

### ELECTRICAL SYMBOLS

#### LIGHTING

S 120/277V, 20A LIGHT SWITCH SPECIFICATION GRADE

S<sub>L8</sub> LOW VOLTAGE LIGHT SWITCH SPECIFICATION GRADE. LOWER CASE SUBSCRIPT INDICATES CONTROL. # INDICATES QUANTITY OF BUTTONS BASIS OF DESIGN: FINELITE ICLS CONTROL STATION FOR CLASSROOM CONTROLS. HUBBELL LX SWITCH STATION FOR LX CONTROLLERS

S<sub>3</sub> 120/277V, 20A 3-WAY LIGHT SWITCH, SPECIFICATION GRADE

S<sub>T</sub> 120/277V, 20A, ELECTRONIC TIME SWITCH, SPECIFICATION GRADE

S<sub>D</sub> 120/277V SPECIFICATION GRADE DIMMER SWITCH. SWITCH SHALL BE COMPATIBLE WITH LED FIXTURE

---

LED LINEAR PENDANT FIXTURES

A<sub>ab</sub> LED LIGHT FIXTURES SUBSCRIPTS INDICATE CONTROL

LED DOWNLIGHT

LED ROUND PENDANT

WALL MOUNTED FIXTURE SUBSCRIPT INDICATES FIXTURE TYPE

EMERGENCY LIGHT, BATTERY POWERED TWO LAMPS

EMERGENCY BATTERY UNIT

OCCUPANCY SENSOR U = ULTRASONIC W = WALL V = VACANCY / WALL WALL SWITCH SENSORS SHALL HAVE BUTTON FOR MANUAL ON/OFF

ILLUMINATED EXIT SIGN, LED TYPE SINGLE FACE, ARROW INDICATES DIRECTION OF FLOW FOR THE FACE

ILLUMINATED EXIT SIGN, LED TYPE DOUBLE FACE, ARROWS INDICATE DIRECTION OF FLOW FOR THE FACE

EXTERIOR PHOTOCELL

INTERIOR PHOTOCELL

EMERGENCY INVERTER: BASIS OF DESIGN: LITE GEAR 250

#### GROUNDING

GROUND WIRE, BARE

GROUND ROD, COPPER CLAD.

TELECOMMUNICATIONS MAIN GROUNDING BUSBAR

TELECOMMUNICATIONS GROUNDING BUSBAR

#### LINE TYPE LEGEND (REMOVALS DRAWINGS ONLY)

REMOVE EXISTING ITEMS

EXIST ITEMS TO REMAIN

#### TELEPHONE, DATA AND VIDEO

CATEGORY 6 VOIP TELEPHONE OUTLET A = ADMINISTRATIVE PHONE V = VISITORS PHONE P = CLASSROOM PHONE WALL MOUNTED 48" AFF

CATEGORY 6 DUPLEX DATA JACKS (TWO JACKS) C = CEILING MOUNTED

CATEGORY 6 DUPLEX DATA JACKS (TWO JACKS) FLOOR BOX

TELEVISION JACK

#### RECEPTACLES

DUPLEX RECEPTACLE, 120V, 20A, SPECIFICATION GRADE, NEMA 5-20 R TAMPER RESISTANT

DUPLEX RECEPTACLE, 120V, 20A SPECIFICATION GRADE, NEMA 5-20 R TAMPER RESISTANT SUBSCRIPT "G" INDICATES GROUND FAULT INTERRUPT, WP INDICATES WEATHERPROOF GROUND FAULT INTERRUPT. "C" INDICATES CEILING

DOUBLE DUPLEX RECEPTACLE TAMPER RESISTANT

SPECIALTY RECEPTACLE

FLOOR BOX RECEPTACLE

#### FIRE ALARMS

FIRE ALARM CONTROL PANEL

FIRE SYSTEM ANNUNCIATOR

SMOKE DETECTOR D = DUCT SMOKE DETECTOR

FLOW SWITCH

TAMPER SWITCH

STROBE

SPEAKER WITH STROBE "75" INDICATES CANDELA RATING "BLANK" INDICATES 15 CANDELA RATING

CEILING SPEAKER C = CLUSTER SPEAKERS

MANUAL PULL STATION

KNOX BOX

FIRE PROTECTION SYSTEM ALARM BELL

MASTER BOX

MAGNETIC DOOR HOLDER

CARBON MONOXIDE SENSOR

GAS SHUT-OFF VALVES

HOOD SUPPRESSION SYSTEM

ADDRESSABLE INTERFACE MODULE

REMOTE INDICATOR

#### SECURITY

SECURITY CAMERA JUNCTION BOX WITH 1" CONDUIT BACK TO IT ROOM

VIDEO CAMERA D = DOME W = WALL MOUNTED

KEYPAD AND CARD READER

ELECTRIC LOCK / STRIKE

MAGNETIC DOOR CONTACT SWITCH

MOTION DETECTOR PIR = PASSIVE INFRARED

PUSH BUTTON

#### GENERAL

MOTOR

NON-FUSED DISCONNECT SWITCH

FUSED DISCONNECT SWITCH

TRANSFORMER

MANUAL STARTER WITH OVERLOADS

COMBINATION MAGNETIC STARTER

MAGNETIC STARTER

JUNCTION BOX

BRANCH CIRCUIT HOMERUN, A-1 INDICATES PANEL DESIGNATION AND CIRCUIT NUMBER

PUSHBUTTON

PUSHBUTTON STATION

SURGE PROTECTION DEVICE

AUTOMATIC TRANSFER SWITCH

PANELBOARD \*PL1 INDICATES DESIGNATION, REFER TO PANELBOARD SCHEDULE DRAWINGS

EXISTING PANELBOARD

#### SINGLE LINE DIAGRAM

TRANSFORMER

KILO-WATT HOUR DEMAND METER M=UTILITY COMPANY METER

GROUND CONNECTION

CIRCUIT BREAKER, MANUALLY OPERATED

#### TECHNOLOGY

POE CLOCK AND CATEGORY 6 OUTLET

DATA JACK FOR WIRELESS INTERNET ACCESS POINT, CEILING MOUNTED

VIDEO JUNCTION BOX - 4" SQUARE

TELECOM GROUNDING BUSBAR

TELECOM MAIN GROUNDING BUSBAR

PUBLIC ADDRESS PANEL

INTERCOM PANEL

SPEAKER - INTERCOM SYSTEM P = PUBLIC ADDRESS SYSTEM

WALL MOUNT SPEAKER

HORN TYPE SPEAKER - PUBLIC ADDRESS

MICROPHONE JACK

### ELECTRICAL ABBREVIATIONS

A, AMP AMPERE  
 A3P AMPERES, 3-POLE  
 AC ALTERNATING CURRENT  
 AFF ABOVE FINISHED FLOOR  
 AIC AMPERE INTERRUPTING CAPACITY  
 AIM ADDRESSABLE INTERFACE MODULE  
 AHJ AUTHORITY HAVING JURISDICTION  
 ATS AUTOMATIC TRANSFER SWITCH  
 AWG AMERICAN WIRE GAUGE  
 BPW BUREAU OF PUBLIC WORKS  
 C CONDUCTOR, CONDUIT  
 CAT CATALOG, CATEGORY  
 CB CIRCUIT BREAKER  
 DOT DEPARTMENT OF TRANSPORTATION  
 EMT ELECTRICAL METALLIC TUBING  
 FACP FIRE ALARM CONTROL PANEL  
 FE/FEC FIRE EXTINGUISHER /FIRE EXTINGUISHER CABINET  
 G GROUND; GROUND FAULT CIRCUIT INTERRUPTER  
 GFCI GROUND FAULT CIRCUIT INTERRUPTER  
 HP HORSEPOWER  
 HVAC HEATING, VENTILATION, AND AIR CONDITIONING  
 KCMIL KILO-CIRCULAR MILS  
 KVA KILO-VOLT-AMPERE  
 KW KILO-WATT  
 L LIGHTING LOAD TYPE FOR PANEL SCHEDULE  
 LED LIGHT EMITTING DIODE  
 LTG LIGHTING  
 M MOTOR LOAD TYPE FOR PANEL SCHEDULE  
 MAX MAXIMUM  
 MCB MAIN CIRCUIT BREAKER  
 MIN MINIMUM  
 MLO MAIN LUG ONLY  
 N NEUTRAL  
 NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
 NFPA NATIONAL FIRE PROTECTION ASSOCIATION  
 NO, # NUMBER  
 Ø PHASE  
 P POLE  
 POTS PLAIN OLD TELEPHONE SERVICE  
 P/O PART OF  
 POE POWER OVER ETHERNET  
 PV PHOTOVOLTAIC  
 R RECEPTACLE LOAD TYPE FOR PANEL SCHEDULE  
 REC RECEPTACLE  
 RGS RIGID GALVANIZED STEEL  
 RM ROOM  
 SPD SURGE PROTECTION DEVICE  
 SW SWITCH  
 TGB TELECOM GROUND BUSBAR  
 TMGB TELECOM MAIN GROUND BUSBAR  
 THHN HEAT RESISTANT THERMOPLASTIC WIRE WITH NYLON JACKET  
 THWN WIRE WITH NYLON JACKET  
 TYP TYPICAL  
 UE UNDERGROUND ELECTRIC  
 UL UNDERWRITERS LABORATORIES  
 USB UNIVERSAL SERIAL BUS  
 V VOLT  
 VA VOLT AMPERE  
 VOIP VOICE OVER INTERNET PROTOCOL  
 W WATT, WIRE  
 W/ WITH  
 WG WIRE GUARD  
 WP WEATHERPROOF

### ELECTRICAL GENERAL NOTES

- ELECTRICAL INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE CURRENTLY ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), NFPA AND STATE AND LOCAL CODES.
- COORDINATE WORK WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL AND PLUMBING TRADES.
- ELECTRICAL EQUIPMENT AND WIRING SHALL BE NEW AND UL LISTED UNLESS OTHERWISE NOTED.
- LIGHT FIXTURES AND OTHER CEILING MOUNTED ELECTRICAL EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL STRUCTURAL, MECHANICAL AND PLUMBING WORK TO AVOID INTERFERENCE.
- PROVIDE A SEPARATE GREEN GROUNDING CONDUCTOR FOR EACH INDIVIDUAL CIRCUIT. GROUND METAL CONDUIT SHALL NOT BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.
- CONDUCTORS SHALL BE MINIMUM #12 AWG UNLESS NOTED OTHERWISE.
- CONDUIT SHALL BE MINIMUM 1/2" UNLESS OTHERWISE NOTED. COMMUNICATIONS CONDUIT SHALL BE MINIMUM 1".
- UNLESS OTHERWISE INDICATED, WIRE AND CONDUIT SIZE FOR EACH 15A 1P, 15A 2P, 20A 1P, 20A 2P BRANCH CIRCUIT SHALL BE 2 #12 + #12G, IN 1/2"C.
- PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH INDIVIDUAL CIRCUIT. MULTIWIRE CIRCUITS ARE NOT PERMITTED.
- UNLESS OTHERWISE INDICATED, WIRE AND CONDUIT SIZE FOR EACH 15A 3P AND 20A 3P BRANCH CIRCUIT SHALL BE 3 #12, 1 # 12G, IN 1/2"C.
- DO NOT DRILL THROUGH OR CUT STRUCTURE.
- SEAL CONDUIT INTERIOR TO PROHIBIT PASSAGE OF MOISTURE. PROVIDE SEALANT PRODUCT INTENDED FOR SUCH USE THAT IS COMPATIBLE WITH CONDUCTOR INSULATION/JACKET MATERIALS. PROVIDE AT CONDUITS PENETRATING FOUNDATION WALLS. BASIS OF DESIGN: AMERICAN POLYWATER FST.
- DO NOT COMBINE FEEDERS AND DEDICATED HOMERUNS WITH OTHER FEEDERS OR DEDICATED HOMERUNS.

WIRE SIZE	HOME RUNS (20A CIRCUIT) MAXIMUM DISTANCE IN FEET			
	120V	208V	277V	480V
#12	60'	100'	140'	240'
#10	100'	160'	220'	360'
#8	150'	250'	325'	550'
#6	240'	400'	500'	800'

#### EQUIVALENT CONDUCTOR SIZES SCHEDULE (FEEDERS ONLY)

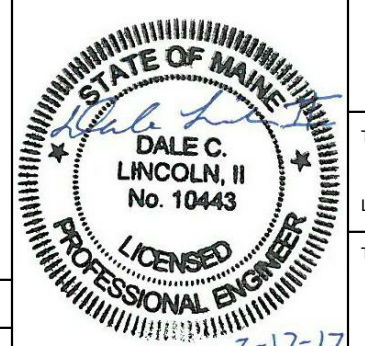

	COPPER	ALUMINUM
1/0	3/0	
2/0	4/0	
3/0	250 KCMIL	
4/0	300 KCMIL	
250 KCMIL	400 KCMIL	
350 KCMIL	500 KCMIL	
500 KCMIL	750 KCMIL	

NOTE: CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE COPPER. INCREASE CONDUIT SIZE AS NEEDED IN ACCORDANCE WITH THE NEC IF ALUMINUM CONDUCTORS ARE USED.

### MOUNTING HEIGHT SCHEDULE

(UNLESS NOTED OTHERWISE)

- RECEPTACLES 18" UNLES NOTED OTHERWISE.
- RECEPTACLES AT COUNTERS: 4" ABOVE COUNTER TOP/BACKSPLASH.
- SWITCHES 48".
- MANUAL PULL STATIONS: 48"
- FIRE ALARM STROBES: 80"

		<b>STATE OF MAINE</b> <b>PUBLIC SCHOOL PROJECT</b>	
		TITLE PORTLAND PUBLIC SCHOOLS NEW FRED P. HALL ELEMENTARY SCHOOL LOCATION 23 ORONO ROAD, PORTLAND, ME	
TITLE THIS DWG. ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES			
NO.	DATE	DESCRIPTION	BY
		REVISIONS	
		DATE	03/17/17