

GENERAL NOTES

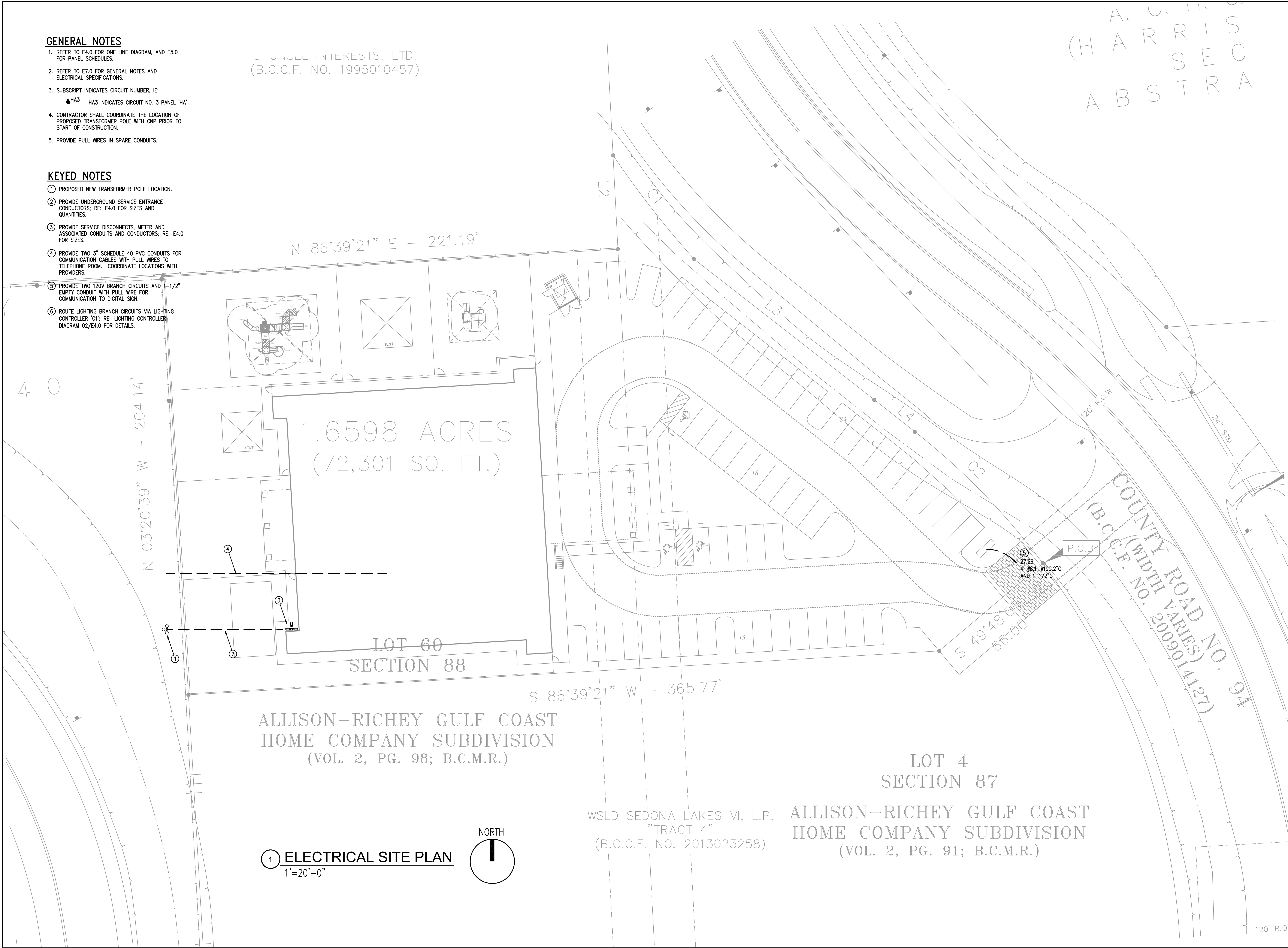
1. REFER TO E4.0 FOR ONE LINE DIAGRAM, AND E5.0 FOR PANEL SCHEDULES.
2. REFER TO E7.0 FOR GENERAL NOTES AND ELECTRICAL SPECIFICATIONS.
3. SUBSCRIPT INDICATES CIRCUIT NUMBER, IE:
 ●HA3 HA3 INDICATES CIRCUIT NO. 3 PANEL 'HA'
4. CONTRACTOR SHALL COORDINATE THE LOCATION OF PROPOSED TRANSFORMER POLE WITH CNP PRIOR TO START OF CONSTRUCTION.
5. PROVIDE PULL WIRES IN SPARE CONDUITS.

KEYED NOTES

- ① PROPOSED NEW TRANSFORMER POLE LOCATION.
- ② PROVIDE UNDERGROUND SERVICE ENTRANCE CONDUCTORS; RE: E4.0 FOR SIZES AND QUANTITIES.
- ③ PROVIDE SERVICE DISCONNECTS, METER AND ASSOCIATED CONDUITS AND CONDUCTORS; RE: E4.0 FOR SIZES.
- ④ PROVIDE TWO 3" SCHEDULE 40 PVC CONDUITS FOR COMMUNICATION CABLES WITH PULL WIRES TO TELEPHONE ROOM. COORDINATE LOCATIONS WITH PROVIDERS.
- ⑤ PROVIDE TWO 120V BRANCH CIRCUITS AND EMPTY CONDUIT WITH PULL WIRE FOR COMMUNICATION TO DIGITAL SIGN.
- ⑥ ROUTE LIGHTING BRANCH CIRCUITS VIA LIGHTING CONTROLLER 'CI'; RE: LIGHTING CONTROLLER DIAGRAM 02/E4.0 FOR DETAILS.

WORLDWIDE INTERESTS, LTD.
(B.C.C.F. NO. 1995010457)

A. U. H. S. C.
(HARRIS) S E C A
A B S T R A

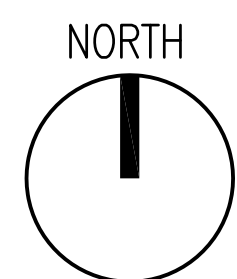


ALLISON-RICHEY GULF COAST
HOME COMPANY SUBDIVISION
(VOL. 2, PG. 98; B.C.M.R.)

LOT 4
SECTION 87
ALLISON-RICHEY GULF COAST
HOME COMPANY SUBDIVISION
(VOL. 2, PG. 91; B.C.M.R.)

WSLD SEDONA LAKES VI, L.P.
"TRACT 4"
(B.C.C.F. NO. 2013023258)

① **ELECTRICAL SITE PLAN**
1"=20'-0"



REVISIONS AND ISSUANCE		
NO.	DATE	DESCRIPTION
1	08/13/2018	PRICING

IVY KIDS EARLY LEARNING CENTER
4434 CR 94
Manvel, Tx 77578

MEP Consultants
BLK Engineering & Consulting Co.
3423 Spring Arbor Ln.
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RESPONSIBLE ENGINEER:
CHH-TAI KENG
79201
08-13-2018

DRAWING TITLE	
ELECTRICAL SITE PLAN	
DRAWN BY FK	CHECKED BY CK
DATE 05/10/2018	JOB NO. SEDONA LAKES
DRAWING NO. E1.0	

GENERAL NOTES

- REFER TO E4.0 FOR ONE LINE DIAGRAM, AND E5.0 FOR PANEL SCHEDULES.
- REFER TO E7.0 FOR GENERAL NOTES AND ELECTRICAL SPECIFICATIONS.
- SUBSCRIPT INDICATES CIRCUIT NUMBER, IE:
 ●HA3 HA3 INDICATES CIRCUIT NO. 3 PANEL 'HA'
- CONTRACTOR SHALL COORDINATE THE LOCATION OF PROPOSED TRANSFORMER POLE WITH CNP PRIOR TO START OF CONSTRUCTION.
- PROVIDE PULL WIRES IN SPARE CONDUITS.
- CONTRACTOR SHALL PROVIDE PHOTOMETRIC CALCULATIONS AND DRAWING DOCUMENTATION TO BE SUBMITTED WITH SITE LIGHTING FIXTURE CUT SHEETS FOR ARC APPROVAL BEFORE INSTALLATION.

KEYED NOTES

- PROPOSED NEW TRANSFORMER POLE LOCATION.
- PROVIDE UNDERGROUND SERVICE ENTRANCE CONDUCTORS; RE: E4.0 FOR SIZES AND QUANTITIES.
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A. U. I. I. S
(HARRIS) S
A B S T R A

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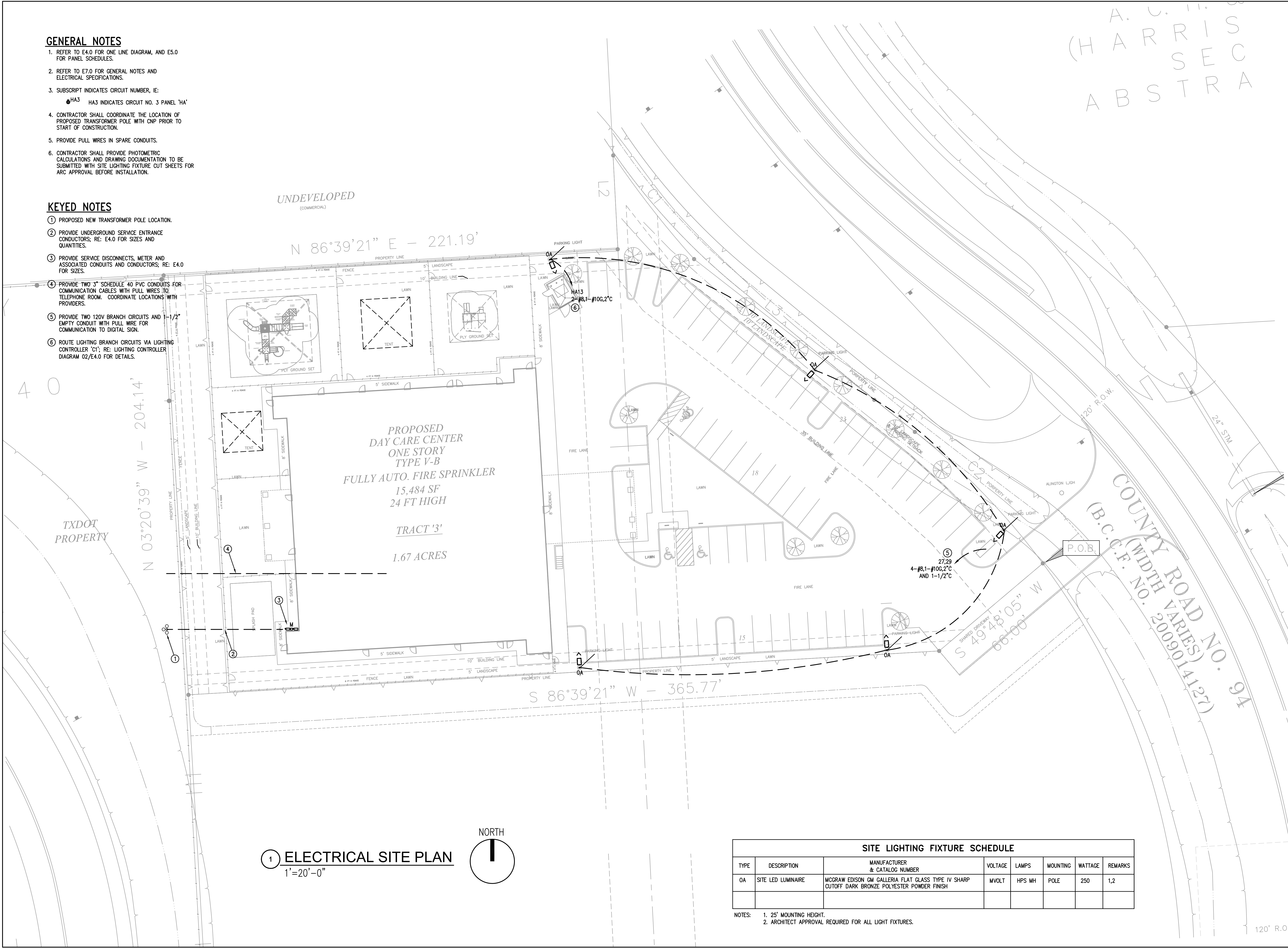
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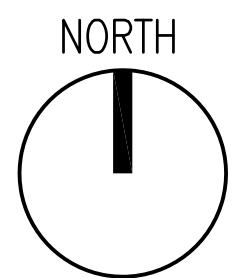


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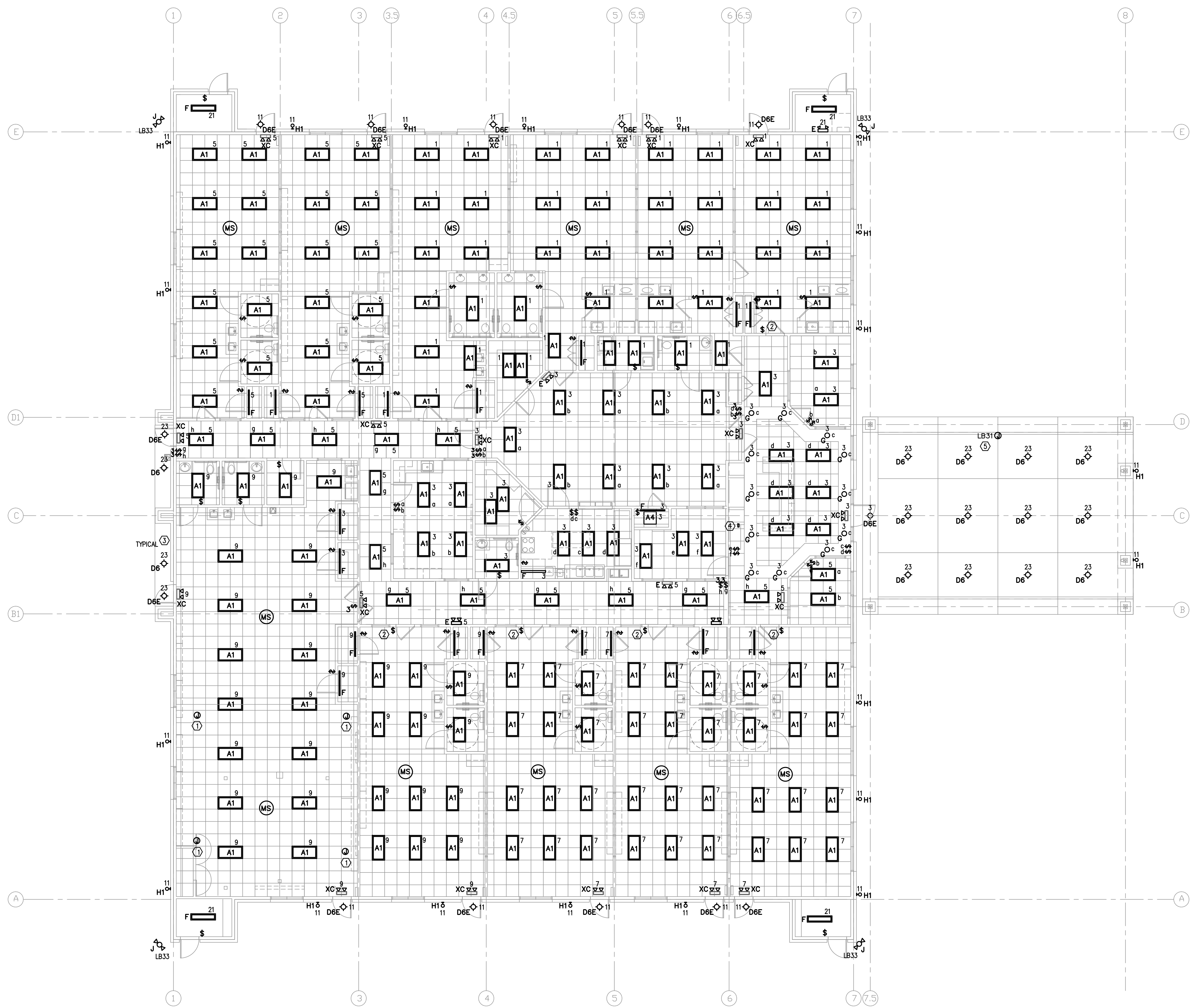
1 ELECTRICAL SITE PLAN
 1"=20'-0"



SITE LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	VOLTAGE	LAMPS	MOUNTING	WATTAGE	REMARKS
OA	SITE LED LUMINAIRE	MCGRAW EDISON GM GALLERIA FLAT GLASS TYPE IV SHARP CUTOFF DARK BRONZE POLYESTER POWDER FINISH	MVOLT	HPS MH	POLE	250	1,2

- NOTES:
 1. 25' MOUNTING HEIGHT.
 2. ARCHITECT APPROVAL REQUIRED FOR ALL LIGHT FIXTURES.

120' R.O.W.



1 LIGHTING PLAN
1/8" = 1'-0"

REVISIONS AND ISSUANCE		
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△	07/28/18	CITY COMMENTS

GENERAL NOTES

- LIGHTING FIXTURE SUBSCRIPTS INDICATE FIXTURE TYPE, CONTROLLING SWITCH AND CIRCUIT NUMBER, IE:
 A_3^1 A INDICATES FIXTURE TYPE.
 3 INDICATES CIRCUIT NO. 3, PANEL HA
 LB3 INDICATES CIRCUIT NO. 3, PANEL LB
 a INDICATES CONTROLLING SWITCH
- REFER TO E5.0 FOR PANEL SCHEDULES. REFER TO E7.0 FOR LIGHT FIXTURE SCHEDULE.
- PROVIDE UNSWITCHED HOT LEG TO EMERGENCY BATTERY BACKUP SYSTEM.
- (MS) MOTION SENSOR FOR LOCAL ROOM. PASSIVE INFRARED AREA SENSOR; WATTSTOPPER C1-200 WITH 30 MINUTE TIME DELAY.
- MORE EXIT SIGNS AND EMERGENCY LIGHTING MAY BE REQUIRED AT FINALS.

KEYED NOTES

- LOCATION OF SURROUND SOUND SPEAKERS; COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- SWITCH SHALL BE KEYED LOW VOLTAGE, MOMENTARY CONTACT SWITCH (WATTSTOPPER LVS-1K OR PRIOR APPROVED EQUAL). SWITCH SHALL OPERATE AS MANUAL OVERRIDE TO CONNECTED OCCUPANCY SENSOR.
- ROUTE BRANCH CIRCUIT VIA LIGHTING CONTROLLER 'C1'. RE: LIGHTING CONTROLLER DIAGRAM E4.0.
- LIGHTING CONTROLLER OVERRIDE SWITCH.
- LOCATION OF SIGNAGE; COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.

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DRAWING TITLE
ELECTRICAL LIGHTING PLAN

DRAWN BY FK	CHECKED BY CK
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DRAWING NO. E-2.0	

REVISIONS AND ISSUANCE

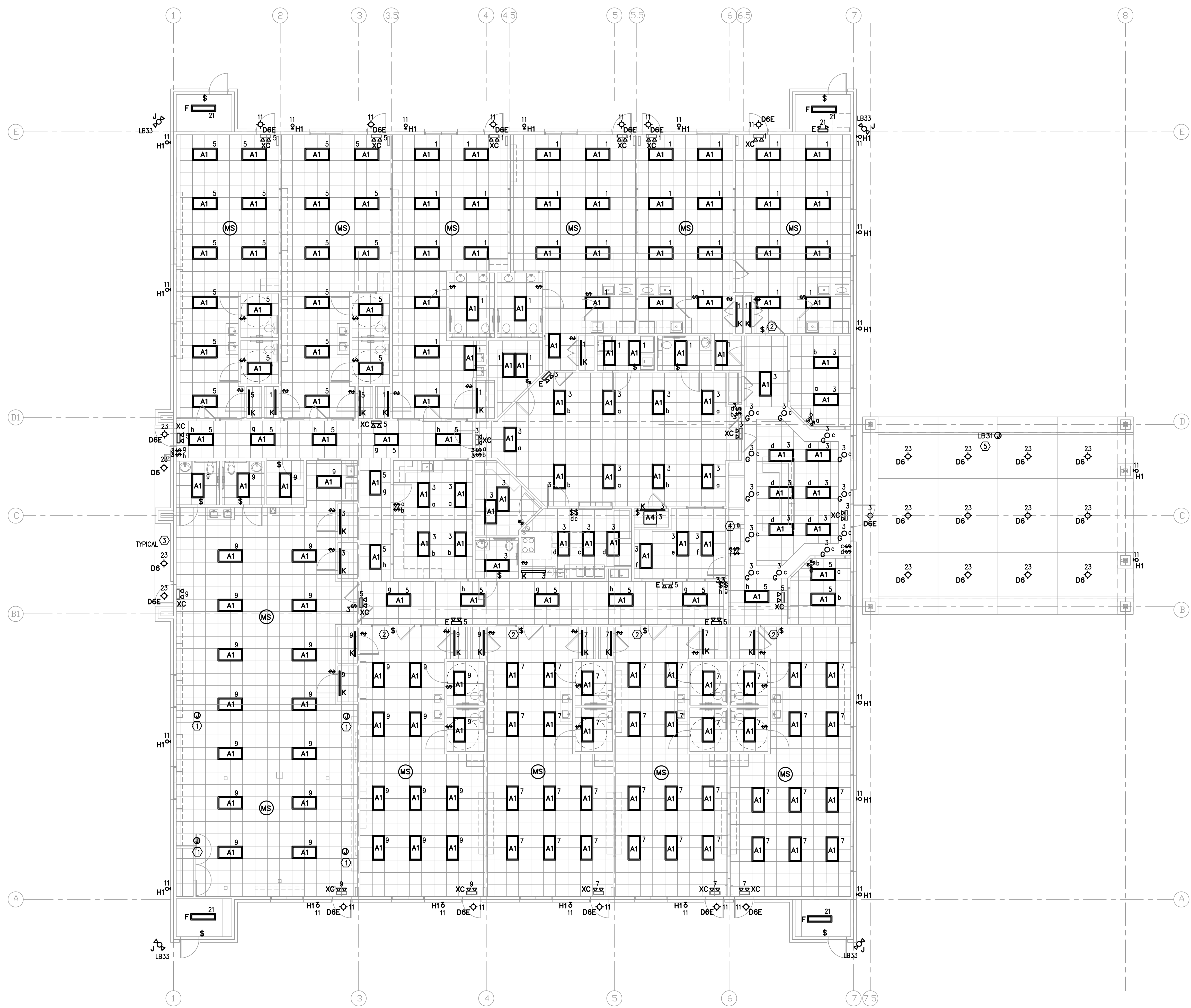
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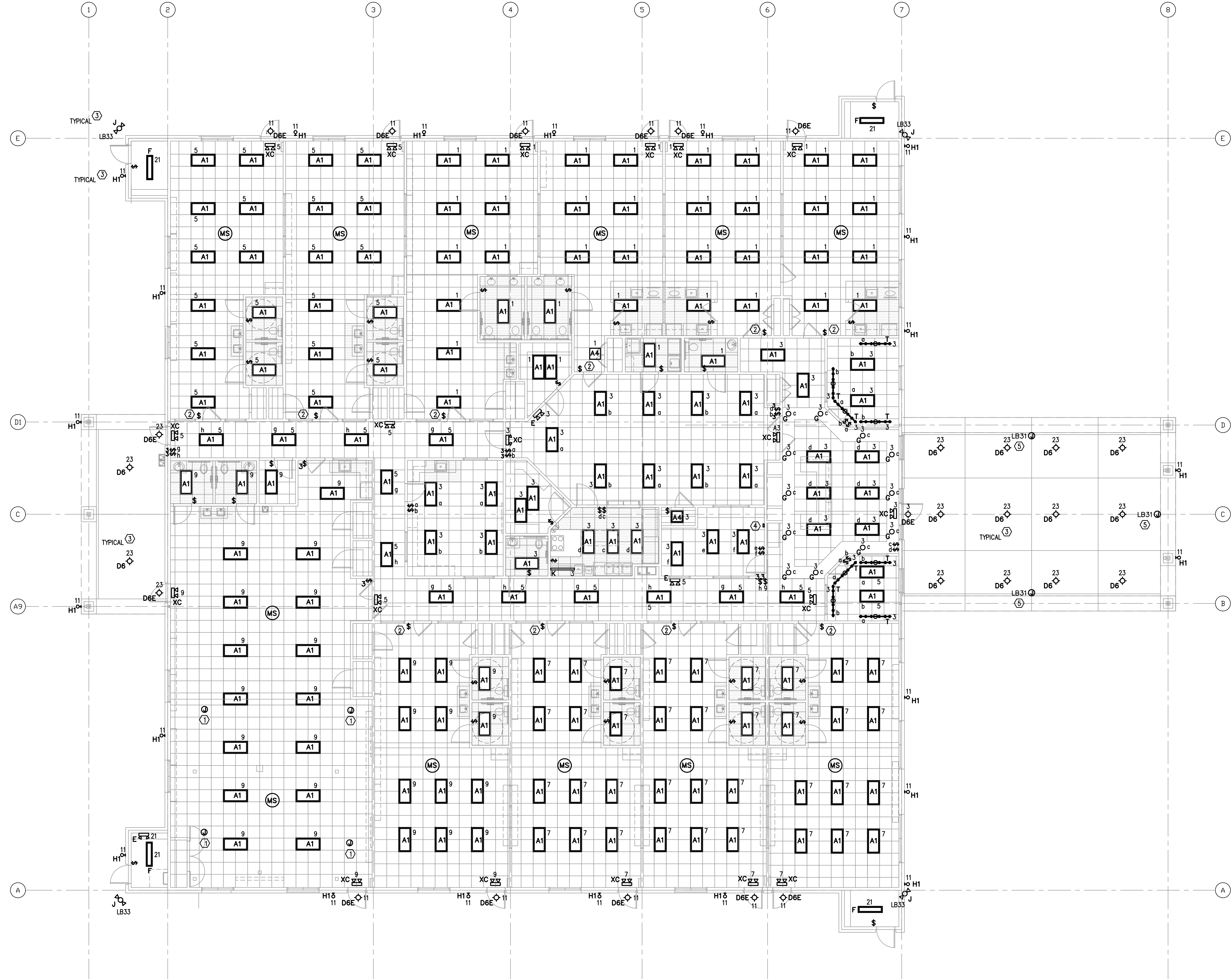
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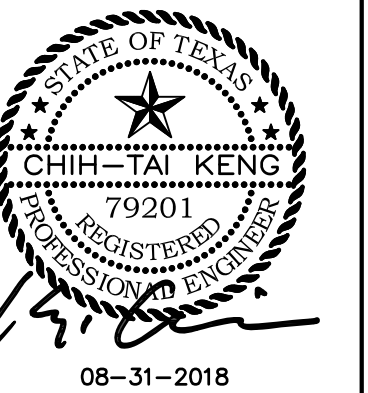
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- SUBSCRIPT INDICATES CIRCUIT NUMBER, IE:
 - A3 A3 INDICATES CIRCUIT NO. 3 PANEL 'LA'
 - B3 INDICATES CIRCUIT NO. 3 PANEL 'LB'
 - HA3 INDICATES CIRCUIT NO. 3 PANEL 'HA'
- COORDINATE THE INSTALLATION OF THE ELECTRICAL POWER TO THE KITCHEN EQUIPMENT WITH THE ACTUAL EQUIPMENT BEING INSTALLED. PROVIDE CIRCUIT BREAKERS, BRANCH CIRCUIT CONDUCTORS, J-BOXES, RECEPTACLES AND DISCONNECT SWITCHES AS REQUIRED BY THE EQUIPMENT INSTALLATION REQUIREMENTS AND THE NEC.
- PROVIDE GFCI TYPE RECEPTACLES OR CIRCUIT BREAKERS FOR ALL 120V RECEPTACLES IN THE KITCHEN PER THE NEC. COORDINATE RECEPTACLE MOUNTING HEIGHT WITH THE EQUIPMENT BEING INSTALLED.
- PROVIDE LISTED TAMPER-RESISTANT RECEPTACLES PER NEC 406.12(C).
- COORDINATE THE INSTALLATION OF ELECTRICAL RECEPTACLES WITH MILLWORK LOCATION, ARCHITECTURAL INTERIOR ELEVATIONS, ADA REQUIREMENTS, AND SURROUNDING FIELD CONDITIONS.
- ALL RESTROOM EXHAUST FANS SHALL BE INDEPENDENTLY SWITCHED FROM THE RESTROOM LIGHTING.

KEYED NOTES

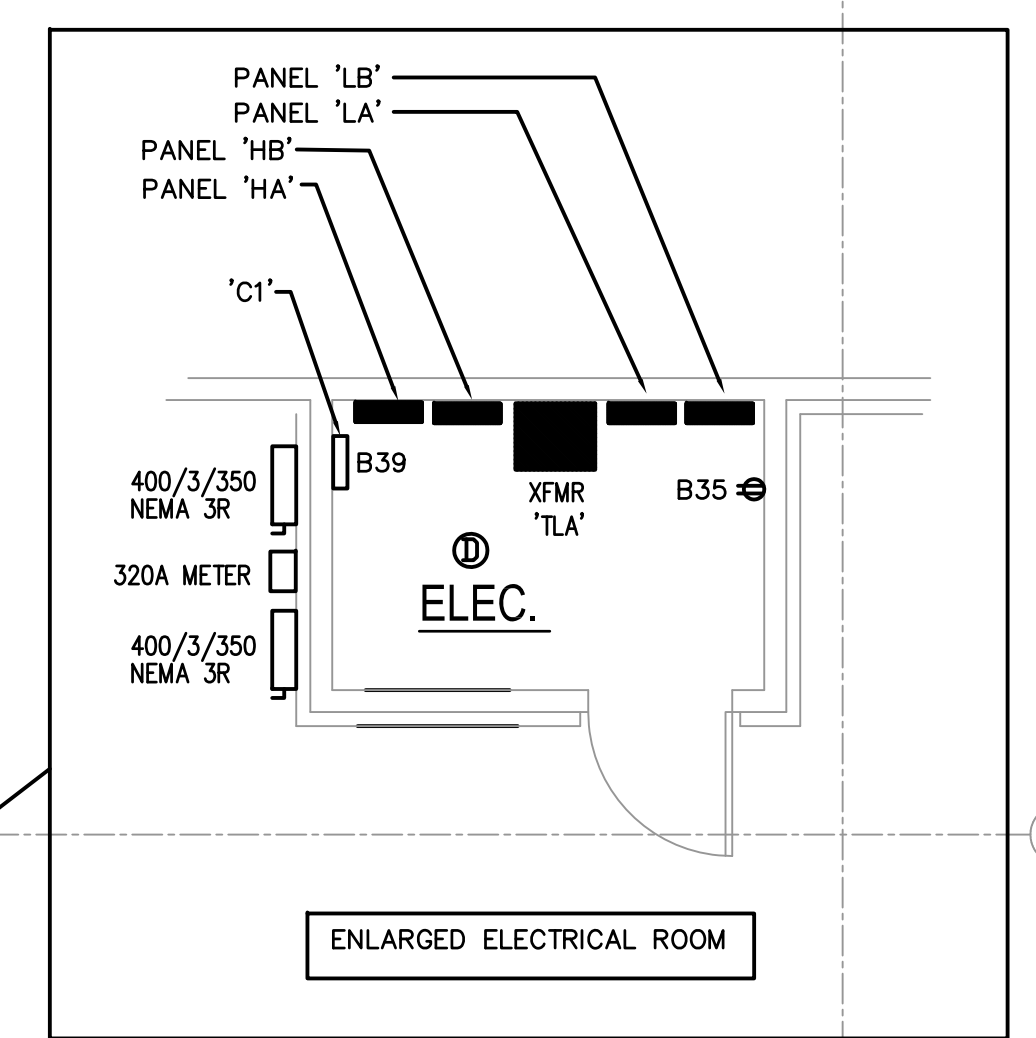
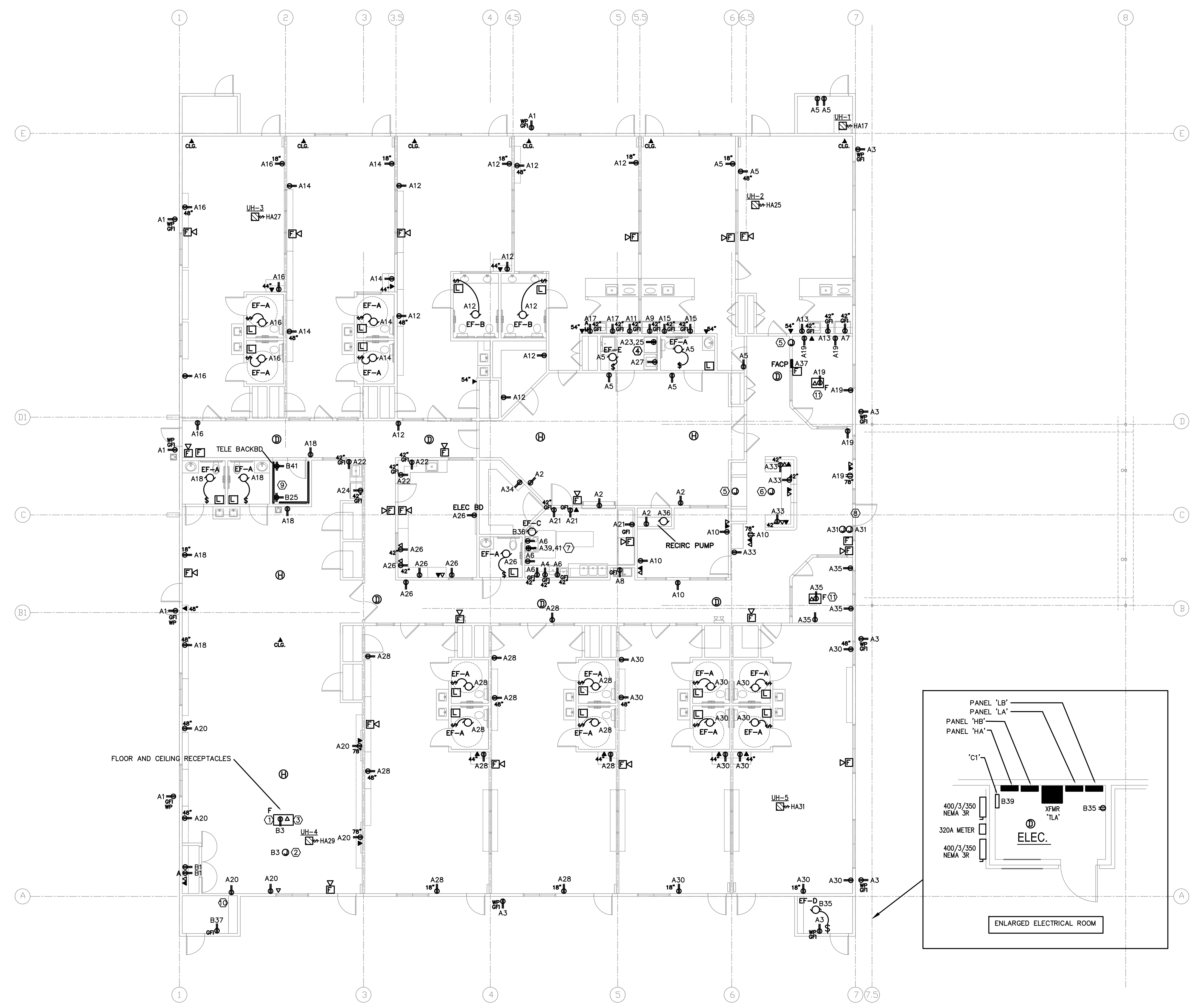
- RECEPTACLE FOR POWER CONNECTION TO CEILING-MOUNTED PROJECTOR. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- J-BOX FOR POWER CONNECTION TO THEATER SCREEN. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- DATA CONNECTION TO CEILING-MOUNTED PROJECTOR. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- PROVIDE NEMA 14-30R AND CIRCUIT OF 3#10, 1#10G, 3/4"C TO CIRCUIT NOTED FOR CONNECTION TO DRYER.
- ROUTE 1"C WITH PULLSTRING TO ELEC ROOM.
- ROUTE 2-2"C UNDER SLAB TO DESK LOCATION.
- PROVIDE NEMA 14-50R AND CIRCUIT OF #8, #10G, 1"C TO CIRCUIT NOTED FOR CONNECTION TO OVEN/RANGE.
- JBOX FOR POWER CONNECTION TO FRONT DOOR LOCK, DOOR STRIKE, AND FINGER PRINT DEVICE. COORDINATE EXACT EQUIPMENT REQUIREMENTS WITH OWNER PRIOR TO PURCHASE AND INSTALLATION.
- ROUTE 2-3"C WITH PULLSTRING TO PROPERTY LINE FOR TELEPHONE/CATV UTILITY SERVICE. COORDINATE EXACT ROUTING AND DEMARK POINT WITH SERVICE PROVIDERS.
- POWER FOR FUTURE SITE WATER SYSTEM. COORDINATE WITH OWNER FOR FINAL LOCATION & REQUIREMENTS. FIELD VERIFY.
- OWNER TO PROVIDE FINAL FURNITURE LAYOUT AND CONFIRM ALL FLOOR OUTLET LOCATIONS PRIOR TO ROUGH-IN.

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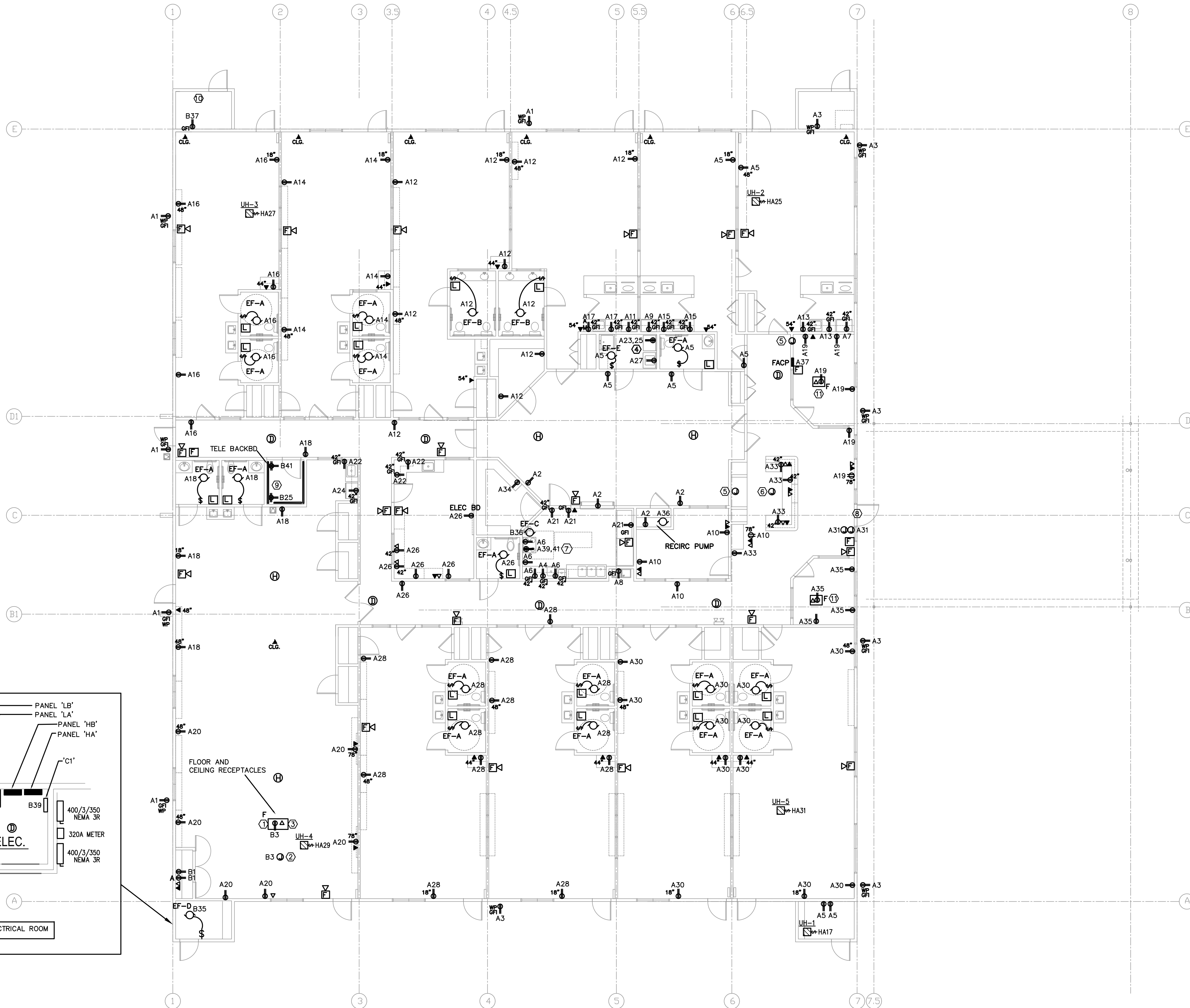
DRAWING TITLE	
ELECTRICAL POWER PLAN	
DRAWN BY FK	CHECKED BY CK
DATE 05/10/2018	JOB NO. SEDONA LAKES
DRAWING NO. E-3.0	



1 POWER PLAN
 1/8" = 1'-0"

REVISIONS AND ISSUANCE		
NO.	DATE	DESCRIPTION
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08/31/2018		PERMIT

11/20/17 ISSUE FOR PERMIT



GENERAL NOTES

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- SUBSCRIPT INDICATES CIRCUIT NUMBER, IE:
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KEYED NOTES

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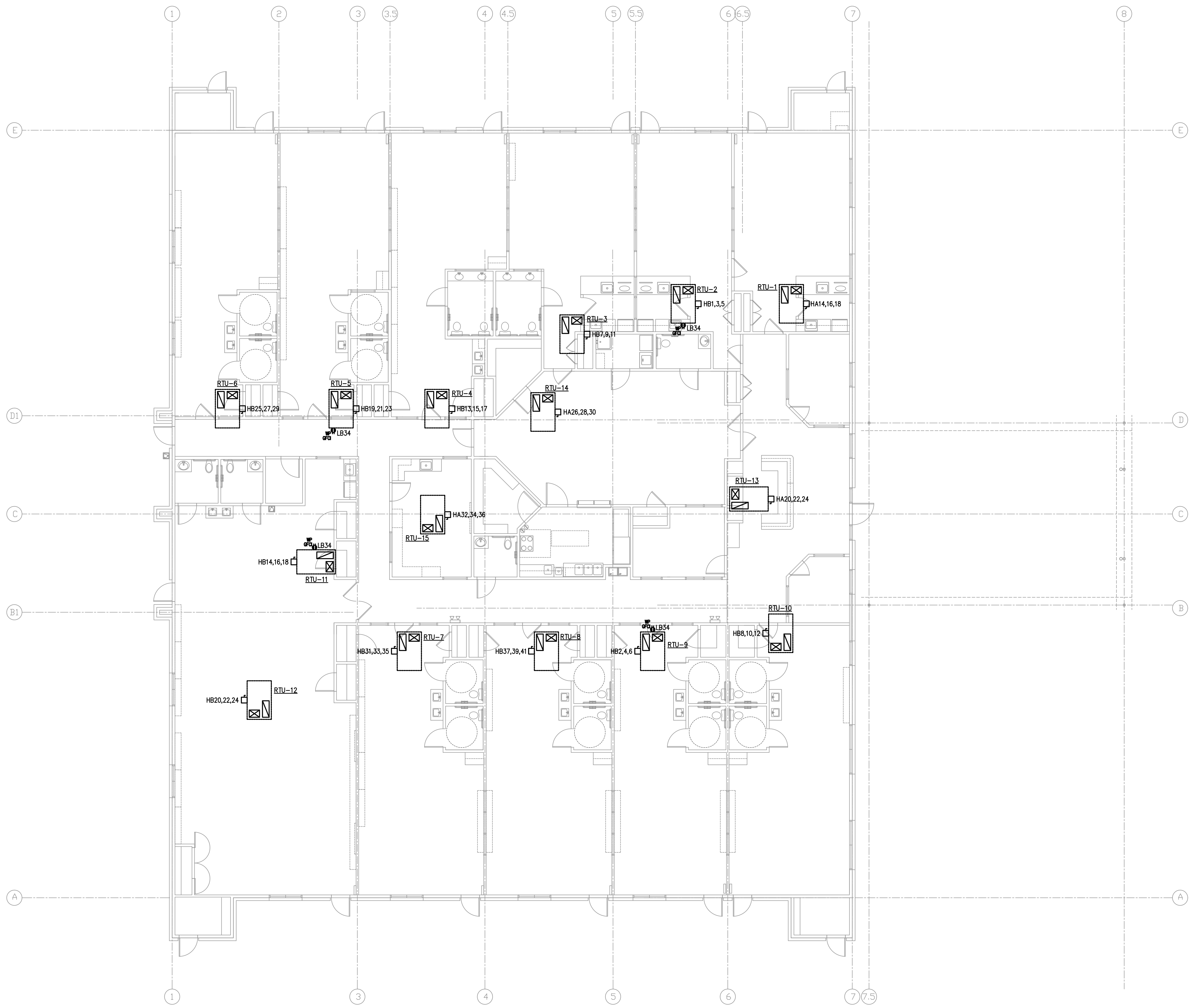
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DRAWING NO.	E-3.0



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 ● HB3 HB3 INDICATES CIRCUIT NO. 3 PANEL HB
 ● LB3 LB3 INDICATES CIRCUIT NO. 3 PANEL LB
- PROVIDE 30/3/NF NEMA 3R SAFETY SWITCHES ON 3-TON, 4-TON, & 5-TON RTU'S.

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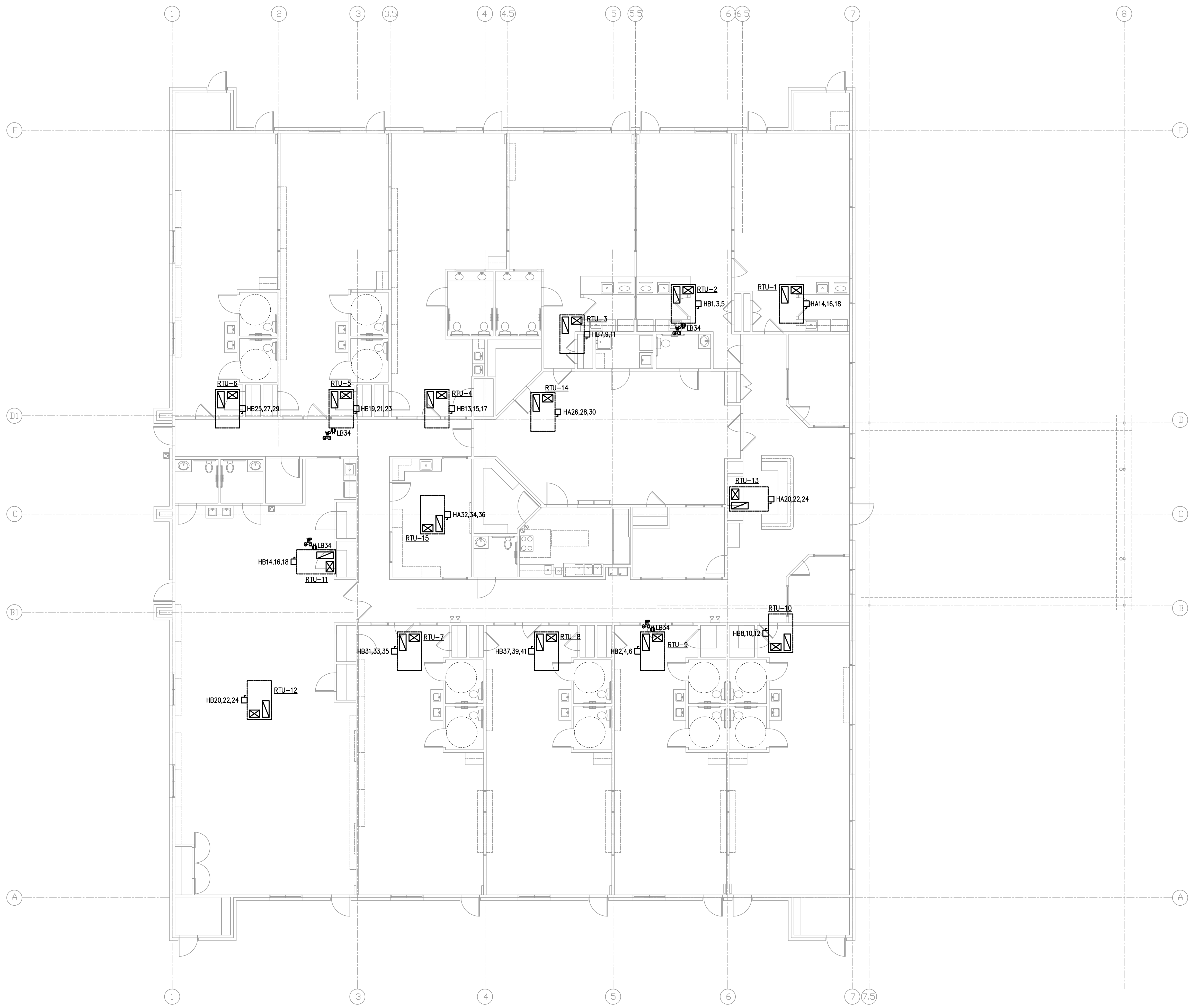
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DRAWING TITLE
**HVAC
 POWER PLAN**

DRAWN BY FK	CHECKED BY CK
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1 HVAC POWER PLAN
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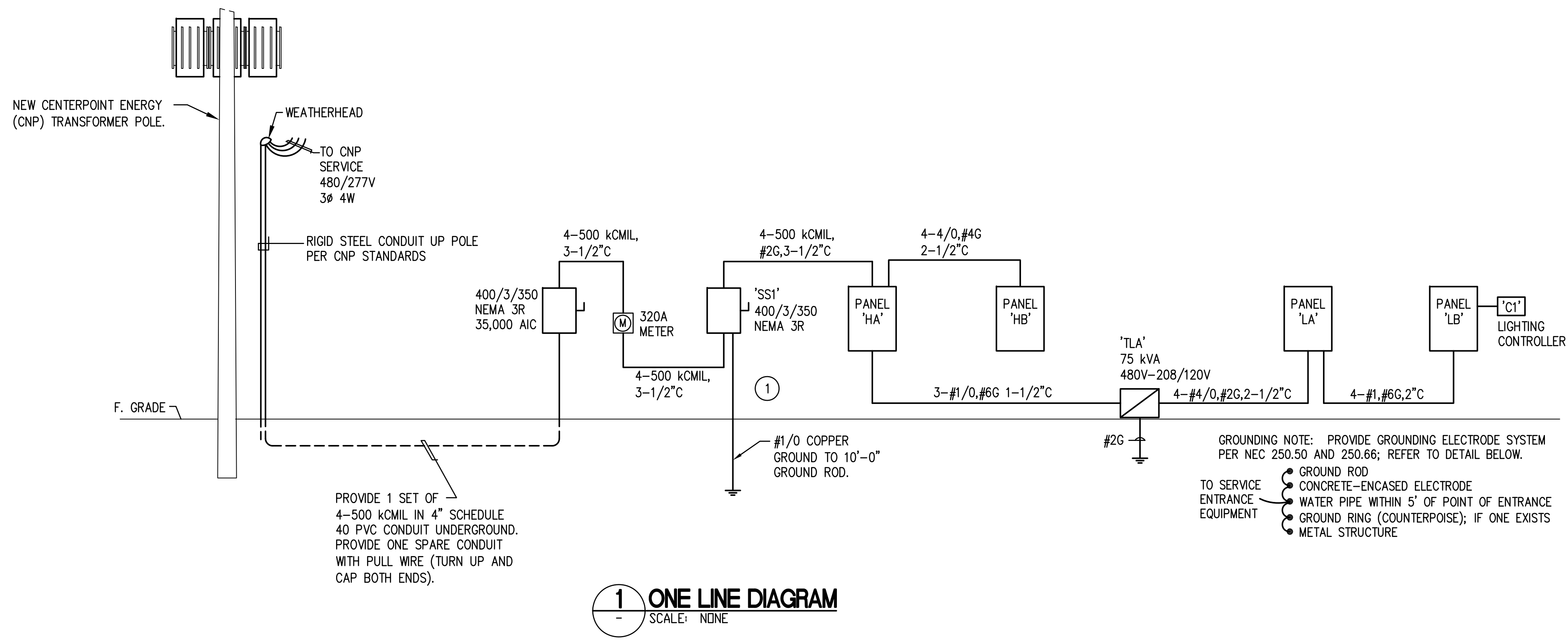
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DRAWING TITLE
ELECTRICAL ONE LINE

 DRAWN BY
 FK
 CHECKED BY
 CK

 DATE
 05/10/2018
 JOB NO.
 SEDONA LAKES

 DRAWING NO.
E-4.0



GENERAL NOTES

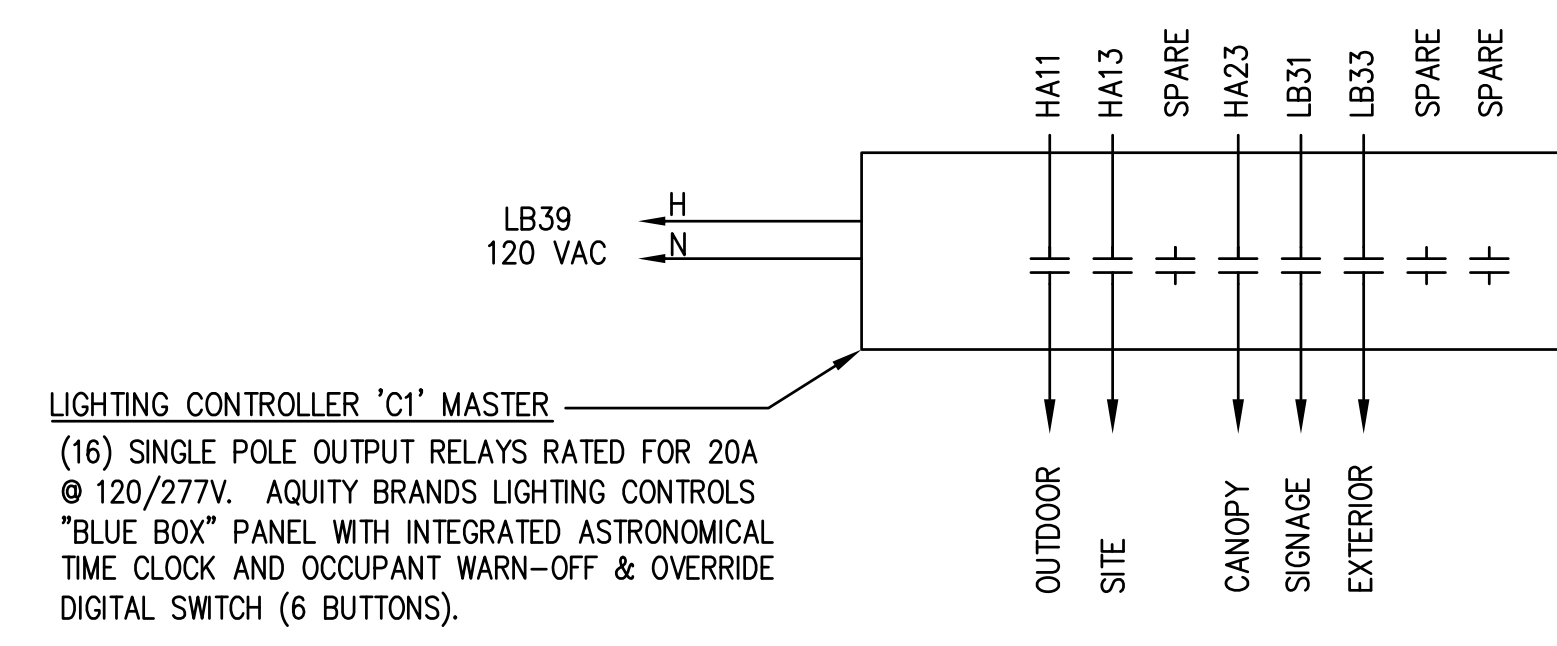
- SHORT CIRCUIT CALCULATIONS USE THE POINT-TO-POINT METHOD. THE AVAILABLE SYMMETRICAL FAULT CURRENT IS CALCULATED BASED ON A 500 KVA TRANSFORMER BANK.

XX,XXX AIC	AVAILABLE SYMMETRICAL FAULT CURRENT
YY,YYY AIC	EQUIPMENT RATING
- PANELBOARDS MAY BE SERIES RATED IF LABELED PER THE NEC.
- PROVIDE FULL SIZE NEUTRALS FOR SERVICE ENTRANCE AND FEEDER CONDUCTORS.
- SERVICE VOLTAGE IS 480/277V 3Ø 4W.
- CONDUCTORS TO BE COPPER WITH 75 DEGREE C INSULATION (IE, THW, THWN OR THHW).
- CONDUITS TO BE PVC SCHEDULE 40 UNDERGROUND AND EMT ABOVE GRADE. SIZES AS SHOWN ON THE ONE LINE DIAGRAM AND PER THE NEC.
- PROVIDE 4" MINIMUM CLEARANCE TO THE RIGHT OF THE DISCONNECT TO ALLOW ADEQUATE CLEARANCE FOR LOCKING.
- PROVIDE ELECTRICAL SERVICE INCLUDING SAFETY SWITCHES AND METER.
- PROVIDE PANELBOARDS AND ASSOCIATED FEEDERS.

KEYED NOTES

- PROVIDE A PERMANENTLY AFFIXED LABEL ON SS1 THAT SHOWS THE CALCULATED AVAILABLE FAULT CURRENT OF 24,026 AMPS AND A DATE OF 06 SEPTEMBER 2016. THE LABEL SHALL BE 2"x3" IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND.

BUILDING LOAD ANALYSIS				06/28/18
PROJECT NAME:	YOUNG RANCH IVY KIDS, 10715 GLEANNLOCH, SPRING, TX 77379			
AREA (SQ. FEET)	14,200	SQ. FT.		
LOAD DESCRIPTION	CONNECTED LOAD (kVA)	DEMAND FACTOR	DEMAND LOAD (kVA)	
LIGHTING (volts per sq. Ft.)	3.0 VA	42.6	1.25	53.3
SITE LIGHTING		2.0	1.25	2.5
GENERAL RECEPTACLES	117 @ 180 VA	21.1	NEC	15.5
HVAC		139.5	1.00	139.5
HEATING (LESS THAN CONCURRENT COOLING)		0.0	1.00	0.0
WATER HEATER (GAS)		0.0	1.00	0.0
UNIT HEATERS		23.0	1.00	23.0
EXHAUST FANS		1.8	1.00	1.8
LAUNDRY		7.3	1.00	7.3
REFRIGERATORS		4.2	1.00	4.2
FREEZERS		2.4	1.00	2.4
ELECTRIC RANGE		8.0	0.80	6.4
WATER FOUNTAIN		1.4	1.00	1.4
PROJECTOR		1.0	1.00	1.0
LARGEST MOTOR * 25%				1.5
TOTAL kVA				259.8
TOTAL AMPS @ 480V, 3P, 4W				313
SERVICE SIZE @ 480V, 3P, 4W (AMPS)				350
SPARE CAPACITY (AMPS)				37
NOTES: (1) DIVERSIFIED PER NEC ARTICLE 220-44 (2) DIVERSIFIED PER NEC ARTICLE 220-55				

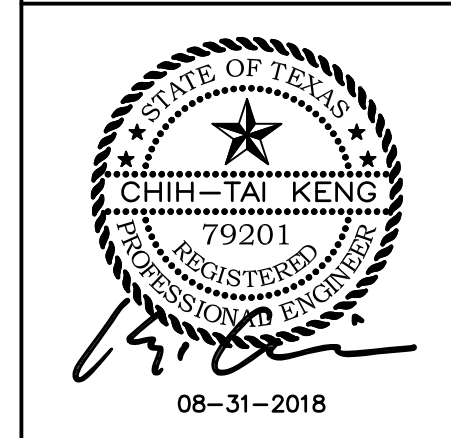


(16) SINGLE POLE OUTPUT RELAYS RATED FOR 20A @ 120/277V. AQUITY BRANDS LIGHTING CONTROLS "BLUE BOX" PANEL WITH INTEGRATED ASTRONOMICAL TIME CLOCK AND OCCUPANT WARN-OFF & OVERRIDE DIGITAL SWITCH (6 BUTTONS).

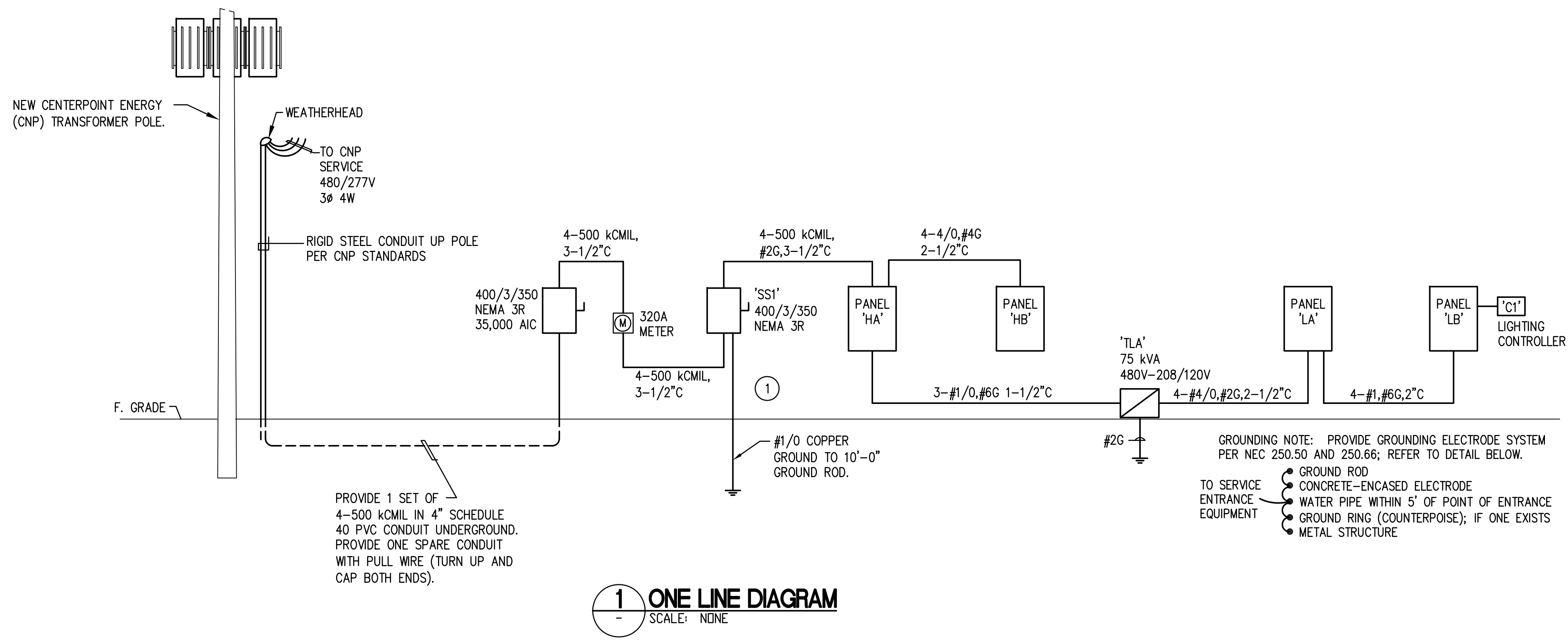
REVISIONS AND ISSUANCE		
NO.	DATE	DESCRIPTION
08/13/2018		PRICING
08/31/2018		PERMIT

IVY KIDS EARLY LEARNING CENTER
 4434 CR 94
 Manvel, Tx 77578

MEP Consultants
 BLK Engineering & Consulting Co.
 3423 Spring Arbor Ln.
 Sugar Land, TX 77479
 (t) 832 563 3127
 TBPE Firm #12672



DRAWING TITLE	
ELECTRICAL ONE LINE	
DRAWN BY FK	CHECKED BY CK
DATE 05/10/2018	JOB NO. SEDONA LAKES
DRAWING NO. E-4.0	



GENERAL NOTES

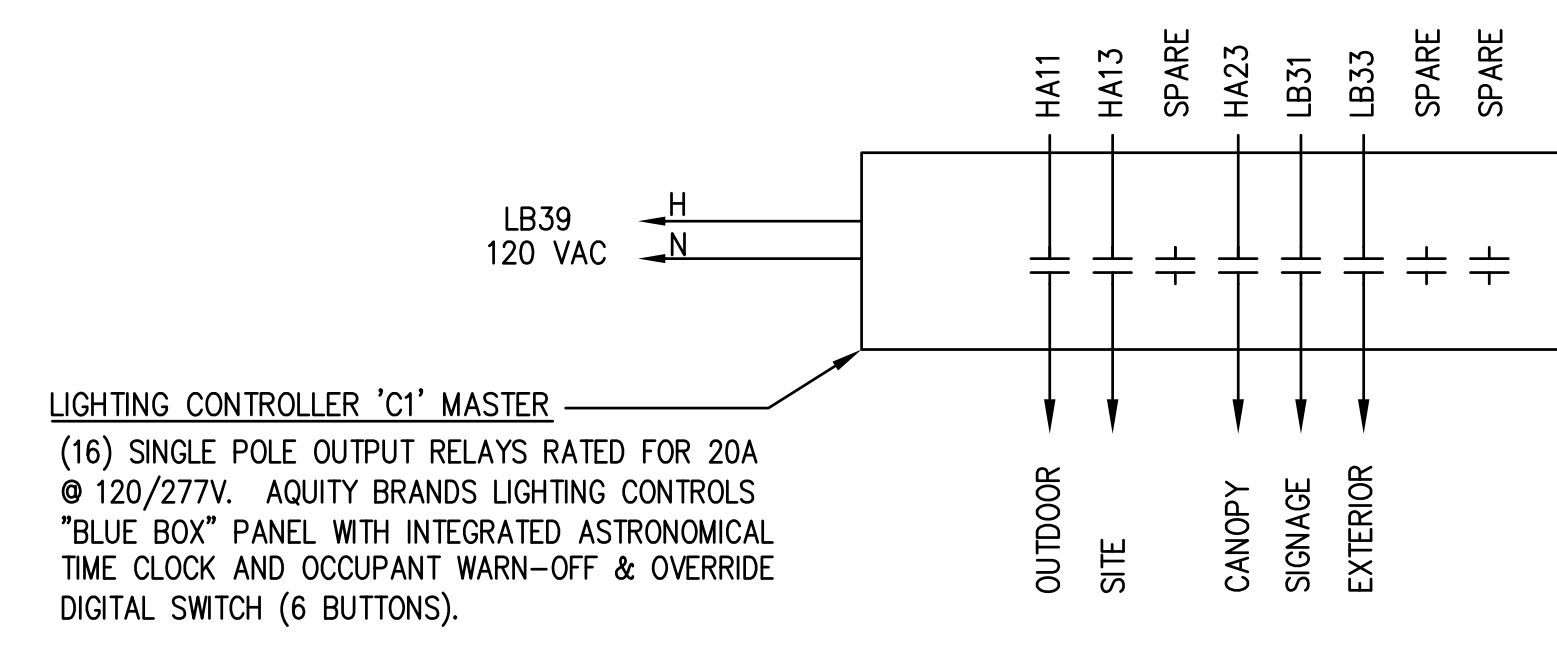
- SHORT CIRCUIT CALCULATIONS USE THE POINT-TO-POINT METHOD. THE AVAILABLE SYMMETRICAL FAULT CURRENT IS CALCULATED BASED ON A 500 KVA TRANSFORMER BANK.

XX,XXX AIC	AVAILABLE SYMMETRICAL FAULT CURRENT
YY,YYY AIC	EQUIPMENT RATING
- PANELBOARDS MAY BE SERIES RATED IF LABELED PER THE NEC.
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- CONDUCTORS TO BE COPPER WITH 75 DEGREE C INSULATION (IE, THW, THWN OR THHW).
- CONDUITS TO BE PVC SCHEDULE 40 UNDERGROUND AND EMT ABOVE GRADE. SIZES AS SHOWN ON THE ONE LINE DIAGRAM AND PER THE NEC.
- PROVIDE 4" MINIMUM CLEARANCE TO THE RIGHT OF THE DISCONNECT TO ALLOW ADEQUATE CLEARANCE FOR LOCKING.
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- PROVIDE PANELBOARDS AND ASSOCIATED FEEDERS.

KEYED NOTES

- PROVIDE A PERMANENTLY AFFIXED LABEL ON SS1 THAT SHOWS THE CALCULATED AVAILABLE FAULT CURRENT OF 24,026 AMPS AND A DATE OF 06 SEPTEMBER 2016. THE LABEL SHALL BE 2"x3" IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND.

BUILDING LOAD ANALYSIS				06/28/18
PROJECT NAME:	YOUNG RANCH IVY KIDS, 10715 GLEANNLOCH, SPRING, TX 77379			
AREA (SQ. FEET)	14,200	SQ. FT.		
LOAD DESCRIPTION	CONNECTED LOAD (kVA)	DEMAND FACTOR	DEMAND LOAD (kVA)	
LIGHTING (volamps per sq. Ft.)	3.0 VA	42.6	1.25	53.3
SITE LIGHTING		2.0	1.25	2.5
GENERAL RECEPTACLES	117 @ 180 VA	21.1	NEC	15.5
HVAC		139.5	1.00	139.5
HEATING (LESS THAN CONCURRENT COOLING)		0.0	1.00	0.0
WATER HEATER (GAS)		0.0	1.00	0.0
UNIT HEATERS		23.0	1.00	23.0
EXHAUST FANS		1.8	1.00	1.8
LAUNDRY		7.3	1.00	7.3
REFRIGERATORS		4.2	1.00	4.2
FREEZERS		2.4	1.00	2.4
ELECTRIC RANGE		8.0	0.80	6.4
WATER FOUNTAIN		1.4	1.00	1.4
PROJECTOR		1.0	1.00	1.0
LARGEST MOTOR * 25%				1.5
TOTAL kVA				259.8
TOTAL AMPS @ 480V, 3P, 4W				313
SERVICE SIZE @ 480V, 3P, 4W (AMPS)				350
SPARE CAPACITY (AMPS)				37
NOTES:				
(1) DIVERSIFIED PER NEC ARTICLE 220-44				
(2) DIVERSIFIED PER NEC ARTICLE 220-55				



2 LIGHTING CONTROLLER DIAGRAM
SCALE: NONE

REVISIONS AND ISSUANCE		
NO.	DATE	DESCRIPTION
1	08/13/2018	PRICING

IVY KIDS EARLY LEARNING CENTER
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 Manvel, Tx 77578

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 (1) 832 563 3127
 TBPE Firm #12672

THESE DOCUMENTS ARE
 FOR INTERIM REVIEW AND NOT
 FOR CONSTRUCTION, BIDDING
 OR PERMIT PURPOSES.
 RESPONSIBLE ENGINEER:
 CHH-TAI KENG
 79201
 08-13-2018

DRAWING TITLE
**ELECTRICAL
 PANEL
 SCHEDULES**
 DRAWN BY: FK
 CHECKED BY: CK
 DATE: 05/10/2018
 JOB NO.: SEDONA LAKES
 DRAWING NO.: **E-5.0**

NOTE	PANEL: HA		VOLTAGE: 277/480		3 PH 4 W		AIC: 25,000		REMARKS:		NOTE	
			MAINS: 400 AMPS		<input type="checkbox"/> MLO	<input type="checkbox"/> MCB	<input type="checkbox"/> SURFACE	<input type="checkbox"/> FLUSH				
			LUGS: <input type="checkbox"/> SUB-FEED <input type="checkbox"/> FEED-THRU		<input type="checkbox"/> NEMA1	<input type="checkbox"/> NEMA3R						
C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION	WIRE*	C**	
	#10	LTG - CLASSROOM	3.10	20/1	1	2	125/3	14.00	XFMR 'TLA'			3
	#10	LTG - LUNCHROOM	4.00	20/1	3	4	X	15.00	"			
	#10	LTG - CORRIDOR, CLASSROOM	3.00	20/1	5	6	X	18.00	"			
	#10	LTG - CLASSROOM	3.30	20/1	7	8	225/3	35.00	PANEL 'HB'			3
	#10	LTG - ACTIVITY ROOM	2.60	20/1	9	10	X	35.00	"			
	#10	LTG - OUTDOOR	0.80	20/1	11	12	X	35.00	"			
2	#8	LTG - PARKING LOT	1.66	20/1	13	14	15/3	2.70	RTU-1			1
		SPARE		20/1	15	16	X	2.70	"			
		UH-1	3.00	20/1	17	18	X	2.70	"			
		SPARE		20/1	19	20	20/3	3.13	RTU-13			1
	#10	LTG - ELEC, MECH	0.20	20/1	21	22	X	3.13	"			
	#10	LTG - CANOPY	0.50	20/1	23	24	X	3.13	"			
		UH-2	5.00	20/1	25	26	20/3	3.37	RTU-14			1
		UH-3	5.00	20/1	27	28	X	3.37	"			
		UH-4	5.00	20/1	29	30	X	3.37	"			
		UH-5	5.00	20/1	31	32	20/3	3.13	RTU-15			1
		SPARE		20/1	33	34	X	3.13	"			
		SPARE		20/1	35	36	X	3.13	"			
		SPARE		20/1	37	38	20/3		SPARE			
		SPARE		20/1	39	40	X		"			
		SPARE		20/1	41	42	X		"			

* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED

NOTES: 1. COORDINATE CIRCUIT BREAKER AND FEEDER SIZES WITH EQUIPMENT INSTALLED.
 2. ROUTE VIA LIGHTING CONTROLLER. 3. REFER TO ONE LINE DIAGRAM FOR FEEDER SIZE.

231.2	kVA CONNECTED
230.9	kVA DEMAND
277.9	AMPS DEMAND @ 480V

NOTE	PANEL: HB		VOLTAGE: 277/480		3 PH 4 W		AIC: 25,000		REMARKS:		NOTE	
			MAINS: 225 AMPS		<input type="checkbox"/> MLO	<input type="checkbox"/> MCB	<input type="checkbox"/> SURFACE	<input type="checkbox"/> FLUSH				
			LUGS: <input type="checkbox"/> SUB-FEED <input type="checkbox"/> FEED-THRU		<input type="checkbox"/> NEMA1	<input type="checkbox"/> NEMA3R						
C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION	WIRE*	C**	
1		RTU-2	2.70	15/3	1	2	20/3	3.13	RTU-9			1
		"	2.70	X	3	4	X	3.13	"			
		"	2.70	X	5	6	X	3.13	"			
1		RTU-3	2.70	15/3	7	8	20/3	3.37	RTU-10			1
		"	2.70	X	9	10	X	3.37	"			
		"	2.70	X	11	12	X	3.37	"			
1		RTU-4	3.13	20/3	13	14	20/3	3.37	RTU-11			1
		"	3.13	X	15	16	X	3.37	"			
		"	3.13	X	17	18	X	3.37	"			
1		RTU-5	3.13	20/3	19	20	20/3	3.37	RTU-12			1
		"	3.13	X	21	22	X	3.37	"			
		"	3.13	X	23	24	X	3.37	"			
1		RTU-6	3.13	20/3	25	26	20/3		SPARE			
		"	3.13	X	27	28	X		"			
		"	3.13	X	29	30	X		"			
1		RTU-7	3.13	20/3	31	32			SPACE			
		"	3.13	X	33	34			SPACE			
		"	3.13	X	35	36			SPACE			
1		RTU-8	3.13	20/3	37	38			SPACE			
		"	3.13	X	39	40			SPACE			
		"	3.13	X	41	42			SPACE			

* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED

NOTES: 1. COORDINATE CIRCUIT BREAKER AND FEEDER SIZES WITH EQUIPMENT INSTALLED.

102.9	kVA CONNECTED
102.9	kVA DEMAND
123.8	AMPS DEMAND @ 480V

NOTE	PANEL: LA		VOLTAGE: 120/208		3 PH 4 W		AIC: 10,000		REMARKS:		NOTE	
			MAINS: 225 AMPS		<input type="checkbox"/> MLO	<input type="checkbox"/> MCB	<input type="checkbox"/> SURFACE	<input type="checkbox"/> FLUSH				
			LUGS: 3 <input type="checkbox"/> SUB-FEED <input type="checkbox"/> FEED-THRU		<input type="checkbox"/> NEMA1	<input type="checkbox"/> NEMA3R						
C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION	WIRE*	C**	
		RECPT - OUTSIDE	0.90	20/1	1	2	20/1	0.50	RECPT - LUNCHROOM			
		RECPT - OUTSIDE	1.10	20/1	3	4	20/1	0.20	RECPT - KITCHEN			
		RECPT	1.26	20/1	5	6	20/1	0.50	RECPT - KITCHEN			
		REFRIGERATOR	1.40	20/1	7	8	20/1	1.40	WATER FOUNTAIN			
		FREEZER	1.20	20/1	9	10	20/1	0.70	RECPT - OFFICE			
		FREEZER	1.20	20/1	11	12	20/1	1.30	RECPT - CLASSROOM			
		RECPT - KITCHEN	0.40	20/1	13	14	20/1	0.70	RECPT - CLASSROOM			
		RECPT - KITCHEN	0.40	20/1	15	16	20/1	0.90	RECPT - CLASSROOM			
		RECPT - KITCHEN	0.40	20/1	17	18	20/1	0.90	RECPT - ACTIVITY			
		RECPT - OFFICE	1.40	20/1	19	20	20/1	1.30	RECPT - ACTIVITY			
		RECPT - KITCHEN	0.50	20/1	21	22	20/1	0.70	RECPT - KITCHEN			
	#10	DRYER	2.50	30/2	23	24	20/1	1.40	REFRIGERATOR			
		"	2.50	X	25	26	20/1	1.00	RECPT - LEARNING			
		WASHER	0.20	20/1	27	28	20/1	1.70	RECPT - CLASSROOM			
		SPARE		20/1	29	30	20/1	1.50	RECPT - CLASSROOM			
		FRONT DOOR LOCK	1.00	20/1	31	32	20/1	0.60	LTG - OUTDOOR			
		RECPT - FRONT	1.10	20/1	33	34	20/1	1.40	REFRIGERATOR			
		RECPT - OFFICE	1.10	20/1	35	36	20/1	0.50	WATER HEATER			
		FACP	0.50	20/1	37	38	100/3	3.00	PANEL LB			2
	#8	ELECTRIC RANGE	4.00	50/2	39	40	X	5.00	"			
		"	4.00	X	41	42	X	4.00	"			

* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED

NOTES: 1. PROVIDE GFCI TYPE CIRCUIT BREAKER OR RECEPTACLE. 2. REFER TO ONE LINE DIAGRAM FOR FEEDER SIZES.
 3. COORDINATE SIZE OF CIRCUIT BREAKER AND FEEDER WITH THE ACTUAL EQUIPMENT INSTALLED.

56.3	kVA CONNECTED
51.2	kVA DEMAND
142.2	AMPS DEMAND @ 208V

NOTE	PANEL: LB		VOLTAGE: 120/208		3 PH 4 W		AIC: 10,000		REMARKS:		NOTE	
			MAINS: 100 AMPS		<input type="checkbox"/> MLO	<input type="checkbox"/> MCB	<input type="checkbox"/> SURFACE	<input type="checkbox"/> FLUSH				
			LUGS: <input type="checkbox"/> SUB-FEED <input type="checkbox"/> FEED-THRU		<input type="checkbox"/> NEMA1	<input type="checkbox"/> NEMA3R						
C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION	WIRE*	C**	
		THEATRE CONTROLS	0.40	20/1	1	2	20/1		SPARE			
		PROJECTOR	0.50	20/1	3	4	20/1		SPARE			
		SPARE			5	6	20/1		SPARE			
		SPARE			7	8			SPACE			
		SPARE			9	10			SPACE			
		SPARE			11	12			SPACE			
		SPARE			13	14			SPACE			
		SPARE			15	16			SPACE			
		SPARE			17	18			SPACE			
		SPARE			19	20			SPACE			
		SPARE			21	22			SPACE			
		SPARE			23	24			SPACE			
		SPARE			25	26			SPACE			
	#8	DIGITAL SIGN	2.00	30/1	27	28			SPACE			
	#8	CONTROLS DIGITAL SIGN	0.50	20/1	29	30			SPACE			
1		SIGNAGE	1.00	20/1	31	32			SPACE			
1		LIGHTS - EXTERIOR	0.16	20/1	33	34	20/1	1.08	RECPT - ROOF SERVICE		#10	
		RECPT - ELEC	0.18	20/1	35	36	20/1	1.18	EF-C		#10	
		SIGN FOUNTAIN	0.50	20/1	37	38	20/1		SPARE			
		LIGHTING CONTACTOR	0.50	20/1	39	40	20/1		SPARE			
		RECPT - TELECOM	0.40	20/1	41	42	20/1		SPARE			

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NOTES: 1. ROUTE VIA LIGHTING CONTROLLER.

8.4	kVA CONNECTED
9.2	kVA DEMAND
25.5	AMPS DEMAND @ 208V

REVISIONS AND ISSUANCE

NO.	DATE	DESCRIPTION
	08/13/2018	PRICING
	08/31/2018	PERMIT

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08-31-2018

DRAWING TITLE

**ELECTRICAL
PANEL
SCHEDULES**

DRAWN BY FK	CHECKED BY CK
DATE 05/10/2018	JOB NO. SEDONA LAKES
DRAWING NO. E-5.0	

NOTE	PANEL: HA		VOLTAGE: 277/480		3 PH 4 W		AIC: 25,000		REMARKS:		NOTE		
	C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION		WIRE*	C**
	#10		LTG - CLASSROOM	3.10	20/1	1	2	125/3	14.00	XFMR 'TLA'			3
	#10		LTG - LUNCHROOM	4.00	20/1	3	4	X	15.00	"			
	#10		LTG - CORRIDOR, CLASSROOM	3.00	20/1	5	6	X	18.00	"			
	#10		LTG - CLASSROOM	3.30	20/1	7	8	225/3	35.00	PANEL 'HB'			3
	#10		LTG - ACTIVITY ROOM	2.60	20/1	9	10	X	35.00	"			
	#10		LTG - OUTDOOR	0.80	20/1	11	12	X	35.00	"			
2	#8		LTG - PARKING LOT	1.66	20/1	13	14	15/3	2.70	RTU-1			1
			SPARE		20/1	15	16	X	2.70	"			
			UH-1	3.00	20/1	17	18	X	2.70	"			
			SPARE		20/1	19	20	20/3	3.13	RTU-13			1
	#10		LTG - ELEC, MECH	0.20	20/1	21	22	X	3.13	"			
	#10		LTG - CANOPY	0.50	20/1	23	24	X	3.13	"			
2			UH-2	5.00	20/1	25	26	20/3	3.37	RTU-14			1
			UH-3	5.00	20/1	27	28	X	3.37	"			
			UH-4	5.00	20/1	29	30	X	3.37	"			
			UH-5	5.00	20/1	31	32	20/3	3.13	RTU-15			1
			SPARE		20/1	33	34	X	3.13	"			
			SPARE		20/1	35	36	X	3.13	"			
			SPARE		20/1	37	38	20/3		SPARE			
			SPARE		20/1	39	40	X		"			
			SPARE		20/1	41	42	X		"			
* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED										231.2	kVA CONNECTED		
NOTES: 1. COORDINATE CIRCUIT BREAKER AND FEEDER SIZES WITH EQUIPMENT INSTALLED.										230.9	kVA DEMAND		
2. ROUTE VIA LIGHTING CONTROLLER. 3. REFER TO ONE LINE DIAGRAM FOR FEEDER SIZE.										277.9	AMPS DEMAND @ 480V		

NOTE	PANEL: HB		VOLTAGE: 277/480		3 PH 4 W		AIC: 25,000		REMARKS:		NOTE		
	C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION		WIRE*	C**
1			RTU-2	2.70	15/3	1	2	20/3	3.13	RTU-9			1
			"	2.70	X	3	4	X	3.13	"			
			"	2.70	X	5	6	X	3.13	"			
1			RTU-3	2.70	15/3	7	8	20/3	3.37	RTU-10			1
			"	2.70	X	9	10	X	3.37	"			
			"	2.70	X	11	12	X	3.37	"			
1			RTU-4	3.13	20/3	13	14	20/3	3.37	RTU-11			1
			"	3.13	X	15	16	X	3.37	"			
			"	3.13	X	17	18	X	3.37	"			
1			RTU-5	3.13	20/3	19	20	20/3	3.37	RTU-12			1
			"	3.13	X	21	22	X	3.37	"			
			"	3.13	X	23	24	X	3.37	"			
1			RTU-6	3.13	20/3	25	26	20/3		SPARE			
			"	3.13	X	27	28	X		"			
			"	3.13	X	29	30	X		"			
1			RTU-7	3.13	20/3	31	32			SPACE			
			"	3.13	X	33	34			SPACE			
			"	3.13	X	35	36			SPACE			
1			RTU-8	3.13	20/3	37	38			SPACE			
			"	3.13	X	39	40			SPACE			
			"	3.13	X	41	42			SPACE			
* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED										102.9	kVA CONNECTED		
NOTES: 1. COORDINATE CIRCUIT BREAKER AND FEEDER SIZES WITH EQUIPMENT INSTALLED.										102.9	kVA DEMAND		
										123.8	AMPS DEMAND @ 480V		

NOTE	PANEL: LA		VOLTAGE: 120/208		3 PH 4 W		AIC: 10,000		REMARKS:		NOTE		
	C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION		WIRE*	C**
			RECPT - OUTSIDE	0.90	20/1	1	2	20/1	0.50	RECPT - LUNCHROOM			
			RECPT - OUTSIDE	1.10	20/1	3	4	20/1	0.20	RECPT - KITCHEN			
			RECPT	1.26	20/1	5	6	20/1	0.50	RECPT - KITCHEN			
			REFRIGERATOR	1.40	20/1	7	8	20/1	1.40	WATER FOUNTAIN			
			FREEZER	1.20	20/1	9	10	20/1	0.70	RECPT - OFFICE			
			FREEZER	1.20	20/1	11	12	20/1	1.30	RECPT - CLASSROOM			
			RECPT - KITCHEN	0.40	20/1	13	14	20/1	0.70	RECPT - CLASSROOM			
			RECPT - KITCHEN	0.40	20/1	15	16	20/1	0.90	RECPT - CLASSROOM			
			RECPT - KITCHEN	0.40	20/1	17	18	20/1	0.90	RECPT - ACTIVITY			
			RECPT - OFFICE	1.40	20/1	19	20	20/1	1.30	RECPT - ACTIVITY			
			RECPT - KITCHEN	0.50	20/1	21	22	20/1	0.70	RECPT - KITCHEN			
	#10		DRYER	2.50	30/2	23	24	20/1	1.40	REFRIGERATOR			
			"	2.50	X	25	26	20/1	1.00	RECPT - LEARNING			
			WASHER	0.20	20/1	27	28	20/1	1.70	RECPT - CLASSROOM			
			SPARE		20/1	29	30	20/1	1.50	RECPT - CLASSROOM			
			FRONT DOOR LOCK	1.00	20/1	31	32	20/1	0.60	LTG - OUTDOOR			
			RECPT - FRONT	1.10	20/1	33	34	20/1	1.40	REFRIGERATOR			
			RECPT - OFFICE	1.10	20/1	35	36	20/1	0.50	WATER HEATER			
			FACP	0.50	20/1	37	38	100/3	3.00	PANEL LB			2
	#8		ELECTRIC RANGE	4.00	50/2	39	40	X	5.00	"			
			"	4.00	X	41	42	X	4.00	"			
* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED										56.3	kVA CONNECTED		
NOTES: 1. PROVIDE GFCI TYPE CIRCUIT BREAKER OR RECEPTACLE. 2. REFER TO ONE LINE DIAGRAM FOR FEEDER SIZES.										51.2	kVA DEMAND		
3. COORDINATE SIZE OF CIRCUIT BREAKER AND FEEDER WITH THE ACTUAL EQUIPMENT INSTALLED.										142.2	AMPS DEMAND @ 208V		

NOTE	PANEL: LB		VOLTAGE: 120/208		3 PH 4 W		AIC: 10,000		REMARKS:		NOTE		
	C**	WIRE*	LOAD DESCRIPTION	kVA	BKR	CKT	CKT	BKR	kVA	LOAD DESCRIPTION		WIRE*	C**
			THEATRE CONTROLS	0.40	20/1	1	2	20/1		SPARE			
			PROJECTOR	0.50	20/1	3	4	20/1		SPARE			
			SPARE		20/1	5	6	20/1		SPARE			
			SPARE		20/1	7	8			SPACE			
			SPARE		20/1	9	10			SPACE			
			SPARE		20/1	11	12			SPACE			
			SPARE		20/1	13	14			SPACE			
			SPARE		20/1	15	16			SPACE			
			SPARE		20/1	17	18			SPACE			
			SPARE		20/1	19	20			SPACE			
			SPARE		20/1	21	22			SPACE			
			SPARE		20/1	23	24			SPACE			
			SPARE		20/1	25	26			SPACE			
	#8		DIGITAL SIGN	2.00	30/1	27	28			SPACE			
	#8		CONTROLS DIGITAL SIGN	0.50	20/1	29	30			SPACE			
1			SIGNAGE	1.00	20/1	31	32			SPACE			
1			LIGHTS - EXTERIOR	0.16	20/1	33	34	20/1	1.08	RECPT - ROOF SERVICE		#10	
			RECPT - ELEC	0.18	20/1	35	36	20/1	1.18	EF-C		#10	
			SIGN FOUNTAIN	0.50	20/1	37	38	20/1		SPARE			
			LIGHTING CONTACTOR	0.50	20/1	39	40	20/1		SPARE			
			RECPT - TELECOM	0.40	20/1	41	42	20/1		SPARE			
* ALL WIRING IS 2#12, 1#12G IN 3/4" C UNLESS OTHERWISE NOTED										8.4	kVA CONNECTED		
NOTES: 1. ROUTE VIA LIGHTING CONTROLLER.										9.2	kVA DEMAND		
										25.5	AMPS DEMAND @ 208V		

SPECIFICATIONS

I. SCOPE

- A. INSTALL ALL ELECTRICAL WORK COVERED BY THESE SPECIFICATIONS AND APPROVED DRAWINGS. PROVIDE ALL MATERIAL, LABOR, TRANSPORTATION, TOOLS, SUPERVISION, ETC., NECESSARY TO COMPLETE THE TOTAL ELECTRICAL JOB. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN WHICH ARE OBVIOUSLY NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION SHALL BE PROVIDED.
- B. ELECTRICAL COMPONENTS INCLUDING BUT NOT LIMITED TO CONDUCTOR SIZE, OVERCURRENT PROTECTIVE DEVICE AND DISCONNECT SWITCHES ARE BASED ON POWER REQUIREMENTS FOR EQUIPMENT SPECIFIED AS SHOWN ON THE CONTRACT DOCUMENTS. PRIOR TO INSTALLING WORK, CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS WITH EQUIPMENT OF ALL TRADES REQUIRING ELECTRICAL CONNECTIONS.
- C. FINAL CONNECTION TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH ACTUAL EQUIPMENT SUPPLIED.
- D. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING, PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICES (CONDUIT AND/OR WIRE) PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC. AS REQUIRED, CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.
- E. EXAMINATION OF BIDDING DOCUMENTS
 - 1. EACH BIDDER SHALL EXAMINE THE BIDDING DOCUMENTS CAREFULLY AND MAKE WRITTEN REQUEST TO THE ARCHITECT FOR INTERPRETATION OR CORRECTION OF ANY DISCREPANCIES, AMBIGUITY, INCONSISTENCY OR ERROR THEREIN. ANY INTERPRETATION OR CORRECTION WILL BE ISSUED BY THE ARCHITECT AS AN ADDENDUM. ONLY WRITTEN INTERPRETATION OR CORRECTIONS BY ADDENDUM SHALL BE BINDING. CONTRACTOR SHALL INCLUDE IN HIS BID, LABOR, MATERIALS AND METHODS OF CONSTRUCTION FOR COMPLETE INSTALLATION. AFTER AWARD OF CONTRACT, NO ALLOWANCE OR EXTRA COMPENSATION WILL BE MADE IN BEHALF OF THE CONTRACTOR DUE TO HIS FAILURE TO MAKE THE WRITTEN REQUEST AS DESCRIBED ABOVE.
 - 2. FAILURE TO REQUEST CLARIFICATION OF ANY INADEQUACY, OMISSION OR CONFLICT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY. THE SIGNING OF THE CONTRACT WILL BE CONSIDERED IMPLICITLY DENOTING THAT THE CONTRACTOR HAS A THOROUGH COMPREHENSION OF THE FULL INTENT AND THE SCOPE OF WORKING DRAWINGS AND SPECIFICATIONS.

II. CODES AND FEES

- A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE, N.E.P.A. 70 AND ALL LOCAL AND STATE CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY THE BUILDING AND SAFETY CODES AND ORDINANCES, AND THE RULES AND REGULATIONS OF ANY LEGAL BODY HAVING JURISDICTION.

III. WORKMANSHIP

- A. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT. COORDINATE DEVICE LOCATIONS WITH DOOR SWINGS, CABINETS, COUNTERS, ETC., AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT SCALE ELECTRICAL PLANS. OBTAIN DIMENSIONS FOR LAYOUT OF EQUIPMENT FROM ARCHITECTURAL PLANS UNLESS INDICATED ON ELECTRICAL PLANS.
- B. COORDINATE WITH ALL OTHER TRADES AND SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT. MINOR OFFSETS IN LOCATIONS OF FIXTURES, DEVICES, ETC. SHALL BE MADE TO AVOID CONFLICTS WITH OTHER TRADES. SUCH MODIFICATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO THE WORK BEING PERFORMED.
- C. MOUNTING HEIGHTS, UNLESS OTHERWISE NOTED, ARE TO THE CENTER LINE OF THE EQUIPMENT AND/OR DEVICE EXCEPT THE MOUNTING HEIGHT OF SUSPENDED LIGHT FIXTURES WHICH IS TO THE BOTTOM OF FIXTURE.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IS EQUIPMENT PROVIDED UNDER THIS SECTION.

IV. SUBSTITUTIONS

- A. ALL COST INCURRED BY THE ACCEPTANCE OF SUBSTITUTIONS SHALL BE BORNE BY THE CONTRACTOR. PROOF FOR THE EQUALITY OF SUBSTITUTIONS SHALL BE BY THE CONTRACTOR.

V. U.L. LISTING

- A. ALL ELECTRICAL ITEMS COVERED BY THIS SPECIFICATION SHALL BE U.L. LABELED AND LISTED FOR THEIR SPECIFIC USE.

VI. ELECTRICAL SERVICE

- A. THE ELECTRICAL CONTRACTOR SHALL PAY ALL COSTS REQUIRED BY THE LOCAL UTILITY COMPANY PROVIDING SERVICES INDICATED. ELECTRICAL CONTRACTOR SHALL COORDINATE METERING, TRANSFORMER PAD, CONNECTION POINTS AND GROUNDING WITH UTILITY COMPANY.
- B. ALL SERVICE ENTRANCE EQUIPMENT INCLUDING BUT NOT LIMITED TO ANY MAIN DISCONNECT SWITCH, PANEL, OR SWITCHBOARD SHALL BE LISTED AND LABELED AS "SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT".

VII. WARRANTY

- A. WORK SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

VIII. SPECIFICATIONS

A. GROUNDING

- 1. THE BUILDING ELECTRICAL SYSTEMS SHALL BE SOLIDLY GROUNDED. ALL NON-CURRENT CARRYING METAL PARTS OF THE ELECTRICAL SYSTEM, I.E., RACEWAYS, EQUIPMENT ENCLOSURES, FRAMES, JUNCTION AND OUTLET BOXES AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS, SHALL BE GROUNDED TO PROVIDE A LOW IMPEDANCE PATH FOR POTENTIAL GROUND FAULTS.
- 2. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED IN ALL RACEWAYS AND CABLES.
- 3. THE NEUTRAL AND GROUND BUS SHALL BE BONDED TOGETHER AT ALL SERVICE EQUIPMENT.

B. RACEWAYS AND CONDUITS

- 1. CONDUITS INSTALLED IN DIRECT CONTACT WITH GRADE OR WITHIN CONCRETE SLABS SHALL BE SCHEDULE 40 PVC. CONDUITS CONCEALED WITHIN WALLS AND ABOVE CEILINGS, AND EXPOSED IN INDOOR AREAS SHALL BE ELECTRICAL METALLIC TUBING (E.M.T.). COUPLINGS SHALL BE STEEL SET SCREW TYPE FOR INDOOR LOCATIONS, AND COMPRESSION TYPE FOR OUTDOOR AND WET LOCATIONS. CONDUIT SHALL BE INTERMEDIATE OR GALVANIZED RIGID STEEL IN AREAS WHERE SUBJECT TO ABUSE.
- 2. CONDUITS SHALL BE RUN PARALLEL OR AT RIGHT ANGLES TO WALLS, CEILINGS, AND STRUCTURAL MEMBERS.
- 3. LIQUID TIGHT FLEXIBLE METAL OR NON-METALLIC CONDUIT SHALL BE USED FOR OUTDOOR EXPOSED CONNECTIONS TO GROUND OR ROOF-MOUNTED EQUIPMENT.
- 4. ALL RACEWAYS SHALL BE INSTALLED CONCEALED EXCEPT IN UNFINISHED SPACES OR WHERE INDICATED ON THE DRAWINGS.
- 5. FASTENERS AND SUPPORTS SHALL BE AS MANUFACTURED Y GEDNEY, EFCOR OR EQUAL. SUPPORTING DEVICES SHALL BE THOSE AS MANUFACTURED FOR A SPECIFIC PURPOSE. NAILS, WIRE OR PIPE STRAP SHALL NOT BE USED.
- 6. PROVIDE FLEXIBLE EXPANSION CONDUIT FITTINGS ON ALL CONDUIT CROSSING EXPANSION JOINTS. SEE ARCHITECTURAL PLANS FOR EXPANSION JOINT LOCATIONS.

C. CONDUCTORS

- 1. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, 90 DEG C THHN/THWN INSULATION.
- 2. UNLESS NOTED OTHERWISE, SERVICE AND FEEDER CONDUCTORS SHALL BE COPPER, THHN/THWN-2 INSULATION. WHERE APPROVED, ALUMINUM CONDUCTORS SHALL BE COMPACT, AA-8000 SERIES, XHHW-2, 90 DEG C
- 3. WIRE NO. 8 AWG AND LARGER SHALL BE STRANDED, NO. 10 AND SMALLER SHALL BE SOLID.
- 4. ALL BRANCH CIRCUIT AND FEEDER CONDUCTORS, NO. 8 AWG AND SMALLER, SHALL BE COLOR CODED AS FOLLOWS (WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION):

120/208 VOLT SYSTEM	277/480 VOLT SYSTEM
PHASE A - BLACK	PHASE A - BROWN
PHASE B - RED	PHASE B - ORANGE
PHASE C - BLUE	PHASE C - YELLOW
NEUTRAL - WHITE	NEUTRAL - GREY
GROUND - GREEN	GROUND - GREEN
- 5. MC CABLE SHALL BE LIMITED TO BRANCH CIRCUITS CONCEALED IN WALLS AND ABOVE CEILINGS, AND MAY NOT BE RUN DIRECTLY INTO SURFACE MOUNTED EQUIPMENT. ALL CIRCUIT HOMERUNNS FROM THE PANELBOARD TO THE FIRST BRANCH CIRCUIT DEVICE SHALL BE ROUTED IN CONDUIT. MC CABLE SHALL NOT BE ALLOWED FOR WIRING TO MECHANICAL EQUIPMENT.
- 6. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREE C AMBIENT.

D. OUTLET/JUNCTION BOXES

- 1. ALL OUTLET/JUNCTION BOXES SHALL BE GALVANIZED STEEL.
- 2. WALL AND CEILING OUTLET BOXES SHALL BE 4" SQUARE, WITH A DEPTH OF 2 1/2". CEILING BOXES SHALL BE 4" OCTAGONAL WHERE REQUIRED DUE TO NUMBER OF WIRES.
- 3. WHERE BOXES ARE INSTALLED BACK-TO-BACK IN WALLS AND LOCATED LESS THAN 24" APART, MOLDABLE PUTTY PADS SHALL BE INSTALLED TO MAINTAIN THE REQUIRED FIRE RATING.

E. PANELBOARDS

- 1. PANELBOARDS SHALL HAVE BOLT-IN CIRCUIT BREAKERS AND ALUMINUM BUSSING. WHERE APPLICABLE, LOAD CENTERS SHALL HAVE PLUG-IN BREAKERS AND ALUMINUM BUSSING.
- 2. OVERCURRENT PROTECTIVE DEVICES SHALL BE AUTOMATIC TRIP THERMAL MAGNETIC TPE WITH QUICK-MAKE QUICK-BREAK FIR BOTH MANUAL AND AUTOMATIC OPERATION. ALL MULTIPOLE BREAKERS SHALL BE COMMON TRIP; HANDLE TIES WILL NOT BE ACCEPTED.
- 3. SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, DISCONNECT SWITCHES AND MOTOR CONTROL CENTERS SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SIEMENS, SQUARE 'D' OR EATON/CUTLER HAMMER. BOLT FREE STANDING EQUIPMENT TO 4" HIGH EQUIPMENT HOUSEKEEPING PADS. SWITCHBOARD SECTIONS SHALL BE FULLY BUSSED.
- 4. TYPEWRITTEN DIRECTORIES AND PANELBOARD DESIGNATION PLATES SHALL BE PROVIDED BY THE CONTRACTOR FOR ALL PANELBOARDS. PANELBOARD DESIGNATIONS SHALL BE PHENOLIC-ENGRAVED.
- 5. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C. MINIMUM.

F. LIGHTING FIXTURES

- 1. UNLESS INDICATED ON DRAWINGS, BALLASTS PROVIDED WITH FIXTURES SHALL BE ETL-CBM APPROVED, HIGH POWER FACTOR, WITH U.L. LABEL. ALL BALLASTS FOR RAPID START LAMPS SHALL BE PREMIUM CLASS P.
- 2. FIXTURES RECESSED IN T-BAR CEILING SHALL BE SUPPORTED INDEPENDENTLY OF CEILING SYSTEM, WITH TWO (2) NUMBER TWELVE (12) HANGER WIRES UP TO STRUCTURE. SECURE HANGER WIRES TO CORNERS OF FIXTURE. CLIP FIXTURE TO GRID ON TWO SIDES WITH FACTORY FURNISHED CLIPS. FINAL CONNECTION TO FIXTURE SHALL BE MADE WITH A FLEXIBLE U.L. APPROVED ASSEMBLY.

A LICENSED FIRE ALARM CONTRACTOR SHALL SUBMIT THE FIRE ALARM SYSTEM DRAWINGS TO THE AHJ FOR APPROVAL PRIOR TO INSTALLATION. THE INSTALLATION MUST BE APPROVED BEFORE THE CERTIFICATE OF OCCUPANCY MAY BE ISSUED.

G. WIRING DEVICES

- 1. COMMERCIAL GRADE
- 1. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT TYPE RATED 20 AMP, PASS & SEYMOUR TR63 OR APPROVEDE EQUAL.
- 2. GFCI RECEPTACLES SHALL BE TAMPER RESISTANT TYPE RATED 20 AMP, PASS & SEYMOUR 2095-TR OR APPROVED EQUAL.
- 3. TOGGLE SWITCHES SHALL BE 20 AMP, HUBBELL CS1221 OR APPROVED EQUAL.
- 4. DIMMER SWITCHES SHALL BE SLIDER TYPE, LUTRON VARED SERIES.
- 5. DEVICE PLATES SHALL BE NYLON (UNLESS NOTED OTHERWISE).
- 6. COLOR OF DEVICES AND DEVISE PLATES SHALL BE AS DETERMINED BY ARCHITECT.

H. DRY TYPE TRANSFORMERS

- 1. TRANSFORMERS SHALL BE U.L. LISTED AND SHALL HAVE CLASS 155 OR HIGHER INSULATION SYSTEMS.
- 2. TRANSFORMERS SHALL BE MOUNTED WITH 5/8" THICK NEOPRENE PADS FOR VIBRATION ISOLATION.
- 3. 4" HIGH CONCRETE HOUSEKEEPING PADS SHALL BE INSTALLED FOR ALL FLOOR MOUNTED TRANSFORMERS.
- 4. ACCEPTABLE MANUFACTURERS: EATON/CUTLER HAMMER, G.E., SIEMENS OR SQUARE D.

I. DISCONNECT SWITCHES

- 1. SAFETY-TYPE DISCONNECT SWITCHES SHALL BE HEAVY DUTY WITH QUICK-MAKE, QUICK-BREAK MECHANISM WITH INTERLOCKING COVER WHICH NORMALLY CANNOT BE OPENED WHEN THE SWITCH IS IN THE "ON" POSITION. SWITCH SHALL HAVE PROVISIONS FOR PAD-LOCKING IN THE OPEN OR CLOSED POSITION.
- 2. FUSIBLE DISCONNECT SWITCHES SHALL HAVE REJECTION-TYPE FUSEHOLDERS. FUSES SHALL BE NON-RENEWABLE, DUAL ELEMENT TIME-DELAY "RK1" OR "RK3", OR AS SPECIFIED OTHERWISE.
- 3. ACCEPTABLE MANUFACTURERS: EATON/CUTLER HAMMER, G.E., SIEMENS OR SQUARE D.
- 1. PROVIDE A COMPLETE, U.L. LISTED, ADDRESSABLE FIRE ALARM SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS, AND ALL APPLICABLE CODES.
- 2. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT FOR A COMPLETE FIRE ALARM SYSTEM, INCLUDING THE FOLLOWING:
 - A) ENGINEERED DRAWINGS, CALCULATIONS, AND MATERIAL SUBMITTALS APPROVED BY AUTHORITY HAVING JURISDICTION.
 - B) COORDINATION OF WORK IN THIS SECTION WITH ALL TRADES.
 - C) COMPLETE MONITORING SERVICE CONNECTION TO TELEPHONE BACKBOARD.
 - D) INSPECTIONS AND TESTS.
 - E) ONE (1) YEAR WARRANTY

K. MISCELLANEOUS EQUIPMENT

- 1. TIME CLOCK SHALL BE ELECTRONIC TYPE WITH ASTRONOMICAL FUNCTIONS (TORK DZS 200BP OR APPROVED EQUAL).
- 2. PHOTOCELL SHALL HAVE RAINIGHT PHOTOELECTRIC SELF-CONTAINED CONTROL FOR SWITCHING. PHOTOCELL SHALL HAVE DIE-CAST HOUSING WITH ADJUSTABLE SENSOR. (ACCEPTABLE MANUFACTURERS: TORK 2100 SERIES OR APPROVED EQUAL).

L. PENETRATIONS

- 1. ALL PENETRATIONS THROUGH RATED WALLS, FLOORS AND/OR CEILINGS SHALL BE SEALED WITH THE APPROPRIATELY RATED FIRE-SEALING MATERIAL BY 3M COMPANY, THOMAS & BETTS, METACAULK, OR APPROVED EQUAL.

M. SUBMITTALS

- 1. PANELBOARDS, WIRING DEVICES, SWITCHES AND DISCONNECTS, LIGHTING FIXTURES, AND FUSE SUBMITTALS SHALL BE REQUIRED, AND ARE TO INCLUDE MANUFACTURER'S DATA, TEST REPORTS, PERFORMANCE DATA AND CERTIFICATIONS.

N. COMMUNICATIONS CONDUIT/BOXES

- 1. TWO (2) 4" SCHEDULE 40 PVC CONDUITS SHALL EXTEND FROM THE PUBLIC RIGHT-OF-WAY TO THE MAIN TELECOMMUNICATIONS ROOM OR ENTRANCE FACILITY.
- 2. THE NUMBER OF BENDS IN A CONDUIT SECTION RUN SHALL NOT EXCEED TWO (2) 90-DEGREE BENDS OR EQUIVALENT OF SWEEPS AND RADIUS BENDS.
- 3. IN AREAS WITH NON-ACCESSIBLE CEILINGS, TELEPHONE CONDUITS SHALL BE CONTINUOUS FROM THE OUTLET BOX TO THE TELEPHONE EQUIPMENT BACKBOARD AND TERMINATED WITH A NYLON GROMMET.
- 4. EACH HORIZONTAL HOME-RUN CONDUIT CAN SERVE FROM ONE (1) TO THREE (3) OUTLET BOXES. FOR ONE (1) OUTLET BOX, A 3/4" CONDUIT SHALL BE USED, MINIMUM. FOR TWO (2) OUTLET BOXES, A 1" CONDUIT SHALL BE USED, MINIMUM. FOR THREE (3) OUTLET BOXES, A 1-1/4" CONDUIT SHALL BE USED, MINIMUM.
- 5. THE DIMENSIONS OF THE OUTLET BOX SHALL BE 4" X 4" SQUARE WITH A MINIMUM DEPTH OF 2-1/8". BOXES SHALL BE EQUIPPED WITH SINGLE DEVICE ADAPTERS (OR TWO-DEVICE ADAPTERS WHERE NEEDED). WHERE INSTALLED IN PLASTER, GYPSUM BOARD, TILE, ETC., ADAPTERS SHALL BE RAISED TO COMPENSATE FOR THE THICKNESS OF THE WALL FINISH.

O. ELECTRICAL MATERIALS AND EQUIPMENT

- 1. NO ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, OR EQUIPMENT SHALL BE SOLD OR INSTALLED IN THE CITY UNLESS THEY ARE IN CONFORMANCE WITH THE PROVISIONS OF THIS CODE, THE LAWS OF THE STATE OF TEXAS, AND ANY APPLICABLE RULES AND REGULATIONS ISSUED UNDER THE AUTHORITY OF THE STATE STATUTES. THE MAKER'S NAME, TRADEMARK, OR OTHER IDENTIFICATION SYMBOL SHALL BE PLACED ON ALL ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, AND EQUIPMENT USED OR INSTALLED UNDER THE PROVISIONS OF THIS CODE. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED AND LABELED FOR THE INTENDED USE AND SHALL BE INCLUDED IN A LIST PUBLISHED BY AN APPROVED AGENCY.

LEGEND	
	FLOOD FIXTURE 2'X4' CLG FLUSH MTD<A'=TYPE A FIXTURE)
	FLUORESCENT FIXTURE 4' CEILING SURFACE OR RECESSED MOUNTED
	TRACK LIGHTS DN STANDARD TRACK (4' DR 8' IN LENGTH)
	WALL MOUNTED INCANDESCENT OR H.I.D. FIXTURE
	INCANDESCENT DR H.I.D. FIXTURE
	EXIT LT- CEILING DR WALL MTD W/ BATTERY PACK
	EMERGENCY LIGHT FIXTURE W/ BATTERY PACK
	SINGLE POLE SWITCH, 20A-120/277V (A=LTS TO BE CONTROLLED)
	SINGLE POLE SWITCH, 20A-120/277V (DIMMER-1 DR 2 KVA)
	3 WAY SWITCH , S4- 4 WAY, S2- 2 POLE
	KEY OPERATED SWITCH, Sp- PILOT, WP- WEATHERPROOF
	COMPUTER REC-ISOLATED GND(HUBBELL#LGS251 DRANGE)
	DUPLEX RECEPTACLE, 20A 125V, 3 WIRE GND TYPE< F=FLOOR MTD)
	125/250 VOLT 1ø (AMP AS NOTED)
	SINGLE RECEPTACLE 125 VOLT - 10 (AMPS AS NOTED)
	250 VOLT 3ø, SPECIAL POWER OUTLET (AMPS AS NOTED)
	FLUSH FLOOR TELE/DATA OUTLET
	FLUSH FLOOR DUPLEX RECEPTACLE OUTLET (WP-WEATHERPROOF)
	TELEPHONE OUTLET MTD @ 12" AFF<F=FLOOR MTD)
	FIRE ALARM PULL STATION
	JUNCTION BOX (SURFACE MTD. AS DESCRIBED DN DWGS.)
	JUNCTION BOX (FLUSH WALL MTD. - AS DESCRIBED DN DWGS.)
	PRE-WIRED DEVICE
	WEATHERPROOF
	DISCONNECT SWITCH, NF=NON FUSED
	MAGNETIC MOTOR STARTER
	MANUAL MOTOR STARTER
	MOTOR OR FAN
	DUCT DETECTOR/SMOKE DETECTOR
	ELECTRICAL PANEL
	L1 or H1,3,5 HOMERUN TO PANEL<L1orL2,4=2W+GX(H1,3,5=3W+G)
	CONDUIT IN OR UNDER FLOOR OR SLAB
	CONDUIT IN CEILING DR WALLS
	HATCH MARKS FOR NUMBER OF WIRES IN CONDUIT
	MANUAL PULL STATION @ 4'-6" AFF
	AUDIBLE/VISUAL ALARM HORN<75 CAND.> 80" AFF DR 6' BELOW CLG.
	FIRE ALARM VISUAL DEVICE WALL MTD 80" AFF DR 6' BELOW CLG.
	HEAT DETECTOR CLG MTD
	SMOKE DETECTOR CLG MTD
	CAMERA, DATA, PHONE BY OTHERS

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	VOLTAGE	LAMPS	MOUNTING	REMARKS	IEC VA
A1	LITHONIA #ZBLT4-60L-ADSM-MVOLT-EZ1-LP835	MVOLT	LED, 3500K	RECESSED		53
A4	LITHONIA #ZBLT2-33L-ADSM-MVOLT-EZ1-LP835	MVOLT	LED, 3500K	RECESSED	1,4	30
C	LITHONIA #ZL2N-148-5000LM-MDD-MVOLT-80CRI-WH	MVOLT	LED, 3500K	SURFACE		72
D6	GOTHAM #EVO 40/15 6AR-WD-LSS	MVOLT	LED, 4000K	RECESSED		18.5
D6E	LITHONIA #WST LED P3-40K-VF-MVOLT-E20WC-DXXX	MVOLT	LED, 4000K	WALL		50
E	LITHONIA #ELMT-W-LP06VS-LTP	MVOLT	LED	WALL		14.2
F	LITHONIA #LBL4 48L MVOLT LP835	MVOLT	LED, 3500K	SURFACE		48
G	GOTHAM #EVO 35/15 6AR WD LD EZ1 MVOLT TRW	MVOLT	LED, 3500K	RECESSED		18.5
H1	LITHONIA #DSW2 LED 30C700 40K TFTM MVOLT BBW DXX	MVOLT	LED, 4000K	WALL		71
J	LITHONIA #OFLR 6LC 120 P WH		120	LED, 5000K	WALL	19.9
X	LITHONIA #LQM S W 3 R 120/277 ELN	MVOLT	LED	SURFACE		0.92
XC	LITHONIA #LQMH LED R HO	MVOLT	LED	SURFACE	EGRESS 1,2	4.3

- NOTES:
- 1. COORDINATE MOUNTING HEIGHT WITH ARCHITECT.
 - 2. PROVIDE UNSWITCHED BRANCH CIRCUIT TO BATTERY SYSTEM.
 - 3. FIXTURE MUST BE VAPOR TIGHT FOR EXTERIOR LOCATIONS.
 - 4. ARCHITECT APPROVAL REQUIRED FOR ALL LIGHT FIXTURES.

REVISIONS AND ISSUANCE

NO.	DATE	DESCRIPTION
1	08/13/2018	PRICING

IVY KIDS EARLY LEARNING CENTER
 4434 CR 94
 Manvel, Tx 77578

MEP Consultants
 BLK Engineering & Consulting Co.
 3423 Spring Arbor Ln.
 Sugar Land, TX 77479
 (713) 563 3127
 TBPE Firm #12672

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

RESPONSIBLE ENGINEER:
 CHH-TAI KENG
 79201
 08-13-2018

DRAWING TITLE

ELECTRICAL NOTES

DRAWN BY DATE CHECKED BY CK

JOB NO. 05/10/2018 SEDONA LAKES

DRAWING NO. **E-7.0**

SPECIFICATIONS

I. SCOPE

- A. INSTALL ALL ELECTRICAL WORK COVERED BY THESE SPECIFICATIONS AND APPROVED DRAWINGS. PROVIDE ALL MATERIAL, LABOR, TRANSPORTATION, TOOLS, SUPERVISION, ETC., NECESSARY TO COMPLETE THE TOTAL ELECTRICAL JOB. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN WHICH ARE OBVIOUSLY NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION SHALL BE PROVIDED.
- B. ELECTRICAL COMPONENTS INCLUDING BUT NOT LIMITED TO CONDUCTOR SIZE, OVERCURRENT PROTECTIVE DEVICE AND DISCONNECT SWITCHES ARE BASED ON POWER REQUIREMENTS FOR EQUIPMENT SPECIFIED AS SHOWN ON THE CONTRACT DOCUMENTS. PRIOR TO INSTALLING WORK, CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS WITH EQUIPMENT OF ALL TRADES REQUIRING ELECTRICAL CONNECTIONS.
- C. FINAL CONNECTION TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH ACTUAL EQUIPMENT SUPPLIED.
- D. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING, PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICES (CONDUIT AND/OR WIRE) PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC. AS REQUIRED, CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.
- E. EXAMINATION OF BIDDING DOCUMENTS
 - 1. EACH BIDDER SHALL EXAMINE THE BIDDING DOCUMENTS CAREFULLY AND MAKE WRITTEN REQUEST TO THE ARCHITECT FOR INTERPRETATION OR CORRECTION OF ANY DISCREPANCIES, AMBIGUITY, INCONSISTENCY OR ERROR THEREIN. ANY INTERPRETATION OR CORRECTION WILL BE ISSUED BY THE ARCHITECT AS AN ADDENDUM. ONLY WRITTEN INTERPRETATION OR CORRECTIONS BY ADDENDUM SHALL BE BINDING. CONTRACTOR SHALL INCLUDE IN HIS BID, LABOR, MATERIALS AND METHODS OF CONSTRUCTION FOR COMPLETE INSTALLATION. AFTER AWARD OF CONTRACT, NO ALLOWANCE OR EXTRA COMPENSATION WILL BE MADE IN BEHALF OF THE CONTRACTOR DUE TO HIS FAILURE TO MAKE THE WRITTEN REQUEST AS DESCRIBED ABOVE.
 - 2. FAILURE TO REQUEST CLARIFICATION OF ANY INADEQUACY, OMISSION OR CONFLICT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY. THE SIGNING OF THE CONTRACT WILL BE CONSIDERED IMPLICITLY DENOTING THAT THE CONTRACTOR HAS A THOROUGH COMPREHENSION OF THE FULL INTENT AND THE SCOPE OF WORKING DRAWINGS AND SPECIFICATIONS.

II. CODES AND FEES

- A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE, N.E.P.A. 70 AND ALL LOCAL AND STATE CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY THE BUILDING AND SAFETY CODES AND ORDINANCES, AND THE RULES AND REGULATIONS OF ANY LEGAL BODY HAVING JURISDICTION.

III. WORKMANSHIP

- A. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT. COORDINATE DEVICE LOCATIONS WITH DOOR SWINGS, CABINETS, COUNTERS, ETC., AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT SCALE ELECTRICAL PLANS. OBTAIN DIMENSIONS FOR LAYOUT OF EQUIPMENT FROM ARCHITECTURAL PLANS UNLESS INDICATED ON ELECTRICAL PLANS.
- B. COORDINATE WITH ALL OTHER TRADES AND SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT. MINOR OFFSETS IN LOCATIONS OF FIXTURES, DEVICES, ETC. SHALL BE MADE TO AVOID CONFLICTS WITH OTHER TRADES. SUCH MODIFICATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO THE WORK BEING PERFORMED.
- C. MOUNTING HEIGHTS, UNLESS OTHERWISE NOTED, ARE TO THE CENTER LINE OF THE EQUIPMENT AND/OR DEVICE EXCEPT THE MOUNTING HEIGHT OF SUSPENDED LIGHT FIXTURES WHICH IS TO THE BOTTOM OF FIXTURE.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IS EQUIPMENT PROVIDED UNDER THIS SECTION.

IV. SUBSTITUTIONS

- A. ALL COST INCURRED BY THE ACCEPTANCE OF SUBSTITUTIONS SHALL BE BORNE BY THE CONTRACTOR. PROOF FOR THE EQUALITY OF SUBSTITUTIONS SHALL BE BY THE CONTRACTOR.

V. U.L. LISTING

- A. ALL ELECTRICAL ITEMS COVERED BY THIS SPECIFICATION SHALL BE U.L. LABELED AND LISTED FOR THEIR SPECIFIC USE.

VI. ELECTRICAL SERVICE

- A. THE ELECTRICAL CONTRACTOR SHALL PAY ALL COSTS REQUIRED BY THE LOCAL UTILITY COMPANY PROVIDING SERVICES INDICATED. ELECTRICAL CONTRACTOR SHALL COORDINATE METERING, TRANSFORMER PAD, CONNECTION POINTS AND GROUNDING WITH UTILITY COMPANY.
- B. ALL SERVICE ENTRANCE EQUIPMENT INCLUDING BUT NOT LIMITED TO ANY MAIN DISCONNECT SWITCH, PANEL, OR SWITCHBOARD SHALL BE LISTED AND LABELED AS "SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT".

VII. WARRANTY

- A. WORK SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

VIII. SPECIFICATIONS

A. GROUNDING

- 1. THE BUILDING ELECTRICAL SYSTEMS SHALL BE SOLIDLY GROUNDED. ALL NON-CURRENT CARRYING METAL PARTS OF THE ELECTRICAL SYSTEM, I.E., RACEWAYS, EQUIPMENT ENCLOSURES, FRAMES, JUNCTION AND OUTLET BOXES AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS, SHALL BE GROUNDED TO PROVIDE A LOW IMPEDANCE PATH FOR POTENTIAL GROUND FAULTS.
- 2. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED IN ALL RACEWAYS AND CABLES.
- 3. THE NEUTRAL AND GROUND BUS SHALL BE BONDED TOGETHER AT ALL SERVICE EQUIPMENT.

B. RACEWAYS AND CONDUITS

- 1. CONDUITS INSTALLED IN DIRECT CONTACT WITH GRADE OR WITHIN CONCRETE SLABS SHALL BE SCHEDULE 40 PVC. CONDUITS CONCEALED WITHIN WALLS AND ABOVE CEILINGS, AND EXPOSED IN INDOOR AREAS SHALL BE ELECTRICAL METALLIC TUBING (E.M.T.). COUPLINGS SHALL BE STEEL SET SCREW TYPE FOR INDOOR LOCATIONS, AND COMPRESSION TYPE FOR OUTDOOR AND WET LOCATIONS. CONDUIT SHALL BE INTERMEDIATE OR GALVANIZED RIGID STEEL IN AREAS WHERE SUBJECT TO ABUSE.
- 2. CONDUITS SHALL BE RUN PARALLEL OR AT RIGHT ANGLES TO WALLS, CEILINGS, AND STRUCTURAL MEMBERS.
- 3. LIQUID TIGHT FLEXIBLE METAL OR NON-METALLIC CONDUIT SHALL BE USED FOR OUTDOOR EXPOSED CONNECTIONS TO GROUND OR ROOF-MOUNTED EQUIPMENT.
- 4. ALL RACEWAYS SHALL BE INSTALLED CONCEALED EXCEPT IN UNFINISHED SPACES OR WHERE INDICATED ON THE DRAWINGS.
- 5. FASTENERS AND SUPPORTS SHALL BE AS MANUFACTURED Y GEDNEY, EFCOR OR EQUAL. SUPPORTING DEVICES SHALL BE THOSE AS MANUFACTURED FOR A SPECIFIC PURPOSE. NAILS, WIRE OR PIPE STRAP SHALL NOT BE USED.
- 6. PROVIDE FLEXIBLE EXPANSION CONDUIT FITTINGS ON ALL CONDUIT CROSSING EXPANSION JOINTS. SEE ARCHITECTURAL PLANS FOR EXPANSION JOINT LOCATIONS.

C. CONDUCTORS

- 1. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, 90 DEG C THHN/THWN INSULATION.
- 2. UNLESS NOTED OTHERWISE, SERVICE AND FEEDER CONDUCTORS SHALL BE COPPER, THHN/THWN-2 INSULATION. WHERE APPROVED, ALUMINUM CONDUCTORS SHALL BE COMPACT, AA-8000 SERIES, XHHW-2, 90 DEG C
- 3. WIRE NO. 8 AWG AND LARGER SHALL BE STRANDED, NO. 10 AND SMALLER SHALL BE SOLID.
- 4. ALL BRANCH CIRCUIT AND FEEDER CONDUCTORS, NO. 8 AWG AND SMALLER, SHALL BE COLOR CODED AS FOLLOWS (WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION):

120/208 VOLT SYSTEM	277/480 VOLT SYSTEM
PHASE A - BLACK	PHASE A - BROWN
PHASE B - RED	PHASE B - ORANGE
PHASE C - BLUE	PHASE C - YELLOW
NEUTRAL - WHITE	NEUTRAL - GREY
GROUND - GREEN	GROUND - GREEN
- 5. MC CABLE SHALL BE LIMITED TO BRANCH CIRCUITS CONCEALED IN WALLS AND ABOVE CEILINGS, AND MAY NOT BE RUN DIRECTLY INTO SURFACE MOUNTED EQUIPMENT. ALL CIRCUIT HOMERUNNS FROM THE PANELBOARD TO THE FIRST BRANCH CIRCUIT DEVICE SHALL BE ROUTED IN CONDUIT. MC CABLE SHALL NOT BE ALLOWED FOR WIRING TO MECHANICAL EQUIPMENT.
- 6. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREE C AMBIENT.

D. OUTLET/JUNCTION BOXES

- 1. ALL OUTLET/JUNCTION BOXES SHALL BE GALVANIZED STEEL.
- 2. WALL AND CEILING OUTLET BOXES SHALL BE 4" SQUARE, WITH A DEPTH OF 2 1/2". CEILING BOXES SHALL BE 4" OCTAGONAL WHERE REQUIRED DUE TO NUMBER OF WIRES.
- 3. WHERE BOXES ARE INSTALLED BACK-TO-BACK IN WALLS AND LOCATED LESS THAN 24" APART, MOLDABLE PUTTY PADS SHALL BE INSTALLED TO MAINTAIN THE REQUIRED FIRE RATING.

E. PANELBOARDS

- 1. PANELBOARDS SHALL HAVE BOLT-IN CIRCUIT BREAKERS AND ALUMINUM BUSSING. WHERE APPLICABLE, LOAD CENTERS SHALL HAVE PLUG-IN BREAKERS AND ALUMINUM BUSSING.
- 2. OVERCURRENT PROTECTIVE DEVICES SHALL BE AUTOMATIC TRIP THERMAL MAGNETIC TPE WITH QUICK-MAKE QUICK-BREAK FIR BOTH MANUAL AND AUTOMATIC OPERATION. ALL MULTIPOLE BREAKERS SHALL BE COMMON TRIP; HANDLE TIES WILL NOT BE ACCEPTED.
- 3. SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, DISCONNECT SWITCHES AND MOTOR CONTROL CENTERS SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SIEMENS, SQUARE 'D' OR EATON/CUTLER HAMMER. BOLT FREE STANDING EQUIPMENT TO 4" HIGH EQUIPMENT HOUSEKEEPING PADS. SWITCHBOARD SECTIONS SHALL BE FULLY BUSSED.
- 4. TYPEWRITTEN DIRECTORIES AND PANELBOARD DESIGNATION PLATES SHALL BE PROVIDED BY THE CONTRACTOR FOR ALL PANELBOARDS. PANELBOARD DESIGNATIONS SHALL BE PHENOLIC-ENGRAVED.
- 5. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C. MINIMUM.

F. LIGHTING FIXTURES

- 1. UNLESS INDICATED ON DRAWINGS, BALLASTS PROVIDED WITH FIXTURES SHALL BE ETL-CBM APPROVED, HIGH POWER FACTOR, WITH U.L. LABEL. ALL BALLASTS FOR RAPID START LAMPS SHALL BE PREMIUM CLASS P.
- 2. FIXTURES RECESSED IN T-BAR CEILING SHALL BE SUPPORTED INDEPENDENTLY OF CEILING SYSTEM, WITH TWO (2) NUMBER TWELVE (12) HANGER WIRES UP TO STRUCTURE. SECURE HANGER WIRES TO CORNERS OF FIXTURE. CLIP FIXTURE TO GRID ON TWO SIDES WITH FACTORY FURNISHED CLIPS. FINAL CONNECTION TO FIXTURE SHALL BE MADE WITH A FLEXIBLE U.L. APPROVED ASSEMBLY.

A LICENSED FIRE ALARM CONTRACTOR SHALL SUBMIT THE FIRE ALARM SYSTEM DRAWINGS TO THE AHJ FOR APPROVAL PRIOR TO INSTALLATION. THE INSTALLATION MUST BE APPROVED BEFORE THE CERTIFICATE OF OCCUPANCY MAY BE ISSUED.

G. WIRING DEVICES

- 1. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT TYPE RATED 20 AMP, PASS & SEYMOUR TR63 OR APPROVEDE EQUAL.
- 2. GFCI RECEPTACLES SHALL BE TAMPER RESISTANT TYPE RATED 20 AMP, PASS & SEYMOUR 2095-TR OR APPROVED EQUAL.
- 3. TOGGLE SWITCHES SHALL BE 20 AMP, HUBBELL CS1221 OR APPROVED EQUAL.
- 4. DIMMER SWITCHES SHALL BE SLIDER TYPE, LUTRON VARED SERIES.
- 5. DEVICE PLATES SHALL BE NYLON (UNLESS NOTED OTHERWISE).
- 6. COLOR OF DEVICES AND DEVISE PLATES SHALL BE AS DETERMINED BY ARCHITECT.

H. DRY TYPE TRANSFORMERS

- 1. TRANSFORMERS SHALL BE U.L. LISTED AND SHALL HAVE CLASS 155 OR HIGHER INSULATION SYSTEMS.
- 2. TRANSFORMERS SHALL BE MOUNTED WITH 5/8" THICK NEOPRENE PADS FOR VIBRATION ISOLATION.
- 3. 4" HIGH CONCRETE HOUSEKEEPING PADS SHALL BE INSTALLED FOR ALL FLOOR MOUNTED TRANSFORMERS.
- 4. ACCEPTABLE MANUFACTURERS: EATON/CUTLER HAMMER, G.E., SIEMENS OR SQUARE D.

I. DISCONNECT SWITCHES

- 1. SAFETY-TYPE DISCONNECT SWITCHES SHALL BE HEAVY DUTY WITH QUICK-MAKE, QUICK-BREAK MECHANISM WITH INTERLOCKING COVER WHICH NORMALLY CANNOT BE OPENED WHEN THE SWITCH IS IN THE "ON" POSITION. SWITCH SHALL HAVE PROVISIONS FOR PAD-LOCKING IN THE OPEN OR CLOSED POSITION.
 - 2. FUSIBLE DISCONNECT SWITCHES SHALL HAVE REJECTION-TYPE FUSEHOLDERS. FUSES SHALL BE NON-RENEWABLE, DUAL ELEMENT TIME-DELAY "RK1" OR "RK3", OR AS SPECIFIED OTHERWISE.
 - 3. ACCEPTABLE MANUFACTURERS: EATON/CUTLER HAMMER, G.E., SIEMENS OR SQUARE D.
- J. FIRE ALARM SYSTEM**
- 1. PROVIDE A COMPLETE, U.L. LISTED, ADDRESSABLE FIRE ALARM SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS, AND ALL APPLICABLE CODES.
 - 2. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT FOR A COMPLETE FIRE ALARM SYSTEM, INCLUDING THE FOLLOWING:
 - A) ENGINEERED DRAWINGS, CALCULATIONS, AND MATERIAL SUBMITTALS APPROVED BY AUTHORITY HAVING JURISDICTION.
 - B) COORDINATION OF WORK IN THIS SECTION WITH ALL TRADES.
 - C) COMPLETE MONITORING SERVICE CONNECTION TO TELEPHONE BACKBOARD.
 - D) INSPECTIONS AND TESTS.
 - E) ONE (1) YEAR WARRANTY

K. MISCELLANEOUS EQUIPMENT

- 1. TIME CLOCK SHALL BE ELECTRONIC TYPE WITH ASTRONOMICAL FUNCTIONS (TORK DZS 200BP OR APPROVED EQUAL).
- 2. PHOTOCELL SHALL HAVE RAINIGHT PHOTOELECTRIC SELF-CONTAINED CONTROL FOR SWITCHING. PHOTOCELL SHALL HAVE DIE-CAST HOUSING WITH ADJUSTABLE SENSOR. (ACCEPTABLE MANUFACTURERS: TORK 2100 SERIES OR APPROVED EQUAL).

L. PENETRATIONS

- 1. ALL PENETRATIONS THROUGH RATED WALLS, FLOORS AND/OR CEILINGS SHALL BE SEALED WITH THE APPROPRIATELY RATED FIRE-SEALING MATERIAL BY 3M COMPANY, THOMAS & BETTS, METACAULK, OR APPROVED EQUAL.

M. SUBMITTALS

- 1. PANELBOARDS, WIRING DEVICES, SWITCHES AND DISCONNECTS, LIGHTING FIXTURES, AND FUSE SUBMITTALS SHALL BE REQUIRED, AND ARE TO INCLUDE MANUFACTURER'S DATA, TEST REPORTS, PERFORMANCE DATA AND CERTIFICATIONS.

N. COMMUNICATIONS CONDUIT/BOXES

- 1. TWO (2) 4" SCHEDULE 40 PVC CONDUITS SHALL EXTEND FROM THE PUBLIC RIGHT-OF-WAY TO THE MAIN TELECOMMUNICATIONS ROOM OR ENTRANCE FACILITY.
- 2. THE NUMBER OF BENDS IN A CONDUIT SECTION RUN SHALL NOT EXCEED TWO (2) 90-DEGREE BENDS OR EQUIVALENT OF SWEEPS AND RADIUS BENDS.
- 3. IN AREAS WITH NON-ACCESSIBLE CEILINGS, TELEPHONE CONDUITS SHALL BE CONTINUOUS FROM THE OUTLET BOX TO THE TELEPHONE EQUIPMENT BACKBOARD AND TERMINATED WITH A NYLON GROMMET.
- 4. EACH HORIZONTAL HOME-RUN CONDUIT CAN SERVE FROM ONE (1) TO THREE (3) OUTLET BOXES. FOR ONE (1) OUTLET BOX, A 3/4" CONDUIT SHALL BE USED, MINIMUM. FOR TWO (2) OUTLET BOXES, A 1" CONDUIT SHALL BE USED, MINIMUM. FOR THREE (3) OUTLET BOXES, A 1-1/4" CONDUIT SHALL BE USED, MINIMUM.
- 5. THE DIMENSIONS OF THE OUTLET BOX SHALL BE 4" X 4" SQUARE WITH A MINIMUM DEPTH OF 2-1/8". BOXES SHALL BE EQUIPPED WITH SINGLE DEVICE ADAPTERS (OR TWO-DEVICE ADAPTERS WHERE NEEDED). WHERE INSTALLED IN PLASTER, GYPSUM BOARD, TILE, ETC., ADAPTERS SHALL BE RAISED TO COMPENSATE FOR THE THICKNESS OF THE WALL FINISH.

O. ELECTRICAL MATERIALS AND EQUIPMENT

- 1. NO ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, OR EQUIPMENT SHALL BE SOLD OR INSTALLED IN THE CITY UNLESS THEY ARE IN CONFORMANCE WITH THE PROVISIONS OF THIS CODE, THE LAWS OF THE STATE OF TEXAS, AND ANY APPLICABLE RULES AND REGULATIONS ISSUED UNDER THE AUTHORITY OF THE STATE STATUTES. THE MAKER'S NAME, TRADEMARK, OR OTHER IDENTIFICATION SYMBOL SHALL BE PLACED ON ALL ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, AND EQUIPMENT USED OR INSTALLED UNDER THE PROVISIONS OF THIS CODE. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED AND LABELED FOR THE INTENDED USE AND SHALL BE INCLUDED IN A LIST SUBMITTED BY AN APPROVED AGENCY.

LEGEND	
[A]	FLOOR FIXTURE 2'X4' CLG FLUSH MTD<A'=TYPE A FIXTURE)
[B]	FLUORESCENT FIXTURE 4' CEILING SURFACE OR RECESSED MOUNTED
[C]	TRACK LIGHTS DN STANDARD TRACK (4' DR 8' IN LENGTH)
[D]	WALL MOUNTED INCANDESCENT OR H.I.D. FIXTURE
[E]	INCANDESCENT OR H.I.D. FIXTURE
[F]	EXIT LT- CEILING DR WALL MTD W/ BATTERY PACK
[G]	EMERGENCY LIGHT FIXTURE W/ BATTERY PACK
[H]	SINGLE POLE SWITCH, 20A-120/277V (A=LTS TO BE CONTROLLED)
[I]	SINGLE POLE SWITCH, 20A-120/277V (DIMMER-1 DR 2 KVA)
[J]	3 WAY SWITCH , S4- 4 WAY, S2- 2 POLE
[K]	KEY OPERATED SWITCH, SP- PILOT, WP- WEATHERPROOF
[L]	COMPUTER REC-ISOLATED GNDHUBBELL#LGS251 DRANGE)
[M]	DUPLEX RECEPTACLE, 20A 125V, 3 WIRE GND TYPE< F=FLOOR MTD)
[N]	125/250 VOLT 1ø (AMP AS NOTED)
[O]	SINGLE RECEPTACLE 125 VOLT - 10 (AMPS AS NOTED)
[P]	250 VOLT 3ø, SPECIAL POWER OUTLET (AMPS AS NOTED)
[Q]	FLUSH FLOOR TELE/DATA OUTLET
[R]	FLUSH FLOOR DUPLEX RECEPTACLE OUTLET (WP-WEATHERPROOF)
[S]	TELEPHONE OUTLET MTD @ 12" AFFXF=FLOOR MTD)
[T]	FIRE ALARM PULL STATION
[U]	JUNCTION BOX (SURFACE MTD. AS DESCRIBED DN DWGS.)
[V]	JUNCTION BOX (FLUSH WALL MTD. - AS DESCRIBED DN DWGS.)
[W]	PRE-WIRED DEVICE
[X]	WEATHERPROOF
[Y]	DISCONNECT SWITCH, NF=NON FUSED
[Z]	MAGNETIC MOTOR STARTER
[AA]	MANUAL MOTOR STARTER
[AB]	MOTOR DR FAN
[AC]	DUCT DETECTOR/SMOKE DETECTOR
[AD]	ELECTRICAL PANEL
[AE]	L1 OR H1,3,5 HOMERUN TO PANEL(L1ORL2,4=2W+GXH1,3,5=3W+G)
[AF]	CONDUIT IN OR UNDER FLOOR OR SLAB
[AG]	CONDUIT IN CEILING DR WALLS
[AH]	HATCH MARKS FOR NUMBER OF WIRES IN CONDUIT
[AI]	MANUAL PULL STATION @ 4'-6" AFF
[AJ]	AUDIBLE/VISUAL ALARM HORN<75 CAND.> 80" AFF DR 6' BELOW CLG.
[AK]	FIRE ALARM VISUAL DEVICE WALL MTD 80" AFF DR 6' BELOW CLG.
[AL]	HEAT DETECTOR CLG MTD
[AM]	SMOKE DETECTOR CLG MTD
[AN]	CAMERA, DATA, PHONE BY OTHERS

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	VOLTAGE	LAMPS	MOUNTING	REMARKS	IEC VA
A1	LITHONIA #ZBLT4-60L-ADSM-MVOLT-EZ1-LP835	MVOLT	LED, 3500K	RECESSED		53
A4	LITHONIA #ZBLT2-33L-ADSM-MVOLT-EZ1-LP835	MVOLT	LED, 3500K	RECESSED	1,4	30
C	LITHONIA #ZL2N-148-5000LM-MDD-MVOLT-80CRI-WH	MVOLT	LED, 3500K	SURFACE		72
D6	GOTHAM #EVO 40/15 6AR-WD-LSS	MVOLT	LED, 4000K	RECESSED		18.5
D6E	LITHONIA #WST LED P3-40K-VF-MVOLT-E20WC-DXXX	MVOLT	LED, 4000K	WALL		50
E	LITHONIA #ELMT-W-LP06VS-LTP	MVOLT	LED	WALL		14.2
F	LITHONIA #LBL4 48L MVOLT LP835	MVOLT	LED, 3500K	SURFACE		48
G	GOTHAM #EVO 35/15 6AR WD LD EZ1 MVOLT TRW	MVOLT	LED, 3500K	RECESSED		18.5
H1	LITHONIA #DSW2 LED 30C700 40K TFTM MVOLT BBW DXX	MVOLT	LED, 4000K	WALL		71
J	LITHONIA #OFLR 6LC 120 P WH		120	LED, 5000K	WALL	19.9
K	UNDERCOUNTER LIGHT	MVOLT	LED, 3500K	SURFACE		12
X	LITHONIA #LQM S W 3 R 120/277 ELN	MVOLT	LED	SURFACE		0.92
XC	LITHONIA #LQMH LED R HO	MVOLT	LED	SURFACE	EGRESS 1,2	4.3

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	08/13/2018	PRICING
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IVY KIDS EARLY LEARNING CENTER

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08-31-2018

DRAWING TITLE

ELECTRICAL NOTES

DRAWN BY: FK CHECKED BY: CK

DATE: 05/10/2018 JOB NO.: SEDONA LAKES

DRAWING NO. **E-7.0**

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- B. ELECTRICAL COMPONENTS INCLUDING BUT NOT LIMITED TO CONDUCTOR SIZE, OVERCURRENT PROTECTIVE DEVICE AND DISCONNECT SWITCHES ARE BASED ON POWER REQUIREMENTS FOR EQUIPMENT SPECIFIED AS SHOWN ON THE CONTRACT DOCUMENTS. PRIOR TO INSTALLING WORK, CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS WITH EQUIPMENT OF ALL TRADES REQUIRING ELECTRICAL CONNECTIONS.
- C. FINAL CONNECTION TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH ACTUAL EQUIPMENT SUPPLIED.
- D. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING, PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICES (CONDUIT AND/OR WIRE) PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC. AS REQUIRED, CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.
- E. EXAMINATION OF BIDDING DOCUMENTS
 - 1. EACH BIDDER SHALL EXAMINE THE BIDDING DOCUMENTS CAREFULLY AND MAKE WRITTEN REQUEST TO THE ARCHITECT FOR INTERPRETATION OR CORRECTION OF ANY DISCREPANCIES, AMBIGUITY, INCONSISTENCY OR ERROR THEREIN. ANY INTERPRETATION OR CORRECTION WILL BE ISSUED BY THE ARCHITECT AS AN ADDENDUM. ONLY WRITTEN INTERPRETATION OR CORRECTIONS BY ADDENDUM SHALL BE BINDING. CONTRACTOR SHALL INCLUDE IN HIS BID, LABOR, MATERIALS AND METHODS OF CONSTRUCTION FOR COMPLETE INSTALLATION. AFTER AWARD OF CONTRACT, NO ALLOWANCE OR EXTRA COMPENSATION WILL BE MADE IN BEHALF OF THE CONTRACTOR DUE TO HIS FAILURE TO MAKE THE WRITTEN REQUEST AS DESCRIBED ABOVE.
 - 2. FAILURE TO REQUEST CLARIFICATION OF ANY INADEQUACY, OMISSION OR CONFLICT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY. THE SIGNING OF THE CONTRACT WILL BE CONSIDERED IMPLICITLY DENOTING THAT THE CONTRACTOR HAS A THOROUGH COMPREHENSION OF THE FULL INTENT AND THE SCOPE OF WORKING DRAWINGS AND SPECIFICATIONS.

II. CODES AND FEES

- A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE, N.E.P.A. 70 AND ALL LOCAL AND STATE CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY THE BUILDING AND SAFETY CODES AND ORDINANCES, AND THE RULES AND REGULATIONS OF ANY LEGAL BODY HAVING JURISDICTION.

III. WORKMANSHIP

- A. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT. COORDINATE DEVICE LOCATIONS WITH DOOR SWINGS, CABINETS, COUNTERS, ETC., AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT SCALE ELECTRICAL PLANS. OBTAIN DIMENSIONS FOR LAYOUT OF EQUIPMENT FROM ARCHITECTURAL PLANS UNLESS INDICATED ON ELECTRICAL PLANS.
- B. COORDINATE WITH ALL OTHER TRADES AND SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT. MINOR OFFSETS IN LOCATIONS OF FIXTURES, DEVICES, ETC. SHALL BE MADE TO AVOID CONFLICTS WITH OTHER TRADES. SUCH MODIFICATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO THE WORK BEING PERFORMED.
- C. MOUNTING HEIGHTS, UNLESS OTHERWISE NOTED, ARE TO THE CENTER LINE OF THE EQUIPMENT AND/OR DEVICE EXCEPT THE MOUNTING HEIGHT OF SUSPENDED LIGHT FIXTURES WHICH IS TO THE BOTTOM OF FIXTURE.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IS EQUIPMENT PROVIDED UNDER THIS SECTION.

IV. SUBSTITUTIONS

- A. ALL COST INCURRED BY THE ACCEPTANCE OF SUBSTITUTIONS SHALL BE BORNE BY THE CONTRACTOR. PROOF FOR THE EQUALITY OF SUBSTITUTIONS SHALL BE BY THE CONTRACTOR.

V. U.L. LISTING

- A. ALL ELECTRICAL ITEMS COVERED BY THIS SPECIFICATION SHALL BE U.L. LABELED AND LISTED FOR THEIR SPECIFIC USE.

VI. ELECTRICAL SERVICE

- A. THE ELECTRICAL CONTRACTOR SHALL PAY ALL COSTS REQUIRED BY THE LOCAL UTILITY COMPANY PROVIDING SERVICES INDICATED. ELECTRICAL CONTRACTOR SHALL COORDINATE METERING, TRANSFORMER PAD, CONNECTION POINTS AND GROUNDING WITH UTILITY COMPANY.
- B. ALL SERVICE ENTRANCE EQUIPMENT INCLUDING BUT NOT LIMITED TO ANY MAIN DISCONNECT SWITCH, PANEL, OR SWITCHBOARD SHALL BE LISTED AND LABELED AS "SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT".

VII. WARRANTY

- A. WORK SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

VIII. SPECIFICATIONS

A. GROUNDING

- 1. THE BUILDING ELECTRICAL SYSTEMS SHALL BE SOLIDLY GROUNDED. ALL NON-CURRENT CARRYING METAL PARTS OF THE ELECTRICAL SYSTEM, I.E., RACEWAYS, EQUIPMENT ENCLOSURES, FRAMES, JUNCTION AND OUTLET BOXES AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS, SHALL BE GROUNDED TO PROVIDE A LOW IMPEDANCE PATH FOR POTENTIAL GROUND FAULTS.
- 2. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED IN ALL RACEWAYS AND CABLES.
- 3. THE NEUTRAL AND GROUND BUS SHALL BE BONDED TOGETHER AT ALL SERVICE EQUIPMENT.

B. RACEWAYS AND CONDUITS

- 1. CONDUITS INSTALLED IN DIRECT CONTACT WITH GRADE OR WITHIN CONCRETE SLABS SHALL BE SCHEDULE 40 PVC. CONDUITS CONCEALED WITHIN WALLS AND ABOVE CEILINGS, AND EXPOSED IN INDOOR AREAS SHALL BE ELECTRICAL METALLIC TUBING (E.M.T.). COUPLINGS SHALL BE STEEL SET SCREW TYPE FOR INDOOR LOCATIONS, AND COMPRESSION TYPE FOR OUTDOOR AND WET LOCATIONS. CONDUIT SHALL BE INTERMEDIATE OR GALVANIZED RIGID STEEL IN AREAS WHERE SUBJECT TO ABUSE.
- 2. CONDUITS SHALL BE RUN PARALLEL OR AT RIGHT ANGLES TO WALLS, CEILINGS, AND STRUCTURAL MEMBERS.
- 3. LIQUID TIGHT FLEXIBLE METAL OR NON-METALLIC CONDUIT SHALL BE USED FOR OUTDOOR EXPOSED CONNECTIONS TO GROUND OR ROOF-MOUNTED EQUIPMENT.
- 4. ALL RACEWAYS SHALL BE INSTALLED CONCEALED EXCEPT IN UNFINISHED SPACES OR WHERE INDICATED ON THE DRAWINGS.
- 5. FASTENERS AND SUPPORTS SHALL BE AS MANUFACTURED Y GEDNEY, EFCOR OR EQUAL. SUPPORTING DEVICES SHALL BE THOSE AS MANUFACTURED FOR A SPECIFIC PURPOSE. NAILS, WIRE OR PIPE STRAP SHALL NOT BE USED.
- 6. PROVIDE FLEXIBLE EXPANSION CONDUIT FITTINGS ON ALL CONDUIT CROSSING EXPANSION JOINTS. SEE ARCHITECTURAL PLANS FOR EXPANSION JOINT LOCATIONS.

C. CONDUCTORS

- 1. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, 90 DEG C THHN/THWN INSULATION.
- 2. UNLESS NOTED OTHERWISE, SERVICE AND FEEDER CONDUCTORS SHALL BE COPPER, THHN/THWN-2 INSULATION. WHERE APPROVED, ALUMINUM CONDUCTORS SHALL BE COMPACT, AA-8000 SERIES, XHHW-2, 90 DEG C
- 3. WIRE NO. 8 AWG AND LARGER SHALL BE STRANDED, NO. 10 AND SMALLER SHALL BE SOLID.
- 4. ALL BRANCH CIRCUIT AND FEEDER CONDUCTORS, NO. 8 AWG AND SMALLER, SHALL BE COLOR CODED AS FOLLOWS (WHERE APPROVED BY THE AUTHORITY HAVING JURISDICTION):

120/208 VOLT SYSTEM	277/480 VOLT SYSTEM
PHASE A - BLACK	PHASE A - BROWN
PHASE B - RED	PHASE B - ORANGE
PHASE C - BLUE	PHASE C - YELLOW
NEUTRAL - WHITE	NEUTRAL - GREY
GROUND - GREEN	GROUND - GREEN
- 5. MC CABLE SHALL BE LIMITED TO BRANCH CIRCUITS CONCEALED IN WALLS AND ABOVE CEILINGS, AND MAY NOT BE RUN DIRECTLY INTO SURFACE MOUNTED EQUIPMENT. ALL CIRCUIT HOMERUNNS FROM THE PANELBOARD TO THE FIRST BRANCH CIRCUIT DEVICE SHALL BE ROUTED IN CONDUIT. MC CABLE SHALL NOT BE ALLOWED FOR WIRING TO MECHANICAL EQUIPMENT.
- 6. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREE C AMBIENT.

D. OUTLET/JUNCTION BOXES

- 1. ALL OUTLET/JUNCTION BOXES SHALL BE GALVANIZED STEEL.
- 2. WALL AND CEILING OUTLET BOXES SHALL BE 4" SQUARE, WITH A DEPTH OF 2 1/2". CEILING BOXES SHALL BE 4" OCTAGONAL WHERE REQUIRED DUE TO NUMBER OF WIRES.
- 3. WHERE BOXES ARE INSTALLED BACK-TO-BACK IN WALLS AND LOCATED LESS THAN 24" APART, MOLDABLE PUTTY PADS SHALL BE INSTALLED TO MAINTAIN THE REQUIRED FIRE RATING.

E. PANELBOARDS

- 1. PANELBOARDS SHALL HAVE BOLT-IN CIRCUIT BREAKERS AND ALUMINUM BUSSING. WHERE APPLICABLE, LOAD CENTERS SHALL HAVE PLUG-IN BREAKERS AND ALUMINUM BUSSING.
- 2. OVERCURRENT PROTECTIVE DEVICES SHALL BE AUTOMATIC TRIP THERMAL MAGNETIC TPE WITH QUICK-MAKE QUICK-BREAK FIR BOTH MANUAL AND AUTOMATIC OPERATION. ALL MULTIPOLE BREAKERS SHALL BE COMMON TRIP; HANDLE TIES WILL NOT BE ACCEPTED.
- 3. SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, DISCONNECT SWITCHES AND MOTOR CONTROL CENTERS SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SIEMENS, SQUARE 'D' OR EATON/CUTLER HAMMER. BOLT FREE STANDING EQUIPMENT TO 4" HIGH EQUIPMENT HOUSEKEEPING PADS. SWITCHBOARD SECTIONS SHALL BE FULLY BUSSED.
- 4. TYPEWRITTEN DIRECTORIES AND PANELBOARD DESIGNATION PLATES SHALL BE PROVIDED BY THE CONTRACTOR FOR ALL PANELBOARDS. PANELBOARD DESIGNATIONS SHALL BE PHENOLIC-ENGRAVED.
- 5. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C. MINIMUM.

F. LIGHTING FIXTURES

- 1. UNLESS INDICATED ON DRAWINGS, BALLASTS PROVIDED WITH FIXTURES SHALL BE ETL-CBM APPROVED, HIGH POWER FACTOR, WITH U.L. LABEL. ALL BALLASTS FOR RAPID START LAMPS SHALL BE PREMIUM CLASS P.
- 2. FIXTURES RECESSED IN T-BAR CEILING SHALL BE SUPPORTED INDEPENDENTLY OF CEILING SYSTEM, WITH TWO (2) NUMBER TWELVE (12) HANGER WIRES UP TO STRUCTURE. SECURE HANGER WIRES TO CORNERS OF FIXTURE. CLIP FIXTURE TO GRID ON TWO SIDES WITH FACTORY FURNISHED CLIPS. FINAL CONNECTION TO FIXTURE SHALL BE MADE WITH A FLEXIBLE U.L. APPROVED ASSEMBLY.

A LICENSED FIRE ALARM CONTRACTOR SHALL SUBMIT THE FIRE ALARM SYSTEM DRAWINGS TO THE AHJ FOR APPROVAL PRIOR TO INSTALLATION. THE INSTALLATION MUST BE APPROVED BEFORE THE CERTIFICATE OF OCCUPANCY MAY BE ISSUED.

G. WIRING DEVICES

- 1. COMMERCIAL GRADE
- 1. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT TYPE RATED 20 AMP, PASS & SEYMOUR TR63 OR APPROVEDE EQUAL.
- 2. GFCI RECEPTACLES SHALL BE TAMPER RESISTANT TYPE RATED 20 AMP, PASS & SEYMOUR 2095-TR OR APPROVED EQUAL.
- 3. TOGGLE SWITCHES SHALL BE 20 AMP, HUBBELL CS1221 OR APPROVED EQUAL.
- 4. DIMMER SWITCHES SHALL BE SLIDER TYPE, LUTRON VARED SERIES.
- 5. DEVICE PLATES SHALL BE NYLON (UNLESS NOTED OTHERWISE).
- 6. COLOR OF DEVICES AND DEVISE PLATES SHALL BE AS DETERMINED BY ARCHITECT.

H. DRY TYPE TRANSFORMERS

- 1. TRANSFORMERS SHALL BE U.L. LISTED AND SHALL HAVE CLASS 155 OR HIGHER INSULATION SYSTEMS.
- 2. TRANSFORMERS SHALL BE MOUNTED WITH 5/8" THICK NEOPRENE PADS FOR VIBRATION ISOLATION.
- 3. 4" HIGH CONCRETE HOUSEKEEPING PADS SHALL BE INSTALLED FOR ALL FLOOR MOUNTED TRANSFORMERS.
- 4. ACCEPTABLE MANUFACTURERS: EATON/CUTLER HAMMER, G.E., SIEMENS OR SQUARE D.

I. DISCONNECT SWITCHES

- 1. SAFETY-TYPE DISCONNECT SWITCHES SHALL BE HEAVY DUTY WITH QUICK-MAKE, QUICK-BREAK MECHANISM WITH INTERLOCKING COVER WHICH NORMALLY CANNOT BE OPENED WHEN THE SWITCH IS IN THE "ON" POSITION. SWITCH SHALL HAVE PROVISIONS FOR PAD-LOCKING IN THE OPEN OR CLOSED POSITION.
 - 2. FUSIBLE DISCONNECT SWITCHES SHALL HAVE REJECTION-TYPE FUSEHOLDERS. FUSES SHALL BE NON-RENEWABLE, DUAL ELEMENT TIME-DELAY "RK1" OR "RK5", OR AS SPECIFIED OTHERWISE.
 - 3. ACCEPTABLE MANUFACTURERS: EATON/CUTLER HAMMER, G.E., SIEMENS OR SQUARE D.
- J. FIRE ALARM SYSTEM**
- 1. PROVIDE A COMPLETE, U.L. LISTED, ADDRESSABLE FIRE ALARM SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS, AND ALL APPLICABLE CODES.
 - 2. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT FOR A COMPLETE FIRE ALARM SYSTEM, INCLUDING THE FOLLOWING:
 - A) ENGINEERED DRAWINGS, CALCULATIONS, AND MATERIAL SUBMITTALS APPROVED BY AUTHORITY HAVING JURISDICTION.
 - B) COORDINATION OF WORK IN THIS SECTION WITH ALL TRADES.
 - C) COMPLETE MONITORING SERVICE CONNECTION TO TELEPHONE BACKBOARD.
 - D) INSPECTIONS AND TESTS.
 - E) ONE (1) YEAR WARRANTY

K. MISCELLANEOUS EQUIPMENT

- 1. TIME CLOCK SHALL BE ELECTRONIC TYPE WITH ASTRONOMICAL FUNCTIONS (TORK DZS 200BP OR APPROVED EQUAL).
- 2. PHOTOCELL SHALL HAVE RAINLIGHT PHOTOELECTRIC SELF-CONTAINED CONTROL FOR SWITCHING. PHOTOCELL SHALL HAVE DIE-CAST HOUSING WITH ADJUSTABLE SENSOR. (ACCEPTABLE MANUFACTURERS: TORK 2100 SERIES OR APPROVED EQUAL).

L. PENETRATIONS

- 1. ALL PENETRATIONS THROUGH RATED WALLS, FLOORS AND/OR CEILINGS SHALL BE SEALED WITH THE APPROPRIATELY RATED FIRE-SEALING MATERIAL BY 3M COMPANY, THOMAS & BETTS, METACAULK, OR APPROVED EQUAL.

M. SUBMITTALS

- 1. PANELBOARDS, WIRING DEVICES, SWITCHES AND DISCONNECTS, LIGHTING FIXTURES, AND FUSE SUBMITTALS SHALL BE REQUIRED, AND ARE TO INCLUDE MANUFACTURER'S DATA, TEST REPORTS, PERFORMANCE DATA AND CERTIFICATIONS.

N. COMMUNICATIONS CONDUIT/BOXES

- 1. TWO (2) 4" SCHEDULE 40 PVC CONDUITS SHALL EXTEND FROM THE PUBLIC RIGHT-OF-WAY TO THE MAIN TELECOMMUNICATIONS ROOM OR ENTRANCE FACILITY.
- 2. THE NUMBER OF BENDS IN A CONDUIT SECTION RUN SHALL NOT EXCEED TWO (2) 90-DEGREE BENDS OR EQUIVALENT OF SWEEPS AND RADIUS BENDS.
- 3. IN AREAS WITH NON-ACCESSIBLE CEILINGS, TELEPHONE CONDUITS SHALL BE CONTINUOUS FROM THE OUTLET BOX TO THE TELEPHONE EQUIPMENT BACKBOARD AND TERMINATED WITH A NYLON GROMMET.
- 4. EACH HORIZONTAL HOME-RUN CONDUIT CAN SERVE FROM ONE (1) TO THREE (3) OUTLET BOXES. FOR ONE (1) OUTLET BOX, A 3/4" CONDUIT SHALL BE USED, MINIMUM. FOR TWO (2) OUTLET BOXES, A 1" CONDUIT SHALL BE USED, MINIMUM. FOR THREE (3) OUTLET BOXES, A 1-1/4" CONDUIT SHALL BE USED, MINIMUM.
- 5. THE DIMENSIONS OF THE OUTLET BOX SHALL BE 4" X 4" SQUARE WITH A MINIMUM DEPTH OF 2-1/8". BOXES SHALL BE EQUIPPED WITH SINGLE DEVICE ADAPTERS (OR TWO-DEVICE ADAPTERS WHERE NEEDED). WHERE INSTALLED IN PLASTER, GYPSUM BOARD, TILE, ETC., ADAPTERS SHALL BE RAISED TO COMPENSATE FOR THE THICKNESS OF THE WALL FINISH.

O. ELECTRICAL MATERIALS AND EQUIPMENT

- 1. NO ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, OR EQUIPMENT SHALL BE SOLD OR INSTALLED IN THE CITY UNLESS THEY ARE IN CONFORMANCE WITH THE PROVISIONS OF THIS CODE, THE LAWS OF THE STATE OF TEXAS, AND ANY APPLICABLE RULES AND REGULATIONS ISSUED UNDER THE AUTHORITY OF THE STATE STATUTES. THE MAKER'S NAME, TRADEMARK, OR OTHER IDENTIFICATION SYMBOL SHALL BE PLACED ON ALL ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, AND EQUIPMENT USED OR INSTALLED UNDER THE PROVISIONS OF THIS CODE. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED AND LABELED FOR THE INTENDED USE AND SHALL BE INCLUDED IN A LIST PUBLISHED BY AN APPROVED AGENCY.

LEGEND	
[A]	FLOOR FIXTURE 2'X4' CLG FLUSH MTD<(A'=TYPE A FIXTURE)
[B]	FLUORESCENT FIXTURE 4' CEILING SURFACE OR RECESSED MOUNTED
[C]	TRACK LIGHTS DN STANDARD TRACK (4' OR 8' IN LENGTH)
[D]	WALL MOUNTED INCANDESCENT OR H.I.D. FIXTURE
[E]	INCANDESCENT OR H.I.D. FIXTURE
[F]	EXIT LT- CEILING DR WALL MTD W/ BATTERY PACK
[G]	EMERGENCY LIGHT FIXTURE W/ BATTERY PACK
[H]	SINGLE POLE SWITCH, 20A-120/277V (A=LTS TO BE CONTROLLED)
[I]	SINGLE POLE SWITCH, 20A-120/277V (DIMMER-1 OR 2 KVA)
[J]	3 WAY SWITCH , S4- 4 WAY, S2- 2 POLE
[K]	KEY OPERATED SWITCH, Sp- PILOT, WP- WEATHERPROOF
[L]	COMPUTER REC-ISOLATED GND(HUBBELL#LGS251 DRANGE)
[M]	DUPLEX RECEPTACLE, 20A 125V, 3 WIRE GND TYPE< F=FLOOR MTD)
[N]	125/250 VOLT 1ø (AMP AS NOTED)
[O]	SINGLE RECEPTACLE 125 VOLT - 10 (AMPS AS NOTED)
[P]	250 VOLT 3ø, SPECIAL POWER OUTLET (AMPS AS NOTED)
[Q]	FLUSH FLOOR TELE/DATA OUTLET
[R]	FLUSH FLOOR DUPLEX RECEPTACLE OUTLET (WP-WEATHERPROOF)
[S]	TELEPHONE OUTLET MTD @ 12" AFF<X=FLOOR MTD)
[T]	FIRE ALARM PULL STATION
[U]	JUNCTION BOX (SURFACE MTD. AS DESCRIBED DN DWGS.)
[V]	JUNCTION BOX (FLUSH WALL MTD. - AS DESCRIBED DN DWGS.)
[W]	PRE-WIRED DEVICE
[X]	WEATHERPROOF
[Y]	DISCONNECT SWITCH, NF=NON FUSED
[Z]	MAGNETIC MOTOR STARTER
[AA]	MANUAL MOTOR STARTER
[AB]	MOTOR DR FAN
[AC]	DUCT DETECTOR/SMOKE DETECTOR
[AD]	ELECTRICAL PANEL
[AE]	L1 or H1,3,5 HOMERUN TO PANEL<(L1orL2,4=2W+GX(H1,3,5=3W+G)
[AF]	CONDUIT IN OR UNDER FLOOR OR SLAB
[AG]	CONDUIT IN CEILING DR WALLS
[AH]	HATCH MARKS FOR NUMBER OF WIRES IN CONDUIT
[AI]	MANUAL PULL STATION @ 4'-6" AFF
[AJ]	AUDIBLE/VISUAL ALARM HORN<75 CAND.> 80" AFF DR 6' BELOW CLG.
[AK]	FIRE ALARM VISUAL DEVICE WALL MTD 80" AFF DR 6' BELOW CLG.
[AL]	HEAT DETECTOR CLG MTD
[AM]	SMOKE DETECTOR CLG MTD
[AN]	CAMERA, DATA, PHONE BY OTHERS

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	VOLTAGE	LAMPS	MOUNTING	REMARKS	IEC VA
A1	TEXAS FLUORESCENTS #UCLL24LF57W5700LDMV35K	MVOLT	LED, 3500K	RECESSED	4	53
A4	TEXAS FLUORESCENTS #UCLL22LH35W3400LDMV35K	MVOLT	LED, 3500K	RECESSED	4	30
D6	NORA #NC2-631L1535FBSF	MVOLT	LED, 3500K	RECESSED	3,4	18
D6E	TEXAS FLUORESCENTS #WPFM70UNV4KMVEM	MVOLT	LED, 4000K	WALL	EGRESS 1,2,3	70
E	TEXAS FLUORESCENTS #LED1	MVOLT	LED	WALL	EGRESS 1,2	14.2
F	TEXAS FLUORESCENTS #Z09A248L4V5W4900LDMV35K	MVOLT	LED, 3500K	SURFACE	4	48
G	NORA #NC2-631L1535FBSF	MVOLT	LED, 3500K	RECESSED	3,4	18
H1	TEXAS FLUORESCENTS #VOLV963579	MVOLT	LED	WALL	1,3,4	16
J	TEXAS FLUORESCENTS #SMSBULLETX12NA	120	LED, 4000K	WALL	1,3,4	24
K	LITHONIA #UCLD	120	LED, 3500K	SURFACE	1,4	13
T	PHILIPS #9530	MVOLT	LED	SURFACE	4	8
XC	TEXAS FLUORESCENTS #FLTLEDXTEU2RW	MVOLT	LED	SURFACE	EGRESS 1,2	4.3

NOTES:

- 1. COORDINATE MOUNTING HEIGHT WITH ARCHITECT.
- 2. PROVIDE UNSWITCHED BRANCH CIRCUIT TO BATTERY SYSTEM.
- 3. FIXTURE MUST BE VAPOR TIGHT FOR EXTERIOR LOCATIONS.
- 4. ARCHITECT APPROVAL REQUIRED FOR ALL LIGHT FIXTURES.

REVISIONS AND ISSUANCE

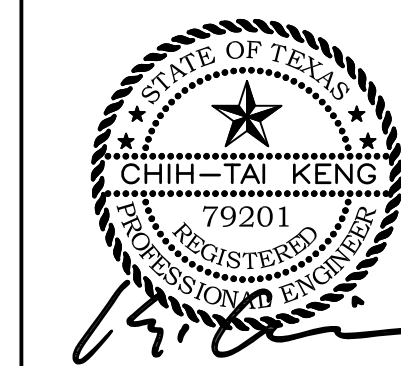
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08/13/2018		PRICING
08/31/2018		PERMIT

IVY KIDS EARLY LEARNING CENTER

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DRAWING TITLE

ELECTRICAL NOTES

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