

PLAN SYMBOL LEGEND

POWER DEVICE SYMBOLS

- single receptacle - 125v,2p,3w,20A
- duplex receptacle - 125v,2p,3w
- IG - isolated ground duplex receptacle, 125v,2p,3w,20A
- SP - surge suppression duplex receptacle, 125v,2p,3w,20A
- BL - blue face, Specification Grade, duplex receptacle, 125v, 2p, 3w, 20A, Hubbell no. 53528LU
- duplex recept (1) rectrl controlled by switch - 125v,2p,3w
- quadplex receptacle - 125v,2p,3w
- duplex rectrl ground fault circuit interrupter - 125v,2p,3w
- duplex receptacle on emergency power - 125v,2p,3w
- single receptacle on emergency power - 125v,2p,3w
- floor single receptacle
- floor duplex receptacle
- floor quadplex receptacle
- ceiling duplex receptacle
- fire rated pokethru
- floor box
- floor outlet with device as shown
- conduit stub-up with device as shown
- clock signal generator
- junction box
- outlet box with blank cover
- PB-pull box, FB-floor box, CP-Control Panel
- control station

CONDUIT AND WIRING SYMBOLS

- branch circuit conduit & wire homerun to panelboard
- LP-1-1 circuit number of panelboard
- OR conduit & wire or item run at or above elevation shown
- OR conduit & wire or item run below elevation shown, behind obstruction, in slab, or below grade
- flexible conduit
- conduit stub-up with device as shown
- conduit bends toward observer (up)
- conduit bends away from observer (down)
- conduit floor to floor
- conduit stubbed out and capped for future use
- electricity metering by utility company
- electricity metering by owner

POWER EQUIPMENT SYMBOLS

- vertical motor
- unfused safety disconnect switch
- fused safety disconnect switch (disconnect size) [use size per manufacturer's requirements or as required by code]
- electrical panel - surface mounted [access area does not plot]
- electrical panel - flush mounted [access area does not plot]
- transformer

COMMUNICATIONS SYSTEM SYMBOLS

- tele/data (double gang junction box, w/single gang plaster ring and empty 1-1/4" raceway w/pullstring, see specifications)
 - Indicates ceiling mounted
 - Indicates floor mounted
 - [special function]
 - P - printer outlet
- telephone (double gang junction box, w/single gang plaster ring and empty 3/4" raceway w/pullstring, see specifications)
 - Indicates ceiling mounted
 - Indicates floor mounted
 - [special function]
 - FX - fax outlet
 - W - wall single gang (telephone only)
 - PS - pay station single gang (telephone only)
 - F - fireman's phone jack
 - E - emergency
 - H - house phone
 - HP - handicapped phone
- data outlet (double gang junction box, w/single gang plaster ring and empty 1-1/4" raceway w/pullstring, see specifications)
 - Indicates ceiling mounted
 - Indicates floor mounted
 - [special function]
 - M - network cable outlet for monitoring
 - WS - wireless system connection point
- coax cable outlet (empty 3/4" raceway w/ pullstring)
- intercom hands free station (wall mounted)
- intercom master station (desk mounted)
 - W - indicates wall mounted
 - DW - indicates desk model with wall bracket
- intercom system speaker
- trumpet speaker

LIGHTING SYMBOLS

A light fixture symbol consists of:
 A - circuit
 L - switch designation
 a - lighting fixture symbol
 lighting fixture type

- recessed or surface mounted fluorescent fixture
- recessed or surface mounted fluorescent fixture on emerg. power
- industrial, undercounter, strip, or casework fluorescent fixture
- industrial or strip fluorescent fixture on emergency power
- incandescent or fluorescent downlight fixture
- incandescent or fluorescent downlight fixture on emergency power
- directional incandescent or fluorescent downlight fixture
- incandescent or fluorescent wall or surface mounted fixture
- incand. or fluor. wall or surface mounted fixture on emergency
- exit fixture - ceiling mounted - arrows as indicated
- exit fixture - wall or surface mounted - arrows as indicated
- emergency battery unit with adjustable head(s)
- emergency battery unit for remote emergency fixtures
- remote emergency fixture single head
- remote emergency fixtures dual head
- track system with incandescent downlight or flood lighting
- photo cell control switch
- single pole switch (shown without subcript) [subscript indicates type of switch]
 - 2 - double pole single throw switch
 - 3 - three way switch
 - 4 - four way switch
 - D - single pole dimming switch
 - M - manual switch (motor rated) with lockout device, without overload
 - LM - low voltage master switch
 - CD - single pole, center off momentary contact switch
 - TC - time control switch
 - Xp - explosion proof Class 1 Div. 2
 - MS - motion sensor, Automatic On/manual on, wall switch

FIRE ALARM SYSTEM SYMBOLS

- ESR fire alarm control panel
- EAP fire alarm annunciator panel
- fire alarm manual pull station, RED
- fire alarm signal chime, WHITE
- fire alarm wall or ceiling mounted audio/visual unit, WHITE
- fire alarm siren, WHITE
- fire alarm horn, WHITE
- fire alarm strobe, WHITE
- fire alarm bell, WHITE
- fire evacuation speaker, WHITE
- combination fire evacuation speaker w/ fire alarm strobe, WHT
- automatic detector [selector classification]
 - D - duct mounted, smoke ionization
 - F - thermal, fixed temperature
 - FR - thermal, combination rate of rise
 - plus fixed temperature
 - SA - smoke refracton, photo electric
 - SA/CO - smoke refracton, photo electric / carbon monoxide with multi-station alarm
 - R - thermal, rate of rise
 - S - smoke, ionization
 - E - elevator recall, ionization
 - CO - carbon monoxide

SINGLE LINE DIAGRAM LEGEND

- switch load interrupter, or safety disconnect
- * switch rating in amps
- fuse
- * rating in amps
- circuit breaker
- * frame rating in amps
- ** trip range/setting in amps

ABBREVIATIONS

AF	amp frame	MCB	main circuit breaker
AFF	above finished floor	MLO	main lugs only
AMP/A	ampere	MFR	manufacturer
AT	amp trip	MH	manhole
BKR	breaker	MCC	motor control center
C/COND	conduit	MTD	mounted
CB, C/B	circuit breaker	NC	normally closed
CKT	circuit	NIC	not in contract
CLG	ceiling	NTS	not to scale
CT	current transformer	PC	plumbing contractor
CU	copper	P	pole
DEMO	demolition	PF	power factor
DISC	disconnect	PH	phase
DWG	drawing	PL	pilot light
EC	electrical contractor	PNL	panel
ELC	electrical	PRI	primary
EM	emergency	RECPT	receptacle(s)
EJH	electric unit heater	SIG	signal
FA	fire alarm	SPEC	specification
FACP	fire alarm control panel	ST	shunt trip
FAFP	fire alarm annunciator panel	STD	standard
GFCL	ground fault circuit interrupter	SW	switch
GFSC	ground fault sensing relay coil	SWGR	switchgear
G/GND	ground	TYP	typical
INCAND	incandescent	UNO	unless noted otherwise
IMC	intermediate metal conduit	UL	Underwriters' Laboratory
kVA	kilovolt ampere	V	volt
kw	kilowatt	W	watt
KWH	kilowatt hour	WP	waterproof
LGT	lighting	XFR	transfer
MC	mechanical contractor	Ø	phase

Portland, Maine
 NEC 2002 - Article 220
II. Feeders and Services

Lighting Load	Load (VA)	Demand Factor	Load (VA)
220.11 General Lighting	6,880	100%	6,880
220.12 Show-Window and Track Lighting (A) Show Windows (B) Track Lighting	Length (ft) x Volt-amp/ft 61 x 200 75		Load (VA) 12,200 0
220.13 Receptacle Loads - Non Dwelling Units	First 10 kVA or less at 100% Remainder over 10kVA at 50%		Load (VA) 10,000 5,000
220.14 Motors	125% of Largest Motor 100% of all other motors		Load (VA) 18228 5439
220.15 Fixed Electric Space Heating	100% of total heating load		Load (VA) 0
220.20 Kitchen Equipment - Other than Dwelling Unit(s) Refrigerator Microwave	Load (VA) 900 900	Demand Factor 100% 100%	Load (VA) 900 900
TOTAL DEMAND LOAD (VA): SERVICE VOLTAGE (V):			61854 208
MINIMUM SERVICE SIZE (A):			171

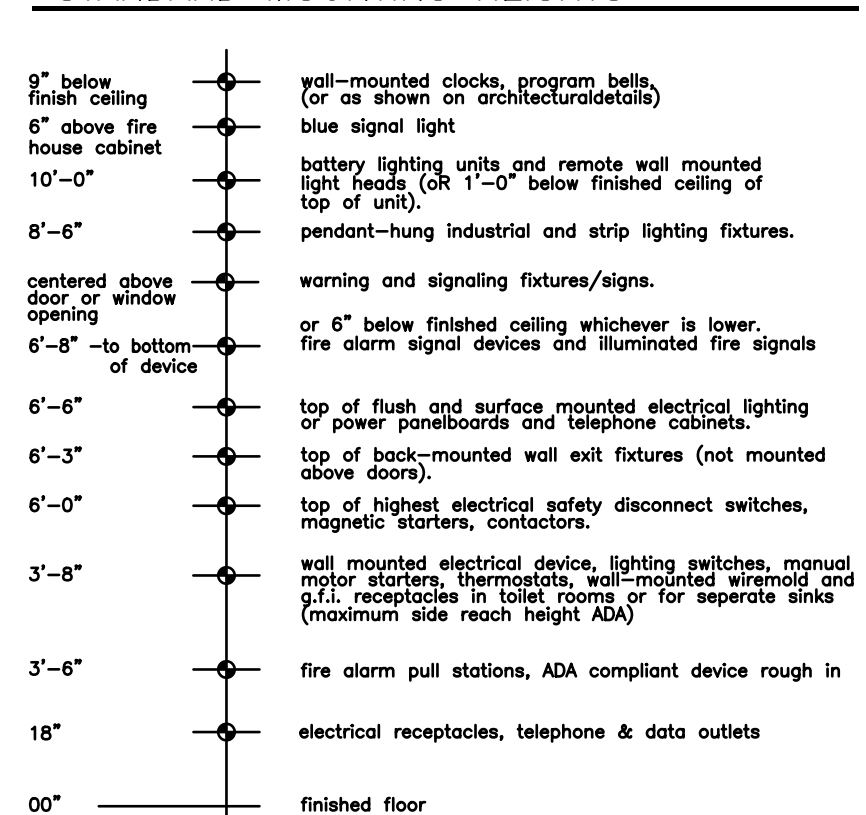
GENERAL NOTES

- THIS IS A STANDARD SYMBOL LIST. ALL DEVICE SYMBOLS AND ABBREVIATIONS MAY NOT NECESSARILY APPEAR ON THE FLOOR PLANS OR DETAIL SHEET. ONLY THOSE SYMBOLS INDICATED ON THE FLOOR PLANS ARE USED FOR THIS PROJECT. ALL OTHERS ARE TO BE CONSIDERED NOT USED AND SHOULD BE DISREGARDED.
- REFER TO ELECTRICAL SPECIFICATIONS ON DRAWINGS E1.2 & E1.3
- ABBREVIATIONS NOT SHOWN ARE DERIVED FROM ASME Y1.1 1989 ABBREVIATIONS FOR USE ON DRAWINGS AND IN TEXT.
- DIMENSIONS MARKED \pm ARE TO BE VERIFIED IN THE FIELD. THOSE MARKED N.T.S. ARE SHOWN NOT TO SCALE. ALL OTHERS ASSUMED TO BE CORRECT AND SHOULD BE CHECKED WITH OTHER TRADE DRAWINGS AND VERIFIED BY THE CONTRACTOR.
- ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND WITH THE LATEST REVISIONS OF THE NATIONAL ELECTRICAL CODE, WITH THE LOCAL CODES WHICH HAVE PRECEDENCE.
- RUNS ARE SHOWN DIAGRAMMATICALLY ON THE DRAWINGS. EXACT LOCATIONS AND ROUTING IS TO BE DETERMINED IN THE FIELD. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.
- MINIMUM CONDUIT SIZE SHALL BE 3/4" ABOVE GRADE AND 1" BELOW GRADE UNLESS OTHERWISE NOTED.
- ALL CONDUIT SHALL BE GALVANIZED STEEL ABOVE GRADE AND PVC BELOW GRADE.
- ALL MOUNTING HARDWARE (PIPE STRAPS, V-BOLTS, ETC.) MUST BE HOT DIPPED GALVANIZED.
- ALL CONDUITS AND FITTINGS ARE TO BE RUN EXPOSED, WHEN POSSIBLE, AND TO BE SECURELY SUPPORTED AND EFFECTIVELY GROUNDED.
- CONDUIT SHALL BE RUN NEAT AND IN A WORKMAN LIKE MANNER, AT 90 DEGREE ANGLES WHERE POSSIBLE.
- CONDUIT RUNS SHALL BE KEPT AT LEAST 12" FROM STEAM OR OTHER HOT LINES. WHERE CROSSLINGS ARE UNAVOIDABLE, CONDUIT SHALL BE KEPT AT LEAST 6" FROM COVERING OF SUCH LINES.
- ALL LIGHTING FIXTURE ELEVATIONS ARE TAKEN FROM FINISHED FLOOR ELEVATION, PLATFORM ELEVATION OR GRADE TO BOTTOM OF GLOBE.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE BY FLEXIBLE CONDUIT.
- INSTRUMENT SIGNAL AND CONTROL WIRES SHALL NOT BE SPliced.
- ALL ELECTRICAL WIRES AND CABLES FOR POWER, CONTROL AND INSTRUMENTATION SHALL BE TAGGED AT BOTH ENDS.
- MULTIPLE "PHONE RUN" CIRCUITS MAY BE COMBINED BY THE CONTRACTOR INTO A SINGLE CONDUIT/CABLE USING THE FOLLOWING GUIDELINES:
 - NO MORE THAN (6) SINGLE PHASE OR (3) THREE PHASE CIRCUITS MAY BE COMBINED.
 - WIRE SIZES MUST BE INCREASED PER N.E.C. ARTICLE 310 NOTE #8 TO AMPACITY TABLES (AS REQUIRED).
 - CONDUIT SIZES MUST BE ADJUSTED TO MAINTAIN A MAXIMUM OF 40% FILL.
 - ONLY CIRCUITS ORIGINATING AT A COMMON PANEL, MCC, ETC. MAY BE COMBINED.
 - LOW LEVEL SIGNAL CIRCUITS SHALL NOT BE COMBINED WITH ALTERNATING CURRENT CIRCUITS.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY RACEWAY SUPPORTS. SUPPORTS SHALL BE FABRICATED FROM GALVANIZED STEEL STRUCTURAL SHAPES OR UNIFRUIT.
- GROUNDING AND BONDING OF ELECTRICAL EQUIPMENT AND PIPING SHALL BE IN ACCORDANCE WITH NEC SECTION 250 AND 501, NFPA 54-1988, AND ANSI Z223.1-1988.
- DISCRETE INSTRUMENT SIGNALS AND ANALOG (4-20ma) SIGNALS SHALL BE RUN IN SEPARATE RACEWAY SYSTEMS. A CABLE TRAY PARTITION RUN IN ALL INSTRUMENT TRAYS SHALL EFFECT THIS SEPARATION.
- WIRE AND CABLE
 - FEEDER CABLES AND BRANCH CIRCUIT WIRING AT INTERIOR, DRY LOCATIONS, UP TO 5000M SHALL BE TYPE THWN/THHN THERMOPLASTIC 600 VOLT INSULATED COPPER CONDUCTOR. MINIMUM SIZE IS #12 AWG (#14 MAY BE USED FOR CONTROL CIRCUITS ONLY). ALL UNDERGROUND SERVICE CABLES SHALL HAVE THW - THERMOPLASTIC, 600 VOLT INSULATION COPPER CONDUCTOR.
- RACEWAYS
 - CONDUCTORS SHALL BE INSTALLED IN RGS WHERE SUBJECT TO PHYSICAL DAMAGE. EMT MAY BE USED IN OTHER LOCATIONS AS ALLOWED BY CODE. MC OR AC MAY BE USED IN PLACE OF RGS OR EMT WHERE ALLOWED BY CODE.
- BRANCH WIRING
 - PROVIDE ALL CIRCUITING OF GENERAL HVAC AND LIGHTING CIRCUITS TO THE PANELS INDICATED ON THE DRAWINGS.
 - ACTUAL CIRCUIT NUMBERS MAY BE ALTERED DURING CONSTRUCTION. HOWEVER, THE DESIGN INTENT MUST BE MAINTAINED. THE EC WILL ACCURATELY REFLECT ALL CIRCUIT NUMBERS ON THE AS-BUILT DRAWINGS.
 - BASE BUILDING LIGHTING AND GENERAL CONVENIENCE RECEPTACLE CIRCUITS SHALL BE NETWORKED WITH (3) SINGLE PHASE CONDUCTORS SHARING (1) NEUTRAL CONDUCTOR (4 #12 AWG). ONLY AT 4-PHASE PANELS.
 - ALL 120 VOLT, 20 AMP BRANCH WIRING EXCEEDING 200 FEET SHALL BE INCREASED TO #10 AWG.
 - NOT MORE THAN 1680 WATTS SHALL BE CONNECTED TO ANY (1) 20AMP., 120 VOLT CIRCUIT.
 - ALL FLUORESCENT LIGHTING CIRCUITS SHALL BE PROVIDED WITH 15AMP CIRCUIT BREAKER WITH A MAXIMUM OF 1250 WATTS.
 - TANDEM WIRING OF GFI RECEPTACLES SHALL BE PERMITTED IF INSTALLED PER CODE.

DEMOLITION NOTES

- CONTRACTOR SHALL SURVEY AND VERIFY EXISTING CONDITIONS PRIOR TO BIDDING AND COMMENCEMENT OF THE WORK.
- COORDINATE ALL ELECTRICAL DEMOLITION WORK WITH THAT OF OTHER DISCIPLINES AS SHOWN ON ARCHITECTURAL, PLUMBING/FIRE PROTECTION AND MECHANICAL DRAWINGS.
- THE WORK HEREIN CONSISTS OF PROVIDING EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING OPERATIONS REQUIRED TO DEMOLISH EXISTING ELECTRICAL SYSTEMS SERVING SPACES TO BE REMOVED. REMOVALS SHOWN ON THE DRAWINGS GIVE GENERAL INDICATION ONLY, AND MAY NOT INDICATE FULL EXTENT OF REMOVALS WHICH ARE REQUIRED TO COMPLETE THE WORK.
- INCLUDED HEREAFTER, EVEN THOUGH NOT SPECIFICALLY DETAILED OR DESCRIBED, IS THE PROVIDING OF EQUIPMENT, LABOR AND SERVICES TO ENABLE CONTINUED FUNCTIONING OF SERVICES PASSING THROUGH, OR ORIGINATING IN, THIS PROJECT AREA, BUT SERVING AREAS OUTSIDE THE PROJECT AREA WHICH ARE TO REMAIN IN OPERATION.
- E.C. SHALL BE RESPONSIBLE FOR PROVIDING ALL ELECTRICAL DEMOLITION OF THE EXISTING AREAS AS REQUIRED AND AS DIRECTED BY THE ARCHITECT.
- E.C. MUST COMPLETELY REMOVE ALL EXISTING DEVICES, WIRING, DEMOLITION, INACTIVE CONDUIT SHALL BE REMOVED AS MUCH AS PRACTICAL AND CAPPED.
- CONTRACTOR SHALL PROVIDE FOR DEMOLITION AND REROUTE OF EXISTING CONDITIONS THAT MAY IMPED CONSTRUCTION OF NEW WORK.
- WHERE EXISTING ELECTRICAL WORK MUST BE REMOVED, DEVICES AND WIRE SHALL BE COMPLETELY REMOVED BACK TO POINT OF ORIGIN IN ELECTRICAL PANEL.
- DEMOLITION WORK SHALL BE SUBJECT TO DIRECTION AND APPROVAL OF THE OWNER OR THE OWNER'S REPRESENTATIVE, AND SHALL NOT INTERFERE WITH ACTIVITIES IN OTHER BUILDING AREAS. REMOVED MATERIALS, UNLESS OTHERWISE SPECIFICALLY DESIGNATED, SHALL BE PROMPTLY REMOVED. SHUTDOWNS OR SERVICE INTERRUPTIONS REQUIRED SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER BEFORE THEY ARE IMPLEMENTED. SUFFICIENT ADVANCE NOTICE MUST BE PROVIDED TO THE OWNER.
- CONTRACTOR SHALL FOLLOW PHASED DEMOLITION AS OUTLINED BY OWNERS REPRESENTATIVE. WHERE DEMOLITION OF ONE PHASE INTERFERES WITH ELECTRICAL SERVICES TO DEVICES AND/OR EQUIPMENT IN ANOTHER PHASE, E.C. SHALL PROVIDE TEMPORARY SERVICES, AS REQUIRED, TO THE AFFECTED EQUIPMENT. ALL TEMPORARY SERVICES SHALL BE APPROVED BY THE OWNER.
- FIELD VERIFY CIRCUITING TO REMAIN. FOR CIRCUITS FEEDING AREAS BOTH INSIDE AND OUTSIDE CONTRACT AREA DETERMINE BREAK POINT TO MAINTAIN POWER TO AREA OUTSIDE CONTRACT AREA WHILE DEMOLITION IS IN PROGRESS.
- ANY BRANCH CIRCUIT PASSING THROUGH OR TERMINATING WITHIN THE DEMOLISHED AREA EXISTING POWER AFTER DEMOLITION SHALL BE POWERED FROM EXISTING OR NEW PANELS, AS DIRECTED BY OWNERS REPRESENTATIVE AT NO ADDITIONAL COST.
- REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

STANDARD MOUNTING HEIGHTS



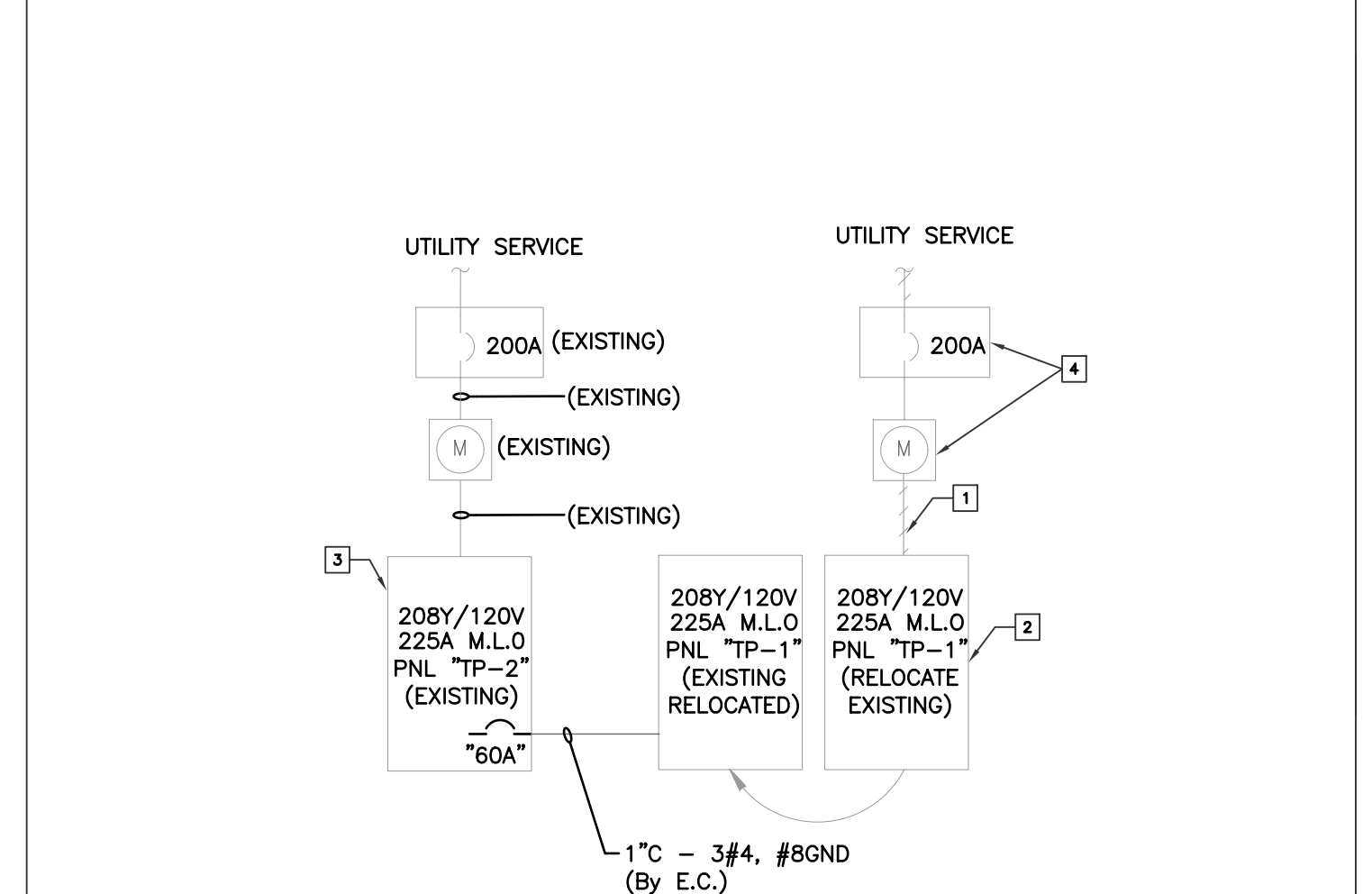
MOUNTING HEIGHT NOTES:

- STANDARD MOUNTING HEIGHTS: (COORDINATE WITH ARCH DRAWINGS) ALL MOUNTING HEIGHTS SHALL BE AS INDICATED BY ARCHITECT. IF NOT INDICATED BY ARCHITECT THEN PROVIDE AS NOTED ABOVE.
- MOUNTING HEIGHTS TO CENTER OF OUTLETS UNLESS OTHERWISE NOTED IN MASONRY CONSTRUCTION THE ABOVE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO NEAREST BLOCK OR BRICK COURSINGS.
- THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWING OR SPECIFICATIONS.
- INDICATION (+) NEXT TO A DEVICE INDICATES THAT DEVICE IS MOUNTED ABOVE A COUNTER OR CASEWORK. COORDINATE WITH ARCHITECTURAL DETAILS AND CASEWORK CONTRACTOR.
- 3'-6" FOR ADA COMPLIANT DEVICES VERIFY EXACT HEIGHT PRIOR TO ROUGH IN.

DRAWING LIST

E1.1	ELECTRICAL COVER SHEET
E1.2	ELECTRICAL SPECIFICATIONS - SHEET 1
E1.3	ELECTRICAL SPECIFICATIONS - SHEET 2
E2.1	POWER PLAN
E2.2	LIGHTING PLAN
E3.1	ELECTRICAL DETAILS
E4.1	ELECTRICAL PANEL SCHEDULES

SINGLE LINE DIAGRAM



- KEY NOTES:**
- DISCONNECT AND REMOVE ALL FEEDERS BACK TO SOURCE.
 - EXISTING PANEL "TP-1" TO BE RELOCATED. ALL EXISTING BRANCH CIRCUITS ON THIS PANEL TO BE REMOVED. DISCONNECT AND REMOVE FEEDERS BACK TO SOURCE.
 - EXISTING PANEL "TP-2" TO REMAIN. ALL EXISTING BRANCH CIRCUITS ON THIS PANEL TO BE REMOVED. DISCONNECT AND REMOVE FEEDERS BACK TO SOURCE.
 - COORDINATE REMOVAL OF EXISTING SERVICE METER AND CIRCUIT BREAKER WITH LANDLORD AND UTILITY COMPANY AS REQUIRED.

- NOTES:**
- ELECTRICAL CONTRACTOR TO ENSURE THE ELECTRIC SERVICE IS PROPERLY BONDED AND GROUNDED PER NEC ARTICLES 230 AND 250.
 - ELECTRICAL CONTRACTOR SHALL COORDINATE MINIMUM AIC RATING WITH ELECTRIC UTILITY AND EXISTING EQUIPMENT.
 - CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.
 - E.C TO VERIFY ALL EXISTING CONDITIONS INCLUDING EQUIPMENT RATINGS AND WIRE AMPACITIES, REPORT TO ENGINEER OF RECORD.
 - PROVIDE NEW TIMECLOCK AS REQUIRED PER LANDLORD SPECIFICATIONS.

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REVISIONS

ELECTRICAL COVER SHEET

SHEET NUMBER

E1.1