	SYMBOLS (NO	Γ ALL Ι	US	ED)		
WIRING	DEVICE LEGEND			 _INE DIAGRAM LEGEND		
<u>ф</u>	GENERAL DUPLEX RECEPTACLE: NEMA 5-20R	ل		CIRCUIT BREAKER		
∲ ⊈	DEDICATED DUPLEX RECEPTACLE: NEMA 5-20R GENERAL QUAD RECEPTACLE: NEMA 5-20R	۲ ط				
± ₽	DEDICATED QUAD RECEPTACLE: NEMA 5-20R EQUIPMENT RECEPTACLE, COORDINATE NEMA TYPE WITH	Ę		FUSED SWITCH		
	EQUIPMENT	E-(r	M	METER		
U Q	JUNCTION BOX, CEILING MOUNTED JUNCTION BOX, WALL MOUNTED	F	EM	ENERGY METER		
+∰ CR∰WP	+ = NON-STANDARD MOUNTING HEIGHT G, GFI = GROUND FAULT CIRCUIT INTERRUPTER WP = WEATHER PROOF					
¥	WF = WEATHER PROOF CR = CONTROLLED RECEPTACLE, PROVIDE DISTINCT MARKING TELEPHONE OUTLET, COORDINATE ROUGH-INS WITH IT VENDOR			TRANSFORMER		
∇	DATA OUTLET, COORDINATE ROUGH-INS WITH IT VENDOR	M	$\mathbf{\mathbf{b}}$	MOTOR		
V	COMBINATION DATA/TELEPHONE OUTLET, COORDINATE ROUGH-INS WITH IT VENDOR	чЕ		GROUND COINNECTION		
P	FLUSH MOUNTED FLOOR POWER FURNITURE FEED FLUSH MOUNTED FLOOR DATA/TELEPHONE FURNITURE	٢.		AUTOMATIC TRANSFER SWITCH		
	FEED FLUSH MOUNTED FURNITURE FEEDS, COMBINATION		Ì	AUTOMATIC TRANSFER SWITCH WITH DOUBLE ISOLATION BYPASS		
PD	POWER/DATA, PROVIDE PULL STRING	SPE	5	SURGE PROTECTION DEVICE		
P P		GFF	_	GROUND FAULT PROTECTION		
₽ ©PP	WALL MOUNTED DATA/TELEPHONE FURNITURE FEED POWER POLE, PROVIDE J-BOX ABOVE CEILING		_	BATTERY		
IN I	COAXIAL TV OUTLET, COORDINATE ROUGH-INS WITH AV	ſſ	ſ			
AV	VENDOR AUDIO/VISUAL RECEPTACLE, CABLE BY OTHERS			BATTERY		
	SECURITY/ALARM OUTLET, COORDINATE ROUGH-INS WITH SECURITY VENDOR			UPS RECTIFIER/INVERTER		
	SINGLE POLE TOGGLE SWITCH					
a\$ _#	#: 3 = THREE WAY, 4 = FOUR WAY, D = DIMMER SWITCH a = SWITCH LEG	∮ lsc=6 %∨[AVAILABLE FAULT CURRENT PERCENT VOLTAGE DROP		
DM	DIMMING SWITCH/KEYPAD	(X	_	FEEDER TAG, REFER TO FEEDER SCHEDULE		
OS	WALL MOUNTED OCCUPANCY SENSOR		_			
OS	WALL MOUNTED DIRECTIONAL OCCUPANCY SENSOR	LIGHTING LEGEND				
© ©	CEILING MOUNTED OCCUPANCY SENSOR, 360 DEGREE COVERAGE CEILING MOUNTED DIRECTIONAL OCCUPANCY SENSOR	LIGH		<u>3 LEGEND</u>		
65	CEILING MOUNTED DUAL DIRECTIONAL OCCUPANCY		0	LIGHT FIXTURE, CEILING MOUNTED		
-@-	SENSOR, HALLWAY COVERAGE CEILING MOUNTED DAYLIGHT SENSOR	_	<u>Q</u>	LIGHT FIXTURE, WALL MOUNTED		
CRR	CONTROLLED RECEPTACLE RELAY	L		CEILING MOUNTED		
D		[Ţ	LIGHT FIXTURE, SIZE APPROXIMATELY AS SHOWN, WALL MOUNTED		
ТС	TIME CLOCK	Г		EMERGENCY LIGHT FIXTURE		
		- 	→ →	LIGHT FIXTURE(S), POLE MOUNTED		
POWER	DISTRIBUTION LEGEND	(F2			
	DISTRIBUTION BOARD)а Р-22	F2 = FIXTURE TYPE, P-22 = POWER SOURCE, a = LAMP SWITCH		
	PANELBOARD, 277/480 VOLT		\bigotimes	CEILING MOUNTED EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED, SHADED AREAS		
	PANELBOARD, 120/208 VOLT		-	INDICATE ILLUMINATED FACES WALL MOUNTED EXIT LIGHT, DIRECTIONAL		
	TRANSFORMER COMBINATION METER/DISCONNECT SWITCH		∑ ⊣	ARROWS WHERE INDICATED, SHADED AREAS INDICATE ILLUMINATED FACES		
	NON-FUSED DISCONNECT SWITCH					
ď	FUSED DISCONNECT SWITCH	FLOC	DR B	BOX LEGEND		
X X	MAGNETIC MOTOR STARTER COMBINATION MAGNETIC MOTOR STARTER AND		POKE	-THRU FLUSH DUPLEX/DATA, PROVIDE PULL STRING		
\$ _M	DISCONNECT SWITCH MANUAL MOTOR STARTER WITH THERMAL OVERLOAD			-THRU FLUSH DEDICATED DUPLEX/DATA, PROVIDE STRING		
ΨM	PROTECTION			STRING		
	CONCEALED WIRING IN WALL OR CEILING CONCEALED WIRING IN SLAB OR BELOW FLOOR					
,	INDICATES CONDUIT UP	$\Box \mathbf{\nabla}$				
•	INDICATES CONDUIT DOWN	$\mathbf{\Phi}\mathbf{\Lambda}$	FLOO STRIN	R BOX DEDICATED DUPLEX/DATA, PROVIDE PULL NG		
——	CONDUIT WITH BUSHING, PROVIDE PULL STRING	$[\Phi] \mathbf{V}$	FLUS	H MOUNTED FLOOR BOX, POWER/DATA/TELEPHONE		
]	CAPPED CONDUIT, PROVIDE PULL STRING	$\mathbf{\Phi}\mathbf{v}$	FLOO	R BOX RAISED DUPLEX/DATA, PROVIDE PULL STRING		
	PHASE CONDUCTOR(S), QUANTITY AS SHOWN, #12 MINIMUM NELITIDAL CONDUCTOR, #12 MINIMUM	Ø 7		R BOX RAISED DEDICATED DUPLEX/DATA, PROVIDE		
│ ╼╫ <mark>┣</mark>	NEUTRAL CONDUCTOR, #12 MINIMUM HOMERUN BACK TO PANEL/CIRCUIT INDICATED AT					
	ARROWHEAD IMPLIED CONDUIT GROUND WIRE, #12 MINIMUM ISOLATED GROUND, #12 MINIMUM	₩₹	FLOO	R BOX RAISED QUAD/DATA, PROVIDE PULL STRING		
A B	EQUIPMENT TAG: A = EQUIPMENT TYPE, B = EQUIPMENT NUMBER REFER TO EQUIPMENT SCHEDULE FOR MORE					
	INFORMATION TELEPHONE BACKBOARD, LENGTH APPROXIMATELY AS					
	SHOWN					
НН	HAND HOLE					

PB PULL BOX

ABBF	REVIATIONS (NOT ALL USED)	SHEET INDEX				
A, AMP	AMPERE					
AF	AMP FUSE, AMP FRAME		SHEETDESCRIPTIONE-0.0ELECTRICAL COVER SHEET	SCALE NONE		
AFC AFF	AMPERE FAULT CURRENT ABOVE FINISHED FLOOR		E-1.0 ELECTRICAL SPECIFICATIONS E-2.0 ELECTRICAL POWER PLAN AND PANEL SCHEDULE	NONE 1/2"=1'-0"		
AS	AMPERE SWITCH					
AUTO	AUTOMATIC					
AWG BLDG						
C	BUILDING CONDUIT					
СВ	CIRCUIT BREAKER					
СКТ	CIRCUIT					
CLG CO	CEILING CONDUIT ONLY					
COMM	COMMUNICATION					
CU	COPPER					
(D) DB	EXISTING TO BE REMOVED					
DISC	DISCONNECT					
DMU	DIGITAL METER UNIT					
DWG						
(E) (ER)	EXISTING TO REMAIN EXISTING TO BE RELOCATED		GENERAL	NOTES		
EA	EACH					
ELEC	ELECTRICAL	1.		21. FLEXIBLE CONNECTION		
EMT EQPT	ELECTRICAL METALLIC TUBING EQUIPMENT		STANDARDS, NATIONAL ELECTRIC CODE, CALIFORNIA ELECTRICAL CODE, TITLE 24 COMPLIANCE REQUIREMENTS, AND ALL APPLICABLE CODES AND	CONNECTIONS SUBJEC		
FIXT	FIXTURE		JURISDICTION. WHERE REQUIREMENTS BETWEEN GOVERNING CODES,	22. PROVIDE FLEXIBLE CON RE-ROUTED FEEDERS (
FLR	FLOOR		REGULATIONS, AND SPECIFICATIONS VARY, THE MORE STRINGENT SHALL APPLY.	OF MOVEMENT IN ANY CONTRACT DOCUMENT		
FLEX	FLEXIBLE	2.		23. MINIMUM CONDUIT SIZE		
FMC	FLEXIBLE METAL CONDUIT		TESTING LABORATORY OR APPROVED BY THE DEPARTMENT OF BUILDING INSPECTION.	PULL CORDS IN EMPTY TERMINATES IN A JUNC		
FT G, GND	FOOT OR FEET GROUND	3.	ALL ELECTRICAL MATERIALS SHALL BE NEW, BEAR THE UNDERWRITERS	CONDUIT IN A MANNER CONDUITS AFTER ALL V		
G, GND G, GFI	GROUND FAULT INTERRUPTER		(AND/OR EQUIVALENT TESTING AGENCY) LABEL AND BE APPROVED BY	24. ALL CONDUCTORS SHA		
HP	HORSEPOWER	4.	ALL WORK SHALL BE PERMITTED. CONTRACTOR SHALL OBTAIN AND PAY FOR	ALUMINUM CONDUCTO CONTRACTOR IS RESP		
HZ	HERTZ		ALL NECESSARY PERMITS, FEES, AND LICENSES.	SCHEDULES AND VOLT. SUBSTITUTION.		
IC IG	INTERRUPTING CAPACITY ISOLATED GROUND	5.	PROVIDE ELECTRONIC PDF COPIES OF SUBMITTAL MATERIAL WITH DESCRIPTIVE DATA FOR ALL PRODUCTS AND MATERIALS. ALLOW FIVE (5)	25. MULTI-WIRE BRANCH C		
IMC	INTERMEDIATE METAL CONDUIT		WORKING DAYS FOR ENGINEER TO REVIEW SUBMITTALS.	CALLED OUT FOR INDIV INSTRUCTIONS. PROVI		
J, JB	JUNCTION BOX	6.	FURNISH FINAL CERTIFICATE OF INSPECTION OR WRITTEN EVIDENCE OF ACCEPTANCE BY INSPECTION AUTHORITIES FOR ALL WORK INSTALLED.	CIRCUIT. WHERE MULT MULTIPLE-POLE BREAK		
KAFC	THOUSAND AMPERE FAULT CURRENT	7.	THE CONTRACTOR WILL BE REQUIRED TO DO HIS WORK IN FULL	DISCONNECT ALL UNG		
KAIC				26. PROVIDE EMT CONDUIT LOCATE JUNCTION BOX		
KV KVA	KILOVOLT KILOVOLT AMPERE	8.	ALL DRAWINGS AND LAYOUTS ARE DIAGRAMMATIC TO SHOW DESIGN INTENT ONLY. ALL SYMBOLS SHOWN ON SYMBOL LIST ARE NOT NECESSARILY USED	PROXIMITY TO EQUIPM POINT OF USE, AC OR M		
LTG	LIGHTING		ON THIS PROJECT.	27. COORDINATE SEQUENC		
MAX	MAXIMUM	9.	VERIFY ALL EXISTING CONDITIONS PRIOR TO PERFORMING ALL WORK. NOTIFY ENGINEER OF ANY ADVERSE FIELD CONDITIONS IMMEDIATELY. COORDINATE	WORK. ELECTRICAL CO ALL PATCHING, FIRE ST		
MC			ENGINEER OF ANY ADVERSE FIELD CONDITIONS IMMEDIATELT. COORDINATE ENTIRE INSTALLATION WITH ALL OTHER NEW WORK AND EXISTING CONDITIONS. DETERMINE EXACT CONDUIT ROUTING, CONDUIT BENDS,	OF THE SAME MATERIA SHALL ACCURATELY M		
MCB MCC	MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER		AUXILIARY JUNCTION BOXES, SUPPORTS, AND UNDEFINED CONSTRUCTION	28. PROVIDE WRITTEN WA		
MECH	MECHANICAL		REQUIREMENTS.	CORRECT FAULTY INST AND LABOR, FOR A PER		
MIN	MINIMUM	10.	EXAMINE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS FOR ALL TRADES, INCLUDING ARCHITECTURAL, MECHANICAL, AND STRUCTURAL PRIOR	WRITTEN ACCEPTANCE		
MLO	MAIN LUGS ONLY			29. DAMAGE TO OTHER WO CONTRACTOR TO WOR		
	NEW		MAKE ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICTS WITH THE	REPAIR ANY DAMAGED		
N N1	NEW TYPE '1' INDOOR ENCLOSURE		BUILDING STRUCTURE AND THE WORK OF OTHER TRADES.	TO INTEGRITY OF ORIG 30. UPON COMPLETION OF		
N3R	NEMA TYPE '3R' OUTSOOR ENCLOSURE	11.	WORK OF ALL OTHER TRADES PRIOR TO INSTALLATION.	DEBRIS ASSOCIATED W COSTS SHALL BE BORN		
NER	NETWORK ELECTRICAL ROOM	12.	COORDINATE EXACT EQUIPMENT REQUIREMENTS FOR APPROPRIATE WIRE/LUG LANDING.	CONDITION ACCEPTABI		
NC NO	NORMALLY CLOSED NORMALLY OPEN	10		31. PROVIDE RED-LINED AS		
NTS	NOT TO SCALE	13.		32. INSTALLATION OF PULL 110.26(F)(1)(a) REQUIRE		
OCPD	OVERCURRENT PROTECTION DEVICE	14				
OS	OCCUPANCY SENSOR	14.	MOUNTED ON THE INSIDE OF ALL PANEL COVER DOORS. SCHEDULE TO	33. IN ACCORDANCE WITH CONTROLS AND SWITC		
P PB	POLE PULL BOX	15	MATCH THOSE SHOWN ON DRAWINGS AND CONTRACT DOCUMENTS.	ROOM OR AREA SHALL THE TOP OF THE OUTLI BOTTOM OF THE OUTLE		
РЫ PH, Ø	PHASE	15.	MINIMUM, EACH EQUIPMENT, BOARD, ETC. SHALL HAVE LABELS WITH 3/8"			
PLUM	PLUMBING	16	LETTERING STATING VOLTAGE, AMP, SOURCE, AND DEVICE NAME. ; ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND	34. IN ACCORDANCE WITH ELECTRICAL RECEPTAC		
PNL	PANEL	10.	LUGS TO ACCOMMODATE CONDUCTORS SHOWN.	OR LESS AND COMMUN THAN 48", MEASURED F		
PWR (RE)	POWER RELOCATED EXISTING	17.	VERIFY NAMEPLATE RATING OF ALL MOTORS AND APPLIANCES WITH DRAWINGS. NOTIFY ARCHITECT/ENGINEER IMMEDIATELY WITH ANY	RECEPTACLE HOUSING BOTTOM OF THE RECEI		
(RE) RCPT	RECEPTACLE		DISCREPANCIES BEFORE START OF WORK.	THE LEVEL OF THE FINI		
RM	ROOM	18.		35. CONTRACTOR SHALL B OF LEED MATRIX ADOP		
RMC	RIGID METAL CONDUIT	1		36. CONTRACTOR TO PRO PANEL SHUTDOWNS.		
SCHD SD	SCHEDULE SMOKE DETECTOR		FLOOR ELECTRICAL BOXES. FINISH REQUIREMENTS SHALL MATCH EXISTING	PANEL SHUTDOWNS.		
SD	SECTION	1	UNLESS OTHERWISE DIRECTED BY ARCHITECT. FOR ALL WIRING DEVICES, VERIFY FINISH COLOR WITH ARCHITECT.			
SPEC	SPECIFICATION	19.				
SPKR	SPEAKER		J-BOX LOCATIONS FOR LIGHTING, OUTLETS, AND CONTROLS IN PRE-CAST PANELS PRIOR TO CASTING.			
SW SWBD	SWITCH SWITCHBOARD	20.	ALL J-BOXES SHALL BE SIZED PER NEC TABLE 314-28. ALL JUNCTION BOXES			
TC	TIME CLOCK		AND PULL BOXES SHALL BE OF CODE GAUGE AND THE REQUIRED SIZE TO ACCOMMODATE NUMBER OF CONDUCTORS SHOWN.ALL WALL JUNCTION			
TEL	TELEPHONE		BOXES SHALL BE MOUNTED FLUSH WITH FINISHED FACE OF WALL AND SHALL BE INSTALLED WITH MOUNTING HOLES AT TOP AND BOTTOM, UNLESS			
TELCOM	TELECOMMUNICATION		OTHERWISE NOTED. PROVIDE MIN 6" SEPARATION FOR BACK TO BACK OUTLET BOXES. EXTEND WIRING FROM ALL JUNCTION BOXES, RECEPTACLES,			
TX	TRANSFORMER	1	SWITCHES, ETC. AND MAKE FINAL CONNECTION AS REQUIRED TO ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTION.PROVIDE EXTENSION			
TYP		1	BOXES AT WALLS WITH APPLIED ACOUSTIC PANELS.			
UON V	UNLESS OTHERWISE NOTED VOLT					
VA	VOLT AMPERE					
VM	VOLTMETER	1	APPLICABLE CODES /	AND STANF		
W						
WP WS	WEATHERPROOF WORK STATION	1.	ALL WORK PERFORMED UNDER THIS CONTRACT SHALL CONFORM TO THE FOLLOWING CO	DES AND REGULATIONS:		
XFMR	TRANSFORMER	1	2016 CALIFORNIA ADMINISTRATIVE CODE (CAC). PART 1, TITLE 24, CALIFORNIA CODE			
			 2016 CALIFORNIA BUILDING CODE (CBC). PART 2, TITLE 24, CCR. BASED ON THE 2012 I 2016 CALIFORNIA ELECTRICAL CODE (CEC). PART 3. TITLE 24, CCR. BASED ON THE 2014 	11 NATIONAL ELECTRICAL CC		
			 2016 CALIFORNIA MECHANICAL CODE (CMC). PART 4, TITLE 24, CCR. BASED ON THE 20 2016 CALIFORNIA PLUMBING CODE. PART 5, TITLE 24, CCR. BASED ON THE 2012 UNIFO 	ORM PLUMBING CODE (UPC)		
		-	2016 CALIFORNIA FIRE CODE (CFC). PART 9, TITLE 24, CCR. BASED ON THE 2012 INTER			
			ALL EQUIPMENT (NEW AND TEMPORARY) SHALL BE LISTED, LABELED OR CERTIFIED FOR IT RECOGNIZED BY THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH A			
		1				

SHALL BE PROVIDED FOR ALL EQUIPMENT TO MOTION OR VIBRATION. DUIT FOR ALL TEMPORARY, PERMANENT, OR ROSSING SEISMIC JOINTS. ALLOW FOR MINIMUM OF 4" RECTION; COORDINATE EXACT DISTANCES WITH SHALL BE 3/4" UNLESS OTHERWISE NOTED. PROVIDE CONDUITS. WHERE MORE THAN ONE CONDUIT ION BOX, IDENTIFY EACH JUNCTION BOX AND LLOWING IDENTIFICATION OF JUNCTION BOXES AND ALL FINISHES HAVE BEEN APPLIED.	STEAM SYSTEM BOILER REPLACEMENT PROJECT	4032 S. ELLESFORD AVENUE WEST COVINA, CALIFORNIA 91792
ALL BE COPPER TYPE WITH THHN INSULATION. DRS SHALL BE ACCEPTABLE FOR FEEDERS ONLY; PONSIBLE FOR SUBMITTING PROPOSED FEEDER FAGE DROP CALCULATIONS FOR ALUMINUM	BID SET	03/22/18
IRCUITS SHALL NOT BE PERMITTED UNLESS EXPLICITLY /IDUAL MANUFACTURER'S WRITTEN INSTALLATION DE A DEDICATED NEUTRAL FOR EACH BRANCH I-WIRE BRANCH CIRCUITS ARE REQUIRED, PROVIDE ERS OR BREAKER TIE HANDLES TO SIMALTANEOUSLY ROUNDED CONDUCTORS.		
HOMERUNS FOR GROUPS OF (12) BRANCH CIRCUITS; IN CORRIDORS WITH ACCESSIBLE CEILINGS, IN CLOSE INT SERVED. FROM HOMERUN JUNCTION BOX TO THE C CABLE MAY BE USED IN NON-PATIENT AREAS.		
E OF WORK TO AVOID CUTTING AND PATCHING IN NEW NTRACTOR SHALL UTILIZE RESPONSIBLE TRADES FOR PPING, AND RE-FINISHING. ALL PATCHING SHALL BE S, WORKMANSHIP AND FINISH AS EXISTING AND 'CH ALL SURROUNDING WORK.		
RANTY TO REPLACE ALL FAULTY MATERIALS AND/OR ALLATION, AT NO COST TO OWNER INCLUDING PARTS OD OF ONE (1) YEAR FROM DATE OF OWNER'S		
RK: REPAIR ANY DAMAGE CAUSED BY DIVISION 16 OF OTHER DIVISIONS. DAMAGE TO FIRE PROOFING: FIRE PROOFING CAUSED BY DIVISION 16 CONTRACTOR NAL CONSTRUCTION. WORK, CONTRACTOR SHALL CLEAN AND REMOVE ALL	No. Revision/Issue	
TH HIS/HER WORK AND DISPOSE OF IT. ALL DISPOSAL E BY THE CONTRACTOR. AREA SHALL BE LEFT IN A E TO OWNER. BUILT DRAWINGS AT THE CONCLUSION OF WORK.	PROFESSIONA	
BOXES & CONDUITS SHALL COMPLY WITH CEC MENT. 2013 CBC § 1117B.6, ITEM #5.1, INSTALLATION OF HES INTENDED TO BE USED BY OCCUPANTS OF THE BE LOCATED NO MORE THAN 48", MEASURED FROM TT BOX, AND NO LESS THAN 15", MEASURED FROM THE T BOX.	E11445	
2013 CBC § 1117B.6, ITEM #5.2, INSTALLATION OF CLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES IICATION SYSTEM RECEPTACLES SHALL BE NO MORE ROM THE TOP OF THE RECEPTACLE OUTLET BOX OR 6, AND NO LESS THAN 15", MEASURED FROM THE PTACLE OUTLET BOX OR RECEPTACLE HOUSING, TO ISHED FLOOR OR WORKING PLATFORM.	OF CALIFO	
BE RESPONSIBLE FOR CONFORMING TO REQUIREMENTS PTED BY THIS PROJECT. VIDE METHOD OF PROCEDURE (MOP) FOR ELECTRICAL		AND EXELLENCE NEERING AND SOLUTIONS
	DESIGN INC.	
	PHONE: 7	TREET, UNIT201A ACH, CA 92648 14-847-1102 14-242-9499
	ELECTRIC COVER SH	AL
DARDS		
DDE (IBC) DDE (NEC) CODE (UMC)	Project: Dete: 3/22/2018	•••• E-0.0
COGNIZED TESTING LABORATORY [NRTL] AS ERTIFIED.	Sode: AS NOTED	

PART 1 - GENERAL

1.01 DESCRIPTION

- A. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS.
- **B. DEFINITIONS:** 1. FURNISH: TO SUPPLY MATERIALS OR DOCUMENTATION.
- 2. INSTALL: TO ERECT, MOUNT, AND CONNECT COMPLETE SYSTEM WITH RELATED ACCESSORIES. 3. PROVIDE: TO FURNISH, INSTALL, AND CONNECT A COMPLETE SYSTEM READY FOR SAFE AND REGULAR
- OPERATION OF PARTICULAR WORK REFERENCED. 4. SUPPLY: TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
- 5. WORK: LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
- 6. WIRING: RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
- 7. CONCEALED: EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
- 8. EXPOSED: NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
- 9. EQUAL: EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN, AND EFFICIENCY OF SPECIFIED PRODUCT. 10. SCOPE OF WORK: LABOR, MATERIALS, EQUIPMENT, SERVICES, AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION; AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.
- . THE CONTRACTOR SHALL SECURE ALL APPROVALS AND PAY ALL FEES FOR ALL WORK INSTALLED. CERTIFICATES SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT WILL BE MADE.

1.02 JOB CONDITIONS

A. QUALITY AND GAUGES OF MATERIALS

- 1. QUALITY OF MATERIALS: a. NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR BEARING THEIR LABEL.
- b. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION: SAME MANUFACTURER, EXCEPT AS NOTED.
- B. VOLTAGE CHARACTERISTICS: 1. DISTRIBUTION:
- a. 480 VOLTS, 60 HERTZ
- b. 480Y/277 VOLTS, 60 HERTZ WITH GROUNDED NEUTRAL. c. 208Y/120 VOLTS, 60 HERTZ WITH GROUNDED NEUTRAL.
- C. HEIGHT OF OUTLETS:
- 1. RECEPTACLE, TELEPHONE, AND DATA:
- a. GENERALLY: 18 IN. b. WALL SWITCHES: 42 IN
- c. MOTOR CONTROLLERS 6Ø IN. 2. EXCEPTIONS:
- a. AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS. b. ON MOLDING OR BREAK IN WALL SURFACE.
- c. IN VIOLATION OF CODE. d. AS NOTED OR DIRECTED.
- D. CONNECTIONS TO EXISTING WORK:
- 1. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. 2. TEMPORARY SHUTDOWNS OF EXISTING SERVICES:
- a. AT NO ADDITIONAL CHARGES.
- b. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES. c. ONLY WITH WRITTEN CONSENT OF OWNER.
- 3. ALARM AND EMERGENCY SYSTEMS: NOT TO BE INTERRUPTED
- 4. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. 5. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL WORKING CONDITION INCLUDING MAINTENANCE OF WORKING CONTINUITY AS REQUIRED.
- E. DEMOLITION:
- 1. REMOVE ALL UNUSED CONDUITS AND WIRING, SWITCHES, RECEPTACLES, LIGHT FIXTURES, ETC., WHERE CEILINGS, CEILING TILES, OR WALLS ARE DEMOLISHED EXCEPT WHERE WALLS AND CEILINGS ARE TO REMAIN. MAINTAIN EXISTING CONDUIT, WIRING, AND BOXES SERVING ALL ELECTRICAL EQUIPMENT. OUTLETS, AND SWITCHES IN THOSE AREAS. REMOVE ALL POWER WIRING BACK TO ITS OVERCURRENT DEVICE AND MARK CIRCUIT BREAKERS AS "SPARE". INSTALL BLANK COVERS ON ALL BOXES. VERIFY OTHER SPECIFIC OPERABLE SYSTEMS ARE NOT REMOVED. REFER TO DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- 2. COORDINATE ALL DEMOLITION WORK WITH NEW REQUIREMENTS TO ASSURE THAT EXISTING EQUIPMENT WIRING, ETC., THAT IS REQUIRED FOR COMPLETE AND FUNCTIONAL SYSTEM IS NOT DEMOLISHED. 3. ALL EXISTING ELECTRICAL EQUIPMENT AND CONDUITS THAT INTERFERE WITH ANY NEW CONSTRUCTION SHALL BE RELOCATED OR RE-ROUTED AS REQUIRED TO CLEAR THE NEW CONSTRUCTION. RECONNECT ALL
- EXISTING EQUIPMENT THAT IS TO REMAIN AND NOT AFFECTED BY THE NEW CONSTRUCTION, TO THE NEWLY RELOCATED OR RE-ROUTED SYSTEM TO ENSURE A SAFE AND OPERATIONAL SYSTEM. 4. DISCONNECT AND RECONNECT THE EXISTING ELECTRICAL EQUIPMENT AS REQUIRED BY THE
- CONSTRUCTION MODIFICATIONS. MODIFY AND RECONNECT THE EXISTING ELECTRICAL EQUIPMENT REQUIRED TO REMAIN, AND NO
- AFFECTED BY THE NEW CONSTRUCTION, TO ENSURE THE FINAL SYSTEM WILL FUNCTION IN A SAFE MANNER ACCEPTABLE TO AUTHORITIES. 6. ALL REMOVED MATERIAL AND EQUIPMENT THAT IS SALVAGEABLE SHALL REMAIN THE PROPERTY OF THE
- OWNER. DELIVER SUCH SALVAGED MATERIAL AND EQUIPMENT ON THE PREMISES AS DIRECTED BY THE OWNER, AND NEATLY PILE OR STORE IT AND PROTECT FROM DAMAGE. REMOVE FROM PREMISES AND DISPOSE OF ALL MATERIAL CONSIDERED BY THE OWNER TO BE SCRAP. FURNISH CERTIFICATE OF DESTRUCTION FOR EQUIPMENT SUCH AS BALLASTS, TRANSFORMERS, ETC., CONTAINING PCB OR OTHER MATERIALS CLASSIFIED AS HAZARDOUS.
- . UNLESS OTHERWISE NOTED, REMOVE ALL ELECTRICAL EQUIPMENT THAT IS NOT TO BE REUSED WITHIN THE RENOVATED AREA, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: a. LIGHTING FIXTURES
- b. WALL SWITCHES
- c. FIRE ALARM DEVICES d. RECEPTACLES
- e. TELEPHONE OUTLETS
- f. DATA OUTLETS g. DISCONNECT SWITCHES

h. FIDS OUTLETS 8. REFER TO ARCHITECTURAL DRAWINGS AND NOTES FOR ADDITIONAL REQUIREMENTS FOR THE DEMOLITION WORK WITHIN THE AREA.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CRATED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES. B. ACCESSIBILITY:
- 1. FOR OPERATION, MAINTENANCE, AND REPAIR.
- 2. MINOR DEVIATIONS: PERMISSIBLE
- . CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST: NOT PERMISSIBLE WITHOUT REVIEW. 4. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOOR.

1.04 SUBMITTALS

- A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA IN ACCORDANCE WITH GENERAL REQUIREMENTS SPECIFIED IN ARCHITECTURAL SPECIFICATIONS, OR FURNISH ELECTRONIC PDF COPIES OF SUBMITTAL MATERIAL WITH DESCRIPTIVE DATA FOR ALL PRODUCTS AND MATERIALS. INCLUDING BUT NOT LIMITED TO THE FOLLOWING. PRIOR TO INSTALLATION. ALL SUBMITTALS SHALL BE HIGHLIGHTED TO INDICATE SPECIFIC PRODUCTS OR MATERIALS BEING USED.
- B. SHOP DRAWINGS:
- 1. SUBMIT PRIOR TO INSTALLATION. 2. TRANSFORMER.
- 3. PANELBOARDS: DIMENSIONS, SCHEDULES, AND CATALOG CUTS.
- 4. WALL SWITCHES. 5. RECEPTACLES.
- 6. DEVICE PLATES. 7. POKE-THROUGH.

- 8. LIFE SAFETY SYSTEMS: a. DESCRIPTIVE DATA FOR ALL PRODUCTS AND MATERIALS.
- b. RECOMMENDED APPLICATION AND INSTALLATION METHODS, INCLUDING AREA COVERAGE FOR SMOKE DETECTORS.
- c. INFORMATION AND DATA, SUCH AS DRAWINGS SHOWING DEVICE LOCATIONS AND TYPES, RISER DIAGRAMS, WIRING DIAGRAMS, APPROVALS, TEST DATA, ETC., REQUIRED BY LOCAL AUTHORITIES.
- d. COMPLETE SHOP DRAWINGS OF ALL CUSTOM-FABRICATED OR ASSEMBLED PRODUCTS, INCLUDING WIRING DIAGRAMS.
- e. DRAWINGS IDENTIFYING ALL TERMINALS AND ILLUSTRATING ALL DEVICE WIRING CONNECTIONS.
- 1.05 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS
- . FURNISH FOUR (4) COPIES OF OPERATING AND MAINTENANCE MANUALS FOR OWNER'S USE FOR EACH PIEC OF EQUIPMENT. EACH ITEM SHALL BE CROSS-REFERENCED AND NUMBERED WITH AS-BUILT DRAWING DESCRIPTIONS.
- B. AS-BUILT DRAWINGS: ONE (1) SET OF PRINTS TO OWNER, TWO (2) BOUND SETS OF RED-LINED PANEL SCHEDULES SHOWING WORK AS ACTUALLY INSTALLED TO OWNER, AND AUTOCAD AS-BUILT DRAWINGS TO ENGINEER.

PART 2 - PRODUCTS

2.01 GENERAL

- A. NAMEPLATES: 1. FASTENED WITH EPOXY CEMENT, ENGRAVED BLACK LAMICOID SHEET WITH 3/8 IN. WHITE LETTERING UTILITY EQUIPMENT, 3/8 IN. RED SHEET WITH WHITE LETTERING FOR EMERGENCY EQUIPMENT, 3/8 IN BLUE SHEET WITH WHITE LETTERING FOR UPS EQUIPMENT, OR BUILDING STANDARD.
- 2. INSPECTION: SUBJECT TO REVIEW, INDICATING EQUIPMENT, AMPERAGE, AND VOLTAGE 3. PROVIDE FOR:
- a. DISCONNECT SWITCHES b. CIRCUIT BREAKERS. c. PANELS.
- d. CABINETS e. MOTOR CONTROLLERS.
- B. SUPPORTS: 1. SUPPORTS FROM BUILDING CONSTRUCTION: BEAM CLAMPS, STEEL FISHPLATES IN CONCRETE FILL ONL OR CANTILEVER BRACKETS. 2. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.
- 3. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING.

2.02 MATERIALS

- A. RACEWAYS: 1. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS. 2. RIGID STEEL CONDUIT: FULL WEIGHT PIPE, GALVANIZED, THREADED.
- B. FITTINGS AND ACCESSORIES:
- 1. RACEWAY FITTINGS:
- a. ELECTROMETALLIC TUBING: COMPRESSION OR DOUBLE SET SCREW TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER. b. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT. c. BUSHINGS: METALLIC INSULATED TYPE.
- BOXES: 1. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES, OR WIRING. a. STAMPED OR WELDED STEEL, 4 IN. SQUARE OR OCTAGON FOR:
- i. LIGHT FIXTURES: 1-1/2 IN. DEEP ABOVE CEILING, 2-1/8 IN. DEEP IN WALL.
- ii. IN WALL FOR TELEPHONE AND DATA: 2-1/8 IN. DEEP. iii. WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED.
- iv. THROUGH-THE-WALL TYPE, NOT PERMITTED.
- b. GALVANIZED CAST IRON OR ALUMINUM WITH THREADED HUBS: 4 IN. ROUND, 2 IN. DEEP ON CEILING, AND 4 IN. SQUARE, 2 IN. DEEP ON WALL. c. BOXES WITHOUT FIXTURE OR DEVICE: PROVIDE WITH BLANK COVER.
- 2. JUNCTION AND PULL BOXES:
- a. GALVANIZED SHEET STEEL b. COVERS: SCREW-ON, EXCEPT AS NOTED.
- c. WITH INSULATED SUPPORTS FOR CABLES.
- d. LOCATION: AS NOTED OR REQUIRED AND ACCESSIBLE. e. PROVIDE BARRIERS BETWEFN:
- i. 480 VOLT WIRING ENERGIZED FROM SEPARATE SERVICES.
- ii. 480Y/277 VOLT WIRING ENERGIZED FROM SEPARATE SERVICES. iii. 208Y/120 VOLT AND 480Y/277 VOLT WIRING.
- iv. EMERGENCY AND NORMAL WIRING.
- . WIRE AND CABLE: 1. CONDUCTORS

- a. ASTM STANDARD SOLID NO. 10 AND SMALLER, STRANDED NO. 8 AND LARGER. b. TYPE: COPPER
- i. GENERAL USE: 1. NO. 12 MINIMUM.
- 2. AT 120 VOLTS AND OVER 100 FT. CIRCUIT LENGTH: NO. 10 MINIMUM. 3. AT 277 VOLTS AND OVER 200 FT. CIRCUIT LENGTH: NO. 10 MINIMUM.
- ii. CONTROL AND ALARM, EXCEPT AS NOTED: 1. NO. 14 MINIMUM.
- 2. AT 120 VOLTS AND OVER 200 FT. CIRCUIT LENGTH: NO. 12 MINIMUM. c. OVER VOLTAGES AND PHASE: AS REQUIRED TO MAINTAIN VOLTAGE DROP.
- d. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED. 2. INSULATION: a. THWN/THHN: FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED.
- b. SFF-2: BRANCH CIRCUITS LOCATED IN:

- . WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES. ii. AMBIENT TEMPERATURES OVER 75 DEG. C.
- c. COLOR CODING: AS PER CODE. WHERE COLOR CODING IS UNAVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP COLOR TAPING CONDUCTORS (MINIMUM LENGTH 6 IN.) IN ACCESSIBLE LOCATIONS. d. 600V INSULATION, INCLUDING CONTROL WIRING: COORDINATE WITH MECHANICAL FOR CU/FC UNIT.

I. UFE SAFTY SYSTEM ^C 4. ESSIPETIVE DIAL FOR ALL PRODUCTS AND INTERALS. 5. ECONFERENCE DIAL SCIENCE DIAL DIAL DIAL DIAL DIAL DIAL DIAL DIAL	 I. SMUL OFFICES - 238 SD.FT. I. MOTE FOR IL ACCES OF MON ARRANGEMENT. I. MOTE FOR A TO IL ACCES OF MON ARRAGEMENT. I. MOTE FORE FORE AS A SEQUERE FOR CONCLUSE SYSTEM AND SWITCHME INTENT IN MARKED AND AND AND AND AND AND AND AND AND AN	 1. OUTDO: AND PAYORING AS REQUEDED FOR NEW MORK. 1. SUPPORTS 1. SUPPORTS
 iii. CABLE LUGS AND CONNECTORS: COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. iv. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTI SEIZE COMPOUND ON TANG. E. DEVICES: WALL SWITCHES: HEAVY DUTY, TOGGLE, QUITE TYPE. 20A, 120/277V, AC. HUBBELL #1221 TOGGLE TYPE OR EQUAL. 	 A. GENERAL: PAINTING: PAINT: BEST GRADE FOR ITS PURPOSE. BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS. PPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS: AS SELECTED BY ARCHITECT. GALVANIZED IRON PRIMER: PANEL AND PULL BOXES, AFTER FABRICATION. HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, ROD INSERTS, AND SUPPORTS. ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS: MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. CLEANING: BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING, AND ACCEPTANCE. 	 CABINETS. e. PIGTAIL AND/OR TAPPED CONNECTIONS WILL NOT BE ALLOWED ON SUPERVISED CIRCUITS. CONNECTIONS SHALL BE MADE DIRECTLY TO AND FROM DEVICE TERMINAL SCREWS. 3. CONTRACTOR IS TO ENSURE THE EXISTING FIRE ALARM CONTROL PANEL WILL ACCOMMODATE THE NEW FIRE ALARM INITIATING DEVICES, SPEAKERS, AND STROBE LIGHTS. MODIFY AND ADD NEW CONTROL MODULES IN EXISTING CONTROL PANEL AS REQUIRED. 4. ALL NEW AIR HANDLING EQUIPMENT SHALL BE SHUT DOWN VIA THE BUILDING FIRE ALARM PANEL UPON ACTIVATION OF ANY NEW DUCT DETECTORS DESCRIBED UNDER THIS SCOPE OF WORK.

DAMAGE TO OTHER WORK: REPAIR ANY DAMAGE CAUSED BY THIS SECTION TO WORK OF OTHER SECTIONS. DAMAGE TO FIREPROOFING: REPAIR ANY DAMAGED FIREPROOFING CAUSED BY THIS SECTION TO INTEGRITY OF ORIGINAL CONSTRUCTION.

SITE SAFETY: CONTRACTOR COVENANTS AND AGREES THAT THEIR COMPANY, SUBCONTRACTORS, AGENTS, SERVANTS, AND EMPLOYEES WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT THEY WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF, AND CONTRACTOR AGREES TO INDEMNIFY, DEFEND, AND HOLD HARMLESS, ENGINEER, ARCHITECT, AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE, OR EXPENSE, INCLUDING ATTORNEY'S FEES ARISING FROM A FAILURE OR ALLEGED FAILURE.

VERIFICATION OF EXISTING: BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AND OF THE PRESENT INSTALLATIONS TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN, AND NO CONSIDERATION WILL BE GRANTED BY REASON OF LACK OF FAMILIARITY ON THE PART OF THE CONTRACTOR WITH ACTUAL PHYSICAL CONDITIONS, REQUIREMENTS, AND PRACTICES AT THE SITE

REQUIREMENTS OF OTHER SECTIONS: CAREFULLY CHECK THE DOCUMENTS OF OTHER SECTIONS TO ASCERTAIN THE REQUIREMENTS OF ANY INTERFACING MATERIALS OR EQUIPMENT BEING FURNISHED AND/OR INSTALLED BY THAT SECTION WHICH RELATE TO THIS SECTION, AND PROVIDE THE PROPER INSTALLATION AND/OR CONNECTION.

SLEEVES: FURNISH AND SET ALL SLEEVES FOR THE PASSAGE OF CONDUIT THROUGH WALLS, ROOF, AND FLOORS AND ELSEWHERE AS WILL BE REQUIRED FOR THE PROPER PROTECTION OF EACH CONDUIT PASSING THROUGH BUILDING SURFACES. COORDINATE THIS WORK WITH THE GENERAL CONTRACTOR IN ORDER TO PROPERLY EXPEDITE AND PERFORM THIS WORK.

FIRE/SMOKE DAMPER ASSEMBLIES: VERIFY EXACT LOCATIONS WITH THE MECHANICAL DRAWINGS. PROVIDE LINE VOLTAGE MOTOR CONNECTIONS AND LOCAL DISCONNECT SWITCHES AS REQUIRED. PROVIDE DUCT AND/OR AREA SMOKE DETECTORS AS REQUIRED FOR ACTUATION OF THE DAMPER MOTORS.

GUARANTEE: SUBMIT A SINGLE GUARANTEE STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER, EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED BY CONTRACT, SUCH LONGER TERM SHALL APPLY.

GENERAL ITEMS 1. ACCESS DOORS/PANELS: PROVIDE CONCEALED OUTLET, JUNCTION BOXES, AND EQUIPMENT REQUIRING ACCESS WITH ADEQUATELY SIZED ACCESS DOORS/PANELS. IN REMOVABLE TYPE CEILING, PROVIDE ACCESS TILE IDENTIFICATION ONLY. 2. CUTTING AND PATCHING FOR ELECTRICAL WORK.

REFERENCE STANDARDS: PUBLISHED CODES, SPECIFICATIONS, STANDARDS, TESTS, OR RECOMMENDED METHODS OF TRADE, INDUSTRY, GOVERNMENTAL ORGANIZATIONS, OR LOCAL UTILITIES APPLY TO WORK IN THIS DIVISION WHERE CITED BELOW:

- 1. ANSI AMERICAN NATIONAL STANDARDS INSTITUTE 2. ASTM - AMERICAN SOCIETY OF TESTING AND MATERIALS.
- 3. CBM CERTIFIED BALLAST MANUFACTURERS.
- 4. ETL ELECTRICAL TESTING LABORATORIES. 5. FCC - FEDERAL COMMUNICATIONS COMMISSION.
- 6. IBC INTERNATIONAL BUILDING CODE 7. ICEA - INSULATED CABLE ENGINEERS ASSOCIATION.
- 8. IEEE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS. 9. IES - ILLUMINATING ENGINEERING SOCIETY.
- 10. CEC CALIFORNIA ELECTRICAL CODE.
- 11. NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION. 12. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.
- 13. OSHA OCCUPATIONAL SAFETY AND HEALTH ACT. 14. UL - UNDERWRITER'S LABORATORIES, INC.

15. NATIONAL, STATE, AND LOCAL CODES OF ALL AUTHORITIES HAVING JURISDICTION.

I. SEISMIC DESIGN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ANCHORS, SUPPORTS, AND CONNECTIONS OF ELECTRICAL WORK TO THE BUILDING STRUCTURE TO PREVENT DAMAGE AS A RESULT OF AN EARTHQUAKE, INCLUDING MANUFACTURED EQUIPMENT, THE CONNECTION, AND INTEGRITY OF SHOP FABRICATED AND FIELD FABRICATED MATERIALS AND EQUIPMENT. ALL SUPPORTS, EQUIPMENT, AND CONNECTIONS THERETO SHALL BE DESIGNED TO CONFORM TO THE REQUIREMENTS OF THE LOCAL CITY ORDINANCE OR OTHER GOVERNING CODES.

PROJECT CLOSE-OUT:

- 1. AFTER FINAL OPERATION FOR INSPECTION AND ACCEPTANCE, DELIVER ALL COPIES OF OPERATION INSTRUCTIONS, MAINTENANCE MANUALS, AND PARTS DESCRIPTIONS TO THE ARCHITECT. 2. ALL TOOLS SUPPLIED WITH THE EQUIPMENT FOR MAINTENANCE SHALL BE TAGGED AND TEMPORARILY SECURED TO THE UNIT, OR TURNED OVER TO THE OWNER.
- 3. UPON COMPLETION OF THE FIRE LIFE SAFETY SYSTEM'S INSTALLATION, THE SYSTEM INSTALLER SHALL CONDUCT A THOROUGH TEST OF THE SYSTEM AND SUBMIT A WRITTEN REPORT OF THE FINDINGS TO THE LANDLORD AND TENANT'S ARCHITECT. THE TEST SHALL INCLUDE THE FOLLOWING: a. BEFORE ENERGIZING THE CABLES AND WIRES, CHECK FOR CORRECT CONNECTIONS AND TEST FOR
- SHORT CIRCUITS, GROUND FAULTS, CONTINUITY, AND INSULATION. b. CLOSE EACH SPRINKLER SYSTEM CONTROL VALVE AND VERIFY PROPER SUPERVISORY ALARM AT THE BASE BUILDING FIRE ALARM CONTROL CABINET. VERIFY ACTIVATION OF ALL FLOW SWITCHES
- d. OPEN INITIATING DEVICE CIRCUITS AND VERIFY THAT THE TROUBLE SIGNAL ACTUATES. e. OPEN AND SHORT NOTIFICATION APPLIANCE CIRCUITS AND VERIFY THAT THE TROUBLE SIGNAL
- ACTUATES.
- f. GROUND INITIATING DEVICE CIRCUITS AND VERIFY RESPONSE OF TROUBLE SIGNALS. g. CHECK ALL ALARM NOTIFICATION DEVICES FOR PROPER OPERATION PRIOR TO FUNCTIONAL TEST.
- n. CHECK INSTALLATION. SUPERVISION. AND OPERATION OF SMOKE DETECTORS. VERIFY THAT EACH INITIATING DEVICE ALARM SIGNAL IS PROPERLY RECEIVED AND PROCESSED BY
- THE BASE BUILDING FIRE ALARM CONTROL PANEL.
- j. FUNCTIONAL OPERATION OF EACH ALARM INITIATION DEVICE AND CIRCUIT. K. FUNCTIONAL OPERATION OF EACH MONITORED DEVICE CIRCUIT.
- 1. FUNCTIONAL OPERATION OF EACH CONTROL CIRCUIT.
- m. FUNCTIONAL OPERATION OF EACH ALARM NOTIFICATION DEVICE, APPLIANCE, AND CIRCUIT. n. CONDUCT TESTS TO VERIFY TROUBLE INDICATIONS FOR COMMON MODE FAILURES. SUCH AS ALTERNATING CURRENT POWER FAILURE. CONSULT THE MANUFACTURER'S MANUAL FOR OTHER COMMON MODE FAILURES AND CONDUCT THE DESCRIBED TESTING PROCEDURES.

0. PERFORM CALIBRATION AND ACCEPTANCE TESTING FOR ALL LIGHTING CONTROL SYSTEMS.

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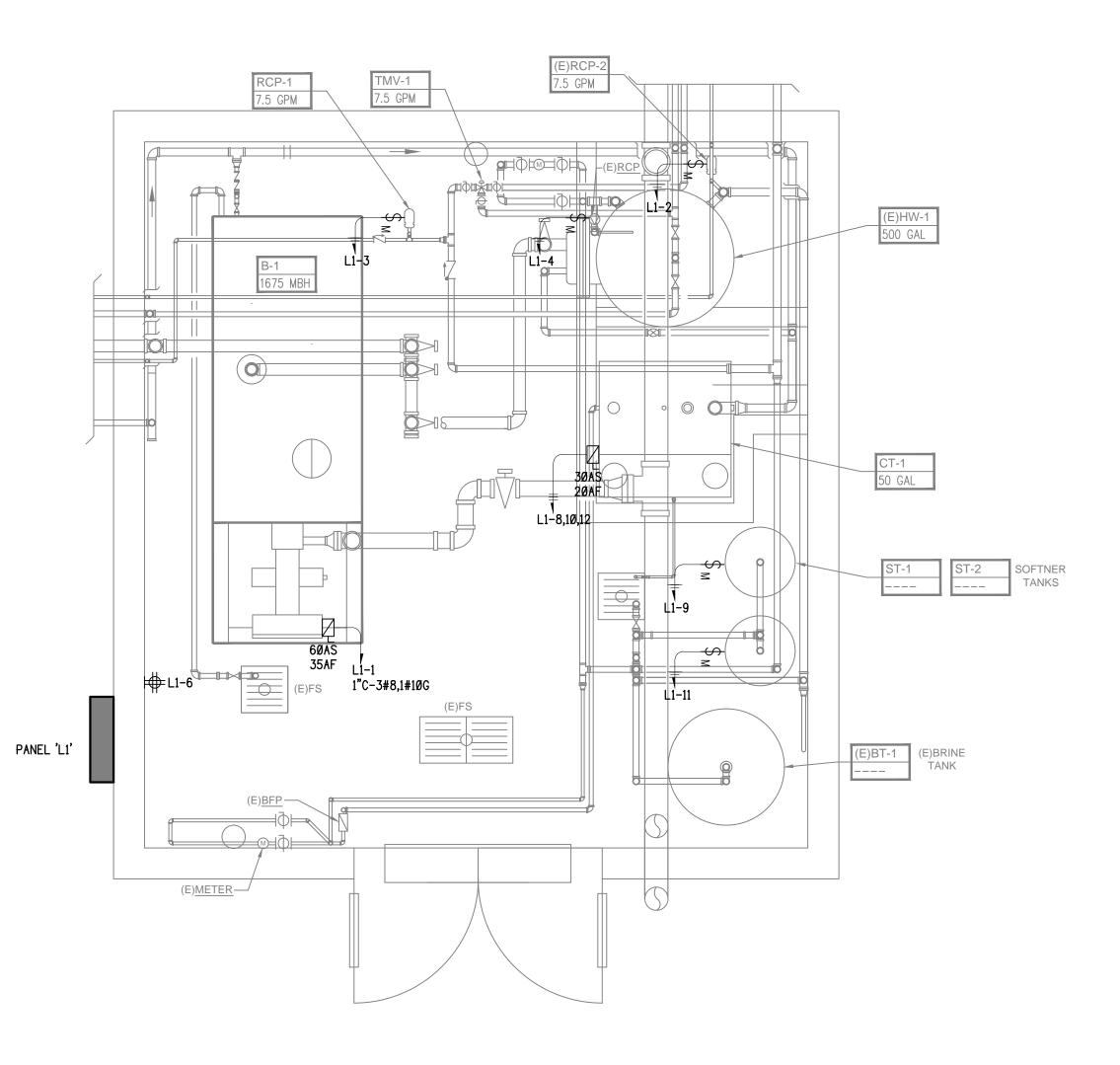




SHEET TITLE:

ELECTRICAL SPECIFICATIONS

Project:		Sheet:
Date:	3/22/2018	E-1.0
Socie	AS NOTED	



ELECTRICAL POWER PLAN

			[
СКТ	C.B.	C.B.	DESCRIPTI
NO.		POLE	
1	35	1	BOILER 'B-1'
3	20	1	RECIRC PUMP 'RCP-1'
5			
7			
9	20	1	WATER SOFTENER 'ST-1'
11	20	1	WATER SOFTENER 'ST-2'
13			
15			
17			
			TYPE "L'
			TYPE "R'
			TYPE "R'
			TYPE "M'
			TYPE "A'

ELECTRICAL PANEL SCHEDULE

	SERVICE	MAIN	BUS	POLES	MOUNT	AIC		LOCATION:	BOILER ROOM			
208/120V, 3P, 4W 100 100				18	SURFACE	10K FED FROM: PANEL 'G'						
							PROJE	CT NAME:	STEAM SYSTEM BOILER REPLACEMENT PROJECT			
N					LOAD (KVA)				DECODIDEION	C.B.	C.B.	СКТ
		TOTAL	TYPE	А	В	С	TYPE TOTAL		DESCRIPTION		POLE	NO.
		3.36	м	3.61			М	0.25	EXISTING 'RCP-2'	20	1	2
		0.25	М		0.50		М	0.25	EXISTING 'RCP'	20	1	4
						0.36	R	0.36	RECEPTACLE	20	1	6
				0.55			А	0.55	CONDENSATE TANK 'CT-1'	20	3	8
		0.18	М		0.73		А	0.55	CONDENSATE TANK 'CT-1'	-	-	10
		0.18	М			0.73	А	0.55	CONDENSATE TANK 'CT-1'	-	-	12
												14
												16
												18
CONNECTED LOAD PER PHASE (KVA): CONNECTED LOAD PER PHASE (AMPS):		4.16	1.23	1.09		NOTES:	• NEW = BOLD FACE, EXISTING = NON-BOLD FACE					
		34.67	10.25	9.08			• PROVIDE MULTI-POLE BREAKERS, OR SINGLE-POLE	BREA	KERS			
								WITH HANDLE-TIE, FOR ANY MULTI-WIRE BRANCH C	IRCUI	TS TO	BE	
	LOAD SUMMARY			CONN.	DEMAND	DEMAND			INSTALLED PER NEC 210.4(B).			
				KVA	FACTOR	KVA						
:	CONTINUOUS LOADS				125%							
: RECEPTACLES (FIRST 10KVA)				0.36	100%	0.36						
: RECEPTACLES (OVER 10KVA)				50%								
: MISCELLANEOUS LOADS			4.47	100%	4.47							
: LARGEST MOTOR LOAD		1.65	125%	2.06								
: KITCHEN LOADS			65%		DEMA	ND AMPS						
TOTAL		6.48		6.89	1	9.15						
1												

