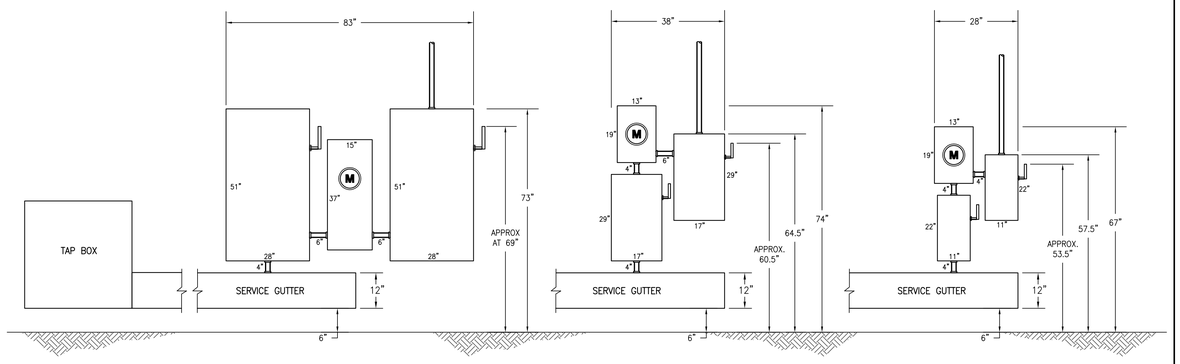
400A, 277/480V, SERVICE

200A, 277/480V, SERVICE

100A, 277/480V, SERVICE



NOTE:

- DISCONNECT SWITCH OPERATING HANDLE HEIGHT SHALL NOT EXCEED 6'-7" (79") PER NEC 404.8(A).
- METER CENTER HEIGHT SHALL BE BETWEEN LESS THAN 6' AFF PER CENTERPOINT ENERGY STANDARDS.

4 ELECTRICAL FUTURE TENANTS EQUIPMENT DETAILS

SCALE: NONE

SYMBOL LEGEND

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
LIGHTING (LETTER DENOTES TYPE – SEE LIGHT FIXTURE SCHEDULE)	
○	DOWNLIGHT FIXTURE
▭	LIGHT FIXTURE – WALL MOUNTED
RECEPTACLES AND OUTLETS	
⊖	DUPLEX RECEPTACLE
⊜	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
⊞	DOUBLE DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE IN 2–GANG BOX WITH SINGLE COVER PLATE
ⓙ	JUNCTION BOX
MOTOR CONTROLLERS AND EQUIPMENT	
□ᴶ	DISCONNECT SWITCH
$M	1P–20A MOTOR RATED SWITCH
ELECTRICAL EQUIPMENT	
▭	277/480V PANELBOARD
▬	120/208V PANELBOARD
▭	TELEPHONE CABINET
CIRCUITING	
———	CONDUIT
- - - -	CONDUIT BELOW FLOOR, SLAB, OR GRADE
——#2——	3/4"C. UNLESS OTHERWISE NOTED; LONG HATCH = NEUTRAL; SHORT HATCH = PHASE; "2" HATCH = INSULATED GROUND, NO HATCHES INDICATES 2 CONDUCTORS, ARROW INDICATES HOMERUN
———+	PARTIAL ELECTRICAL HOMERUN
SUBSCRIPTS AND ABBREVIATIONS	
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
WP	INDICATES WEATHERPROOF
NL	LIGHT FIXTURE ON NIGHT LIGHT CIRCUIT
UON	UNLESS OTHERWISE NOTED

GENERAL NOTE:
ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF

SPECIFICATIONS

GENERAL

* VERIFY ALL DIMENSIONS AT THE JOB SITE AND FROM THE ARCHITECTURAL PLANS.
* UNLESS OTHERWISE NOTED, CONTRACTOR AND SUBCONTRACTOR SHALL PAY FOR ALL PERMITS AND CHARGES REQUIRED AND SHALL COMPLY WITH ALL GOVERNING CODES AND ORDINANCES AND AUTHORITY HAVING JURISDICTION.
* VISITING THE SITE: EACH BIDDER SHALL VISIT THE SITE OF THE PROPOSED WORK AND SHALL FULLY INFORM HIMSELF REGARDING THE FACILITIES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR WORK OR MATERIAL OMITTED FROM THE BIDDER'S CONTRACT PROPOSAL DUE TO HIS FAILURE TO SO INFORM HIMSELF BY SUCH INVESTIGATION.
* ALL CHANNELING AND PATCHING OF ROOF, FLOOR, CEILING AND WALLS SHALL BE GENERAL CONTRACTOR.
* FURNISH AND INSTALL A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON PLANS. ELECTRICAL CONTRACTOR TO MAKE ALL FINAL CONNECTIONS TO ALL EQUIPMENT. MATERIAL SHALL BE AS FOLLOWS:

CONDUIT:

* ALL CONDUITS, WEATHER HEAD, AND FITTINGS FROM THE UTILITY COMPANY POINT OF DELIVERY TO THE MAIN SERVICE DISCONNECT SWITCH/EQUIPMENT/GUTTER SHALL BE NON–METALLIC (PER POWER COMPANY STANDARDS). CONDUITS SHALL BE PVC SCHEDULE 40 UNLESS THEY ARE SUBJECTED TO PHYSICAL DAMAGE, PVC SCHEDULE 80 CONDUITS SHALL BE USED.
* ELECTRICAL CONDUCTORS SHALL BE INSTALLED IN CONDUIT COMPLYING WITH THE NATIONAL ELECTRICAL CODE. WHERE INSTALLED SUBJECT TO STRESS FROM COLLISION OR IMPACT, CONDUIT SHALL BE GALVANIZED RIGID STEEL. WHERE RIGID STEEL CONDUIT IS NOT REQUIRED, CONDUCTORS SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING WITH ELECTRO–GALVANIZING OUTSIDE AND ENAMEL INSIDE. TUBING SHALL BE BY "TRIANGLE" OR AN APPROVED SUBSTITUTION. LIQUID–TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED AT ALL MOTOR CONNECTIONS OR WHERE MOVEMENT OR VIBRATION IS A CONCERN. UNLESS NOTED OTHERWISE, FLEXIBLE METAL CONDUIT MAY BE USED ONLY FOR CONNECTION TO LIGHTING FIXTURES, IN LENGTHS NOT TO EXCEED 6 (SIX) FEET. MINIMUM CONDUIT SIZE SHALL BE 1/2 INCH. MINIMUM SIZE FOR FLEXIBLE METAL CONDUIT SHALL BE 1/2 INCH. CONDUIT/CONDUCTOR FILL SHALL CONFIRM TO NATIONAL ELECTRICAL CODE, LATEST EDITION.
* CARLON PVC TYPE SCH. 40 HEAVY WALL CONDUIT WITH GROUND WIRE MAY BE USED BELOW FLOOR SLAB OR UNDERGROUND IN LIEU OF RIGID, THREADED, GALVANIZED CONDUIT. PVC SCH. 40 CONDUIT SHALL NOT BE RUN IN OR ABOVE FLOOR SLAB, OR IN TILT WALL PANELS. PVC CONDUIT SHALL TERMINATE BELOW FLOOR SLAB WITH RIGID, THREADED METAL CONDUIT ADAPTER. CONDUIT ABOVE SLAB SHALL BE METAL.
* A GROUND CONDUCTOR SHALL BE SUPPLIED IN NONMETALLIC CONDUIT OR ELECTRICAL METALLIC TUBING UTILIZING SET SCREW TYPE CONNECTORS. THE GROUND CONDUCTOR SHALL BE BARE, STRANDED, ANNEALED COPPER.
* CONDUIT TO BE SUPPORTED FROM JOIST. PROVIDED HANGERS, SUPPORTS AND FASTENINGS AS REQUIRED BY NATIONAL ELECTRICAL CODE DO NOT SUPPORT FROM ROOF DECK.
* PROVIDE PULL STRING IN ALL EMPTY CONDUITS.

CONDUIT FITTINGS:

* ALL CONDUIT FITTINGS SHALL BE STEEL, SET SCREW OR COMPRESSION TYPE, INSULATED THROAT, UL LISTED. FITTINGS SHALL BE AS MANUFACTURED BY APPLETON ELECTRIC, OZ GEDNEY CO., ARROW CONDUIT AND FITTINGS CORP., OR EQUAL.

CONDUCTORS:

* ALL CONDUCTORS SHALL BE COPPER. EACH CONDUCTOR SHALL BE CONTINUOUS, WITHOUT WELD, SPLICE, OR JOIST THROUGHOUT ITS LENGTH, AND UNIFORM IN CROSS–SECTION. WIRE #6 AWG AND LARGER SHALL HAVE TYPE "THWN" INSULATION. WIRE #8 AWG AND SMALLER SHALL HAVE DUAL–RATED TYPE "THHN/THWN" INSULATION. MINIMUM WIRE SIZE, EXCEPT FOR CONTROL WIRING, SHALL BE #12 AWG. ALL WIRING INSIDE LIGHTING FIXTURES SHALL BE TEMPERATURE RATED PER THE NATIONAL ELECTRICAL CODE – 90 DEGREES C MINIMUM. BRANCH CIRCUIT WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS SHALL BE TEMPERATURE RATED FOR 90 DEGREES C.

LIGHTING PANELBOARDS:

* 1. 120/208V, 3–PHASE' 4–WIRE OR 120/240V, 1–PHASE, 3–WIRE: FURNISH AND INSTALL AS SHOWN ON PLANS, LIGHTING PANELBOARDS BY SQUARE 'D' TYPE 'NQOD', STYLE 'D', OR EQUAL WITH BOLT ON CIRCUIT BREAKERS OR AN APPROVED SUBSTITUTION. ALL BUSSING TO BE COPPER.

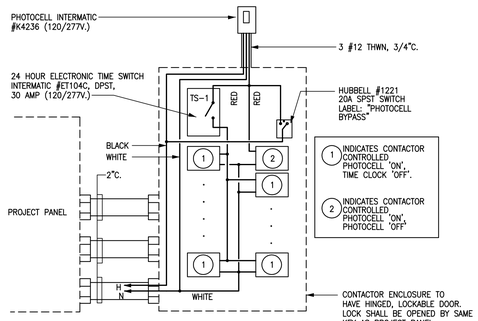
  2. 277/480V, 3–PHASE, 4–WIRE: FURNISH AND INSTALL AS SHOWN ON PLANS, LIGHTING PANELBOARDS BY SQUARE 'D', OR EQUAL TYPE "NEHB" WITH BOLT ON CIRCUIT BREAKERS OR AN APPROVED SUBSTITUTION. ALL BUSSING TO BE COPPER.

SAFETY SWITCHES:

* SAFETY SWITCHES SHALL BE FURNISHED AND INSTALLED AT ALL LOCATIONS INDICATED ON PLANS OR REQUIRED BY THE NATIONAL ELECTRICAL CODE. ALL SWITCHES SHALL BE HEAVY DUTY TYPE AND SHALL HAVE CLIPS FOR REJECTION TYPE FUSES AND SHALL BE BY SQUARE 'D', G.E., OR EQUAL, FOR THE VOLTAGE AND LOAD INVOLVED. PROVIDE A COMPLETE SET OF FUSES IN ALL FUSED SWITCHES. FUSES SHALL BE CLASS RK5 DUAL ELEMENT TIME DELAY FOR CIRCUITS UP TO 600 AMPS AND CLASS L (BUSSMAN "HI–CAP" KRP–C) FOR CIRCUITS ABOVE 600 AMPS.

TRANSFORMERS:

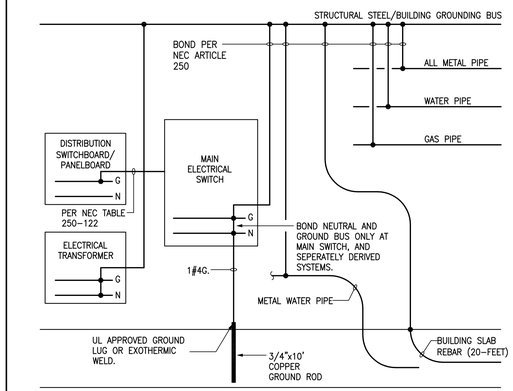
* FURNISH AND INSTALL G.E. TYPE "QL" OR EQUAL DRY TRANSFORMER WITH 2–1/2% CAPACITY TAPS ON THE PRIMARY WINDING (TWO ABOVE AND FOUR BELOW NORMAL VOLTAGE). TRANSFORMER SHALL BE RATED FOR 150 DEG. C. RISE ABOVE 40 DEG. C. AMBIENT DURING USE AND HAVE AN INSULATION SYSTEM RATED TO WITHSTAND 220 DEG. C. COPPER WINDINGS ONLY.



LIGHTING CONTROL CABINET SCHEDULE			LCC	
DESCRIPTION	CIRCUIT NUMBER	CONTROL	CONTACTOR #	CONTACTOR TYPE
EXTERIOR CANOPY LTG	HA-1	PHOTO CELL ON/TIME CLOCK OFF	1	4P-30A
EXTERIOR WALL GLAZER LTG	HA-8			
EXTERIOR WALL PACK LTG	HA-7	PHOTO CELL ON/OFF	2	6P-30A
SITE LIGHTING (NL)	HA-9,11			
SITE LIGHTING	HA-5,7	PHOTO CELL ON/TIME CLOCK OFF	3	4P-30A
LIGHTING PARAPET RECEPT	LA-2	PHOTO CELL ON/TIME CLOCK OFF	4	4P-30A
LIGHTING PARAPET RECEPT	LA-4			
SITE SIGNAGE	HA-2,4,6	PHOTO CELL ON/TIME CLOCK OFF	5	6P-30A
LIGHTING CONTROL CABINET SHALL BE PROVIDED IN NEMA 3R ENCLOSURE				
NOTES: 1.CONTRACTOR TO COORDINATE WITH OWNER FOR EXACT TIME-SCHEDULE AND OTHER REQUIREMENTS PRIOR TO INSTALLATION.				

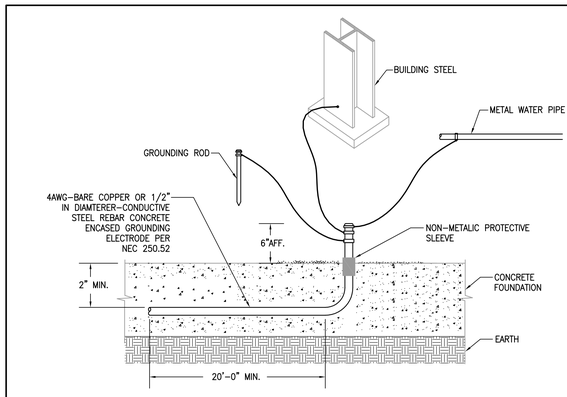
1 LIGHTING CONTROL CABINET DIAGRAM AND SCHEDULE

SCALE: NONE



2 GROUNDING DETAIL

SCALE: NONE



3 CONCRETE ENCASED ELECTRODE ("UFER" GROUND) DETAIL

SCALE: NONE

LIGHTING FIXTURE SCHEDULE											
FIXTURE DESIGNATION	MANUFACTURER	CATALOG NO.	LAMP					VOLT	BALLAST/DRIVER	INPUT WATTAGE	MOUNTING	LOCATION
			NO.	TYPE	COLOR	LUMENS	WATT					
A	FUSION LIGHTING	ER3-SHAL-LED-1200L-DIM10-MVOLT-MD-40K-90-EMG-LED-ER3-F-1328-FINISH	1	LED	4000K	1267	16	277	ELECTRONIC	18	RECESSED	EXTERIOR CANOPY
AE	FUSION LIGHTING	ER3-SHAL-LED-1200L-DIM10-MVOLT-WD50-40K-90-EMG-LED-ER3-F-1328-FINISH	1	LED	4000K	1267	16	277	ELECTRONIC WITH EMERGENCY BATTER PACK	18	RECESSED	EXTERIOR CANOPY
B	KIM LIGHTING	WDS-D-24L-30-4K7-3-UNV	1	LED	4000K	3424	29	277	ELECTRONIC	32	WALL	EXTERIOR WALL PACK
BE	KIM LIGHTING	WDS-D-24L-30-4K7-3-UNV-EM	1	LED	4000K	3424	29	277	ELECTRONIC WITH EMERGENCY BATTER PACK	32	WALL	EXTERIOR WALL PACK
C	MODA LIGHT	MGE-HO-RGB4-D-OPTIC, COORDINATE OPTIC AND EXACT LENGTH WITH ARCHITECT	1	LED	RGB 4000K	1400/FT	10W/FT	277	PROVIDE DMX DRIVER/KANDI CONTROLLER AND ALL REQUIRED ACCESSORIES	10W/FT	SURFACE	WALL GLAZE LIGHT, APPROXIMATELY 48' IN LENGTH
EM	LITHONIA	AFN-EXT	1	LED	4000	-	10.8	277	ELECTRONIC WITH BATTERY BACK-UP	15	WALL	ABOVE EXT BACK DOOR
THIS LIGHTING FIXTURE SCHEDULE IS FOR REFERENCE AND FINAL APPROVAL SHALL BE PER ARCHITECT												
REFER TO ARCHITECTURAL PLANS FOR EXACT SPECIFICATIONS AND REQUIREMENTS OF ALL LIGHTING FIXTURES PRIOR TO PURCHASE AND INSTALLATION												

SALAS O'BRIEN [expect a difference]
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Project No. 009-190647

02/13/2019
ISSUE FOR PERMIT/BID

BRADLEY KALMANS 80219 LICENSED PROFESSIONAL ENGINEER 02/13/19

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Houston, Texas 77070
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ASHTON GRAY DEVELOPMENT

ELECTRICAL DETAILS

10,720 SF Retail Shell
SPRING STUEBNER @ SPRING PLAZA
SPRING, TEXAS 77389

SCALE: AS NOTED | PROJECT: 19007 | DATE: 02/13/19

E300