



### ABBREVIATIONS

A, AMP	AMPERES	LIG	LIGHTING
A.C.	ABOVE COUNTER	MCC	MOTOR CONTROL CENTER
A.F.F.	ABOVE FINISHED FLOOR	MTD	MOUNTED
AL	ALUMINUM CONDUCTOR OR BUS	MTG	MOUNTING
BD	BOARD	MLO	MAIN LUG ONLY
C	CONDUIT	N	NEUTRAL
CKT	CIRCUIT	(N)	NEW
CAB	CABINET	NL	NIGHT LIGHT
CATV	CABLE TELEVISION	N.I.C.	NOT IN CONTRACT
CB	CIRCUIT BREAKER	N.T.S.	NOT TO SCALE
CC	CENTER TO CENTER	O.C./OC	OWNER FURNISHED OWNER INSTALLED
CO	CONDUIT ONLY (EMPTY CONDUIT) WITH PULL WIRE	OF/OI	OWNER FURNISHED OWNER INSTALLED
CPB	COMMUNICATIONS PULL BOX	Ø	Ø
CU	COPPER CONDUCTOR OR BUS	P	POLE
DB	DISTRIBUTION PANEL	P.A./PA	PUBLIC ADDRESS SYSTEM
EMT	ELECTRIC METALLIC TUBING	PB	PULL BOX
EWC	ELECTRIC WATER COOLER	PVI	POST INDICATOR VALVE
EM	EMERGENCY	PNL	PANEL
(E)	EXISTING	PPB	POWER PULL BOX
E.O.L.	END-OF-LINE	RS	RAPID START
EPO	EMERGENCY POWER-OFF	REC/RECEPT.	RECEPTACLE
F	FUSE	REF.	REFRIGERATOR
FS	FLOW SWITCH	RM	ROOM
F.A./FA	FIRE ALARM	SCE	SIGNAL CURRENT EXPANDER PANEL
FACP	FIRE ALARM CONTROL PANEL	S.L.	SECURITY LIGHT
F.B.O.	FURNISHED BY OTHER/FURNISHED BY OWNER	SPB	SIGNAL PULL BOX
FLA	FULL LOAD AMPS	STB	SIGNAL TERMINAL BOARD
G	GROUND	STC	SIGNAL TERMINAL CABINET
GFCI	GROUND FAULT CIRCUIT INTERRUPT	SW	SWITCH
GND	GROUND	TPB	TELEPHONE PULL BOX
GRS	GALVANIZED RIGID STEEL	TS	TAMPER SWITCH
HC	HORIZONTAL CROSSCONNECT	TEL	TELEPHONE
HID	HIGH INTENSITY DISCHARGE	TERM	TERMINAL
HP	HORSEPOWER	TYP	TYPICAL
HPS	HIGH PRESSURE SODIUM	TTB	TELEPHONE TERMINAL BOARD
I.B.O.	INSTALLED BY OTHER	TTC	TELEPHONE TERMINAL CABINET
I.B.E.	INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR	U.C.	UNDER COUNTER
IDF	INTERMEDIATE DISTRIBUTION FRAME(DATA)	U.O.N.	UNLESS OTHERWISE NOTED
INT	INTRUSION ALARM	V	VOLTS/VOLTAGE
J/JB	JUNCTION BOX	V.P.	VANDAL PROOF
KV	KILOVOLTS	W	WATTS
KVA	KILOVA-AMPERES	WP	WEATHERPROOF
KW	KILOWATT	WM	WIREMOLD
LV	LOW VOLTAGE		

### MOUNTING HEIGHTS

**NOTES:**

- ALL MEASUREMENTS ARE A.F.F.
- SEE DRAWINGS FOR NON-TYPICAL MOUNTING HEIGHTS
- WHERE MOUNTING HEIGHTS ARE NOT SHOWN, REFER TO ARCHITECT
- DEVICES LOCATED ABOVE COUNTERTOP SHALL BE 8" ABOVE BACK SPLASH TO CENTER OF DEVICE ABOVE AND LOCATED W/IN ACC. SIDE REACH RANGE.

SWITCHES	: 44" TO CENTER OF DEVICE
DIMMERS	: 44" TO CENTER OF DEVICE
RECEPTACLES	: 18" TO CENTER OF DEVICE
TELEPHONE OUTLETS (OFFICE)	: 18" TO CENTER OF DEVICE
TELEPHONE OUTLETS (CLASSROOM)	: 48" TO CENTER OF DEVICE
DATA OUTLETS	: 18" TO CENTER OF DEVICE
INTERCOM OUTLETS	: 18" TO CENTER OF DEVICE
TELEVISION OUTLETS	: 18" TO CENTER OF DEVICE
MICROPHONE OUTLETS	: 18" TO CENTER OF DEVICE
FIRE ALARM PULL STATIONS	: 48" TO CENTER OF DEVICE, A.F.F.
FIRE ALARM HORNS AND BELLS	: 90" TO TOP OF DEVICE, A.F.F.
STROBES	: 80" A.F.F. OR 6" BELOW THE CEILING TO THE BOTTOM OF DEVICE, WHICHEVER IS LOWER MAX. 96" A.F.F. TO TOP OF LENS.
CLOCKS	: AS SHOWN ON DRAWINGS
SPEAKERS	: AS SHOWN ON DRAWINGS
HAND DRYERS	: 45" TO CENTER OF SWITCH 40" TO CENTER OF SWITCH (ACCESSIBLE)
HAIR DRYERS	: 44" TO CENTER OF SWITCH
WALL SCNCES	: ABOVE 80" FOR PROJECTIONS INTO CORRIDORS OF MORE THAN 4" OR AS SHOWN ON DRAWING
EXIT LIGHTS	: SEE DETAILS
EXIT MARKERS	: SEE DETAILS
WIREMOLD	: 15" TO BOTTOM OF RACEWAY U.O.N.
EMERGENCY LIGHTING WALL PACK	: AS SHOWN ON DRAWINGS

### PROJECT NOTES

- DRAWINGS ARE A COMPOSITE OF INFORMATION OBTAINED FROM OLDER DRAWINGS FURNISHED BY THE SCHOOL DISTRICT AND DO NOT NECESSARILY REFLECT "AS-BUILT" CONDITIONS. THESE DRAWINGS REFLECT APPROXIMATE LOCATIONS OF ELECTRICAL EQUIPMENT AND SHOULD BE USED FOR REFERENCE ONLY. CAUTION SHOULD BE USED WHEN EXCAVATING OR TRENCHING TO LOCATE EXISTING UNDERGROUND CONDUITS. OBTAIN DRAWINGS AND INFORMATION REGARDING THE APPROXIMATE LOCATIONS OF OTHER UNDERGROUND UTILITIES SUCH AS GAS, WATER, SEWER, SPRINKLERS, ETC. FROM THE SCHOOL DISTRICT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING VISITED THE SITE AND SATISFIED HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL CHECK ALL OF THE EXISTING CONDITIONS WHICH MAY AFFECT HIS WORK. THE SITE VISIT SHALL BE DURING THE BID WALK AND/OR PREARRANGED WITH THE ARCHITECT.

### ELECTRICAL EQUIPMENT NOTES

- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT, DEVICES AND WIRING. SEE SECTION 16010 OF THE SPECIFICATIONS.
- FOR THE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND DEVICES SEE THE ARCHITECTURAL ELEVATIONS, DETAILS AND DIMENSIONS SHOWN ON THE DRAWINGS.

### DEMOLITION AND CLEANUP NOTES

- REMOVE ALL NONFUNCTIONAL SIGNAL SYSTEM EXPOSED WIRES, CABLES AND FASTENERS. KEEP ALL FUNCTIONAL WIRING SUCH AS THE ENERGY MANAGEMENT SYSTEMS (EMS) AND THE SECURITY ALARM SYSTEMS.
- REMOVE ALL MATERIAL CAUSED BY THE DEMOLITION WORK FROM THE SITE AND LEAVE THE PREMISES CLEAN AND FREE OF DEBRIS.

### ELECTRICAL EQUIPMENT BRACING NOTES

- ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:
    - FIXED EQUIPMENT ON GRADE COORDINATE WITH STRUCTURAL ENGINEER FOR SITE SPECIFIC VALUES
    - FIXED EQUIPMENT ON STRUCTURE COORDINATE WITH STRUCTURAL ENGINEER FOR SITE SPECIFIC VALUES
 THIS TABLE HAS BEEN PREPARED FOR AN IMPORTANCE FACTOR OF 1-1.5 AND FOR SEISMIC ZONE 4. MAKE APPROPRIATE ADJUSTMENT FOR ANY OTHER VALUES.
  - FOR FLEXIBLY MOUNTED EQUIPMENT USE 4 x THE ABOVE VALUES, AND FOR SIMULTANEOUS VERTICAL FORCE - USE 1/3 x HORIZONTAL FORCE.
    - PENDANT MOUNTED FIXTURES FREE TO SWING 45 DEGREES WITHOUT TOUCHING ANY OBSTRUCTIONS ARE IN COMPLIANCE.
  - WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO APPROVAL OF THE STRUCTURAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.
- GENERAL NOTES:**
- ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA.
  - THE TOTAL DESIGN LATERAL SEISMIC FORCE SHALL BE DETERMINED FROM SECTION 13.6 OF ASCE 7.05 FORCES SHALL BE APPLIED IN THE HORIZONTAL DIRECTIONS, WHICH RESULT IN THE MOST CRITICAL LOADING FOR DESIGN.
  - THE VALUE OF  $A_p$  (COMPONENT AMPLIFICATION FACTOR) &  $R_p$  (COMPONENT RESPONSE MODIFICATION FACTOR) OF SECTION 1632A.2 SHALL BE SELECTED FROM TABLE 13.6-1 OF ASCE 7.05. THE VALUE OF  $I_p$  (SEISMIC IMPORTANCE FACTOR) AND  $C_a$  (SEISMIC COEFFICIENT) SHALL BE SELECTED FROM SECTION 13.1.3 OF ASCE 7.05. THE VALUE OF THE  $S_d$ s (SPECTRAL ACCELERATION START PERIOD) SHALL BE FROM THE STRUCTURAL DRAWINGS.
  - ALL SWAY SUPPORT CABLES SHALL BE 12 GAUGE STEEL.

### STANDARD SYMBOL LEGEND

	FLUORESCENT FIXTURE - APPROXIMATELY TO SCALE.
	FIXTURE WITH EMERGENCY BATTERY BACK-UP UNIT - SEE TYPICAL WIRING DETAIL.
	EMERGENCY LIGHT WALL PACK.
	FIXTURE OUTLET - WALL OR CEILING MOUNTED. '3' INDICATES CIRCUIT, 'a' INDICATES SWITCH CONTROL.
	EXIT LIGHTS - CEILING OR WALL MOUNTED, ARROW(S) INDICATES DIRECTION.
	LOW LEVEL EXIT MARKER, SELF ILLUMINATING TYPE. ACTIVE SAFETY #14.000, FINISH AS SELECTED BY ARCHITECT.
	LOW LEVEL EXIT MARKER, SELF ILLUMINATING TYPE WITH KICKPLATE. ACTIVE SAFETY #18.000, FINISH AS SELECTED BY ARCHITECT.
	FIXTURE DESIGNATOR - '#' INDICATES FIXTURE TYPE.
	SPST TOGGLE WALL SWITCH - 20A, 120/277V, 'a' INDICATES CONTROL.
	DPST TOGGLE WALL SWITCH - 20A, 120/277V.
	3-WAY TOGGLE WALL SWITCH - 20A, 120/277V.
	4-WAY TOGGLE WALL SWITCH - 20A, 120/277V.
	SPDT MOMENTARY CONTACT TOGGLE SWITCH - 20A, 120/277V.
	SPST KEYED SWITCH - 20A, 120/277V.
	THERMAL RATED SNAP SWITCH FOR CONTROLLING FRACTIONAL HORSEPOWER MOTORS.
	PROVIDE WALL OR CEILING MOUNTED LIGHTING MOTION SENSOR. PROVIDE POWER PACK FOR COMPLETE OPERATIONAL SYSTEM. SEE TYPICAL DETAILS.
	PHOTO CELL - CEILING OR WALL MOUNTED.
	LOW VOLTAGE SWITCH - MOMENTARY CONTACT TYPE WITH CENTER-NULL, UP-ON, DOWN-OFF.
	CEILING OR WALL MOUNTED JUNCTION BOX
	PULL BOX(S) - SIZE AND NUMBER AS INDICATED.
	WALKER DUCT WITH FLOOR JACK
	FAN.
	CLOCK AND SPEAKER COMBINATION
	TIME CLOCK - AMERICAN TIME AND SIGNAL 12" #5568AD304
	SPEAKER
	SINGLE RECEPTACLE - 20A, 120V & GROUND.
	RECEPTACLE, DUPLEX - 20A, 120V & GROUND.
	RECEPTACLE, DUPLEX - WITH ONE-HALF SWITCHED.
	RECEPTACLE, DUPLEX - WITH GFCI PROTECTION IN WEATHERPROOF HOUSING.
	RECEPTACLE, DUPLEX - WITH GFCI PROTECTION.
	RECEPTACLE, 50A, 3-WIRE, 250V.
	RECEPTACLE, DOUBLE DUPLEX - (2)20A, 120V & GROUND.
	RECEPTACLE, DOUBLE DUPLEX WITH GFCI PROTECTION.
	SPECIAL RECEPTACLE, SIZE AS NOTED ON DRAWING.
	SPECIAL RECEPTACLE - SIZE NOTED ON DRAWING.
	RECEPTACLE, 30A, 3-WIRE, 250V.
	RECEPTACLE, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
	TELEPHONE OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
	DATA OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
	INTERCOM OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
	CEILING MOUNTED DUPLEX RECEPTACLE, DATA JACK, AND TELEVISION JACK.
	FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE, DATA JACK, AND TELEPHONE JACK.
	TELEPHONE OUTLET, PROVIDE 2-GANG BOX WITH 1" CONDUIT, STUB-UP INTO T-BAR CEILING. FOR HARD CEILINGS, RUN THE CONDUIT TO LOCATION INDICATED PER THE RISER DIAGRAM.
	DATA OUTLET, PROVIDE 2-GANG BOX WITH 1" CONDUIT, STUB-UP INTO T-BAR CEILING RUN THE CONDUIT TO LOCATION INDICATED PER THE RISER DIAGRAMS.
	NUMBER IN PARENTHESIS INDICATES QUANTITY OF DEVICES. TYPICAL FOR ALL TYPES OF DEVICES.
	MICROPHONE OUTLET FLOOR OR WALL MOUNTED.
	RECEPTACLE, DUPLEX CEILING MOUNTED.
	RECEPTACLE, DOUBLE DUPLEX CEILING MOUNTED.
	CIRCUIT BREAKER IN NEMA ENCLOSURE TO SUIT THE APPLICATION, WALL MOUNTED, U.O.N.
	TELEVISION OUTLET

### PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 72	NATIONAL FIRE ALARM CODE (CALIF. AMENDED) (NOTE SEE UL STANDARD 1971 FOR VISUAL DEVICES).	2002 EDITION
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	TEL/POWER POLE - WIREMOLD #
	WIREMOLD #5400 IVORY RACEWAY, PROVIDE ALL ACCESSORIES, FITTINGS, AND DIVIDERS FOR A COMPLETE, FUNCTIONAL SYSTEM.
	WIREMOLD #5500 SERIES, PROVIDE ALL ACCESSORIES, FITTINGS, AND DIVIDERS FOR A COMPLETE, FUNCTIONAL SYSTEM.
	WIREMOLD RACEWAY VERTICAL RUN, PROVIDE ALL ELBOWS, CONNECTORS, AND FITTINGS AS NECESSARY FOR A COMPLETE RACEWAY SYSTEM.
	FUSED DISCONNECT - MOTOR RATED, FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SWITCHES TO BE FURNISHED WITH DUAL ELEMENT FUSES SIZED ACCORDING TO NAME PLATE DATA ON EQUIPMENT INSTALLED.
	MAGNETIC MOTOR STARTER FURNISHED, INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
	MOTOR - FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.
	GROUND ROD - 3/4" DIAMETER x 10-FEET LONG COPPER CLAD.
	TERMINAL CABINET - SURFACE OR FLUSH MOUNTED WITH FLAME RETARDANT PLYWOOD BACKBOARD.
	PANELBOARD - SURFACE OR FLUSH MOUNTED.
	DISTRIBUTION OR SWITCHBOARD
	NEUTRAL LINK
	TRANSFORMER.
	METER.
	CIRCUIT BREAKER.
	GROUND.
	MASTER/SLAVE 'WHIP' FOR CONNECTING MIDDLE LAMP OF TWO 2-LIGHT FIXTURES.
	FLEXIBLE CONDUIT AND CONNECTION.
	GROUND WIRE WITH GREEN INSULATION SIZE PER N.E.C., U.O.N.
	CONDUIT CONCEALED IN WALL OR CEILING. PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC.
	CONDUIT CONCEALED IN WALL OR CEILING. PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC. HASH MARKS INDICATE THE NUMBER OF CONDUCTORS AND THE ADJACENT NUMBER INDICATES CONDUCTOR SIZE.
	CONDUIT CONCEALED UNDERGROUND OR BELOW FLOOR, MINIMUM SIZE IS 3/4". PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC.
	CONDUIT UNDERGROUND OR BELOW FLOOR, MINIMUM SIZE IS 3/4". PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC. HASH MARKS INDICATE THE NUMBER OF CONDUCTORS AND THE ADJACENT NUMBER INDICATES CONDUCTOR SIZE.
	CONDUIT HOME RUN TO PANEL, TERMINAL BOARD, ETC.
	CONDUIT - UP.
	CONDUIT - DOWN.
	EXISTING ABOVE GROUND CONDUIT.
	EXISTING UNDERGROUND CONDUIT.
	MECHANICAL EQUIPMENT DESIGNATOR.
	SHEET NOTE NUMBER-#. SEE NOTE DESCRIPTION ON SAME SHEET.
	GENERAL NOTE NUMBER-#. SEE NOTE DESCRIPTION ON SAME SHEET.
	REFERENCE TO PLAN/DETAIL/DIAGRAM.
	DESIGNATES SIZE AND QUANTITY OF FEEDERS SEE FEEDER SCHEDULE.
	### DENOTES ROOM NUMBER.
	ADDENDUM OR REVISION NUMBER-# - SEE DESCRIPTION ON SAME SHEET.
	DEVICES (I.E. DATA JACKS, RECEPTACLES, SWITCHES, TELEPHONE JACKS) SHOWN AS A THIN LINE OR SHADED ARE EXISTING.
	INTRUSION ALARM DOOR CONTACT PROVISION SEE TYPICAL DETAILS.
	INTRUSION ALARM KEYPAD.
	INTRUSION ALARM MOTION DETECTOR.
	INTRUSION ALARM HORN.

### GENERAL NOTES

- THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS OR PENETRATING EXTERIOR WALL OF BUILDING.
- IN CASE OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING BEFORE PROCEEDING.
- ALL OUTDOOR DEVICES SHALL BE WEATHERPROOF.
- FOR DEMOLITION, REMOVE POWER TO ROOF MOUNTED EQUIPMENT BACK TO THE PANEL. REMOVE ALL RECEPTACLES, PANELS, SWITCHES, ETC. PROVIDE AND INSTALL NEW AS SHOWN ON DRAWINGS.
- ALL WIRES AND CABLES ARE TO BE RUN CONCEALED, IN CONDUIT OR ON J-HOOKS, UNLESS OTHERWISE NOTED. WHERE WIRES AND CABLES CANNOT BE CONCEALED DUE TO STRUCTURAL CONDITIONS SUCH AS SOLID CEMENT WALLS, USE SURFACE MOUNTED 'WIREMOLD' RACEWAYS 400 OR GREATER TO ACCOMMODATE THE CABLE FILL. PAINT RACEWAYS TO MATCH SURFACE COLORS.
- ALL OUTLET BOXES IN FIRE-RESISTIVE ASSEMBLIES SHALL BE RATED AND A MAXIMUM SIZE OF 16 SQUARE INCHES (STEEL ONLY FOR ASSEMBLIES AND MORE THAN ONE-HOUR). ALL OUTLET BOXES IN FIRE-RESISTIVE ASSEMBLIES SHALL BE SEPARATED BY A MINIMUM OF 24 INCHES HORIZONTALLY. ELECTRICAL PANELS ARE NOT PERMITTED IN FIRE-RATED ASSEMBLIES. CBC106 ARE NOT PERMITTED IN FIRE-RATED ASSEMBLIES. CBC106
- ALL 120V PANELS SHALL HAVE INTEGRAL SURGE TVSS MODULE PROVIDING ALL MODES OF PROTECTION FOR 3Ø, 4W SYSTEMS AND 1Ø, 3W SYSTEMS. THE UNIT SHALL BE BUILT INTO THE PANEL AND INLINE WITH THE ELECTRICAL BUS. THE TVSS SHALL BE ELECTRICALLY EQUIVALENT TO THE LIEBERT #120Y100-01.
- ALL PHASE CONDUCTORS SHALL HAVE THEIR OWN NEUTRALS. NO SHARING OF NEUTRALS ALLOWED.
- MARK ALL NEW CIRCUITS ADDED AND INSTALLED IN EXISTING PANELBOARDS WITH SELF ADHESIVE PANEL MARKING TAGS NEAREST TO NEW CIRCUITS, AND ON PANELBOARD DIRECTORY. FURNISH NEW NAMEPLATES FOR NEW CIRCUITS INSTALLED IN EXISTING SWITCHBOARD(S) TO MATCH EXISTING CONDITIONS AS REQUIRED. SEE SPECIFICATIONS FOR NAMEPLATE REQUIREMENTS. PROVIDE NAME OF EQUIPMENT OR ROOM SERVED, LOCATION, DATE AND PROJECT NAME. MARK ALL ADDITIONAL SPARE BREAKERS, AND NOTE REMAINING SPACE AVAILABLE IN PANELBOARDS AND SWITCHBOARDS AS REQUIRED.
- THE CONTRACTOR SHALL VERIFY THE EXACT BREAKER COMPLEMENT OF ALL EXISTING PANELS TO BE REPLACED. ALL REPLACED PANELS SHALL HAVE THE SAME COMPLEMENT OF CIRCUIT BREAKERS (SIZE, #POLES, QUANTITY, ETC.) AS THE EXISTING PANELS PLUS ANY NEW CIRCUIT BREAKERS AS CALLED FOR ON THE PLANS. THE CONTRACTOR SHALL ALSO PROVIDE (1)20A/1P CIRCUIT BREAKER UNLESS NOTED OTHERWISE, FOR ALL REMAINING UNDESIGNATED PANEL SPACES.
- THE CONTRACTOR SHALL OBTAIN A FULL SET OF PLANS AND SPECIFICATIONS WHEN BIDDING THIS PROJECT.
- FIRE ALARM CABLE(S) MAY BE INSTALLED ON J-HOOKS INSTALLED EVERY 4-FEET ABOVE THE ACCESSIBLE ATTIC SPACE. WHERE ATTIC SPACE IS INACCESSIBLE INSTALL CABLING WITHIN CONDUIT OR SURFACE MOUNTED WIREMOLD RACEWAY WIREMOLD #400 SERIES.
- PROVIDE A DEDICATED 20A/1P CIRCUIT AND CIRCUIT BREAKERS AT ALL IDF LOCATIONS. RUN CIRCUITS 0 TO THE NEAREST 120V PANEL.
- ALL FIRE ALARM PANELS AND SIGNAL EXPANDER PANELS SHALL BE FED WITH CIRCUIT BREAKERS THAT HAVE LOCKOUT DEVICES AND HANDLES PAINTED RED.
- PROVIDE (2) TELEPHONE CABLES TO EACH FIRE ALARM PANEL AND CONNECT AT THE PROPERTY TELEPHONE MPOE WITH TWO DEDICATED OUTSIDE PHONE LINES
- ALL ELECTRICAL PANEL BUSBARS SHALL BE COPPER. EQUAL PANEL MANUFACTURERS SHALL BE GE, CUTLER-HAMMER, SQUARED, AND WESTINGHOUSE.
- ALL SCTB SHALL BE 8x4x3/4" DEEP PLYWOOD WITH FIRE RETARDANT PAINT. FIELD CUT TO FIT.
- ALL CONDUITS AND BOXES SHALL BE CONCEALED. THE CONTRACTOR SHALL CAREFULLY CUT OUT WALLS AND INSTALL CONDUIT AND BOXES. PATCH AND REPAIR TO MATCH EXISTING.

### INTRUSION ALARM NOTES

- FOR THE CLASSROOMS: EACH CLASSROOM PROVIDE AN 8 CONDUCTOR FROM THE INTRUSION ALARM PANEL. THEN PROVIDE A 2 CONDUCTOR USED FOR EACH DOOR AND TIED TO THE 8 CONDUCTOR. PROVIDE AN EIGHT CONDUCTOR FROM THE MIC OR OTHER SENSORS LOCATED IN THE CENTER OF THE ROOM OR AS DIRECTED BY SONITROL AND WIRE TO THE 8 CONDUCTOR. PROVIDE 3 FEET OF SLACK AT EACH END. THE 8 CONDUCTOR IS PART # CL20417, 8 CONDUCTOR, 22 AWG, STRANDED. THE 2 CONDUCTOR IS PART # CL20410, 2 CONDUCTOR, 22 AWG, STRANDED. IF TWO PANELS ARE TO BE TIED TOGETHER (LOCATION OF ROOMS CAN DICTATE A NEW PANEL) AND FOR TYING IN A NEW KEYPAD THEN A 2 PAIR SHIELDED, STRANDED, 22 AWG IS USED. PART # CL20831 PART NUMBER LISTED ABOVE ARE LISTED AT "CONTRACTORS WIRE" WEB SITE HTTP://WWW.CONTRACTORSWIRE.COM.
- ELECTRICAL CONTRACTOR SHALL PURCHASE AND INSTALL THE INTRUSION ALARM CABLING FOR FINAL CONNECTIONS BY SONITROL OR THE CURRENT INTRUSION ALARM COMPANY. COORDINATE WITH THE INTRUSION ALARM COMPANY PRIOR TO INSTALLATION. PRIOR TO SUBMITTING BID CONTRACTOR SHALL INQUIRE WITH SONITROL AS TO THE EXACT CABLE AND DEVICE COUNT FOR THE SYSTEM THEY INTEND TO INSTALL.

### ELECTRICAL DRAWING LIST

- E1.1 SYMBOL LEGEND AND NOTES
- E1.2 SINGLE LINE DIAGRAM, DUCT BANK, AND PULLBOX SCHEDULES
- E1.3 ELECTRICAL DEMOLITION SITE PLAN
- E2.2 ELECTRICAL SITE PLAN
- E2.3 FIRE ALARM SITE AND ROUTING PLAN
- E3.1 FIRE ALARM SYMBOL LEGEND, NOTES, AND CALCULATIONS
- E3.2 FIRE ALARM RISER DIAGRAMS
- E3.3 PORTABLE GROUP FIRE ALARM FLOOR PLANS
- E4.1 TYPICAL PORTABLE PARTIAL POWER AND SIGNAL FLOOR PLAN
- E5.1 TYPICAL DETAILS
- E5.2 TYPICAL DETAILS

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