. THE FEEDER LENGTHS SHOWN ON THESE DRAWINGS ARE FOR CALCULATION ONLY AND ARE NOT VALID FOR CONSTRUCTION, BIDDING OR FOR SHORT CIRCUIT CALCULATIONS.
8. CONTRACTOR SHALL UPDATE EXISTING PANEL DIRECTORY OR CREATE A NEW TYPED DIRECTORY, IF ONE DOES NOT EXIST, IDENTIFYING EACH CIRCUIT AND INSTALLED CIRCUIT LOADS, MOUNTED IN GLASS OR PLASTIC INSIDE DOOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING DIRECTORIES TO INDICATE ALL NEW CIRCUITS AND ACTUAL AREA SERVED WHICH IS NOT NECESSARILY THE DESCRIPTION INDICATED ON THE BID DOCUMENTS. USE A COMPUTER OR TYPEWRITER TO CREATE DIRECTORY; HANDWRITTEN DIRECTORIES ARE NOT ACCEPTABLE.

CONSTRUCTION NOTES

1. CONTRACTOR IS TO REMOVE EXISTING FUSES.
2. CONTRACTOR IS TO DEMO EXISTING PANELBOARD, FEEDERS, AND CONDUIT BACK TO SOURCE. ALL EXISTING BRANCH CIRCUITS AND CONDUIT ARE TO BE DEMOTD.
3. CONTRACTOR IS TO LABEL EXISTING CIRCUIT BREAKER AS "SPARE".
4. CONTRACTOR TO REMOVE ALL EXISTING CONDUIT, FEEDERS AND DISCONNECTS. CONTRACTOR IS TO LABEL EXISTING CIRCUIT BREAKER AS "SPARE".
5. PROVIDE NEW 125A FUSES IN EXISTING DISTRIBUTION. TYPE AND AIC TO MATCH EXISTING.

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NO.	DATE	REVISION
1	0.28.15	PLAN CHECK SUBMITTAL
2	12.14.15	PLAN CHECK REVISIONS

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PAUL R. WHEELER AIA REGISTERED ARCHITECT C13780 MICHAEL W. WHEELER AIA REGISTERED ARCHITECT C14825

SINGLE LINE DIAGRAM

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

Get Air

S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

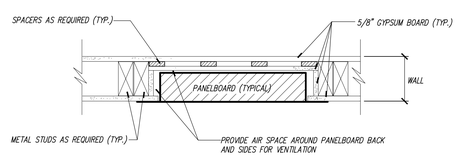
DATE	JOB NO.	DRAWN BY
03.04.15	AIR-2521	AN

DRAWING NO.
E0.2

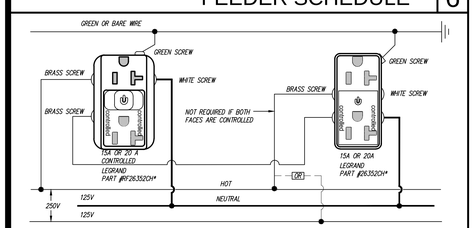
600V FEEDER SCHEDULE 3Ø 4W						
LABEL	TYPE	SETS	PHASE	NEUTRAL	GROUND	CONDUIT
20-Y	20A-4W	1	3 # 12	1 # 12	1 # 12	3/4"
30-Y	30A-4W	1	3 # 10	1 # 10	1 # 10	3/4"
40-Y	40A-4W	1	3 # 8	1 # 10	1 # 10	1"
50-Y	50A-4W	1	3 # 6	1 # 6	1 # 10	1"
60-Y	60A-4W	1	3 # 6	1 # 6	1 # 10	1"
70-Y	70A-4W	1	3 # 4	1 # 4	1 # 8	1"
80-Y	80A-4W	1	3 # 4	1 # 4	1 # 8	1-1/4"
90-Y	90A-4W	1	3 # 2	1 # 2	1 # 8	1-1/4"
100-Y	100A-4W	1	3 # 1	1 # 1	1 # 8	1-1/2"
125-Y	125A-4W	1	3 # 1	1 # 1	1 # 6	1-1/2"
150-Y	150A-4W	1	3 # 1/0	1 # 1/0	1 # 6	1-1/2"
175-Y	175A-4W	1	3 # 2/0	1 # 2/0	1 # 6	2"
200-Y	200A-4W	1	3 # 3/0	1 # 3/0	1 # 6	2"

NOTE:
ALL CONDUCTOR SIZES ARE BASED ON TYPE THHN COPPER CONDUCTOR UNLESS OTHERWISE NOTED. THE AMPACITY OF CONDUCTORS SHALL BE BASED ON THE TERMINALS NOT TO EXCEED 60°C FOR CONDUCTOR SIZE #14 THROUGH #1 AWG OR 75°C FOR CONDUCTOR SIZE OVER #1 AWG AS PER NEC 110.14(C).

FEEDER SCHEDULE | 6



RECESSED PANEL BOARD | 4

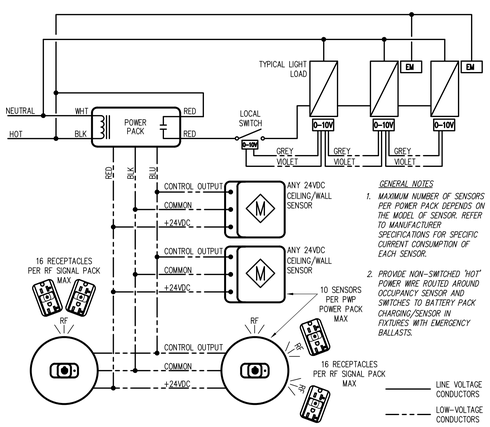


GENERAL NOTES

1. PROVIDE RECEPT WITH INTEGRAL RF RECEIVER FOR FIRST OUTLET.
2. CONTROLLED RECEPTACLES SHALL HAVE A PERMANENT MARKING TO DIFFERENTIATE THEM FROM UNCONTROLLED RECEPTACLES.

* - COORDINATE COLOR OF FINISH PRIOR TO ORDERING.

CONTROLLED RECEPTACLE DIAGRAM | 7



GENERAL NOTES

1. MAXIMUM NUMBER OF SENSORS PER POWER PACK DEPENDS ON THE MODEL OF SENSOR. REFER TO MANUFACTURER SPECIFICATIONS FOR SPECIFIC CURRENT CONSUMPTION OF EACH SENSOR.
2. PROVIDE NON-SWITCHED "HOT" POWER WIRE ROUTED AROUND OCCUPANCY SENSOR AND SWITCHES TO BATTERY PACK CHARGING/SENSOR IN FIXTURES WITH EMERGENCY BALLASTS.

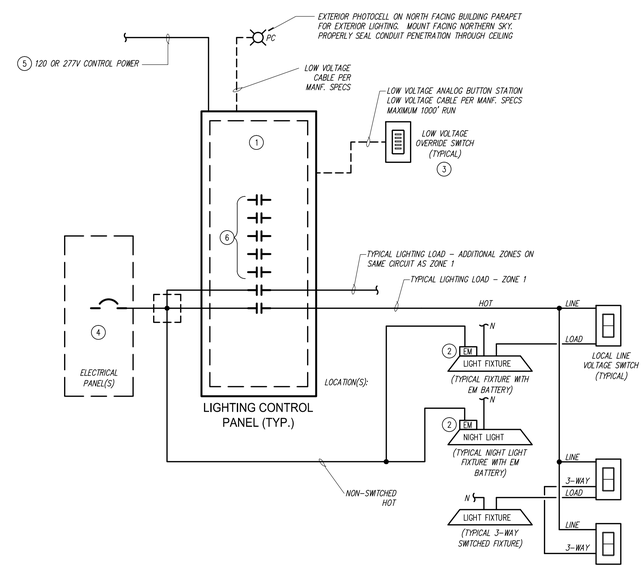
TYP. ROOM CONTROL WIRING DIAGRAM | 5

GENERAL NOTES

1. PROVIDE A COMPLETE AND OPERABLE LIGHTING CONTROL SYSTEM AS SHOWN. CONTRACTOR IS TO PROVIDE ALL REQUIRED EQUIPMENT, HARDWARE, SOFTWARE, SWITCHES, OCCUPANCY SENSORS, ETC. FOR A COMPLETE AND TITLE 24 APPROVED CERTIFICATION.
2. THE MAXIMUM LENGTH OF A LOCAL DATALINE FROM EACH PANEL 1600ft USING FREE TOPOLOGY WITHOUT A REPEATER.
3. CABLE RUNS ARE CONTINUOUS BETWEEN CONNECTED DEVICES, NO SPLICING ALLOWED.
4. ANALOG PHOTOCELLS AND OCCUPANCY SENSORS: (4) #18 AWG STRANDED Cu CONTROL CONDUCTORS PER DEVICE, LABELED SPARE, +24V, COM. 1000 FEET MAXIMUM RUN
5. CONSULT MANUFACTURER FOR LOADING WITH EMERGENCY AND NORMAL CIRCUITS.
6. USE REMOTE LOW VOLTAGE INPUT CABINETS WHEN ADDITIONAL POWER FOR DIGITAL CONTROLS IS REQUIRED, OR WHEN UP TO 16 ADDITIONAL LOCAL ANALOG INPUTS ARE NECESSARY.

KEY NOTES

1. HUBBELL AUTOMATION #CX-16-2-5-16-2N-M. LIGHTING CONTROL PANEL SHOWN IS TO BE CEC CERTIFIED. THE NETWORK CLOCK (DTC) IS TO BE ASTRONOMICAL.
2. PROVIDE NON-SWITCHED "HOT" POWER WIRE ROUTED AROUND LIGHTING CONTROL PANEL TO BATTERY PACK CHARGING/SENSOR IN FIXTURE WHERE APPLICABLE.
3. VERIFY OVERRIDE SWITCH LOCATIONS WITH ARCHITECT. VERIFY QUANTITY, LAYOUT, AND ORIENTATION WITH PLANS. SWITCHES SHALL BE COMPATIBLE WITH LIGHTING CONTROL SYSTEM. CONFIRM DEVICE FINISHES AND ALL SWITCH BUTTON ENGRAVINGS WITH THE OWNER REPRESENTATIVE PRIOR TO ORDERING.
4. TYPICAL ELECTRICAL PANEL SHOWN. REFER TO SINGLE LINE DIAGRAM AND PANEL SCHEDULES FOR ALL LIGHTING CIRCUITS TO BE CONTROLLED.
5. CONTROL POWER: 1 AMP, 120VAC -277VAC. CONSTANT HOT DEDICATED SOURCE. IF CONTROL IS REQUIRED UNDER EMERGENCY CONDITION, POWER SHOULD BE PROVIDED TO THE CONTROL PROCESSOR IN BOTH NORMAL AND EMERGENCY CONDITIONS.
6. REFER TO RELAY AND ZONE SCHEDULES FOR QUANTITY OF RELAYS AND RELAY TYPES, AND ASSOCIATED FEED AND LOAD CIRCUIT INFORMATION.



LIGHTING CONTROL WIRING DIAGRAM | 2

REGISTERED PROFESSIONAL ENGINEER
LICENSED TO PRACTICE
No. E19480
EXP. 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA
275 W. Hospitality Lane, Suite #100
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DESIGN WEST ENGINEERING
MECHANICAL • ELECTRICAL • ENERGY CONSULTANTS

15-355

PANEL B (NEW)

MOUNTING: SURFACE
FED FROM: PANEL'A'
NEMA: 1
AIC RATING: 14,000
LOCATION: WAITING AREA
VOLTAGE: 208Y/120V 3PH 4W
BUS: 100A
MAIN: 100A 3P
FEEDER: 100-Y

NOTE	DESCRIPTION	A	B	C	TYPE	POLE	AMP	PHASE	AMP	POLE	TYPE	A	B	C	DESCRIPTION	NOTE
	SALE FLOOR RECEPTS	360			C	1	20	1 A - -	2	20	1 C	500			SALES COUNTER TV RECEPT	
	SALES COUNTER RECEPTS		540		C	1	20	3 - B -	4	20	1 C		500		BEHIND THE COUNTER TV	
	SALES COUNTER RECEPTS			360	C	1	20	5 - - C	6	20	1 C			360	OVERFLOW RECEPTS	
	SALES COUNTER RECEPTS	360			C	1	20	7 A - -	8	20	1 C	360			WEST PLATFORM RECEPT	
	PARTY ROOM 4,5		720		C	1	20	9 - B -	10	20	1 C		180		NORTH PLATFORM RECEPT	
	PARTY ROOM 2,3			720	C	1	20	11 - - C	12	20	1 C			180	CENTER PLATFORM RECEPT A	
	DRINKING FOUNTAIN	336			N	1	20	13 A - -	14	20	1 C	180			CENTER PLATFORM RECEPT B	
	NORTH RESTROOM RECEPTS		720		R	1	20	15 - B -	16	20	1 C		180		CENTER PLATFORM RECEPT C	
5	WH - 1			998	N	2	20	17 - - C	18	20	1 C			180	CENTER PLATFORM RECEPT D	
-	- - - - - -	998			N	-	--	19 A - -	20	20	1 C	720			OFFICE RECEPTS	
	SPARE					1	20	21 - B -	22	20	1				SPARE	
	SPARE					1	20	23 - - C	24	20	1				SPARE	
	SPARE					1	20	25 A - -	26	20	1				SPARE	
	SPARE					1	20	27 - B -	28	20	1				SPARE	
	SPARE					1	20	29 - - C	30	20	1				SPARE	
	SPACE							31 A - -	32						SPACE	
	SPACE							33 - B -	34						SPACE	
	SPACE							35 - - C	36						SPACE	
	SPACE							37 A - -	38						SPACE	
	SPACE							39 - B -	40						SPACE	
	SPACE							41 - - C	42						SPACE	
	SUBTOTALS	2054	1980	2078								1760	860	720		

DEMAND FACTORS:	CONNECTED	DEMAND	DEMAND	DEMAND
LOAD TYPE	VA	FACTOR	VA	AMPS
(L) LIGHTING	0	1.25	0	0
(R) RECEPTACLE	720	NEC 220.44	720	2
(M) MOTOR	0	1.25	0	0
LARGEST MOTOR		0.25	0	0
(C) CONTINUOUS	6400	1.25	8000	22
(N) NON-CONTINUOUS	2333	1.00	2333	6
(K) KITCHEN (NEC 220.56)	0	0.65	0	0
(S) SPECIAL DEMAND	0	1.00	0	0
TOTALS	9453		11053	

SUBTOTALS:	PHASE
3814 VA	A
2840 VA	B
2798 VA	C
9453 VA	TOTAL
26	AMPS

NOTES:
1. EXISTING BREAKER, EXISTING LOAD
2. EXISTING BREAKER, NEW LOAD
3. EXISTING BREAKER, MODIFIED LOAD
4. NEW BREAKER, NEW LOAD
5. PROVIDE BREAKER WITH LOCK-OFF CAPABILITY

TOTAL AMPS CONNECTED AT 208Y/120V 3PH 4W WITH LCL 31 A

PANEL PP (EXISTING)

MOUNTING: SURFACE
FED FROM: DIST. 'DSBN1'
NEMA: 1
AIC RATING:
LOCATION: UTILITY ROOM
VOLTAGE: 480Y/277V 3PH 4W
BUS: 400A
MAIN: M.L.O.
FEEDER: EXISTING

NOTE	DESCRIPTION	A	B	C	TYPE	POLE	AMP	PHASE	AMP	POLE	TYPE	A	B	C	DESCRIPTION	NOTE
1	RTU - 1	6426			M	3	50	1 A - -	2	50	3 M	6426			RTU - 2	1
-	- - - - - -		6426		M	-	--	3 - B -	4	--	- M		6426		- - - - - -	-
-	- - - - - -			6426	M	-	--	5 - - C	6	--	- M			6426	- - - - - -	-
1	RTU - 5	6426			M	3	50	7 A - -	8	50	3 M	6426			RTU - 4	1
-	- - - - - -		6426		M	-	--	9 - B -	10	--	- M		6426		- - - - - -	-
-	- - - - - -			6426	M	-	--	11 - - C	12	--	- M			6426	- - - - - -	-
1	RTU - 3	6426			M	3	50	13 A - -	14	50	3 M	6426			RTU - 6	1
-	- - - - - -		6426		M	-	--	15 - B -	16	--	- M		6426		- - - - - -	-
-	- - - - - -			6426	M	-	--	17 - - C	18	--	- M			6426	- - - - - -	-
1	RTU - 7	6426			M	3	50	19 A - -	20	20	3 M	3463			RTU - 11	1
-	- - - - - -		6426		M	-	--	21 - B -	22	--	- M		3463		- - - - - -	-
-	- - - - - -			6426	M	-	--	23 - - C	24	--	- M			3463	- - - - - -	-
2	SPACE							25 A - -	26	20	3 N	900			NOVAR PHASE LOSS	1
2	SPACE							27 - B -	28	--	- N		900		- - - - - -	-
2	SPACE							29 - - C	30	--	- N			900	- - - - - -	-
1	RTU - 10	6426			M	3	40	31 A - -	32	40	3 M	5762			RTU - 8	1
-	- - - - - -		6426		M	-	--	33 - B -	34	--	- M		5762		- - - - - -	-
-	- - - - - -			6426	M	-	--	35 - - C	36	--	- M			5762	- - - - - -	-
2	SPACE							37 A - -	38	40	3 M	5762			RTU - 9	1
2	SPACE							39 - B -	40	--	- M		5762		- - - - - -	-
2	SPACE							41 - - C	42	--	- M			5762	- - - - - -	-
	SUBTOTALS	32132	32132	32132								35165	35165	35165		

DEMAND FACTORS:	CONNECTED	DEMAND	DEMAND	DEMAND
LOAD TYPE	VA	FACTOR	VA	AMPS
(L) LIGHTING	0	1.25	0	0
(R) RECEPTACLE	0	NEC 220.44	0	0
(M) MOTOR	199191	1.25	248988	300
LARGEST MOTOR		0.25	0	0
(C) CONTINUOUS	0	1.25	0	0
(N) NON-CONTINUOUS	2700	1.00	2700	3
(K) KITCHEN (NEC 220.56)	0	0.65	0	0
(S) SPECIAL DEMAND	0	1.00	0	0
TOTALS	201891		251688	

SUBTOTALS:	PHASE
67297 VA	A
67297 VA	B
67297 VA	C
201891 VA	TOTAL
243	AMPS

NOTES:
1. EXISTING BREAKER, EXISTING LOAD
2. EXISTING BREAKER TO BE REMOVED

TOTAL AMPS CONNECTED AT 480Y/277V 3PH 4W WITH LCL 303 A

PANEL C (NEW)

MOUNTING: SURFACE
FED FROM: PANEL'A'
NEMA: 1
AIC RATING: 14,000
LOCATION: STORAGE
VOLTAGE: 208Y/120V 3PH 4W
BUS: 100A
MAIN: 100A 3P
FEEDER: 100-Y

NOTE	DESCRIPTION	A	B	C	TYPE	POLE	AMP	PHASE	AMP	POLE	TYPE	A	B	C	DESCRIPTION	NOTE
	RECEPTACLE	180			R	1	20	1 A - -	2	20	1 R	180			EAST SIDE PLATFORM RECEP	
	RECEPTACLE		180		R	1	20	3 - B -	4	20	1 R		1040		SOUTH EAST RESTOOMS	
	RECEPTACLE			180	R	1	20	5 - - C	6	20	2 N			998	WH - 1	5
	CU - 1	39			C	2	20	7 A - -	8	--	- N	998			- - - - - -	-
	- - - - - -		39		C	--	--	9 - B -	10	20	1 C		900		OFFICE 2 RECEPTS	
	ROOF RECEPTACLE			180	R	1	20	11 - - C	12	20	1				SPARE	
	SPARE					1	20	13 A - -	14	20	1				SPARE	
	SPARE					1	20	15 - B -	16	20	1				SPARE	
	SPARE					1	20	17 - - C	18	20	1				SPARE	
	SPARE					1	20	19 A - -	20	20	1				SPARE	
	SPARE					1	20	21 - B -	22	20	1				SPARE	
	SPARE					1	20	23 - - C	24	20	1				SPARE	
	SPARE					1	20	25 A - -	26	20	1				SPARE	
	SPARE					1	20	27 - B -	28	20	1				SPARE	
	SPARE					1	20	29 - - C	30	20	1				SPARE	
	SPACE							31 A - -	32						SPACE	
	SPACE							33 - B -	34						SPACE	
	SPACE							35 - - C	36						SPACE	
	SPACE							37 A - -	38						SPACE	
	SPACE							39 - B -	40						SPACE	
	SPACE							41 - - C	42						SPACE	
	SUBTOTALS	219	219	360								1178	1940	998		

DEMAND FACTORS:	CONNECTED	DEMAND	DEMAND	DEMAND
LOAD TYPE	VA	FACTOR	VA	AMPS
(L) LIGHTING	0	1.25	0	0
(R) RECEPTACLE	1940	NEC 220.44	1940	5
(M) MOTOR	0	1.25	0	0
LARGEST MOTOR		0.25	0	0
(C) CONTINUOUS	979	1.25	1224	3
(N) NON-CONTINUOUS	1997	1.00	1997	6
(K) KITCHEN (NEC 220.56)	0	0.65	0	0
(S) SPECIAL DEMAND	0	1.00	0	0
TOTALS	4916		5161	

SUBTOTALS:	PHASE
1398 VA	A
2159 VA	B
1358 VA	C
4916 VA	TOTAL
14	AMPS

NOTES:
1. EXISTING BREAKER, EXISTING LOAD
2. EXISTING BREAKER, NEW LOAD
3. EXISTING BREAKER, MODIFIED LOAD
4. NEW BREAKER, NEW LOAD
5. PROVIDE BREAKER WITH LOCK-OFF CAPABILITY

TOTAL AMPS CONNECTED AT 208Y/120V 3PH 4W WITH LCL 14 A

PANEL A (EXISTING)

MOUNTING: SURFACE
FED FROM: DIST. 'ML'
NEMA: 1
AIC RATING: 42,000
LOCATION: UTILITY ROOM
VOLTAGE: 208Y/120V 3PH 4W
BUS: 225A
MAIN: M.L.O.
FEEDER: EXISTING

NOTE	DESCRIPTION	A	B	C	TYPE	POLE	AMP	PHASE	AMP	POLE	TYPE	A	B	C	DESCRIPTION	NOTE
2	EF - 1	528			N	1	20	1 A - -	2	20	1				SPARE	2
2	EF - 2		528		N	1	20	3 - B -	4	20	1				SPARE	2
2	EF - 3			528	N	1	20	5 - - C	6	20	1				SPARE	2
2	EF - 4	528			N	1	20	7 A - -	8	20	1				SPARE	2
2	SPARE					1	20	9 - B -	10	20	1				SPARE	2
2	SPARE					1	20	11 - - C	12	20	1				SPARE	2
2	SPARE					1	20	13 A - -	14	20	1				SPARE	
2	SPARE					1	20	15 - B -	16	25	1 R		1080		RTU RECEPTS	1
2	SPARE					1	20	17 - - C	18	25	1				SPARE	2
2	SPARE					1	20	19 A - -	20	25	1				SPARE	2
2	SPARE					1	20	21 - B -	22	20	1				SPARE	2
2	SPARE					1	20	23 - - C	24	20	1				SPARE	2
2	SPARE					1	20	25 A - -	26	20	1				SPARE	2
2	SPARE					1	20	27 - B -	28	20	1				SPARE	2
2	SPARE					1	20	29 - - C	30	20	1				SPARE	2
2	SPARE					1	15	31 A - -	32	100	3				SPARE	2
2	SPARE					1	15	33 - B -	34	--	-				- - - - - -	-
5	SPACE							35 - - C	36	--	-				- - - - - -	-
4,5	PANEL 'C'	1398				3	100	37 A - -	38	100	3	3814			PANEL 'B'	4,5
-	- - - - - -		2159			-	--	39 - B -	40	--	-		2840		- - - - - -	
-	- - - - - -			1358		-	--	41 - - C	42	--	-			2798	- - - - - -	
	SUBTOTALS	2454	2687	1886								3814	3920	2798		

DEMAND FACTORS:	CONNECTED	DEMAND	DEMAND	DEMAND
LOAD TYPE	VA	FACTOR	VA	AMPS
(L) LIGHTING	0	1.25	0	0
(R) RECEPTACLE	3740	NEC 220.44	3740	10
(M) MOTOR	0	1.25	0	0
LARGEST MOTOR		0.25	0	0
(C) CONTINUOUS	7379	1.25	9224	26
(N) NON-CONTINUOUS	6442	1.00	6442	18
(K) KITCHEN (NEC 220.56)	0	0.65	0	0
(S) SPECIAL DEMAND	0	1.00	0	0
TOTALS	17561		19405	

SUBTOTALS:	PHASE
6268 VA	A
6607 VA	B
4685 VA	C
17561 VA	TOTAL
49	AMPS

NOTES:
1. EXISTING BREAKER, EXISTING LOAD
2. EXISTING BREAKER, NEW LOAD
3. EXISTING BREAKER, MODIFIED LOAD
4. NEW BREAKER, NEW LOAD
5. EXISTING BREAKER TO BE REMOVED

TOTAL AMPS CONNECTED AT 208Y/120V 3PH 4W WITH LCL 54 A

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NO.	DATE	REVISION
1	0.28.15	PLAN CHECK SUBMITTAL
2	12.14.15	PLAN CHECK REVISIONS

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ARCHITECTURE ■ INTERIORS ■ PLANNING
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PAUL A. WHEELER AIA Architect C12780 MICHAEL W. WHEELER AIA Architect C14283

PANEL SCHEDULES

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

Get Air

S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

DATE 03.04.15
JOB NO. AIR-2521
DRAWN BY AN
DRAWING NO. E0.3

REGISTERED PROFESSIONAL ENGINEER
LEONARD P. NG
No. E19480
EXP. 6-30-2017
ELECTRICAL
STATE OF CALIFORNIA

DESIGN WEST ENGINEERING
MECHANICAL • ELECTRICAL • ENERGY CONSULTANTS
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San Bernardino, CA 92408
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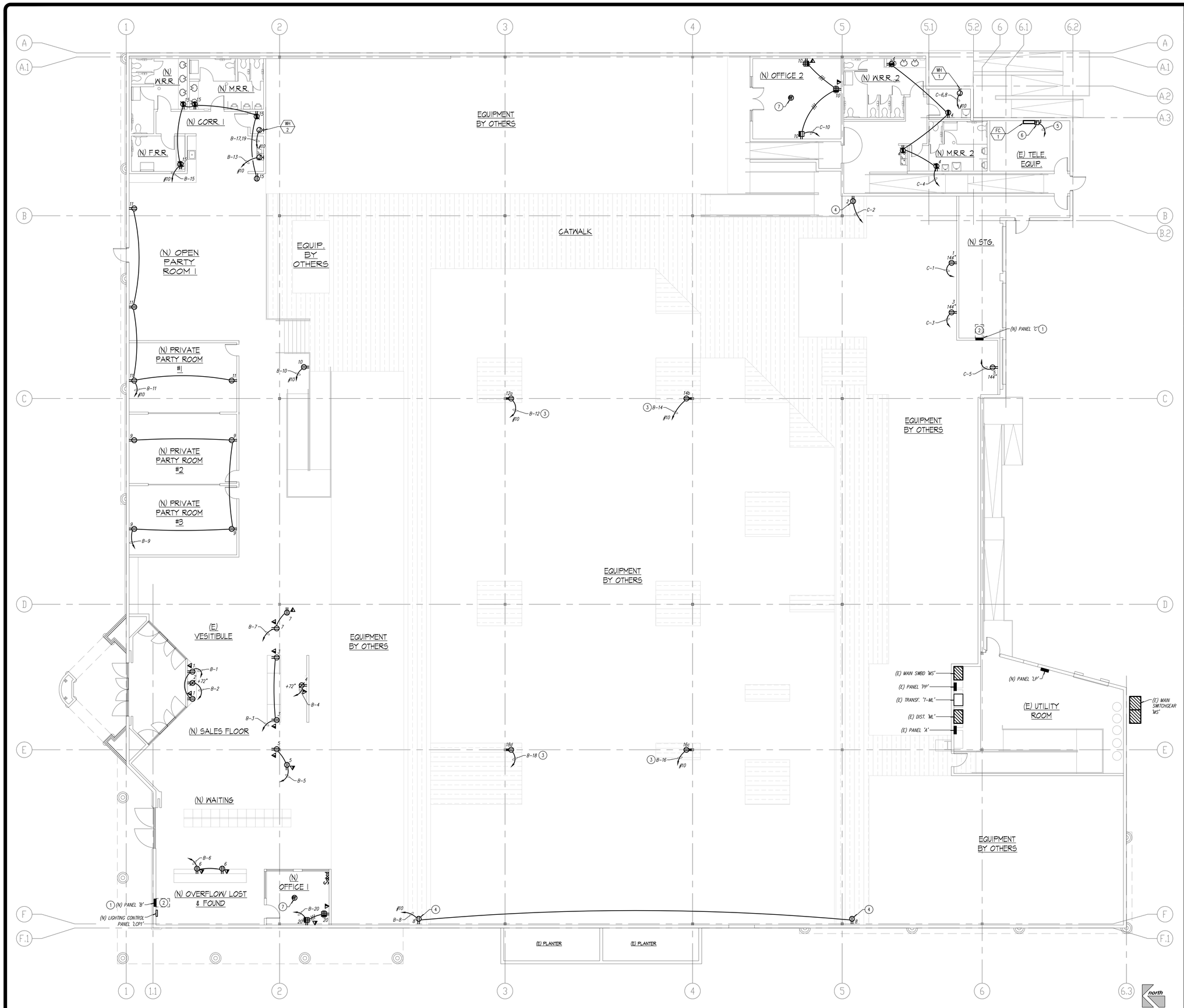
15-355



CONSTRUCTION NOTES

1. COORDINATE POWER AND DATA DEVICE LOCATIONS, AND DEVICE PLATE COLOR WITH ARCHITECT.
2. REFER TO MECHANICAL AND PLUMBING PLANS FOR THE EXACT LOCATION OF HVAC EQUIPMENT AND ADDITIONAL WIRING REQUIREMENTS.
3. PROVIDE DUCT DETECTOR POWER AND CONNECTIONS AS INDICATED ON MECHANICAL DRAWINGS.
4. PROVIED FLEXIBLE SEAL TYPE CONDUIT FOR CONNECTION TO ALL HVAC EQUIPMENT.
5. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE NEMA 3R.
6. ALL EXTERIOR RECEPTACLE OUTLETS SHALL BE GFCI TYPE.
7. PROVIDE HEAVY DUTY DISCONNECT SWITCHES WITH DUAL ELEMENT FUSES TO MATCH MOTOR H.P. RATING.

CONSTRUCTION NOTES

1. PROVIDE RECESSED PANEL IN WALL. VERIFY AND COORDINATE WITH ARCHITECT 6" WALL HAS BEEN PROVIDED.
2. PROVIDE MINIMUM 3'-0" LEVEL CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC 110.26.
3. ROUTE POWER FOR RECEPTACLE THRU SNAP SWITCH LOCATED IN OFFICE ROOM.
4. RECEPTACLE TO BE MOUNTED 18" ABOVE PLATFORM.
5. FAN COIL TO BE POWERED BY CONDENSING UNIT (ON ROOF). REFER TO MECHANICAL PLANS FOR WIRING INFORMATION.
6. PROVIDE AND INSTALL 30A 2P H.D. WEATHERPROOF NEMA 1 RATED FUSED DISCONNECT. FUSING PER MECHANICAL EQUIPMENT MANUFACTURERS REQUIREMENTS. VERIFY EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.
7. RF PLUG LOAD CONTROLLER CONNECTED TO POWER PACK POWERING LOW-VOLTAGE OCCUPANCY SENSOR. REFER TO DETAIL 5/E0.2

ENLARGED PLUMBING FLOOR PLAN | SCALE: 1/8" = 1'-0" | 1

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POWER FLOOR PLAN

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

Get Air

S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

REGISTERED PROFESSIONAL ENGINEER — LEONARDO P. MILLA — No. E19480 — EXP. 6-30-2017 — ELECTRICAL — STATE OF CALIFORNIA

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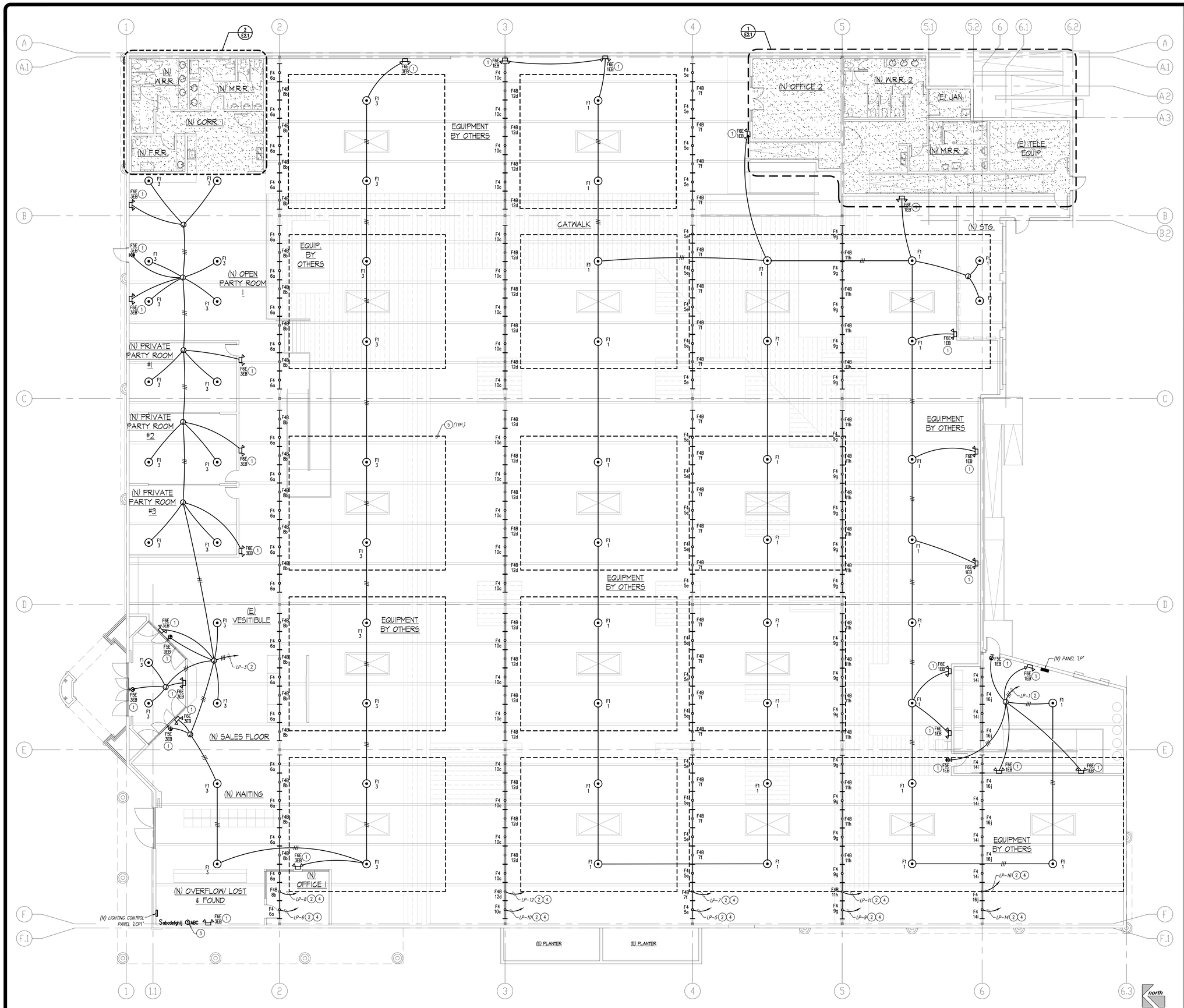

CONSTRUCTION NOTES

1. COORDINATE LIGHT FIXTURE LOCATIONS AND LIGHT SWITCH LOCATIONS, COLOR, AND STYLE WITH ARCHITECT.
2. WHERE MOTION SENSORS ARE SHOWN ON PLANS, VERIFY WATTAGE AND COVERAGE OF PRODUCT PROVIDED IS ADEQUATE FOR SPACE TO BE CONTROLLED. COVERAGE IS TO BE ADJUSTED TO AVOID ACCIDENTAL ACTIVATION OUTSIDE OF AREA. VERIFY WIRING REQUIREMENTS TO MOTION SENSORS, RELAY PACKS, ETC WITH PRODUCT BEING PROVIDED.

CONSTRUCTION NOTES

1. PROVIDE NON-SWITCHED 'HOT' POWER WIRE TO BATTERY PACK CHARGING/SENSOR IN FIXTURE.
2. ROUTE CIRCUIT VIA LIGHTING CONTROL PANEL 'LCP1'.
3. PROVIDE LOW-VOLTAGE MANUAL OVERRIDE SWITCH CONNECTED TO LIGHTING CONTROL PANEL TO SEPARATELY CONTROL ZONES AS NOTED ON PLAN.
4. ROUTE THRU LOCAL LINE-VOLTAGE SWITCH LOCATED IN LOST & FOUND AREA.
5. DAYLIT AREA, PER CALIFORNIA ENERGY CODE.

LIGHTING FLOOR PLAN | SCALE: 1/8" = 1'-0" | 1

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LIGHTING FLOOR PLAN

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

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S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

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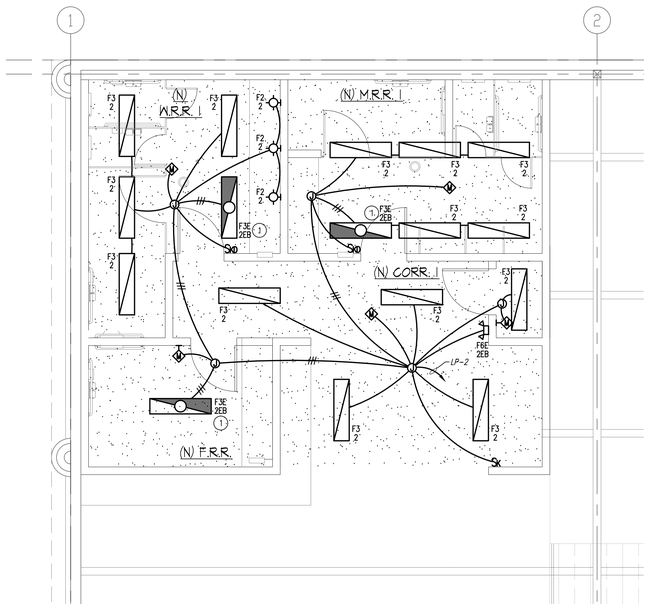
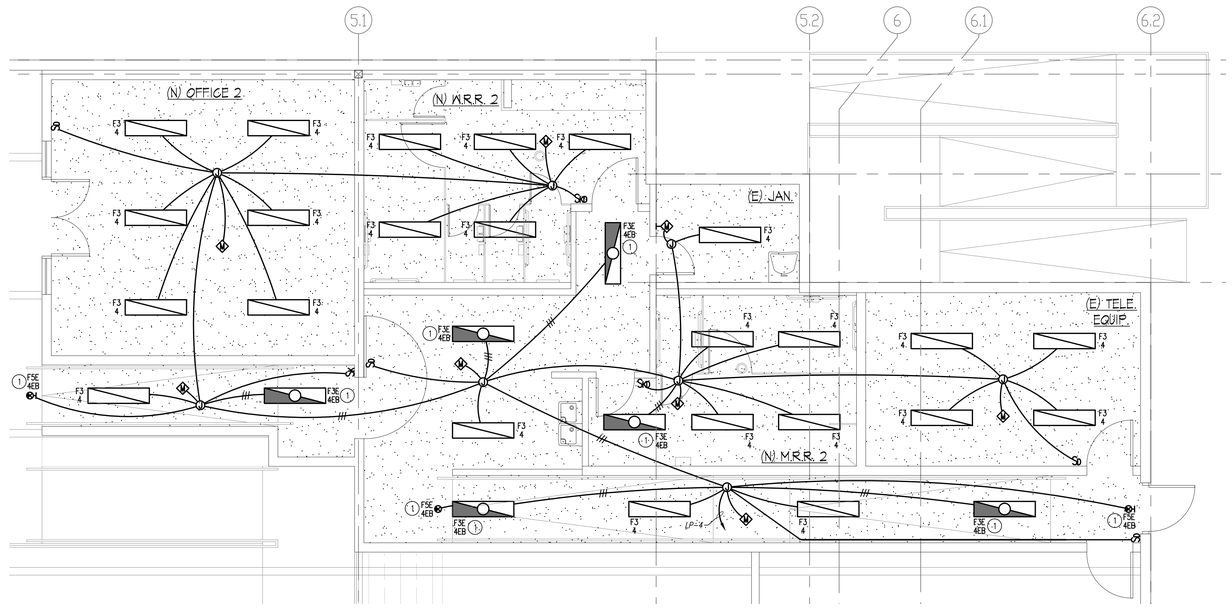


ENLARGED LIGHTING FLOOR PLAN | SCALE: 1/8" = 1'-0" | 2



ENLARGED LIGHTING FLOOR PLAN | SCALE: 1/8" = 1'-0" | 1

CONSTRUCTION NOTES

1. COORDINATE LIGHT FIXTURE LOCATIONS AND LIGHT SWITCH LOCATIONS, COLOR, AND STYLE WITH ARCHITECT.
2. WHERE MOTION SENSORS ARE SHOWN ON PLANS, VERIFY WATTAGE AND COVERAGE OF PRODUCT PROVIDED IS ADEQUATE FOR SPACE TO BE CONTROLLED. COVERAGE IS TO BE ADJUSTED TO AVOID ACCIDENTAL ACTIVATION OUTSIDE OF AREA. VERIFY WIRING REQUIREMENTS TO MOTION SENSORS, RELAY PACKS, ETC WITH PRODUCT BEING PROVIDED.

CONSTRUCTION NOTES

1. PROVIDE NON-SWITCHED 'HOT' POWER WIRE TO BATTERY PACK CHARGING/SENSOR IN FIXTURE.

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ENLARGED LIGHITNG PLANS

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

Get Air

S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

REGISTERED PROFESSIONAL ENGINEER
LEONARD P. NAI
No. E19480
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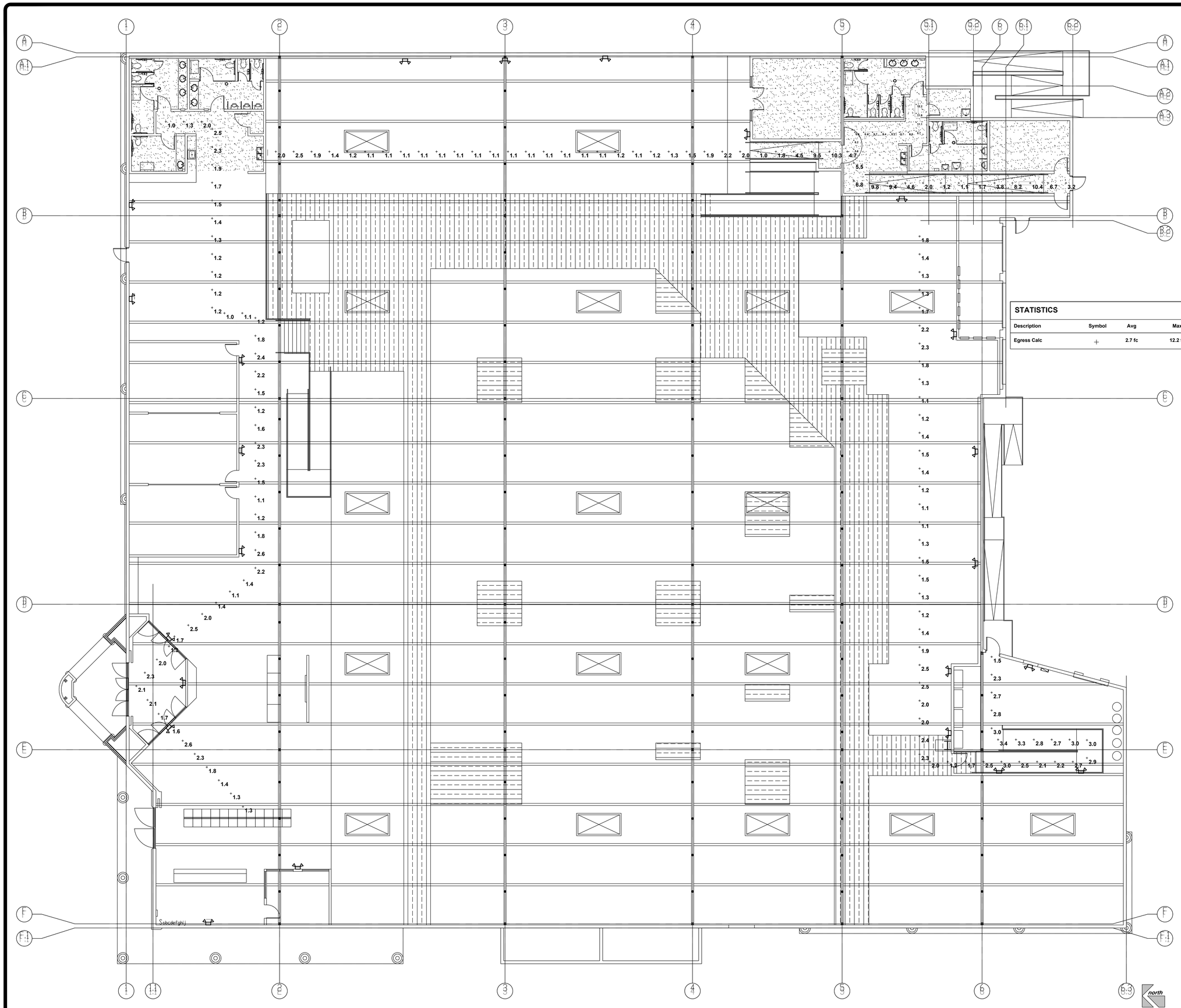

STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Egress Calc	+	2.7 fc	12.2 fc	1.0 fc	12.2:1	2.7:1

EGRESS PHOTOMETRIC PLAN | SCALE: 1/8" = 1'-0" | 1

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EGRESS PHOTOMETRIC PLAN

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

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APN NO. 8331-016-021

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DRAWING NO.
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REGISTERED PROFESSIONAL ENGINEER
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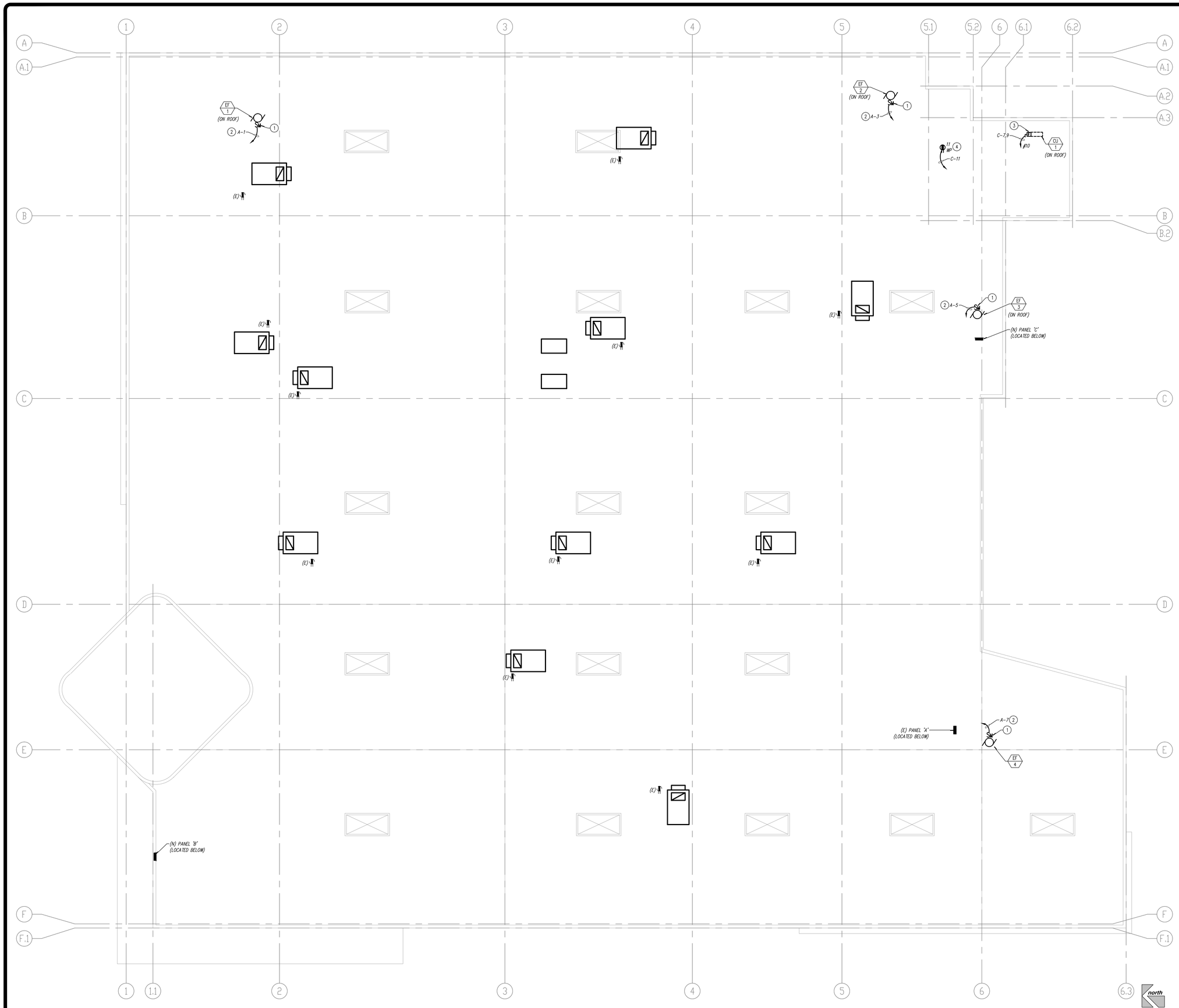

ENLARGED PLUMBING FLOOR PLAN | SCALE: 1/8" = 1'-0" | 1

CONSTRUCTION NOTES

1. COORDINATE POWER AND DATA DEVICE LOCATIONS, AND DEVICE PLATE COLOR WITH ARCHITECT.
2. REFER TO MECHANICAL AND PLUMBING PLANS FOR THE EXACT LOCATION OF HVAC EQUIPMENT AND ADDITIONAL WIRING REQUIREMENTS.
3. PROVIDE DUCT DETECTOR POWER AND CONNECTIONS AS INDICATED ON MECHANICAL DRAWINGS.
4. PROVIED FLEXIBLE SEAL TYPE CONDUIT FOR CONNECTION TO ALL HVAC EQUIPMENT.
5. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE NEMA 3R.
6. ALL EXTERIOR RECEPTACLE OUTLETS SHALL BE GFCI TYPE.
7. PROVIDE HEAVY DUTY DISCONNECT SWITCHES WITH DUAL ELEMENT FUSES TO MATCH MOTOR H.P. RATING.

CONSTRUCTION NOTES

1. PROVIDE AND INSTALL NEMA 3R MOTOR RATED SNAP SWITCH.
2. ROUTE CIRCUIT VIA LIGHTING CONTROL PANEL 'LCP1'.
3. PROVIDE AND INSTALL 30A 2P H.D. WEATHERPROOF NEMA 3R RATED FUSED DISCONNECT. FUSING PER MECHANICAL EQUIPMENT MANUFACTURERS REQUIREMENTS. VERIFY EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.
4. PROVIDE WEATHER PROOF GFCI WORK OUTLET AS REQUIRED WITHIN 25'-0" OF MECHANICAL EQUIPMENT.

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ELECTRICAL ROOF PLAN

TENANT IMPROVEMENT & EXTERIOR FACADE IMPROVEMENTS for:

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S.E. Quadrant, Pomona 60 FWY at Corona Expressway
Pomona, California 91766

APN NO. 8331-016-021

DATE 03.04.15
JOB NO. AIR-2521
DRAWN BY AN

DRAWING NO. E3.0

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ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. WORK COVERED BY THIS SECTION CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, SUPPLIES, AND MATERIALS, UNLESS OTHERWISE SPECIFIED, AND IN PERFORMING ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF A COMPLETE AND OPERABLE ELECTRICAL SYSTEM AS REQUIRED BY THESE SPECIFICATIONS AND AS INDICATED ON THE DRAWINGS.

B. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS IN A MANNER TO BE FULLY COGNIZANT OF ALL WORK REQUIRED UNDER THIS SECTION.

C. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS UNLESS OTHERWISE ARRANGED AND SCHEDULE ALL REQUIRED INSPECTIONS FOR THE EXECUTION OF THE WORK UNDER THIS CONTRACT.

1.02 GENERAL REQUIREMENTS

A. WORK DONE UNDER THIS SECTION SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE, NEC (NATIONAL ELECTRICAL CODE), THE STATE OF CALIFORNIA TITLE 24, THE STATE BUILDING STANDARDS, (OSHA) OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, AND TO ANY APPLICABLE LOCAL JURISDICTIONAL REQUIREMENTS. IN CASE OF CONFLICT BETWEEN REQUIREMENT, THE MOST RESTRICTIVE SHALL APPLY.

1.03 ELECTRICAL CONTRACTOR'S RESPONSIBILITY

A. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES.

B. BEFORE SUBMITTING THE BID, THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FULLY ACQUAINT HIMSELF WITH EXISTING CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT AND ASSOCIATED WIRING IN SUCH A MANNER AS TO CONFORM WITH THE EXISTING STRUCTURE OF THE BUILDING, AVOID OBSTRUCTIONS, AND MEET APPLICABLE CODE REQUIREMENTS.

C. THE INTENT OF THESE DRAWINGS IS TO DESCRIBE A COMPLETE AND OPERABLE SYSTEM. WHERE EXISTING CONDITIONS DIFFER FROM DRAWINGS, ADJUSTMENT SHALL BE MADE AND ALLOWANCES INCLUDED FOR ALL NECESSARY EQUIPMENT TO COMPLETE ALL PARTS OF THE DRAWINGS AND SPECIFICATIONS. BRING ANY QUESTIONS TO THE ARCHITECT OR ENGINEER'S ATTENTION PRIOR TO BIDDING.

D. WHEREVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, DEVICES, CIRCUIT BREAKERS, ETC., ARISES ON THE DRAWING AND/OR SPECIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITION NOTED ON DRAWINGS AND/OR IN SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ENGINEER.

1.04 WORK NOT INCLUDED

A. CERTAIN LABOR, MATERIALS, OR EQUIPMENT MAY BE FURNISHED UNDER OTHER CONTRACTS BY THE OWNER. WHEN SUCH IS THE CASE, THE EXTENT, SOURCE, AND DESCRIPTION OF THESE ITEMS WILL BE INDICATED ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS. UNLESS OTHERWISE NOTED, ALL LABOR, MATERIALS AND EQUIPMENT FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL WORK SHALL BE PROVIDED UNDER THIS SECTION OF THESE SPECIFICATIONS.

1.05 SPECIAL REQUIREMENTS

A. THE DRAWINGS INDICATE GENERAL ARRANGEMENT OF CIRCUITS, OUTLETS, LOCATIONS OF MOTOR CONTROLLERS WITH DISCONNECTS, PANELBOARDS, CONDUIT ROUTING, AND OTHER WORK. INFORMATION SHOWN ON THE DRAWINGS IS ESSENTIALLY DIAGRAMMATIC; HOWEVER, RECIRCUITING OR RELOCATING ELECTRICAL EQUIPMENT WILL NOT BE PERMITTED WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.

1.06 SUBMITTALS

A. AFTER AWARD OF THE CONTRACT AND BEFORE ANY MATERIALS ARE DELIVERED TO THE JOB SITE, A COMPLETE LIST OF ALL MATERIALS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION MUST BE PROVIDED.

B. SUBMIT TO THE ENGINEER FOR APPROVAL ONE PRINT AND ONE REPRODUCIBLE OF ALL LIGHTING FIXTURES, SWITCHGEAR, PANELBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, AND MOTOR STARTERS. SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S PRINTED INFORMATION FOR EACH OF THESE ITEMS IDENTIFIED ON THE DRAWINGS. THE INFORMATION SHALL INCLUDE, AS MINIMUM, OVERALL DIMENSIONS, WEIGHT, PHASE, VOLTAGE RATINGS, WIRING DIAGRAMS, AND NAMEPLATE DATA.

1.07 STANDARDS AND MATERIALS

A. ALL MATERIALS SHALL CONFORM WITH THE CURRENT APPLICABLE INDUSTRY STANDARDS, NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION), ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE), IPCEA (INSULATED POWER CABLE ENGINEERS ASSOCIATION), IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS), NATIONAL ELECTRICAL SAFETY CODE.

B. UNLESS OTHERWISE INDICATED, ALL MATERIALS SHALL BE UNDERWRITERS LABORATORIES LISTED AND LABELED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.

C. WORKMANSHIP AND NEAT APPEARANCE SHALL BE AS IMPORTANT AS THE ELECTRICAL MECHANICAL EFFICIENCY. DEFECTIVE AND DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED PRIOR TO FINAL APPROVAL AND ACCEPTANCE. THE DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT THAN CODES, STATUTES, OR ORDINANCES IN EFFECT. APPLICABLE CODES, STANDARDS, ORDINANCES, AND STATUTES TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS OR SPECIFICATIONS.

1.08 DELIVERY AND STORAGE OF MATERIALS

A. THE CONTRACTOR SHALL INVESTIGATE EACH SPACE IN THE BUILDING THROUGH WHICH EQUIPMENT MUST PASS TO REACH ITS FINAL LOCATIONS. IF NECESSARY, THE MANUFACTURER SHALL BE REQUIRED TO SHIP HIS MATERIAL IN SECTIONS, SIZED TO PERMIT PASSING THROUGH SUCH RESTRICTED AREAS IN THE BUILDING.

B. THE CONTRACTOR SHALL RETAIN IN HIS POSSESSION AND SHALL BE RESPONSIBLE FOR ALL PORTABLE AND DETACHABLE PARTS OF PORTIONS OF INSTALLATIONS SUCH AS FUSES, KEY LOCKS, ADAPTERS, BLOCKING CLIPS, AND INSERTS UNTIL FINAL COMPLETION OF WORK. THESE PARTS SHALL BE DELIVERED TO THE OWNER UPON COMPLETION OF THE WORK.

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. ALL MATERIALS FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE NEW, FREE FROM DEFECTS, AND SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE OF THE WORK. SHOULD ANY TROUBLE DEVELOP DURING THEIR PERIOD DUE TO DEFECTIVE MATERIALS OR FAULTY WORKMANSHIP, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS AND LABOR TO CORRECT THE TROUBLE WITHOUT ANY COST TO THE OWNER. ANY DEFECTIVE MATERIAL OR INFERIOR WORKMANSHIP NOTED AT THE TIME OF INSTALLATION SHALL BE CORRECTED IMMEDIATELY TO THE SATISFACTION OF THE OWNER.

B. ALL MAJOR EQUIPMENT COMPONENTS SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER, AND SERIAL NUMBER PERMANENTLY ATTACHED IN A CONSPICUOUS MANNER.

2.02 CONDUIT

A. PROVIDE RACEWAYS AS INDICATED ON THE DRAWINGS AND AS HEREIN SPECIFIED. CONDUITS SHALL BE RIGID STEEL "ORC" (THICK WALL) GALVANIZED; ELECTRICAL METALLIC TUBING "EMT" (THIN WALL); FLEXIBLE STEEL, GALVANIZED; LIQUID-TIGHT, FLEXIBLE STEEL CONDUIT WITH GROUND BOND; ALUMINUM CONDUIT, OR SCHEDULE 40 PVC.

B. ALL EMPTY CONDUITS (CO) SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE INDICATED ON THE DRAWING.

C. WHERE CONDUIT CROSSES AN EXPANSION JOINT, PROVIDE APPROVED FITTINGS WHICH ALLOW DEFLECTIONS EQUIVALENT TO TWICE THE MOVEMENT ALLOWED BY THE DESIGN.

2.03 CONDUCTORS

A. PROVIDE A COMPLETE SYSTEM OF CONDUCTORS IN RACEWAY SYSTEMS AS SHOWN ON THE DRAWINGS AND THEN HEREIN SPECIFIED.

B. LIGHTING AND POWER CONDUCTORS SHALL BE COPPER, 600 VOLT, TYPE THWN/THHN, NO. 12 MINIMUM UNLESS OTHERWISE NOTED.

C. CONTROL CONDUCTORS SHALL BE 600V, TYPE THWN/THHN, NO.14 MINIMUM SIZE UNLESS OTHERWISE NOTED.

2.04 FITTINGS

A. CONNECTOR, COUPLING, LOCKNUT, BUSHINGS AND CAPS USED WITH RIGID CONDUIT SHALL BE STEEL, THREADED AND GALVANIZED. BUSHINGS SHALL BE INSULATED.

B. EMT FITTINGS, CONNECTORS AND COUPLINGS SHALL BE STEEL, ZINC, OR CADMIUM PLATED, COMPRESSION TYPE, WITH INSULATED THROAT.

C. FLEXIBLE STEEL CONDUIT CONNECTORS SHALL BE TWIST-IN-TYPE WITH INSULATED THROAT. THE FINISH SHALL BE ZINC OR CADMIUM PLATING.

D. EMT CONDUIT FITTINGS SHALL BE THE COMPRESSION TYPE; SET SCREW FITTINGS SHALL NOT BE USED.

2.05 JUNCTION AND PULL BOXES

A. FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE, MACHINE SCREW SECURED COVERS.

B. FOR EXTERIOR WET LOCATIONS, BOXES SHALL BE NEMA 3R OR NEMA 4 RATED, GASKET MACHINE SCREW SECURED COVERS.

C. INGROUND PULLBOXES SHALL BE CONCRETE ELECTRICAL PULL BOX WITH LID APPROPRIATE FOR INSTALLATION LOCATION. SIZE PULLBOX PER NEC REQUIREMENTS.

D. ALL BOXES SHALL BE SIZED FOR THE NUMBER AND SIZES OF CONDUCTORS AND CONDUITS ENTERING THE BOX AND EQUIPPED WITH PLASTER RINGS WHERE REQUIRED.

2.06 OUTLET BOXES

A. FOR FIXTURES, BOXES SHALL BE GALVANIZED, ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE EQUIPPED WITH 3/8" FIXTURE STUDS AND PLASTER RINGS WHERE REQUIRED.

B. FOR CONVENIENCE OUTLETS, WALL SWITCHES, OR OTHER DEVICES, OUTLET BOXES SHALL BE GALVANIZED ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE 4"X4"X1-1/2" MINIMUM.

C. FOR LOCATIONS WHERE STANDARD BOXES ARE NOT SUITABLE, SPECIAL BOXES SHALL BE DESIGNED TO FIT SPACE OR MEET OTHER REQUIREMENTS AND SUBMITTED FOR APPROVAL.

2.07 SWITCHES

A. ALL DEVICES SHALL CONFORM TO NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA) STANDARDS AND SHALL BE UNDERWRITERS' LABORATORIES, INC., (UL) LISTED AND LABELED AND SHALL BE "SPECIFICATION GRADE," MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION WS-896-E, FOR SWITCHES.

1. WALL SWITCHES SHALL BE SPECIFICATION COMMERCIAL GRADE (MINIMUM), FULLY ENCLOSED, QUIET-TYPE TUMBLER SWITCHES RATED 20 AMPERES, 120/277-VOLT, BAKELITE OR COMPOSITION, BACK AND SIDE WIRED, BUMPER PAD, FULL RATING FOR INDUCTIVE OR NON-INDUCTIVE LOADS AND INCANDESCENT OR FLUORESCENT LIGHTING LOADS.

2. SINGLE POLE SWITCHES: G.E. 59511, HUBBELL #1221, ARROW #1991 OR PASS& SEYMOUR 20AC1.

3. THREE-WAY QUIET SWITCHES: G.E. 59531, HUBBELL #1223, ARROW #1993 OR PASS& SEYMOUR 20AC3.

4. WALL SWITCH AND PILOT LIGHTS SHALL BE FLUSH MOUNTED COMBINATION WALL TYPE WITH SWITCH AND PILOT LIGHT EQUIPPED WITH A 6-WATT, 125-VOLT CANDELABRA BASE LAMP. THE PILOT LIGHT SHALL HAVE A GREEN JEWEL WITH BRASS RIM FLUSH MOUNTED IN THE WALL PLATE.

5. ALL SWITCHES SHALL BE OF THE SAME MANUFACTURE.

6. NORMAL SWITCH COLOR IS WHITE APPROVED BY ARCHITECT/OWNER. SWITCHES CONTROLLING CIRCUITS CONNECTED TO EMERGENCY POWER SOURCE SHALL BE RED.

7. 30 AMP MOTOR RATED SNAP SWITCHES SHALL BE LEVITON MS302-DS. PROVIDED IN NEMA 1 OR 3R ENCLOSURE AS SHOWN ON DRAWING.

B. SENSOR SWITCH (MOTION SENSOR)

1. WALL SENSOR SWITCH SHALL BE WATT STOPPER DUAL TECHNOLOGY OCCUPANCY SENSOR LEVITON MODEL #DSSMT-GD (FOR SINGLE POLE SWITCHING) & LEVITON MODEL #DSSMD-GD FOR (DUAL SWITCHING).

2. CEILING SENSOR SWITCH SHALL BE WATT STOPPER DUAL-TECHNOLOGY MODE.

3. PROVIDE 120/277V CEILING SENSOR POWER PACK INSTALLED IN J-BOX NEXT TO LIGHTING CIRCUIT.

2.08 RECEPTACLES

A. DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE, 20 AMPS, 125 VOLTS, 3-WIRE, SIDE-WIRED WITH BINDING SCREWS, PARALLEL SLOTS, U-GROUND, PLASTER EARS AND CAPTIVE MOUNTING SCREWS. BODY SHALL BE PHENOLIC, PLASTIC, OR BAKELITE. RECEPTACLES SHALL BE HEAVY-DUTY, 3-BLADE CURRENT CARRYING CONTACT AND DOUBLEWIDE FLAT BLADE GROUND CONTACTS. PROVIDE ARROW HART 5242-1 HUBBELL 5242-1 OR LEVITON 5242-1.

B. SINGLE RECEPTACLES SHALL BE SPECIFICATION GRADE, GROUNDING TYPE, SIDE-WIRED, WITH BINDING SCREWS, AND SHALL HAVE STANDARD SIZE IVORY BAKELITE BASE. FOR CIRCUITS CONSISTING OF ONE SINGLE RECEPTACLE ONLY, AMPERE RATING OF RECEPTACLE SHALL BE THE SAME AS CIRCUIT BREAKER OF FUSE. FOR RECEPTACLES RATED 15 AMPS/125 VOLTS, PROVIDE NEMA 5-15R, ARROW-HART 5251-1. FOR RECEPTACLES RATED 20 AMPS / 125 VOLTS, PROVIDE NEMA 5-20R, ARROW-HART 5721-1, OR EQUAL.

2.09 DEVICE PLATES

1. PROVIDE PLATES FOR ALL SWITCHES, RECEPTACLES, JUNCTION BOXES, TELEPHONE AND OTHER OUTLETS.

2. PROVIDE ENGRAVED OR ETCHED PLATES FOR ALL LOCK OUT SWITCHES, PILOT SWITCHES, SWITCHES FROM WHICH EQUIPMENT OR CIRCUIT CONTROLLED CANNOT BE READILY SEEN, THREE OR MORE SWITCHES UNDER A COMMON PLATE AND FOR SWITCHES AS INDICATED.

3. STAINLESS STEEL PLATES SHALL BE AMERICAN IRON AND STEEL INSTITUTE (AISI) TYPE 302, WITH BEVELED EDGES, 0.040" THICK WITH SATIN SMOOTH FINISH. "SMOOTHIE," HUBBELL #S7071 SERIES.

4. PLASTIC COVER PLATE SHALL BE HIGH IMPACT THERMOPLASTIC, HIGH STRENGTH, SCRATCH-RESISTANT, SMOOTH AND SELF-EXTINGUISHING, HUBBELL "PI" SERIES OR PASS & SEYMOUR PP SERIES.

5. WHERE OUTLETS ARE INDICATED TO BE WEATHERPROOF, PROVIDE AN AISI TYPE 302 STAINLESS WITH DOUBLE HINGED COVERS, PASS & SEYMOUR #WPD-8.

6. GALVANIZED STEEL PLATES SHALL BE SQUARE OR RECTANGULAR AND HOT DIPPED GALVANIZED OR SHERARDIZED, BEVELED EDGES AND 0.040" THICK. GALVANIZED STEEL PLATES SHALL BE USED IN UTILITY AREA.

7. PROVIDE PLATES EQUIPPED WITH CLOSE FITTING OPENINGS FOR THE EXACT DEVICE TO BE USED. PROVIDE PLATES FOR TELEPHONE OUTLETS EQUIPPED WITH BUSHED OPENINGS.

8. REFER TO SECTION 3.08 FOR LABELING OF PLATES.

9. COVER PLATES ON PRESSED STEEL OUTLET BOXES IN FURRED AREAS, ATTICS, ETC., OR EXPOSED IN MECHANICAL EQUIPMENT ROOMS SHALL BE OF THE SAME MATERIAL AS THE OUTLET BOX.

10. COVER PLATES IN LOCATIONS CONCEALED FROM PUBLIC VIEW SHALL HAVE THE CIRCUIT NUMBERS AND SOURCE FEED POINT HAND LABELED WITH MARKING BLACK PEN (PERMANENT MARKER). SEE SECTION 3.08 FOR LABELING.

11. PROVIDE PLASTIC COVER PLATES UNLESS NOTED OTHERWISE

2.10 PANELBOARDS

A. FURNISH AND INSTALL ALL BRANCH CIRCUIT PANELBOARDS AS HEREINAFTER SPECIFIED AND AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE OF THE DEAD FRONT SAFETY TYPE EQUIPPED WITH THE THERMAL MAGNETIC 40°C CIRCUIT BREAKERS.

B. CIRCUIT BREAKERS SHALL BE RATED MINIMUM 10,000 AMPS RMS SYMMETRICAL INTERRUPTING CAPACITY AND SHALL BE THE NUMBER OF POLES AND CURRENT CAPACITY AS INDICATED ON THE PANEL SCHEDULE. BRANCH CIRCUIT PANELBOARDS SHALL BE SQUARE-D OR EATON/CUTLER HAMMER WITH LUGS UL LISTED FOR USE WITH 75°C WIRE.

C. DOOR SHALL HAVE A PLASTIC COVERED DIRECTORY FRAME WITH A TYPED IDENTIFICATION CARD OR AL CIRCUIT AND PANEL NUMBERS FOR BRANCH CIRCUIT PANELBOARDS.

D. PROVIDE NAMEPLATE FOR ALL PANELBOARDS, ENGRAVED WHITE LETTERS ON BLACK BACKGROUND INSTALL NAME PLATES ON THE TRIM ABOVE DOOR.

E. ALL WIRING SHALL BE NEATLY ARRANGED AND LACED TOGETHER.

F. ALL CIRCUIT BREAKERS USED FOR HVAC LOADS SHALL BE RATED "HACR".

G. BUS BARS SHALL BE RECTANGULAR IN CROSS SECTION CONSTRUCTED OF COPPER. NEUTRAL AND GROUND BUSES SHALL BE FULL SIZE.

2.11a INTERIOR LIGHTING FIXTURES

A. FURNISH, INSTALL AND WIRE LIGHTING FIXTURES SCHEDULED OR INDICATED BY TYPE DESIGNATION ON THE DRAWINGS. IF TYPE DESIGNATION IS OMITTED, FIXTURES SHALL BE OF THE SAME TYPE AS SHOWN FOR ROOMS OF SIMILAR USAGE. VERIFY BEFORE PURCHASE AND INSTALLATION. NO ALTERNATIVE FIXTURES WILL BE ACCEPTED.

B. LOCATIONS OF FIXTURES ON ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. VERIFY LOCATION AND SPACING WITH ARCHITECTURAL REFLECTED CEILING PLANS AND OTHER REFERENCE DATA BEFORE PURCHASING. COORDINATE SPACE CONDITIONS, INCLUDING HEADROOM CLEARANCES AND INTERFERENCES WITH CEILING COMPONENTS SUCH AS DUCTS, OPENINGS, BEAMS AND PIPING PRIOR TO INSTALLATION.

C. CHECK THE ARCHITECTURAL FINISHES AND, REGARDLESS OF THE CATALOG PREFIXES AND SUFFIXES SHOWN, FURNISH FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, HANGERS AND OTHER MISCELLANEOUS APPURTENANCES OR PROPERLY COORDINATE WITH SAID FINISHES. WHERE REQUIRED, FURNISH REINFORCING FOR CEILING CONSTRUCTION TO SUPPORT THE WEIGHT OF THE FIXTURES.

D. FIXTURES SHALL BE FREE OF LIGHT LEAKS AND DESIGNED TO PROVIDE SUFFICIENT VENTILATION OF LAMPS AND BALLASTS, INCLUDING VENT HOLES WHERE REQUIRED. OUTDOOR FIXTURES WITH VENT HOLES SHALL HAVE WIRE MESH SCREENS IN THE VENT HOLES.

E. REPLACE BLEMISHED, DAMAGED OR UNSATISFACTORY FIXTURES AT NO ADDITIONAL COST TO THE OWNER AND IN A MANNER SATISFACTORY TO THE ARCHITECT.

F. LAMPS

1. LAMPS SHALL BE NEW AND OF WATTAGE AND TYPE INDICATED OR AS REQUIRED FOR THE PARTICULAR FIXTURE INSTALLED.

2. UNLESS OTHERWISE NOTED, LAMPS DESCRIBED IN FIXTURE SCHEDULE, ANSI NOMENCLATURE, MANUFACTURED BY GENERAL ELECTRIC, SYLVANIA, PHILLIPS, OR EQUAL.

3. PROVIDE INCANDESCENT LAMPS AND TUNGSTEN-HALOGEN LAMPS AS 130 VOLT RATED WHENEVER SUCH DESIGNS ARE AVAILABLE.

4. PROVIDE FLUORESCENT LAMPS AS INDICATED ON THE DRAWINGS. ALL LINEAR FLUORESCENT LAMPS ARE TO BE INSTALLED WITH THE LABEL FACING THE SAME DIRECTION.

5. PROVIDE HIGH INTENSITY DISCHARGE (H.I.D.) LAMPS OF TYPE AND WATTAGE AS SHOWN ON THE DRAWINGS. LAMPS SHALL BE COMPATIBLE WITH FIXTURE BALLAST. MANUFACTURERS: G.E. CO., PHILLIPS, SYLVANIA, OR EQUAL.

G. FLUORESCENT BALLASTS

1. PROVIDE BALLASTS ONLY BY MANUFACTURERS PRODUCING EQUIPMENT FOR AT LEAST FOUR YEARS.

2. PROVIDE BALLASTS WITH OPERATION AT INPUT FREQUENCY OF 60 HZ.

3. PROVIDE NON-DIMMING ELECTRONIC BALLAST FOR T-8 FLUORESCENT LAMPS AS SHOWN ON DRAWING. THE BALLAST SHALL BE UL LISTED CLASS P, AND SOUND LEVEL A OR BETTER. THE BALLAST WITH LAMP OPERATING FREQUENCY BETWEEN 25 TO 35 KHZ. WITH NO FLICKERING. THE BALLAST SHALL HAVE LOWEST HARMONIC CONTENT AND TOTAL HARMONIC DISTORTION (NOT TO EXCEED 15% ON TOTAL HARMONIC AND 10% ON THIRD HARMONIC CONTENT). BALLAST SHALL BE ADVANCE MARK V OR EQUAL.

4. BALLASTS FOR EXTERIOR FIXTURES SHALL BE LOW TEMPERATURE TYPE FOR OPERATING AT +20 DEGREES F.

5. PROVIDE HIGH POWER FACTOR BALLASTS (90 PERCENT OR HIGHER) UL LISTED AND CONTAINING NO PCB. BALLAST SHALL MEET FCC RULES REPORT 18 AND IEEE 587 FOR WITHSTANDING LINE TRANSIENTS.

6. PROVIDE STEEL ENCASED, FULLY POTTED BALLASTS CAPABLE OF STARTING LAMPS AT 0 DEGREES F.

7. BALLAST SHALL MEET FOLLOWING CHARACTERISTICS:

A. BALLAST FACTOR: 80 TO 100%

B. LAMP CURRENT CREST FACTOR: LESS THAN 1.7.

C. FILAMENT VOLTAGE: 2.5 TO 3.6 VOLTS.

D. FLICKER: LESS THAN 1%

9. PROVIDE BALLASTS WITH BUILT-IN LINE RFI SUPPRESSION AND HAVE SURGE AND TRANSIENT PROTECTED TO 6000 VOLTS.

10. PROVIDE BALLASTS WITH OPERATING TEMPERATURES NOT EXCEEDING 80 DEGREES C. AT ANY POINT ON THE CASE DURING NORMAL OPERATION.

11. (3) LAMP BALLASTS ARE NOT ACCEPTABLE.

H. HIGH INTENSITY DISCHARGE LAMP BALLASTS

1. PROVIDE HIGH INTENSITY DISCHARGE LAMP BALLASTS AS HIGH POWER FACTOR REGULATING TYPE, CONFORMING TO APPLICABLE NEMA STANDARDS. INPUT VOLTAGE AND WATTAGES ARE LISTED IN THE FIXTURE SCHEDULE.

2. MINIMUM STARTING TEMPERATURE: MINUS 20 DEGREES F.

3. PROVIDE HIGH INTENSITY DISCHARGE BALLASTS OF THE ENCAPSULATED TYPE WITH LOWEST SOUND RATING AVAILABLE.

I. EXIT SIGNS LIGHTS SHALL BE LED TYPE AND PROVIDED WITH AN INTEGRAL EMERGENCY BATTERY PACK.

2.11b EXTERIOR LIGHTING FIXTURES

A. FURNISH, INSTALL AND WIRE LIGHTING FIXTURES SCHEDULED OR INDICATED BY TYPE DESIGNATION ON THE DRAWINGS. IF TYPE DESIGNATION IS OMITTED, FIXTURES SHALL BE OF THE SAME TYPE AS SHOWN ON ELECTRICAL DRAWINGS FOR SIMILAR USAGE. VERIFY BEFORE PURCHASE AND INSTALLATION. NO ALTERNATIVE FIXTURES WILL BE ACCEPTED.

B. LOCATIONS OF FIXTURES ON ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. VERIFY LOCATION AND SPACING WITH LANDSCAPE/CIVIL DRAWINGS AND OTHER REFERENCE DATA BEFORE PURCHASING. REVIEW SITE CONDITIONS PRIOR TO INSTALLATION.

C. VERIFY ALL FINISHES WITH OWNER, REGARDLESS OF THE CATALOG PREFIXES AND SUFFIXES SHOWN, FURNISH FIXTURES WITH THE PROPER SUPPORTS AND OTHER MISCELLANEOUS APPURTENANCES OR PROPERLY COORDINATE WITH SAID FINISHES.

D. OUTDOOR FIXTURES WITH VENT HOLES SHALL HAVE WIRE MESH SCREENS IN THE VENT HOLES.

E. REPLACE BLEMISHED, DAMAGED OR UNSATISFACTORY FIXTURES AT NO ADDITIONAL COST TO THE OWNER AND IN A MANNER SATISFACTORY TO THE ENGINEER.

F. LAMPS

1. LAMPS SHALL BE NEW AND OF WATTAGE AND TYPE INDICATED OR AS REQUIRED FOR THE PARTICULAR FIXTURE INSTALLED.

2. UNLESS OTHERWISE NOTED, LAMPS DESCRIBED IN FIXTURE SCHEDULE, ANSI NOMENCLATURE, MANUFACTURED BY GENERAL ELECTRIC, SYLVANIA, PHILLIPS, OR EQUAL.

3. PROVIDE FLUORESCENT LAMPS AS INDICATED ON THE DRAWINGS. ALL LINEAR FLUORESCENT LAMPS ARE TO BE INSTALLED WITH THE LABEL FACING THE SAME DIRECTION.

4. PROVIDE HIGH INTENSITY DISCHARGE (H.I.D.) LAMPS OF TYPE AND WATTAGE AS SHOWN ON THE DRAWINGS. LAMPS SHALL BE COMPATIBLE WITH FIXTURE BALLAST. MANUFACTURERS: G.E. CO., PHILLIPS, SYLVANIA, OR EQUAL.

G. FLUORESCENT BALLASTS

1. PROVIDE BALLASTS ONLY BY MANUFACTURERS PRODUCING EQUIPMENT FOR AT LEAST FOUR YEARS.

2. PROVIDE BALLASTS WITH OPERATION AT INPUT FREQUENCY OF 60 HZ.

3. PROVIDE NON-DIMMING ELECTRONIC BALLAST FOR T-8 FLUORESCENT LAMPS AS SHOWN ON DRAWING. THE BALLAST SHALL BE UL LISTED CLASS P, AND SOUND LEVEL A OR BETTER. THE BALLAST WITH LAMP OPERATING FREQUENCY BETWEEN 25 TO 35 KHZ. WITH NO FLICKERING. THE BALLAST SHALL HAVE LOWEST HARMONIC CONTENT AND TOTAL HARMONIC DISTORTION (NOT TO EXCEED 15% ON TOTAL HARMONIC AND 10% ON THIRD HARMONIC CONTENT). BALLAST SHALL BE ADVANCE MARK V OR EQUAL.

4. BALLASTS FOR EXTERIOR FIXTURES SHALL BE LOW TEMPERATURE TYPE FOR OPERATING AT +20 DEGREES F.

5. PROVIDE HIGH POWER FACTOR BALLASTS (90 PERCENT OR HIGHER) UL LISTED AND CONTAINING NO PCB. BALLAST SHALL MEET FCC RULES REPORT 18 AND IEEE 587 FOR WITHSTANDING LINE TRANSIENTS.

6. PROVIDE STEEL ENCASED, FULLY POTTED BALLASTS CAPABLE OF STARTING LAMPS AT 0 DEGREES F.

7. BALLAST SHALL MEET FOLLOWING CHARACTERISTICS:

A. BALLAST FACTOR: 80 TO 100%

B. LAMP CURRENT CREST FACTOR: LESS THAN 1.7.

C. FILAMENT VOLTAGE: 2.5 TO 3.6 VOLTS.

D. FLICKER: LESS THAN 1%

9. PROVIDE BALLASTS WITH BUILT-IN LINE RFI SUPPRESSION AND HAVE SURGE AND TRANSIENT PROTECTED TO 6000 VOLTS.

10. PROVIDE BALLASTS WITH OPERATING TEMPERATURES NOT EXCEEDING 80 DEGREES C. AT ANY POINT ON THE CASE DURING NORMAL OPERATION.

H. HIGH INTENSITY DISCHARGE LAMP BALLASTS

1. PROVIDE HIGH INTENSITY DISCHARGE LAMP BALLASTS AS HIGH POWER FACTOR REGULATING TYPE, CONFORMING TO APPLICABLE NEMA STANDARDS. INPUT VOLTAGE AND WATTAGES ARE LISTED IN THE FIXTURE SCHEDULE.

2. MINIMUM STARTING TEMPERATURE: MINUS 20 DEGREES F.

3. PROVIDE HIGH INTENSITY DISCHARGE BALLASTS OF THE ENCAPSULATED TYPE WITH LOWEST SOUND RATING AVAILABLE.

I. POLES AND BRACKETS

1. FURNISH BOLT TEMPLATES AND POLE MOUNTING ACCESSORIES TO INSTALLER OF POLE FOUNDATION.

2. FURNISH ALL POLES, MOUNTING BRACKETS AND ARMS ASSOCIATED WITH MOUNTING POLES AND LUMINAIRES AS AN ASSEMBLY.

J. LED LIGHT FIXTURES

A. GENERAL:

1. LED LIGHT FIXTURES SHALL BE IN ACCORDANCE WITH IES, NFPA, UL, AS SHOWN ON THE DRAWINGS, AND AS SPECIFIED.
2. LED LIGHT FIXTURES SHALL BE REDUCTION OF HAZARDOUS SUBSTANCES (ROHS)-COMPLIANT.
3. LED DRIVERS SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED:
   a. MINIMUM EFFICIENCY: 85% AT FULL LOAD.
   b. MINIMUM OPERATING AMBIENT TEMPERATURE: -20 DEG C. (-4 DEG F.)
   c. INPUT VOLTAGE: 120 - 277V (±10%) AT 60 HZ.
   d. INTEGRAL SHORT CIRCUIT, OPEN CIRCUIT, AND OVERLOAD PROTECTION.
   e. POWER FACTOR: >=0.95.
   f. TOTAL HARMONIC DISTORTION: <=20%
   g. COMPLY WITH FCC 47 CFR PART 15.
4. LED MODULES SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED:
   a. COMPLY WITH IES LM-79 AND LM-80 REQUIREMENTS.
   b. MINIMUM CRI 80 AND COLOR TEMPERATURE 4000K UNLESS OTHERWISE SPECIFIED IN LUMINAIRE SCHEDULE.
   c. MINIMUM RATED LIFE: 50,000 HOURS PER IES L70.
   d. LIGHT OUTPUT LUMENS AS INDICATED IN THE LUMINAIRE SCHEDULE.

B. LED DOWNLIGHTS:

1. HOUSING, LED DRIVER, AND LED MODULE SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

C. LED TROFFERS:

1. LED DRIVERS, MODULES, AND REFLECTOR SHALL BE ACCESSIBLE, SERVICEABLE, AND REPLACEABLE FROM BELOW THE CEILING.
2. HOUSING, LED DRIVER, AND LED MODULE SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

2.12 LOW VOLTAGE SWITCHGEAR

A. FURNISH AND INSTALL ALL SWITCHBOARDS AS HEREINAFTER SPECIFIED AND AS SHOWN ON THE DRAWINGS. SWITCHBOARDS SHALL BE OF THE DEAD FRONT SAFETY TYPE EQUIPPED WITH THE THERMAL MAGNETIC 40°C CIRCUIT BREAKERS.

B. CIRCUIT BREAKERS SHALL BE RATED MINIMUM 10,000 AMPS RMS SYMMETRICAL INTERRUPTING CAPACITY AND SHALL BE THE NUMBER OF POLES AND CURRENT C