ABBREVIATIONS

A, OR AMP	AMPERES	MCB	MAIN CIRCUIT BREAKER
AC	ALTERNATING CURRENT	MCM	THOUSAND CIRCULAR MILS
AF	AMP FRAME/AMP FUSE	MCP	MOTOR CIRCUIT PROTECTOR
AFC	AVAILABLE FAULT CURRENT	MECH	MECHANICAL
AIC	AMPERE INTERRUPTING CAPACITY	MFR	MANUFACTURER
AFF	ABOVE FINISHED FLOOR	MG	MOTOR-GENERATOR
AIR	AIR PRESSURE RATING	MH	MANHOLE
AT	AMP TRIP	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MISC	MISCELLANEOUS
AUTO	AUTOMATIC	MTD	MOUNTED
AWG	AMERICAN WIRE GAUGE	MTG	MOUNTING
ATS	AUTOMATIC TRANSFER SWITCH	MTR	MOTOR
BD	BOARD	(N)	NEW
BKR	BREAKER	NC	NORMALLY CLOSED
BLDG	BUILDING	NEC	NATIONAL ELECTRICAL CODE
C	CONDUIT	NF	NON FUSED
CB	CIRCUIT BREAKER	NIC	NOT IN CONTRACT
CBC	CALIFORNIA BUILDING CODE	NO	NORMALLY OPEN
CKT	CIRCUIT	NON AUTO	NON AUTOMATIC
CLG	CEILING	N.T.S.	NOT TO SCALE
CO	CONDUIT ONLY WITH PULL ROPE	P	POLE
COMM	COMMUNICATION	PA	PUBLIC ADDRESS
CEC	CALIFORNIA ELECTRICAL CODE	PH OR #	PHASE
CFC	CALIFORNIA FIRE CODE	PNL	PANEL
CMA	CAMERA	PRIM	PRIMARY
DANGER	DANGER	PVC	POLYVINYL CHLORIDE
DISC	DISCONNECT	PWR	POWER
DNG	DO NOT SWITCH	(R)	REMOVED
DWG	DRAWING	REQ	REQUIRED
EC	ELECTRICAL CONTRACTOR	RM	ROOM
FACP	FIRE ALARM CONTROL PANEL	RGS	RIGID GALVANIZED STEEL CONDUIT
FLA	FULL LOAD AMPS	SCHED	SCHEDULE
(F)	FRONT	SEC	SECONDARY
GA	GAUGE	SPEC	SPECIFICATION
GC	GENERAL CONTRACTOR	STD	STANDARD
GFCI	GROUND FAULT INTERRUPTING	UNSW	UNSWITCHED
GND	GROUND	TELE	TELEPHONE
HP	HORSEPOWER	TR	TRANSFORMER
HID	HIGH INTENSITY DISCHARGE	TYP	TYPICAL
HZ	HERTZ	UON	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND	UG	UNDERGROUND
JB	JUNCTION BOX	V	VOLT
KV	KILOVOLT	VA	VOLT-AMPERE
KVA	KILOVOLT-AMPERE	VD	VOLTAGE DROP
KW	KILOWATT	W	WATT
LCL	LONG CONTINUOUS LOAD	W/	WITH
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT	WP	WEATHERPROOF
LTG	LIGHTING	(X)	EXISTING
LTS	LIGHTS	1P	SINGLE POLE
MAG	MAGNET, MAGNETIC	3P	THREE POLE
MAX	MAXIMUM	@	AT

U.L. STANDARD 486B TORQUING RECOMMENDATIONS

TIGHTENING TORQUE FOR SCREWS (a) TORQUE, POUND – INCHES

WIRE SIZE	SLOTTED HEAD NO. 10 AND LARGER (b)				HEXAGONAL HEAD/EXTERNAL DRIVE SOCKET WRENCH	
	SLOT WIDTH (IN.)		SLOT LENGTH (IN.)		SPLIT-BOLT CONNECTORS	OTHER CONNECTORS
	TO 3/64	OVER 3/64	TO 1/4	OVER 1/4		
18–10 AWG	20	35	20	35	80	75
8	25	40	25	40	80	75
6	35	45	35	45	165	110
4	–	45	–	45	165	110
3	–	50	–	50	275	150
2	–	50	–	50	275	150
1	–	50	–	50	275	150
1/0	–	50	–	50	385	180
2/0	–	50	–	50	385	180
3/0	–	50	–	50	500	250
4/0	–	50	–	50	500	250
250 kcmil	–	50	–	50	650	325
300	–	50	–	50	650	325
350	–	50	–	50	650	325
400	–	50	–	50	825	325
500	–	50	–	50	825	375
600	–	50	–	50	1000	375
700	–	50	–	50	1000	375
750	–	50	–	50	1000	375
800	–	50	–	50	1100	500
900	–	50	–	50	1100	500
1000	–	50	–	50	1100	500
1250	–	–	–	–	1100	600
1500	–	–	–	–	1100	600
1750	–	–	–	–	1100	600
2000	–	–	–	–	1100	600

THIS TABLE GIVES RECOMMENDED CONNECTOR INSTALLING TORQUES FOR COPPER AND ALUMINUM CONDUCTORS. THEY ARE FOR GUIDANCE ONLY WHERE NO TIGHTENING INFORMATION IS AVAILABLE AND SHOULD NOT BE USED TO REPLACE MANUFACTURER'S INSTRUCTIONS WHICH SHOULD ALWAYS BE FOLLOWED.

(a) CLAMPING SCREWS WITH MULTIPLE TIGHTENING MEANS; FOR EXAMPLE FOR A SLOTTED HEXAGONAL HEAD SCREW, USE THE HIGHEST TORQUE VALUE ASSOCIATED WITH THE DIFFERENT TIGHTENING MEANS.

(b) FOR VALUES OF SLOT WIDTH OR LENGTH OTHER THAN THOSE SPECIFIED, SELECT THE LARGEST TORQUE VALUE ASSOCIATED WITH CONDUCTOR SIZE.

CEC ART. 310 CONDUCTOR DERATING

NEC #310.15 (B)(2)(a) ADJUSTMENT FACTORS

(a) MORE THAN THREE CURRENT–CARRYING CONDUCTORS IN A RACEWAY OR CABLE, WHERE THE NUMBER OF CURRENT–CARRYING CONDUCTORS IN A RACEWAY OR CABLE EXCEEDS THREE, THE ALLOWABLE AMPACITIES SHALL BE REDUCED AS SHOWN IN THE FOLLOWING TABLE:

NUMBER OF CURRENT–CARRYING CONDUCTORS	PERCENT OF VALUES IN TABLES AS ADJUSTED FOR AMBIENT TEMPERATURE IF NECESSARY
4 THROUGH 6	80
7 THROUGH 9	70
10 THROUGH 20	50
21 THROUGH 30	45
31 THROUGH 40	40
41 AND ABOVE	35

WHERE SINGLE CONDUCTORS OR MULTICONDUCTOR CABLES ARE STACKED OR BUNDLED LONGER THAN 24 INCHES (610 mm) WITHOUT MAINTAINING SPACING AND ARE NOT INSTALLED IN RACEWAYS, THE ALLOWABLE AMPACITY OF EACH CONDUCTOR SHALL BE REDUCED AS SHOWN IN THE ABOVE TABLE.

EXCEPTION NO. 1: WHERE CONDUCTORS OF DIFFERENT SYSTEMS, AS PROVIDED IN SECTION 300–3, ARE INSTALLED IN A COMMON RACEWAY OR CABLE, THE DERATING FACTORS SHOWN ABOVE SHALL APPLY TO THE NUMBER OF POWER AND LIGHTING (ARTICLES 210, 215, 220, AND 230) CONDUCTORS ONLY.

EXCEPTION NO. 2: FOR CONDUCTORS INSTALLED IN CABLE TRAYS, THE PROVISIONS OF SECTION 392.11 SHALL APPLY.

EXCEPTION NO. 3: DERATING FACTORS SHALL NOT APPLY TO CONDUCTORS IN NIPPLES HAVING A LENGTH NOT EXCEEDING 24 INCHES (600mm).

EXCEPTION NO.4: DERATING FACTORS SHALL NOT APPLY TO UNDERGROUND CONDUCTORS ENTERING OR LEAVING AN OUTDOOR TRENCH IF THOSE CONDUCTORS HAVE PHYSICAL PROTECTION IN THE FORM OF RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT, OR RIGID NONMETALLIC CONDUIT HAVING A LENGTH NOT EXCEEDING 10 FEET (3.05m) ABOVE GRADE AND THENUMBER OF CONDUCTORS DOES NOT EXCEED FOUR.

CEC WIRE FILL TABLE 370–16

JUNCTION BOX DIMENSION, INCHES TRADE SIZE OR TYPE	UBC CU. IN. CAP.	MAXIMUM NUMBER OF CONDUCTORS					
		NO. 14	NO. 12	NO. 10	NO. 8	NO. 6
4 x1–1/4 ROUND OR OCTAGONAL	12.5	6	5	5	5	2
4 X1–1/2 ROUND OR OCTAGONAL	15.5	7	6	6	5	3
4 X2–1/8 ROUND OR OCTAGONAL	21.5	10	9	8	7	4
4 x1–1/4 SQUARE	18.0	9	8	7	6	3
4 X1–1/2 SQUARE	21.0	10	9	8	7	4
4 X2–1/8 SQUARE	30.3	15	13	12	10	6
4–11/16 x1–1/4 SQUARE	25.5	12	11	10	8	5
4–11/16 X1–1/2 SQUARE	29.5	14	13	11	9	5
4–11/16 X2–1/8 SQUARE	42.0	21	18	16	14	8
3 x2 x1–1/2 DEVICE	7.5	3	3	3	2	1
3 x2 x2 DEVICE	10.0	5	4	4	3	2
3 x2 x2–1/4 DEVICE	10.5	5	4	4	3	2
3 x2 x2–1/2 DEVICE	12.5	6	5	5	4	2
3 x2 x2–3/4 DEVICE	14.0	7	6	5	4	2
3 x2 x3–1/2 DEVICE	18.0	9	8	7	6	3
4 X2–1/8 X1–1/2 DEVICE	10.3	5	4	4	3	2
4 X2–1/8 X1–7/8 DEVICE	13.0	6	5	5	4	2
4 X2–1/8 X2–1/8 DEVICE	14.5	7	6	5	4	2
3–3/4 x2 x2–1/2 MASONRY BOX / GANG	14.0	7	6	5	4	2
3–3/4 x2 x3–1/2 MASONRY BOX / GANG	21.0	10	9	8	7	4
FS – MINIMUM INTERNAL DEPTH 1–3/4 SINGLE COVER / GANG	13.5	6	6	5	4	2
FD – MINIMUM INTERNAL DEPTH 2–3/8 SINGLE COVER / GANG	18.0	9	8	7	6	3
FS – MINIMUM INTERNAL DEPTH 1–3/4 MULTIPLE COVER / GANG	18.0	9	8	7	6	3
FD – MINIMUM INTERNAL DEPTH 2–3/8 MULTIPLE COVER / GANG	24.0	12	10	9	8	4

GENERAL ELECTRICAL NOTES

SCOPE:
THE DRAWINGS AND THESE GENERAL NOTES DESCRIBE THE SCOPE OF WORK AND SYSTEMS. THE MATERIAL REQUIRED FOR THE WORK SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED, UNLESS SPECIFICALLY NOTED OTHERWISE. THE WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING PRINCIPAL SYSTEMS AND EQUIPMENT.

PERMITS AND CHARGES:
OBTAIN AND PAY FOR ALL NECESSARY CONSTRUCTION PERMITS, INSPECTION FEES, AND OTHER CHARGES BY AGENCIES HAVING JURISDICTION.

REGULATIONS AND CODES:
PROVIDE AND INSTALL ALL MATERIALS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, CALIFORNIA ADMINISTRATIVE CODE TITLE 8, AND OTHER CODES AND REGULATIONS HAVING JURISDICTION. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY AND MANUFACTURERS RECOMMENDATIONS.

VERIFYING EXISTING CONDITIONS:
BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING SITE. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER. BY THE ACT OF SUBMITTING A BID PROPOSAL FOR THE WORK, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH STUDY AND EXAMINATION AND TO ACCEPT ALL CONDITIONS PRESENT AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT WILL BE CONSIDERED AS VALID, DUE TO FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST.

COORDINATION:
COORDINATE ALL WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT. ELECTRICAL EQUIPMENT LOCATIONS INDICATED ARE SHOWN DIAGRAMMATICALLY, EXACT LOCATION SHALL BE VERIFIED.

SERVICE CONTINUITY:
UNINTERRUPTED EXISTING ELECTRICAL POWER SHALL BE MAINTAINED TO OTHER TRADES FOR TEMPORARY POWER AREAS OF THE SITE DURING CONSTRUCTION. PROVIDE ANY TEMPORARY SERVICES AS MAY BE REQUIRED. IDENTIFY AT BID TIME. ALL WORK TO BE DONE ON PREMIUM TIME AND THE TOTAL OVERTIME MAN–HOURS REQUIRED FOR COMPLETION.

AS BUILT:
PROVIDE RECORD DRAWINGS TO THE OWNER WITH ALL CHANGES NOTED THERON AT THE COMPLETION OF THE PROJECT. RECORD DRAWINGS SHALL BE SIGNED AND DATED BY CONTRACTOR PRIOR TO RELEASE OF FINAL RETENTION OF ALL MONIES.

MARK PROJECT RECORD DOCUMENTS DAILY TO INDICATE ALL CHANGES MADE IN THE FIELD.

A.) IN ADDITION TO GENERAL REQUIREMENTS OF PROJECT RECORD DRAWINGS, INDICATE ON DRAWINGS, CHANGES OF EQUIPMENT LOCATIONS AND RATINGS, TRIP SIZES, AND SETTINGS ON CIRCUIT BREAKERS, ALTERATIONS IN RACEWAY RUNS AND SIZES, CHANGES IN WIRE SIZES, CIRCUIT DESIGNATIONS, INSTALLATION DETAILS, ONE–LINE DIAGRAMS, CONTROL DIAGRAMS AND SCHEDULES.

USE GREEN TO INDICATE DELETIONS AND RED TO INDICATE ADDITIONS.
A.) USE THE SAME SYMBOLS AND FOLLOW THE SAME DRAFTING PROCEDURES USED ON THE CONTRACT DRAWINGS.

LOCATE UNDERGROUND CONDUIT STUBBED–OUT FOR FUTURE USE. UNDERGROUND FEEDER CONDUITS, AND FEEDER PULL BOX LOCATIONS USING BUILDING LINES BY INDICATING ON THE PROJECT RECORD DRAWINGS.

AT THE COMPLETION OF UNDERGROUND CONDUIT INSTALLATION, PROVIDE UNDERGROUND CONDUIT RECORD DOCUMENTS TO OWNER'S REPRESENTATIVE.

TWO COPIES, IN BINDER FORM, OF ALL TEST RESULTS AS REQUIRED BY THESE DOCUMENTS.

TWO COPIES OF LOCAL AND/OR STATE CODE ENFORCING AUTHORITIES FINAL INSPECTION CERTIFICATES.

FIRE ALARM SYSTEM RECORDS AND TESTING REPORTS AS OUTLINED IN NFPA 72, CHAPTER 10.

TWO COPIES, IN BINDER FORM, OF ELECTRICAL EQUIPMENT CUT SHEETS, MANUFACTURER'S INSTALLATION INSTRUCTIONS, WARRANTY CERTIFICATES, AND PRODUCT LITERATURE FOR ALL PRODUCTS UTILIZED ON PROJECT.

GUARANTEE:
CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR AND MATERIALS ON ALL WORK AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR.

SHOP DRAWINGS:
SUBMIT SHOP DRAWINGS AND MATERIAL LIST FOR REVIEW PRIOR TO COMMENCING ANY WORK. ALL EQUIPMENT TO BEAR U.L. LABEL OR THAT OF ANOTHER ACCEPTABLE TESTING LABORATORY. SHOP DRAWINGS MUST BE STAMPED BY THE CONTRACTOR FOR CONFORMANCE PRIOR TO SUBMITTAL.
SUBMIT SIX SETS OF SHOP DRAWINGS FOR REVIEW PRIOR TO PURCHASING ALL BREAKER MOUNTING HARDWARE, DISCONNECT SWITCHES, FUSES, CONTROLLERS, LIGHTING FIXTURES, LIGHT SWITCHES, RECEPTACLES, ETC.

CONTRACTOR BID:
CONTRACTOR'S BID SHALL BE BASED ON ALL WORK SHOWN ON THE PLANS AND AS SPECIFIED. IF CONTRACTOR PROPOSES TO SUBSTITUTE FOR EQUIPMENT SPECIFIED, HE SHALL SUBMIT HIS REQUEST FOR CONSIDERATION OF THE OWNER AND ENGINEER PRIOR TO BID IN WRITING. ALL SUBSTITUTIONS SHALL BE REVIEWED BY THE ENGINEER IN WRITING. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS/HER OWN EXPENSE FOR ANY CHANGES RESULTING FROM HIS PROPOSED SUBSTITUTIONS WHICH AFFECT OTHER PARTS OF HIS/HER OWN WORK, THE OWNER, ENGINEER OF RECORD OR THE WORK OF OTHER CONTRACTORS.

MATERIAL AND INSTALLATION:
ALL MATERIALS SHALL BE NEW AND LISTED BY UNDERWRITERS LABORATORY (U.L.).
ALL WORK AND MATERIAL SHALL CONFORM TO THE LATEST RULES OF THE GOVERNING ELECTRICAL CODE AND INSTALLATION SHALL BE OF THE LATEST INDUSTRY STANDARDS OF WORKMANSHIP.

CONDUITS:
CONDUIT SHALL BE EMT, PVC, IMC, RIGID OR FLEXIBLE STEEL TYPE. CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH UL–1. A GROUND WIRE IS REQUIRED IN ALL FLEXIBLE CONDUIT AND UNDERGROUND CONDUIT. BUSHINGS SHALL BE INSTALLED ON ALL COMMUNICATION, TELEPHONE & SPEAKER CONDUITS. PROVIDE 3/16" NYLON PULL STRING IN ALL EMPTY CONDUITS. NO MC, BX, OR AC90 SHALL BE PERMITTED.

SWITCHES AND RECEPTACLES:
PROVIDE 20 AMP NEMA RATED SWITCHES AND RECEPTACLES OF SPECIFICATION GRADE. ALL SWITCHES SHALL BE RATED 120 AND/OR 277 VOLT AND RECEPTACLES SHALL BE NEMA 5–20R. IN ALL OFFICES AND OFFICE AREAS, DEVICES SHALL BE DECORA TYPE WITH COLOR SELECTION BY CONTRACTOR/OWNERS REPRESENTATIVE.

FEEDERS AND BRANCH CIRCUITS, IDENTIFICATION:
IDENTIFY FEEDERS WITH THE CORRESPONDING CIRCUIT DESIGNATION AT THE OVER–CURRENT DEVICE, LOAD END, AND IN PULL BOXES WITH E–Z CODE OR OTHER APPROVED WIRE MARKER. IDENTIFY BRANCH CIRCUITS WITH I.D. MARKERS. THE CORRESPONDING CIRCUIT DESIGNATION AT THE OVER–CURRENT DEVICE. AT ALL SPLICES, IN JUNCTION BOXES, AND IN OUTLETS, USE PLASTIC COATED SELF–STICKING MARKERS SUCH AS THOMAS & BETTS E–Z CODE FOR IDENTIFICATION OF CONDUCTORS. IDENTIFY SIGNAL & COMMUNICATION CABLES AT TERMINAL AND OUTLET.

CONDUCTORS:
DELIVER ALL CONDUCTORS TO THE JOB SITE IN ORIGINAL UNBROKEN CARTON OR REEL. PROPERLY TAGGED WITH U.L. LABEL, SIZE, TYPE, MANUFACTURER, TRADE NAME AND THE DATE OF MANUFACTURE. CONDUCTORS MUST BE MANUFACTURED WITHIN 6 MONTHS. PROVIDE COPPER CONDUCTORS #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. PROVIDE STRANDED COPPER CONDUCTORS FOR ALL WIRING. USE CONDUCTORS WITH THHN/THWN 600 VOLTS INSULATION, UNLESS OTHERWISE NOTED.

LIGHTING FIXTURES:
PROVIDE LIGHTING FIXTURES WITH ELECTRONIC BALLASTS PER LIGHT FIXTURE SCHEDULE.
PROVIDE WITH LAMPS BY G.E., PHILLIPS, OR SYLVANIA AS STATED IN THE LIGHT FIXTURE SCHEDULE.

PANELBOARDS:
DISTRIBUTION AND LIGHTING PANELBOARDS WITHIN PROJECT AREA SHALL BE OF THE COPPER BUS THREE PHASE, FOUR WIRE DISTRIBUTED PHASING TYPE. CIRCUITING SHALL BE ARRANGED TO PROVIDE, AS NEARLY AS POSSIBLE, AN EVENLY BALANCED LOAD ON ALL PHASES.
PANELBOARDS SHALL BE BOLT–ON CIRCUIT BREAKER TYPE. AVAILABLE FAULT CURRENT IS STATED ON PANELBOARD SCHEDULE. PROVIDE PANEL IDENTIFICATION NAMEPLATE (ENGRAVED ON –ADHESIVE 1/2" MINIMUM LETTERS) AND TYPEWRITTEN LIST OF CIRCUITS IN THE DIRECTORY FRAME.

STRUCTURAL SUPPORT:
EACH SECTION OF FLOOR MOUNTED SWITCHBOARD, DISTRIBUTION BOARD, MCC, ETC. SHALL BE BOLTED TO THE CONCRETE HOUSEKEEPING PAD USING (6) 3/4"–10 GRADE 2 BOLTS AND CONICAL WASHERS TORQUED TO 70LB–FT. PROVIDE MINIMUM 4000 PSI STRENGTH CONCRETE BELOW ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. TIE THE TOP OF ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT TO THE BUILDING STRUCTURE IN A SESMICALLY APPROVED MANNER.

DEMOLITION:
NOTIFY THE OWNER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, AND WHICH IS NOT INDICATED ON THE PLANS.

1. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGEABLE SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY THE OWNER, AND NEATLY PILE OR STORE THEM AND PROTECT FROM DAMAGE. REMOVE FROM PREMISES AND DISPOSE OF ALL MATERIALS CONSIDERED BY THE OWNER TO BE SCRAP.

2. ALL DEVICES, CIRCUIT CONDUCTORS, FEEDERS, ETC., WHEN NOTED TO BE REMOVED, SHALL BE REMOVED TO THE LAST ACTIVE DEVICE. ALL OVER–CURRENT PROTECTION AND DISCONNECT DEVICES NO LONGER UTILIZED BUT REMAINING AS LAST ACTIVE DEVICE SHALL BE LABELED AS "SPARE". COORDINATE ALL OUTAGES WITH OWNER'S REPRESENTATIVE.

EXECUTION:
CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE CONFINES AS MUCH AS POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THE WORK UNDER THIS CONTRACT.

1.) EQUIPMENT, MATERIALS AND SUPPLIES REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.

2.) DO ALL DRILLING, CUTTING, CHANNELING AND PATCHING REQUIRED TO INSTALL ELECTRICAL WORK AS INDICATED OR HEREIN SPECIFIED. ALL HOLES, CURBS, ETC., IN FLOORS, CEILINGS AND WALLS SHALL BE PATCHED, UNLESS INDICATED OTHERWISE. PAINT ALL NEW ELECTRICAL RACEWAYS, CABINETS, ENCLOSURES, AND FITTINGS PENETRATING INTO FIRE RATED ENVELOPES, SPACES, ETC.

3.) ALL CONDUIT RUNS SHALL BE CONCEALED, UNLESS SHOWN OTHERWISE. PROVIDE A FULL WIRE IN ALL EMPTY CONDUITS.

4.) EXISTING CONDITION SHOWN IS FROM AVAILABLE RECORD DRAWINGS AND VISUAL FIELD SURVEY AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITION AT SITE.

5.) ALL WORK SHOWN IS NEW UNLESS SPECIFICALLY INDICATED AS EXISTING (X). ALL ELECTRICAL EQUIPMENT MOUNTING AND ANCHORAGE MUST CONFORM WITH LOCAL AND STATE SEISMIC CODES.

TELEPHONE SYSTEMS:
PROVIDE RACEWAYS, AND ALL MATERIAL INCLUDING PULLING CABLE IN EACH RACEWAY AS REQUIRED FOR THE TELEPHONE SYSTEM PER THE SERVING TELEPHONE COMPANY REQUIREMENTS.

GROUNDING AND BONDING:
FURNISH AND INSTALL COMPLETE BONDING AND GROUNDING SYSTEM AS REQUIRED BY CODES. CONTINUITY OF GROUNDING SHALL BE MAINTAINED MECHANICALLY AND ELECTRICALLY THROUGHOUT THE SYSTEM. A GREEN GROUNDING CODE SIZED CONDUCTOR SHALL BE CARRIED THROUGH IN ALL CONDUITS.

INSTALLATION:
IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR ALL THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. TOWARD THIS END FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING PARTS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLINGS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS, AND HARDWARE. REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.

1.) PROCURE ALL PERMITS FROM LEGALLY CONSTITUTED AUTHORITIES, ARRANGE FOR ALL INSPECTIONS AND PAY ALL COSTS FOR FEES AND TESTS IN CONNECTION THEREWITH. COMPLY WITH CODES: NOTHING IN THESE DRAWINGS AUTHORIZES DEVIATION FROM APPLICABLE CODES.

2.) DETERMINE EXACT ROUTING OF CONCEALED FEEDERS AND BRANCH CIRCUIT HOMERUNS IN COOPERATION WITH OTHER TRADES TO SIMPLIFY INSTALLATION WHEREVER POSSIBLE BUT SUBJECT TO APPROVAL OF ARCHITECT FOR VISUAL AND STRUCTURAL REASONS.

3.) PROVIDE A CODE APPROVED DISCONNECT SWITCH OR CIRCUIT BREAKER WITHIN SIGHT OF EVERY MOTOR AND FEED MOTORS NOT EQUIPPED WITH "BUILT IN" PROTECTION THROUGH A MAGNETIC OR MANUAL STARTER WITH OVERLOAD HEATERS SIZED TO COMPLY WITH MOTOR MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE CODES.

4.) FOR CONNECTIONS TO EXHAUST FANS, PUMPS, COMPRESSORS, SPACE HEATERS, WATER HEATERS, AQUASTATS, SOLENOID VALVES, AND OTHER MECHANICAL EQUIPMENT AND FOR CONDUITS AND WIRE REQUIRED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS, REFER TO MECHANICAL PLANS AND DETERMINE EXACT LOCATIONS UNDER DIRECTION OF HEATING AND VENTILATING CONTRACTOR.

5.) DO NOT RUN ANY CONDUIT IN SLAB IF ITS OUTSIDE DIAMETER EXCEEDS 1/3 THE THICKNESS OF THE SLAB. LOCATE CONDUITS WITHIN THE MIDDLE OF THE SLAB. WHERE CONDUITS ARE GROUPED IN PARALLEL RUNS, SPACE THEM 3" OR MORE APART. WHERE CONDUITS CROSS EACH OTHER, THICKEN THE SLAB PROPORTIONALLY OVER A HORIZONTAL AREA EQUAL TO TEN TIMES THE DIAMETER OF THE LARGEST CONDUIT. REFER ALSO TO DETAILS SHOWN.

6.) FOR CIRCUITS FED THROUGH FLUORESCENT FIXTURE CHANNELS AND FEEDS TO RECESSED INCANDESCENT FIXTURES USE INSULATED WIRE OF 105 DEGREES CELSIUS RATING.

7.) SIZE OUTLET BOXES IN CONFORMITY WITH CODE FOR NUMBER AND GUAGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER. MINIMUM BOX SIZE SHALL BE 4" SQUARE BY 1–1/2" DEEP.

8.) EXAMINE PLANS TO DISCERN CEILINGS WITH A FIRE RATING OF ONE HOUR OR MORE, PROVIDE A ONE HOUR FIRE–RATED ENCLOSURE OVER EACH LIGHT FIXTURE RECESSED THEREIN.

9.) ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUIT SHALL BE IN STRAIGHT LINES PARALLEL WITH, OR AT RIGHT ANGLES TO, COLUMN LINES OR BEAMS AND SEPARATED BY AT LEAST THREE (3) INCHES FROM WATER LINES WHENEVER THEY RUN ALONG SIDE OR ACROSS SUCH LINES. CONDUIT SHALL NOT BE RUN BELOW CABLE TRAYS OR LIGHT FIXTURES WITHOUT SPECIFIC APPROVAL OF THE OWNER'S REPRESENTATIVE. HANGERS SHALL BE FASTENED TO STEEL, CONCRETE OR MASONRY, BUT NOT TO PIPING. HANGERS AND SUPPORT SYSTEMS ARE AN INTEGRAL PART OF THE VISUAL ENVIRONMENT. ALL HANGERS AND SUPPORTS EXPOSED TO PUBLIC VIEW MUST BE SHOWN IN DETAIL ON PLANS SUBMITTED TO LANDLORD FOR APPROVAL OF APPEARANCE. ALL HANGERS MUST BE UNIFORMLY SPACED AND NEATLY INSTALLED WITH NO EXCESS MATERIAL BEYOND WHAT IS REQUIRED FOR THE SUPPORT FUNCTION. CONTRACTOR SHALL SELECT ACCESSORIES AND HARDWARE WITH A SMOOTH, NEAT FINISHED APPEARANCE AND PAINT ALL EXPOSED CONDUIT HANGERS TO MATCH THE ADJACENT FINISHES.

10.) ALL WALL SWITCHES AND RECEPTACLES SHALL BE MOUNTED BETWEEN 18" AND 48" PER A.D.A. REQUIREMENTS UNLESS OTHERWISE NOTED.

ELECTRICAL SWITCHES: CONTROLS AND SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES OR COOLING, HEATING AND VENTILATING EQUIPMENT, SHALL BE LOCATED NO MORE THAN 48" MEASURED FROM THE TOP OF OUTLET BOX NOR LESS THAN 15" MEASURED FROM THE BOTTOM OF THE OUTLET BOX TO THE LEVEL OF THE FINISHED FLOOR OR WORKING PLATFORM.

ELECTRICAL RECEPTACLE OUTLETS: ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES, SHALL BE LOCATED NO MORE THAN 48" MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING NOR LESS THAN 15" MEASURED FROM THE BOTTOM OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING TO THE LEVEL OF THE FINISHED FLOOR OR WORKING PLATFORM.

11.) ALL DISTRIBUTION BOARDS, SWITCHBOARDS AND TRANSFORMERS THAT ARE FLOOR MOUNTED SHALL BE MOUNTED ON 4" THICK HOUSEKEEPING PAD. TRANSFORMER SHALL BE ON VIBRATION ISOLATION PADS AND CONNECTED WITH FLEXIBLE CONDUIT.

12.) CONTRACTOR SHALL EXAMINE PLANS AND VERIFY IN FIELD LOCATIONS OF ALL FIRE RATED WALLS, CEILINGS AND FLOORS. CONTRACTOR SHALL SEAL ALL ELECTRICAL SYSTEM PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS AND FLOORS WITH U.L. LISTED MATERIAL APPROVED BY THE AUTHORITY HAVING JURISDICTION.

13.) SURFACE MOUNTED RACEWAY COMPLETEN