ABBREVIATIONS

AC	ALTERNATING CURRENT
AC	AIR CONDITIONER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY SYMM
A	AMPERE
AMP	AMPERE
ANN	FIRE ALARM ANNUNCIATOR
ATS	AUTOMATIC TRANSFER SWITCH
BATT	BATTERY
BLDG	BUILDING
BRKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CIR	CIRCUIT
CKT	CIRCUIT
CO	CONDUIT ONLY WITH PULLWIRE
COM	COMMON
COMM	COMMUNICATION
CONN	CONNECT
CONT	CONTINUE
CT	CURRENT TRANSFORMER
CU	COPPER
DB	DIRECT BURRIED
DEF	DUAL ELEMENT FUSE
DISC	DISCONNECT
DN	DOWN
DPDT	DOUBLE-POLE DOUBLE-THROW
DPST	DOUBLE-POLE SINGLE-THROW
EM	EMERGENCY
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EOL	END OF LINE
EQUIP	EQUIPMENT
EX	EXISTING
EXIST	EXISTING
F	FUSE
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE METALLIC TUBING
G	GROUND
GRD	GROUND
GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HOA	HAND-OFF-AUTO SWITCH
HP	HORSEPOWER
HZ	HERTZ
IC	INTERRUPTING CAPACITY IN AMPS RMS
IG	ISOLATED GROUND
J	JUNCTION BOX
JB	JUNCTION BOX
J-BOX	JUNCTION BOX
K	KILO
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT-AMPERES
KW	KILOWATT
KWH	KILOWATT-HOUR
KVAR	KILOVAR
LCL	LONG CONTINUOUS LOAD
LRA	LOCKED ROTOR AMP
LTG	LIGHTING
M	MAGNETIC STARTER COIL
M	MOTOR
M	METER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NEUT	NEUTRAL
NEC	NATIONAL ELECTRIC CODE
NF	NONFUSED
NTS	NOT TO SCALE
2P	2 POLE, SIMILAR FOR OTHER QTY
PB	PULLBOX
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
ø PH	PHASE
SCA	SHORT CIRCUIT AMPS
SQ FT	SQUARE FEET
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME CLOCK
TEL	TELEPHONE
TEMP	TEMPORARY
XFMR	TRANSFORMER
TFMR	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SYSTEM
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
WT	WATERTIGHT

ANSI PROTECTIVE DEVICE FUNCTIONS

50	INSTANTANEOUS OVERCURRENT
51	TIME OVERCURRENT
52	CIRCUIT BREAKER
27	UNDERVOLTAGE
67	DIRECTIONAL OVERCURRENT
32	POWER
46	CURRENT BALANCE
59	OVERVOLTAGE
47	REVERSE PHASE
49	THERMAL OVERLOAD
81	FREQUENCY
87	DIFFERENTIAL
25	SYNC CHECK
40	LOSS OF FIELD
N	SUFFIX-RESIDUAL OR NEUTRAL CONNECTION
G	SUFFIX-GROUND RETURN OR SUMMATION

SYMBOLS

FLOOR	CEILING	WALL	FIRE ALARM SYSTEM
			MANUAL FIRE ALARM REPORTING STATION, +48". MINIMUM ONE PER FLOOR, ONE AT EACH EXIT AND ONE PER 200' OF TRAVEL.
	D		DUCT DETECTOR, COORDINATE LOCATION WITH DIVISION 15. MINIMUM ONE DEVICE UPSTREAM OF ANY DAMPER. PROVIDE REMOTE INDICATING LIGHT FOR EACH DEVICE INSTALLED IN A NON VISIBLE LOCATION.
	E		ELEVATOR RECALL SMOKE DETECTOR.
		HDH	DOOR HOLD OPEN INTEGRAL WITH DOOR HARDWARE; COORDINATE VOLTAGE WITH HARDWARE SUPPLIER.
	A	HA	FIRE ALARM AUDIBLE ALARM, WALL MOUNTED AT +7'-6" UNLESS OTHERWISE NOTED. PROVIDE AVERAGE 55dBA AND MINIMUM 15dBA ABOVE AMBIENT LEVEL AT 5' AFF.
	AV	HAV	FIRE ALARM AUDIBLE ALARM WITH VISUAL SIGNAL, WALL MOUNTED AT +7'-6" UNLESS OTHERWISE NOTED. PROVIDE AVERAGE 55dBA AND MINIMUM 15dBA ABOVE AMBIENT LEVEL AT 5' AFF.
	V	HV	VISUAL ALARM SIGNAL, WALL MOUNTED AT +7'-6" UNLESS OTHERWISE NOTED. MINIMUM ON DEVICE IN EACH COMMON AREA AND MUST BE VISIBLE FROM ANYWHERE WITHIN THE AREA. MAXIMUM SPACING, ADA 15, 50' ON CENTER.
	M	HM	DOOR HOLD OPEN DEVICE; FLOOR OUTLET ON FLOOR BOX. COORDINATE DOOR PLATE LOCATION WITH DOOR HOLDER LOCATION. PROVIDE ADDITIONAL BACKING FOR ALL FLOOR MOUNTED DEVICES.
		HP	FIRE ALARM PHONE JACK; +42" UNLESS OTHERWISE NOTED.
	HS	HS	COMBINATION HEAT/SMOKE DETECTOR.
	S	HS	SMOKE DETECTOR.
	H	HH	HEAT DETECTOR
	TS	HTS	OS&Y VALVE TAMPER SWITCH; WITH SEALTIGHT FLEXIBLE CONNECTION.
	WF		WATER FLOW SWITCH OUTLET; WITH SEALTIGHT FLEXIBLE CONNECTION.
	DM	HDM	SMOKE DAMPER MOTOR, COORDINATE LOCATION AND QUANTITY WITH DIVISION 15. PROVIDE FOR EACH DAMPER CONTROLLED FROM FIRE ALARM SYSTEM. COORDINATE VOLTAGE AND ELECTRICAL LOAD WITH DIVISION 15 CONTRACTOR. PROVIDE REMOTE INDICATING LIGHT FOR EACH DEVICE INSTALLED IN A NON VISIBLE LOCATION.

FLOOR	CEILING	WALL	VOICE/DATA COMMUNICATION
		W	TELEPHONE OUTLET, 1" CONDUIT TO THE CLOSEST TELEPHONE TERMINAL POINT WITHOUT INTERMEDIATE BOXES. 'W' INDICATES WALL MOUNTED @ +46".
		W	DATA OUTLET, 1" CONDUIT TO THE CLOSEST TELEPHONE TERMINAL POINT WITHOUT INTERMEDIATE BOXES. 'W' INDICATES WALL MOUNTED @ +46".
		W	TEL/DATA OUTLET, 1" CONDUIT TO THE CLOSEST TELEPHONE TERMINAL POINT WITHOUT INTERMEDIATE BOXES. 'W' INDICATES WALL MOUNTED @ +46".
	T	HT	SYSTEM FURNITURE TEL / DATA FEED, REFER TO DETAILS FOR RACEWAY REQUIREMENTS
	—T—		1" VOICE/DATA COMMUNICATION CONDUIT ONLY.
	—T-/—		1¼" VOICE/DATA COMMUNICATION CONDUIT ONLY.
	—T-//—		1½" VOICE/DATA COMMUNICATION CONDUIT ONLY.
	—T-///—		2" VOICE/DATA COMMUNICATION CONDUIT ONLY.

FLOOR	CEILING	WALL	AUDIO / VISUAL SYSTEM
			RECEIVER OUTLET, PROVIDE 1" CONDUIT STUBBED INTO ACCESSIBLE CEILING SPACE.
			SPEAKER BACK BOX, COORDINATE SIZE WITH SYSTEM SUPPLIER. PROVIDE RACEWAY BETWEEN DEVICES AND TERMINATE IN TELEPHONE ROOM. 1/2" CONDUIT MIN.
			MICROPHONE OUTLET; FLOOR UNIT IN FLOOR BOX WALL UNIT MOUNTED @ +42".
			VOLUME CONTROL, MOUNTED @ +42".
	—AV—		1" CONDUIT ONLY FOR AUDIO / VIDEO
	—AV-/—		1¼" CONDUIT ONLY FOR AUDIO / VIDEO
	—AV-//—		1½" CONDUIT ONLY FOR AUDIO / VIDEO
	—AV-///—		2" CONDUIT ONLY FOR AUDIO / VIDEO

FLOOR	CEILING	WALL	SECURITY SYSTEM
			SECURITY EQUIPMENT PANEL
			SECURITY CCTV CAMERA
		P	SECURITY CCTV CAMERA WITH PAN, ZOOM AND TILT CAPABILITIES
		M	SECURITY CCTV MONITOR
		A	DOOR OR WINDOW ALARM CONTACT, COORDINATE ROUGH-IN WITH HARDWARE SUPPLIER.
		B	BOOK DETECTION ALARM DEVICE
		C	CARD READER, PROVIDE RACEWAY CONNECTIONS TO DOOR CONTACT, ELECTRIC HINGE OR STRIKE, MOTION DETECTOR AND REQUEST FOR EXIT DEVICE, AS REQUIRED. COORDINATE ROUGH IN WITH HARDWARE SUPPLIER.
		D	DURESS ALARM, COORDINATE LOCATION WITH FURNITURE LAYOUT AND ARCHITECT.
	G	G	AUDIO DISCRIMINATOR, COORDINATE CEILING LOCATION WITH ARCHITECT. DEVICE TO BE DIRECTED AT WINDOWS OR SKY LIGHTS.
	I	I	INTERCOM STATION, WALL MOUNTED TO BE MEDICAL EMERGENCY TYPE, CEILING MOUNTED TO BE TWO WAY HANDS FREE STATION.
		K	KEY PAD STATION
	M	M	MOTION DETECTION DEVICE, COORDINATE CEILING LOCATION WITH ARCHITECT. DEVICE TO BE DIRECTED AS RECOMMENDED BY OWNER.
		R	MAGNETIC TYPE DOOR ALARM CONTACT, COORDINATE ROUGH-IN WITH HARDWARE SUPPLIER
	S	S	GUARD TOUR STATION.
	T	T	TEMPERATURE/HUMIDITY SENSOR.
	W	W	WATER DETECTION SYSTEM PANEL AND 50' OF DETECTION CABLE.
	—S—		¾" SECURITY SYSTEM CONDUIT ONLY
	—S-/—		1" SECURITY SYSTEM CONDUIT ONLY
	—S-//—		1½" SECURITY SYSTEM CONDUIT ONLY

FLOOR	CEILING	WALL	GROUNDING SYSTEM
			GROUND PLATE, FLAT TAPPED SIDE TO BE FLUSH WITH FINISHED SURFACE. CADWELD B164-2Q OR EQUIVALANT.
		G	GROUND BUS
		TG	TECHNICAL GROUND BUS
			GROUND ROD, MINUMUM ¾"ø X 10' LONG
			EXOTHERMIC GROUND CONNECTION
			GROUND CONDUCTOR IN CONDUIT

FLOOR	CEILING	WALL	LIGHTING
			FLUORESCENT FIXTURE, AS INDICATED BY FIXTURE TYPE. PROVIDE MAXIMUM 6' FLEXIBLE CONDUIT CONNECTION TO LAY-IN TYPE.
			FLUORESCENT FIXTURE ON STAND-BY POWER, AS INDICATED BY FIXTURE TYPE.
			FLUORESCENT STRIP FIXTURE, SURFACE OR PENDANT CEILING MOUNT AS INDICATED BY FIXTURE TYPE.
			SURFACE MOUNTED LIGHTING FIXTURE AS INDICATED BY FIXTURE TYPE.
			SURFACE MOUNTED FIXTURE ON STAND-BY POWER.
			RECESSED MOUNTED LIGHTING FIXTURE.
			SURFACE MOUNTED WALL WASHER AS INDICATED BY FIXTURE TYPE.
			RECESSED MOUNTED WALL WASHER AS INDICATED BY FIXTURE TYPE.
			LIGHTING STANDARD AS INDICATED BY FIXTURE TYPE.
			FLOOD LIGHTING STANDARD AS INDICATED BY FIXTURE TYPE.
			EXIT SIGN; SHADED PORTION INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED ON PLANS.
			EXIT SIGN; SHADED PORTION INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED ON PLANS. PROVIDE MASTER/SLAVE HIGH AND LOW LEVEL EXIT SIGNS WHEREVER AN EXIT SIGN IS INDICATED ON PLANS.
			TRACK LIGHTING, SURFACE PENDANT OR CEILING MOUNTED AS INDICATED BY TYPE. PROVIDE CONFIGURATION AND NUMBER OF FIXTURES AS INDICATED ON ARCHITECTURAL DOCUMENTS. OR SPECIFICATIONS, WHICHEVER IS GREATER.

FLOOR	CEILING	WALL	SWITCHING
		S_M	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD NUMBER OF POLES AS REQUIRED
		S_X	SWITCH, +42" UON. SUBSCRIPT INDICATES: X=NONE – SINGLE POLE; X=3 – THREE WAY; X=a,b,c – OUTLET CONTROLLED; X=2 – DOUBLE POLE; X=PK – KEY OPERATED WITH PILOT LIGHT; X=R – MOMENTARY RELAY ON/OFF
		S_{cb}	2-SINGLE POLE SWITCHES, UNDER COMMON PLATE, +42" UON.
		S_{abc}	3-SINGLE POLE SWITCHES, ETC, UNDER COMMON PLATE,+42" UON.
		D/600	DIMMER WITH INTEGRAL SWITCH, +42" U.O.N. '600' INDICATES RATING IN WATTS
		O_a	ROOM TYPE OCCUPANCY SENSOR, ARROW INDICATES DIRECTION, SUBSCRIPT INDICATES SWITCH LEG OR CIRCUIT TO BE CONTROLLED.
		O_a	ROOM TYPE OCCUPANCY SENSOR, ARROWS INDICATE DIRECTION, SUBSCRIPT INDICATES SWITCH LEG OR CIRCUIT TO BE CONTROLLED.
		O_a	CORRIDOR TYPE OCCUPANCY SENSOR, ARROWS INDICATE DIRECTION, SUBSCRIPT INDICATES SWITCH LEG OR CIRCUIT TO BE CONTROLLED.
			PUSH-BUTTON STATION. +42" U.O.N.

FLOOR	CEILING	WALL	RED LIGHT SYSTEM
	B	HB	RED LIGHT SYSTEM BELL
	L	HL	RED LIGHT SYSTEM ROTATING BEACON
	P	HP	WAG WAG RECEPTACLE
R	R	HR	RED LIGHT SYSTEM RECEPTACLE
	W	HW	RED LIGHT SYSTEM LIGHT
	X	HX	RED LIGHT SYSTEM FLASHING LIGHT
	—R—		RED LIGHT SYSTEM CONDUIT

FLOOR	CEILING	WALL	POWER
			SIMPLEX RECEPTACLE, 5-20R UON
			DUPLEX RECEPTACLE, 5-20R UON
			QUADRUPLEX RECEPTACLE, 5-20R UON
			THREE PHASE RECEPTACLE
X	X	X	SPECIAL RECEPTACLE, REFER TO SPECIAL RECEPTACLE SCHEDULE, THIS SHEET
X	X	X	QUADRUPLEX SPECIAL RECEPTACLE, REFER TO SPECIAL RECEPTACLE SCHEDULE, THIS SHEET
			DUPLEX ISOLATED GROUND WITH DEDICATED GREEN/YELLOW CONDUCTOR BACK TO ISOLATED GROUND BUS AT PANEL. 5-20R UON.
			QUADRUPLEX ISOLATED GROUND WITH DEDICATED GREEN/YELLOW CONDUCTOR BACK TO ISOLATED GROUND BUS AT PANEL. 5-20R UON.
			CLOCK RECEPTACLE. 5-20R UON.
		O	JUNCTION BOX 4" SQUARE MINIMUM FOR WALL OR CEILING MOUNTED
		J	JUNCTION BOX SIZE AS REQUIRED FOR NUMBER OF WIRES
		P	SYSTEM FURNITURE POWER FEED. REFER TO DETAILS FOR ADDITIONAL INFORMATION.

LETTER	RATING	NEMA	SPECIAL RECEPTACLE SCHEDULE
A	125V,1ø,30A,2P,3W	5-30R	WITH 5-30P PLUG
B	125V,1ø,50A,2P,3W	5-50R	WITH 5-50P PLUG
C			
D	125/250V,1ø,20A,3P,4W	14-20R	WITH 14-20P PLUG
F	125/250V,1ø,30A,3P,4W	14-30R	WITH 14-30P PLUG
GF	125V,1ø,20A,2P,3W	5-20R	GROUND FAULT INTERRUPTING
H			
J	250V,1ø,20A,2P,3W	6-20R	WITH 6-20P PLUG
K	250V,1ø,30A,2P,3W	6-30R	WITH 6-30P PLUG
L			'L' INDICATES ASSOCIATED RECEPTACLE IS LOCKING TYPE, PROVIDE MATCHING PLUG FOR EACH RECEPTACLE.
M	250V,1ø,50A,2P,3W	6-50R	WITH 6-50P PLUG
N	250V,3ø,20A,3P,4W	15-20R	WITH 15-20P PLUG
P	250V,3ø,30A,3P,4W	15-30R	WITH 15-30P PLUG
R	250V,3ø,50A,3P,4W	15-50R	WITH 15-50P PLUG
S	480V,3ø,30A,3P,4W	L16-30R	WITH L12-30P PLUG
T	125V,1ø,20A,2P,3W	5-20R	ISOLATED GROUND WITH INTEGRAL TRANSIENT SUPPRESSOR AND DEDICATED GREEN/YELLOW CONDUCTOR BACK TO GROUND BUS AT PANEL.

NOTE: NUMBER OF WIRES INCLUDES GROUND.

NUMBER OF WIRES AND CONDUIT SIZE

—— 3#12,1/2"C	8 // 2#8,1#10,1/2"C
—/— 4#12,1/2"C	8 /// 3#8,1#10,3/4"C
—//— 5#12,1/2"C	8 //// 4#8,1#10,1"C
—///— 6#12,1/2"C	8 /////— 5#8,1#10,1"C
—////— 7#12,1/2"C	8 //////— 6#8,1#10,1"C
—/////— 8#12,3/4"C	8 ///////— 7#8,1#10,1¼"C
—//////— 9#12,3/4"C	8 ////////— 8#8,1#10,1¼"C
10 // 3#10,1/2"C	6 // 2#6,1#10,3/4"C
10 /// 4#10,1/2"C	6 /// 3#6,1#10,1"C
10 //// 5#10,3/4"C	6 //// 4#6,1#10,1"C
10 /////— 6#10,3/4"C	6 /////— 5#6,1#10,1"C
10 //////— 7#10,3/4"C	6 //////— 6#6,1#10,1¼"C
10 ///////— 8#10,1"C	6 ///////— 7#6,1#10,1¼"C
10 ////////— 9#10,1"C	6 ////////— 8#6,1#10,1¼"C

NOTE: CONDUIT SIZES ARE MINIMUM. PROVIDE EQUIPMENT GROUND (NOT INDICATED IN WIRE HATCH COUNT). FOR ISOLATED GROUND DEVICES INCLUDE ADDITIONAL ISOLATED GROUND CONDUCTOR.

NUMBER OF WIRES AND CONDUIT SIZE 200% NEUTRAL SYSTEMS

N // 1#12,1#6N,1#12G,1/2"C	8N // 1#8,1#6N,1#10G,3/4"C
N /// 2#12,1#6N,1#12G,1/2"C	8N /// 2#8,1#6N,1#10G,1"C
N //// 3#12,1#6N,1#12G,1/2"C	8N //// 3#8,1#6N,1#10G,1"C
N ///// 3#12,2#6N,1#12G,3/4"C	8N ///// 3#8,2#6N,1#10G,1¼"C
N ////// 4#12,2#6N,1#12G,3/4"C	8N ////// 4#8,2#6N,1#10G,1¼"C
N ///////— 5#12,2#6N,1#12G,1"C	8N ///////— 5#8,2#6N,1#10G,1¼"C
N ////////— 6#12,2#6N,1#12G,1"C	8N ////////— 6#8,2#6N,1#10G,1¼"C
10N // 1#10,1#6N,1#10G,1/2"C	6N // 1#6,1#6N,1#6G,1"C
10N /// 2#10,1#6N,1#10G,3/4"C	6N /// 2#6,2#6N,1#6G,2#6G,1¼"C
10N //// 3#10,1#6N,1#10G,3/4"C	6N //// 3#6,3#6N,1#6G,3#6G,1½"C
10N ///// 3#10,2#6N,1#10G,3/4"C	6N ///// 3#6,3#6N,1#6G,3#6G,1½"C
10N ////// 4#10,2#6N,1#10G,1"C	6N ////// 4#6,4#6N,1#6G,4#6G,1½"C
10N ///////— 5#10,2#6N,1#10G,1"C	6N ///////— 5#6,5#6N,1#6G,5#6G,2"C
10N ////////— 6#10,2#6N,1#10G,1"C	6N ////////— 6#6,6#6N,1#6G,6#6G,2"C

NUMBER OF WIRES AND CONDUIT SIZE ISOLATED GROUND WITH 200% NEUTRAL SYSTEMS

G // 1#12,1#6N,1#12G,1#12IG,1/2"C	8G // 1#8,1#6N,1#10G,1#10IG,3/4"C
G /// 2#12,1#6N,1#12G,1#12IG,1/2"C	8G /// 2#8,1#6N,1#10G,1#10IG,1"C
G //// 3#12,1#6N,1#12G,1#12IG,3/4"C	8G //// 3#8,1#6N,1#10G,1#10IG,1"C
G ///// 3#12,2#6N,1#12G,1#12IG,3/4"C	8G ///// 3#8,2#6N,1#10G,1#10IG,1¼"C
G ////// 4#12,2#6N,1#12G,1#12IG,3/4"C	8G ////// 4#8,2#6N,1#10G,1#10IG,1¼"C
G ///////— 5#12,2#6N,1#12G,1#12IG,3/4"C	8G ///////— 5#8,2#6N,1#10G,1#10IG,1¼"C
G ////////— 6#12,2#6N,1#12G,1#12IG,1"C	8G ////////— 6#8,2#6N,1#10G,1#10IG,1½"C
10G // 1#10,1#6N,1#10G,1#10IG,3/4"C	6G // 1#6,1#6N,1#6G,1#6IG,1"C
10G /// 2#10,1#6N,1#10G,1#10IG,3/4"C	6G /// 2#6,2#6N,1#6G,2#6G,1¼"C
10G //// 3#10,3#10N,1#10G,3#10IG,1"C	6G //// 3#6,3#6N,1#6G,3#6G,1½"C
10G ///// 3#10,3#10N,1#10G,3#10IG,1"C	6G ///// 3#6,3#6N,1#6G,3#6G,1½"C
10G ////// 4#10,4#10N,1#10G,4#10IG,1"C	6G ////// 4#6,4#6N,1#6G,4#6G,1½"C
10G ///////— 5#10,5#10N,1#10G,5#10IG,1¼"C	6G ///////— 5#6,5#6N,1#6G,5#6G,2"C
10G ////////— 6#10,6#10N,1#10G,6#10IG,1¼"C	6G ////////— 6#6,6#6N,1#6G,6#6G,2"C

NUMBER OF WIRES AND CONDUIT SIZE ISOLATED GROUND WITH DEDICATED NEUTRAL SYSTEMS

G // 1#12,1#12N,1#12G,1#12IG,1/2"C	8G // 1#8,1#8N,1#8G,1#8IG,3/4"C
G /// 2#12,2#12N,1#12G,2#12IG,1/2"C	8G /// 2#8,2#8N,1#8G,2#8IG,1"C
G //// 3#12,3#12N,1#12G,3#12IG,3/4"C	8G //// 3#8,3#8N,1#8G,3#8IG,1¼"C
G ///// 3#12,3#12N,1#12G,3#12IG,3/4"C	8G ///// 3#8,3#8N,1#8G,3#8IG,1¼"C
G ////// 4#12,4#12N,1#12G,4#12IG,3/4"C	8G ////// 4#8,4#8N,1#8G,4#8IG,1¼"C
G ///////— 5#12,5#12N,1#12G,5#12IG,1"C	8G ///////— 5#8,5#8N,1#8G,5#8IG,1½"C
G ////////— 6#12,6#12N,1#12G,6#12IG,1"C	8G ////////— 6#8,6#8N,1#8G,6#8IG,1½"C
10G // 1#10,1#10N,1#10G,1#10IG,1/2"C	6G // 1#6,1#6N,1#6G,1#6IG,1"C
10G /// 2#10,2#10N,1#10G,2#10IG,3/4"C	6G /// 2#6,2#6N,1#6G,2#6G,1¼"C
10G //// 3#10,3#10N,1#10G,3#10IG,1"C	6G //// 3#6,3#6N,1#6G,3#6G,1½"C
10G ///// 3#10,3#10N,1#10G,3#10IG,1"C	6G ///// 3#6,3#6N,1#6G,3#6G,1½"C
10G ////// 4#10,4#10N,1#10G,4#10IG,1"C	6G ////// 4#6,4#6N,1#6G,4#6G,1½"C
10G ///////— 5#10,5#10N,1#10G,5#10IG,1¼"C	6G ///////— 5#6,5#6N,1#6G,5#6G,2"C
10G ////////— 6#10,6#10N,1#10G,6#10IG,1¼"C	6G ////////— 6#6,6#6N,1#6G,6#6G,2"C

WIRING

- HOMERUN TO PANELBOARD, CABINET OR TERMINAL BOARD AS INDICATED.
- ( ) HOMERUN TO SWITCHBOARD OR MCC AS INDICATED. REFER TO SINGLE LINE FOR CONDUIT AND WIRE SIZES.
- < > HOMERUN TO PANEL VIA INDICATED RELAY PANEL. REFER TO RELAY SCHEDULE FOR ADDITIONAL INFORMATION.
- CONDUIT END CAP. PROVIDE MARKER TO UNDERGROUND CONDUITS
- CONDUIT DOWN
- CONDUIT UP
- CONDUIT RUN EXPOSED, PARALLEL WITH STRUCTURE
- CONDUIT RUN UNDERGROUND OR BELOW FLOOR.
- CONDUIT CONCEALED IN WALL OR CEILING.
- W SURFACE WIREMOLD RACEWAY
- (X) MULTIOUTLET RACEWAY. NUMBER IN (X) INDICATES OUTLET SPACING. WHERE MULTIPLE CIRCUITS ARE INDICATED, ALTERNATE CIRCUITS FOR OUTLETS ALONG RACEWAY.

GENERAL ELECTRICAL SYMBOLS

- DISCONNECT SWITCH, 30 AMP MINIMUM UON
- COMBINATION DISCONNECT SWITCH AND MOTOR STARTER
- S MOTOR, 5HP
- T TRANSFORMER
- SURFACE MOUNTED MISCELLANEOUS CABINET AS INDICATED ON PLANS
- FLUSH MOUNTED MISCELLANEOUS CABINET AS INDICATED ON PLANS
- SURFACE MOUNTED PANELBOARD
- FLUSH MOUNTED PANELBOARD
- SWITCHBOARD
- MULTIPLE COMPARTMENT FLOOR BOX
- EXIST EQUIPMENT/RACEWAYS TO REMAIN
- EXIST EQUIPMENT/RACEWAYS TO BE REMOVED
- NEW EQUIPMENT/RACEWAYS
- SHA ELECTRICAL EQUIPMENT DESIGNATED 'SHA'
- A 1 SEE NOTE A OR 1 ON THE SAME SHEET
- F1 100 LIGHTING FIXTURE DESIGNATION; F1 = TYPE; 100 = FIXTURE WATTAGE
- AH 1 MECHANICAL EQUIPMENT DESIGNATED 'AH-1'
- 113 EQUIPMENT NAME OR NUMBER
- +4'-6" MOUNTING HEIGHT FROM FINISHED FLOOR TO CENTERLINE OF OUTLET OR EQUIPMENT
- MH=4'-6" MOUNTING HEIGHT FROM FINISHED FLOOR TO BOTTOM OF OUTLET OR EQUIPMENT

SINGLE LINE DIAGRAM

- TRANSFORMER, AS NOTED ON SINGLE LINE
- LOW VOLTAGE CIRCUIT BREAKER, 3P UON
- G LOW VOLTAGE CIRCUIT BREAKER WITH GROUND FAULT RELAY AND SHUNT TRIP.
- NON-FUSED DISCONNECT SWITCH, 30A,3P UON
- FUSED DISCONNECT SWITCH, 3P UON
- 52 DRAW-OUT MEDIUM-VOLTAGE CIRCUIT BREAKER
- 2 MAGNETIC MOTOR STARTER, SIZE-2 INDICATED (SIZE-1 MIN.)
- M DEMAND TYPE KWH METER
- M PROMISION FOR UTILITY COMPANY KWH METER
- K KIRK-KEY INTERLOCK BETWEEN DEVICES
- TRANSFER SWITCH NOTED ATS WHEN AUTOMATIC
- CURRENT TRANSFER, RATIO AS NOTED
- 50 51 PROTECTIVE RELAY, FUNCTION PER ANSI STANDARD DESIGNATION
- AS AMMETER SWITCH
- AM AMMETER
- IQ ELECTRONIC METER, CUTLER HAMMER IQ ANALYZER CAT. NO. IQA6430, UON.
- TS TEST SWITCH, ABB
- SEPARABLE CONNECTOR(S)
- GROUND

REMODEL

TYPICAL SYMBOL DESIGNATION FOR:

- EXISTING, DEVICES, FIXTURES AND EQUIPMENT TO REMAIN
- EXISTING, DEVICES, FIXTURES AND EQUIPMENT TO BE REMOVED
- NEW, DEVICES, FIXTURES AND EQUIPMENT

GENERAL NOTES

A. IT IS THE INTENT OF THESE PLANS 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 ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLINGS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS AND HARDWARE.

B. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS, TESTING, START-UP, TRAINING AND PROJECT CLOSEOUT.

C. PROCURE ALL PERMITS FROM LEGALLY CONSTITUTED AUTHORITIES, ARRANGE FOR ALL INSPECTIONS AND PAY ALL COSTS FOR FEES AND TESTS IN CONNECTION THEREWITH.

D. COMPLY WITH 2002 NATIONAL ELECTRICAL CODE AS AMENDED BY THE STATE OF CALIFORNIA. NOTHING IN THESE PLANS AUTHORIZES DEVIATION FROM APPLICABLE CODES.

E. ALL ELECTRICAL EQUIPMENT SHALL BE UL APPROVED.

F. PROVIDE A CODE APPROVED DISCONNECT SWITCH OR BREAKER WITHIN SIGHT OF EVERY MOTOR. FOR LOCATION OF DISCONNECT SWITCH, COORDINATE WITH DIVISION 15 CONTRACTOR TO DETERMINE THE BEST LOCATION ON SITE TO SUIT THE PURPOSE WHILE REMAINING ACCESSIBLE.

G. THE ELECTRICAL CONTRACTOR SHALL REVIEW DIVISION 15 DRAWINGS AND SPECIFICATIONS FOR THEIR SCOPE OF SUPPLY AND INSTALLATION AND SHALL COORDINATE WITH THE GENERAL CONTRACTOR IN ORDER TO PROVIDE A FINAL PRODUCT WHICH IS COMPLETE AND FUNCTIONAL. WIRING AND CONDUIT FOR CONTROL SHALL BE BY DIVISION 15 CONTRACTOR. MOTOR CONTROL CENTER SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY CONTACTS FOR THE CONTROL FUNCTION AS INTENDED. REFER TO THE DIVISION 15 PLANS FOR WIRING DIAGRAMS.

H. MOTOR HP RATINGS AND ENCLOSURES SHOWN ARE WHAT IS EXPECTED. THIS INFORMATION IS FOR GUIDANCE ONLY AND DOES NOT LIMIT THE EQUIPMENT SIZE. VERIFY WITH THE SUPPLIERS OF EQUIPMENT FOR MOTOR SIZES, VOLTAGE AND PHASE. NOTIFY THE ENGINEER WHEN MOTOR FURNISHED SIGNIFICANTLY DIFFERS FROM THE EXPECTED RATING INDICATED. MAKE THE NECESSARY ADJUSTMENTS TO WIRING, CONDUIT, DISCONNECT SWITCH, MOTOR STARTER, AND OTHER AFFECTED DEVICES AND MATERIAL TO ACCOMMODATE MOTORS ACTUALLY INSTALLED.

I. COORDINATE ROUTING OF FEEDERS AND HOMERUNS IN COOPERATION WITH OTHER TRADES TO SIMPLIFY INSTALLATION.

J. DO NOT PENETRATE STRUCTURAL ITEMS WITHOUT PRIOR APPROVAL OF STRUCTURAL ENGINEER.

K. INSTALL EXPOSED CONDUITS PARALLEL AND AT RIGHT ANGLES TO NEARBY SURFACES AND STRUCTURAL MEMBERS.

L. ALL CONDUCTORS SHALL BE COPPER, TYPE 'THWN/THHN' 90 DEGREE INSULATION. ALL LUGS SHALL BE 75 DEGREE RATED, MINIMUM.

M. USE OF NONMETALLIC SHEATHED CABLE (NM OR NMC), ARMORED CABLE (AC) OR METAL CLAD CABLE (MC) IS NOT ALLOWED.

N. USE OF FLEX IS NOT ALLOWED EXCEPT FOR LENGTHS UP TO 6 FEET FOR FINAL CONNECTION TO LIGHTING FIXTURES OR VIBRATING EQUIPMENT.

O. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LIGHT FIXTURE AND OTHER CEILING MOUNTED DEVICE LOCATIONS AND TRIM REQUIREMENTS.

P. MOUNT ALL ELECTRICAL, TELEPHONE AND DATA OUTLETS VERTICALLY 18" ABOV