











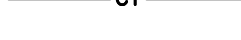


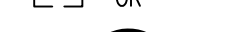





























































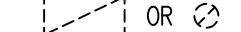









T:\Projects\2024\24-141 - ACM Millers Space Dust Collection and Weld Fume Extraction Systems\WOOD SHOP\Drawings\24-141 - E1.dwg
May 01, 2025 - 10:26am

ELECTRICAL ABBREVIATIONS				LEGEND & SYMBOLS				GENERAL NOTES			
* BELOW IS A GENERAL ABBREVIATIONS LIST USED ON ALL PROJECTS. ABBREVIATIONS MAY OR MAY NOT BE USED ON THIS PROJECT.				* BELOW IS A GENERAL LEGEND AND SYMBOLS LIST USED ON ALL PROJECTS. SYMBOLS MAY OR MAY NOT BE USED ON THIS PROJECT.							
⊙	AT	LAN	LOCAL AREA NETWORK		SWITCHED CIRCUIT		SIMPLEX RECEPTACLE, 1ϑ–120 VOLTS	<div>1. MATERIALS AND EQUIPMENT FURNISHED UNDER THE CONTRACT ARE TO BE NEW AND BEAR THE UNDERWRITER'S LABORATORIES, INC., LABEL, AS APPROPRIATE. THE COMPLETE INSTALLATION IS SUBJECT TO THE APPROVAL OF THE ENGINEER.</div> <div>2. ANYTHING DRAWN OR SPECIFIED IS NOT INTENDED TO CONFLICT WITH ANY LOCAL, MUNICIPAL STATE OR FEDERAL LAW, REGULATION OR ORDINANCE WHICH GOVERNS THE INSTALLATION OF ANY ELECTRICAL OR RELATED WORK. ITEMS ARE NOT TO BE INSTALLED IN CONFLICT WITH ANY CODE OR REGULATION. ANY CONFLICTS ARE TO BE RESOLVED WITH THE ENGINEER BEFORE INSTALLATION BY THE CONTRACTOR AT NO ADDITIONAL COSTS.</div> <div>3. THE CONTRACTOR IS TO BE SOLELY RESPONSIBLE FOR CONSTRUCTION, MATERIAL AND EQUIPMENT FURNISHED FOR THE CONTRACT UNTIL COMPLETION OF THE PROJECT AND FINAL ACCEPTANCE. DAMAGED WORK OR MATERIALS ARE TO BE REPLACED BY THIS CONTRACTOR AT HIS OWN EXPENSE.</div> <div>4. CHANGES NECESSARY DUE TO LACK OF COORDINATION OR BECAUSE OF POOR WORKMANSHIP, AS DETERMINED BY THE ENGINEER OR THE OWNER ARE TO BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COSTS.</div> <div>5. INSPECTION FEES, BACKCHARGES AND PERMITS AND CERTIFICATES REQUIRED FOR THE INSTALLATION, TESTS AND INSPECTIONS OF WORK PROVIDED UNDER THIS CONTRACT ARE TO BE PAID FOR BY THE CONTRACTOR.</div> <div>6. CUTTING AND PATCHING IN THE EXISTING BUILDING NECESSARY FOR THE INSTALLATION OF THE ELECTRICAL WORK ARE TO BE DONE BY THE CONTRACTOR PROVIDING THE WORK. PATCHING IS TO MATCH THE EXISTING MATERIALS AND FINISHES. WHERE PAINTED SURFACES ARE PATCHED, THE CONTRACTOR IS TO PAINT PATCHING TO MATCH THE EXISTING COLOR FINISHES WITH A MINIMUM OF A PRIME COAT AND TWO (2) FINISH COATS OF SHERWIN WILLIAMS OR APPROVED PAINT, COLOR AS SELECTED BY THE OWNER.</div> <div>7. NO CUTTING IS TO BE DONE WHICH MAY IN ANY WAY AFFECT THE BUILDING STRUCTURALLY WITHOUT FIRST SECURING THE CONSENT OF THE ENGINEER.</div> <div>8. THE CONTRACTOR IS TO GUARANTEE FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE IN WRITING BY THE ENGINEER THAT MATERIAL, EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THE CONTRACT, ARE FREE FROM DEFECTS. THE CONTRACTOR IS TO REPLACE ANY EQUIPMENT OR MATERIAL FOUND DEFECTIVE WITHIN THE GUARANTEE PERIOD AT NO COST TO THE OWNER.</div> <div>9. THE CONTRACTOR IS TO FURNISH ACCESS PANELS AS REQUIRED FOR ACCESS TO CONCEALED PULL BOXES, JUNCTION BOXES OR SIMILAR ITEMS WHERE NO OTHER MEANS OF ACCESS IS PROVIDED. ACCESS PANELS INSTALLED IN FIRE RATED CEILINGS OR WALLS ARE TO BE OF SIMILAR RATING.</div> <div>10. FURNISH AND INSTALL NECESSARY STEEL ANGLES, BEAMS, CHANNELS, HANGER RODS AND OTHER SUPPORTS FOR EQUIPMENT AND PIPING FURNISHED UNDER THIS CONTRACT REQUIRING SUPPORT OR SUSPENSION FROM BUILDING STRUCTURE EXCEPT SUPPORT STEEL WHERE OTHERWISE NOTED ON THE PLANS.</div> <div>11. GENERALLY, BLOCKING MATERIALS ARE TO BE METAL; HOWEVER, SHOULD WOOD BLOCKING BE UTILIZED AT ANY LOCATION, THE BLOCKING MUST BE MADE FIRE-RESISTANT.</div> <div>12. WIRING IS TO BE CONCEALED IF POSSIBLE. CONCEALED (AND EXPOSED WIRING IS) TO BE INSTALLED IN CONDUIT: RIGID METALLIC CONDUIT TO BE INSTALLED WHERE EXPOSED TO PHYSICAL DAMAGE, AND EMT CONDUIT WHERE NOT SUBJECT TO PHYSICAL DAMAGE. SHORT "WHIPS" OF WIRING BETWEEN DEVICES MAY BE METALLIC CLAD (INTERIOR) OR OTHER NON-RIGID PRODUCT (LISTED FOR APPROPRIATE LOCATION) (I.E. – CONNECTION TO PUMPS – TO ALLOW FOR VIBRATION). ALL REQUIRED SUPPORTS, BUSHINGS, LOCKNUTS, ETC. TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.</div> <div>13. WIRE AND CABLE FOR FEEDERS, BRANCH CIRCUIT, CONTROL, ETC., ARE TO BE SOFT DRAWN COPPER CONDUCTORS, 600 VOLT, HEAT RESISTANT THERMOPLASTIC INSULATED, TYPE "THW", "THWN" OR "THHN" CONFORMING TO THE LATEST REQUIREMENTS OF THE HEREIN SPECIFIED CODES. NON-METALLIC SHEATHED CABLE (ROMEX) IS NOT PERMITTED. WIRING INSULATION MUST BE A MINIMUM OF 75 DEGREES "C" AND RATED FOR WET LOCATIONS AS REQUIRED.</div> <div>14. UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE MINIMUM WIRE SIZE FOR BRANCH CIRCUITS IS TO BE NO. 12 AWG, EXCEPT NO. 10 AWG MINIMUM SIZE IS TO BE USED IN RUNS WHERE DISTANCE FROM THE PANELBOARD TO FIRST OUTLET EXCEEDS 75 FEET DUE TO CONDUIT ROUTING.</div> <div>15. WIRE AND CABLE ARE TO BE INSTALLED IN CONDUIT IN A MANNER NOT TO DAMAGE THE INSULATION. ONLY U.L. APPROVED WIRE PULLING COMPOUNDS ARE TO BE USED TO DECREASE THE FRICTION WHEN PULLING IN WIRES, SUCH AS "WIRE LUBE" BY IDEAL.</div> <div>16. WHERE OPEN CABLE IS INSTALLED IN RETURN AIR PLENUM ABOVE CEILINGS, LISTED RETURN AIR PLENUM CABLE IS TO BE USED.</div> <div>17. THE ENTIRE INSTALLATION MUST BE GROUNDED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE. ALL DEVICES, EQUIPMENT, BOXES, ETC. MUST BE CONNECTED TO A SOLID, INSULATED GREEN, COPPER GROUNDING CONDUCTOR.</div> <div>18. PRIOR TO BEGINNING INSTALLATION, COORDINATE FINAL LOCATIONS OF ALL SWITCHES, JUNCTION BOXES, CONDUIT, ETC. IN ALL AREAS WITH OWNER AND WITH EQUIPMENT TO BE FURNISHED AND INSTALLED BY OTHERS.</div> <div>19. E.C. SHALL PROPERLY SEAL ALL PENETRATIONS AS REQUIRED PER UL LISTING OF WALL/FLOOR/CEILING. E.C. SHALL PROPERLY SEAL ALL PENETRATIONS AND CONDUITS TO EXTERIOR AS REQUIRED IN A PROFESSIONAL MANNER TO MAINTAIN WET AND WEATHERPROOF CONDITION.</div> <div>20. WHERE EXISTING FIXTURES, OUTLETS, CONDUITS, ETC. INTERFERE WITH THE NEW WORK IN REMODELED AREAS, THE CONTRACTOR IS TO REMOVE THE EQUIPMENT AS REQUIRED. NEW CONDUITS, CONDUCTORS, JUNCTION BOXES, ETC. ARE TO BE INSTALLED FOR THE EQUIPMENT AFFECTED IN THE AREA. WHERE FIXTURES, SWITCHES OR OTHER DEVICES ARE REMOVED AND UNUSED OPENINGS REMAIN, THE CONTRACTOR IS TO REMOVE THE BOX AND REPAIR AND FINISH THE OPENING TO MATCH THE ADJACENT SURFACES.</div> <div>21. THE E.C. IS RESPONSIBLE FOR DEMOLITION WORK AND CORE DRILLING NECESSARY TO INSTALL ALL NEW CONDUITS IN ELECTRICAL DRAWING SET.</div> <div>22. THE E.C. IS TO COORDINATE WITH OWNER IN ORDER TO DETERMINE WHAT ELECTRICAL ITEMS THE OWNER WOULD LIKE TO SALVAGE; THESE ITEMS ARE TO BE TURNED OVER TO OWNER. ALL OTHER ITEMS ARE TO BE PROPERLY DISPOSED OF BY THE E.C.</div> <div>23. IN AREAS WHERE ONLY PART OF THE SPACE IS TO BE DEMOLISHED, THE CONTRACTOR IS TO MAINTAIN THRU-WIRING TO EXISTING LIGHTS, RECEPTACLES, EQUIPMENT, ETC. TO REMAIN AND BE REUSED. THE CONTRACTOR IS TO MODIFY EXISTING WIRING AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.</div> <div>24. NO AS-BUILT ELECTRICAL DRAWINGS WERE AVAILABLE AS REFERENCE FOR EXISTING ELECTRICAL CIRCUITING, OVERCURRENT PROTECTION, WIRE SIZING, CONDUIT ROUTING OR SIZE, ETC. EXISTING INFORMATION SHOWN ON ELECTRICAL DRAWINGS HAS BEEN DERIVED FROM LIMITED FIELD SURVEYS OF THE EXISTING BUILDING – EXACT CONDITIONS ARE TO BE VERIFIED BY THE E.C. IN THE FIELD.</div> <div>25. WHERE EXISTING EQUIPMENT IS TO BE REMOVED, CONTRACTOR IS TO REMOVE EXISTING RECEPTACLES, WIRING AND BOXES IF NOT BEING REUSED UNLESS DIRECTED OTHERWISE.</div> <div>26. THE CONTRACTOR IS TO DISCONNECT AND RENDER DEAD WIRING TO EQUIPMENT THAT IS TO BE REMOVED BY OTHER CONTRACTORS.</div> <div>27. THE CONTRACTOR IS TO REUSE EXISTING CONCEALED CONDUITS AND BOXES WHEREVER POSSIBLE TO SUPPLY OR CONTROL NEW BRANCH CIRCUITS IN THE EXISTING BUILDING. IF EXISTING BOXES DO NOT COMPLY WITH THE CURRENT N.E.C. "CUBIC INCH CAPACITY" REQUIREMENTS, THE CONTRACTOR IS TO MODIFY OR REPLACE EXISTING BOX AS REQUIRED TO COMPLY WITH THE CURRENT EDITION OF THE N.E.C.</div> <div>28. EXISTING WIRING TO REMOVED EQUIPMENT IS NOT TO BE REUSED, CONDUITS MAY BE REUSED. WIRING TO NEW EQUIPMENT AND RELOCATED EXISTING EQUIPMENT IS TO BE NEW UNLESS NOTED OTHERWISE</div> <div>29. THE E.C. IS TO VISIT THE SITE IN ORDER TO DETERMINE THE EXTENT OF THE DEMOLITION WORK – THE E.C. IS RESPONSIBLE FOR REMOVING ANY ELECTRICAL ITEMS AND/OR CONNECTIONS IN THE RENOVATED AREAS THAT HAVE NOT BEEN INDICATED BY THESE DRAWINGS AFTER COORDINATING WITH PROJECT MANAGER AND OWNER.</div> <div>30. THE ENTIRE ELECTRICAL INSTALLATION IS TO CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, ALL APPLICABLE NATIONAL, STATE OR LOCAL CODES AND THE REQUIREMENTS OF THE LOCAL POWER COMPANY.</div> <div>* THE TERM CONTRACTOR OR ELECTRICAL CONTRACTOR IS TO APPLY TO THE CONTRACTOR OR SUB-CONTRACTOR PERFORMING THE ELECTRICAL WORK.</div>			
A	AMPERES (AMPS)	MAX	MAXIMUM		BRANCH CIRCUIT		DUPLEX RECEPTACLE, 1ϑ–120 VOLTS				
AC	ABOVE COUNTER	MC	MECHANICAL CONTRACTOR OR METAL CLAD CABLE		SWITCH LEG		QUADRAPLEX RECEPTACLE, 1ϑ–120 VOLTS				
AFCI	ARC FAULT CIRCUIT INTERRUPTER	MCA	MINIMUM CIRCUIT AMPERES		OCCUPANCY SENSOR CIRCUIT	30"	MOUNTING HEIGHT A.F.F.				
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER		LOW VOLTAGE CIRCUIT	AC	ABOVE COUNTER				
AFG	ABOVE FINISHED GRADE	MCC	MOTOR CONTROL CENTER		OVERHEAD ELECTRIC	BC	BELOW COUNTER				
AHJ	AUTHORITY HAVING JURISDICTION	MDP	MAIN DISTRIBUTION PANEL		UNDERGROUND ELECTRIC	D	DRYER				
AHU	AIR HANDLING UNIT	MFGR	MANUFACTURER		UNDERGROUND COMMUNICATION WIRING	E	EMERGENCY				
ALT	ALTERNATE	MH	MANHOLE OR METAL HALIDE		CABLE TRAY	EWC	ELECTRIC WATER COOLER				
APPROX	APPROXIMATELY	MIN	MINIMUM		RECESSED ELECTRICAL PANELBOARD	GFI	GROUND FAULT INTERRUPTER				
ATC	AUTOMATIC TEMPERATURE CONTROL	MISC	MISCELLANEOUS		SURFACE MOUNTED ELECTRICAL PANELBOARD	R	RANGE				
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY		EXISTING PANELBOARD TO REMAIN AND BE REUSED	REF	REFRIGERATOR				
AUX	AUXILIARY	MOCP	MAXIMUM OVERCURRENT PROTECTION		HOMERUN OR CONTINUATION TO PANELBOARD	USB	USB A AND C				
AWG	AMERICAN WIRE GAGE	MOD	MOTOR OPERATED DAMPER		RECESSED CEILING LINEAR LED FIXTURE	WP	WEATHERPROOF				
BFG	BELOW FINISHED GRADE	MTD	MOUNTED		RECESSED CEILING NIGHT LIGHT LINEAR LED FIXTURE		SWITCHED RECEPTACLE, 1ϑ–120 VOLTS				
BKR	BREAKER	N/A	NOT APPLICABLE		RECESSED CEILING WALL WASH LINEAR LED FIXTURE		FLOOR MOUNTED QUADRAPLEX RECEPTACLE, 1ϑ–120 VOLTS				
⊕	CENTERLINE	NE	NORMAL EMERGENCY		SURFACE MOUNTED LINEAR LED FIXTURE		CEILING MOUNTED DUPLEX RECEPTACLE, 1ϑ–120 VOLTS				
C	CONDUIT	NEC	NATIONAL ELECTRICAL CODE		SURFACE MOUNTED NORMAL/EMERGENCY LINEAR LED FIXTURE		ELECTRIC RANGE RECEPTACLE (CONFIGURATION AS PER EQUIPMENT MANUFACTURER REQUIREMENTS)				
CB	CIRCUIT BREAKER	NIC	NOT IN CONTRACT		SURFACE MOUNTED WALL WASH LINEAR LED FIXTURE		SPECIAL PURPOSE RECEPTACLE (CONFIGURATION AS PER EQUIPMENT MANUFACTURER REQUIREMENTS)				
CCTV	CLOSED CIRCUIT TV	NL	NIGHT LIGHT		SURFACE MOUNTED INDUSTRIAL/STRIP LINEAR LED FIXTURE		SPECIAL PURPOSE RECEPTACLE W/ AMP RATING				
CEF	CEILING EXHAUST FAN	NTS	NOT TO SCALE		PENDANT MOUNTED LINEAR LED FIXTURE		EXISTING RECEPTACLE TO REMAIN AND BE REUSED				
CKT	CIRCUIT	OD	OUTSIDE DIAMETER		PENDANT MOUNTED NORMAL/EMERGENCY LINEAR LED FIXTURE		EXISTING RECEPTACLE TO BE DISCONNECTED AND REMOVED				
CLG	CEILING	ϑ	PHASE		PENDANT MOUNTED WALL WASH LINEAR LED FIXTURE		POWER POLE FOR CONNECTION TO PRE-WIRED FURNITURE				
CONC	CONCRETE	⊐	PROPERTY LINE		WALL MOUNTED LINEAR LED FIXTURE		JUNCTION BOX				
COND	CONDENSING	P	POLES		WALL MOUNTED NORMAL/EMERGENCY LINEAR LED FIXTURE		JUNCTION BOX FOR MOTOR OPERATED DAMPERS				
CONN	CONNECTION	PB	PULLBOX		WALL MOUNTED WALL WASH LINEAR LED FIXTURE		CONNECTION BY E.C. IN EQUIPMENT BY OTHERS				
CT	CURRENT TRANSFORMER	PBX	PRIVATE BRANCH EXCHANGE		WALL MOUNTED INDUSTRIAL/STRIP LINEAR LED FIXTURE		DISCONNECT SWITCH				
CU	COPPER	PC	PLUMBING CONTRACTOR		TRACK MOUNTED LED LIGHTING FIXTURE		TRANSFORMER				
CUH	CABINET UNIT HEATER	PL	PILOT LIGHT		RECESSED CAN LED FIXTURE		DOOR BELL BASE UNIT				
DB	DIRECT BURIAL / DECIBEL	PNL	PANELBOARD		RECESSED CAN NORMAL/EMERGENCY LED FIXTURE		COMBINATION TELEPHONE/COMPUTER NETWORKING OUTLET				
DC	DIRECT CURRENT	PRV	POWER ROOF VENTILATOR		RECESSED CAN EMERGENCY ONLY LED FIXTURE		FLOOR MOUNTED TELEPHONE/COMPUTER NETWORKING OUTLET				
DIA	DIAMETER	PVC	POLYVINYL CHLORIDE		RECESSED CAN COMPACT LED WALL WASH FIXTURE		CEILING MOUNTED TELEPHONE/COMPUTER NETWORKING OUTLET				
DISC	DISCONNECT	R/W	RIGHT OF WAY		SURFACE MOUNTED LED FIXTURE		CABLE TELEVISION/ANTENNA OUTLET				
DN	DOWN	RCPT	RECEPTACLE		PENDANT MOUNTED LED FIXTURE		SOUND SYSTEM SPEAKER				
DO	DITTO	RCU	REMOTE CONDENSING UNIT		PENDANT MOUNTED NORMAL/EMERGENCY LED FIXTURE		CARBON MONOXIDE DETECTOR				
DW	DISHWASHER	REF	REFRIGERATOR		PENDANT MOUNTED LED BRACKET FIXTURE		SMOKE DETECTOR				
DWG	DRAWING	REQ'D	REQUIRED		WALL MOUNTED LED BRACKET FIXTURE		DUCTWORK SMOKE DETECTOR				
EA	EACH	REV	REVISION		WALL MOUNTED NORMAL/EMERGENCY LED BRACKET FIXTURE		SMOKE DETECTOR WITH ELEVATOR RECALL				
EC	ELECTRICAL CONTRACTOR	RHC	REHEAT COIL		WALL MOUNTED EMERGENCY ONLY LED BRACKET FIXTURE		THERMAL DETECTOR				
EF	EXHAUST FAN	RS	RIGID STEEL		RECESSED WALL LED FIXTURE		FIRE ALARM SYSTEM PULL STATION				
EM	EMERGENCY	RTU	ROOF TOP UNIT		EXISTING LIGHT FIXTURE TO REMAIN AND BE REUSED		FIRE ALARM SYSTEM AUDIO/VISUAL UNIT				
EMT	ELECTRICAL METALLIC TUBING	SHT	SHEET		EXISTING LIGHT FIXTURE TO BE DISCONNECTED AND REMOVED		FIRE ALARM SYSTEM VISUAL ONLY UNIT				
ETR	EXISTING TO REMAIN	SMR	SURFACE MOUNTED RACEWAY		EMERGENCY LIGHTING LOW VOLTAGE DUAL HEAD BATTERY PACK UNIT		NOTE. NUMERICAL VALUE ADJACENT TO DEVICE INDICATES CANDELA RATING				
EWC	ELECTRIC WATER COOLER	SPDT	SINGLE POLE DOUBLE THROW		COMBINATION EXIT SIGN/EMERGENCY LIGHTING LOW VOLTAGE DUAL HEAD BATTERY PACK UNIT		FIRE ALARM SYSTEM DOOR HOLDER				
EX	EXISTING (EXIST)	SPECS	SPECIFICATIONS		EXIT SIGN (NUMBER OF FACES & DIRECTIONAL ARROWS AS INDICATED ON FLOOR PLANS)		FIRE ALARM SPRINKLER FLOW SWITCH				
FBO	FURNISHED BY OTHERS	SQ	SQUARE		EXISTING EXIT SIGN TO REMAIN AND BE REUSED		FIRE ALARM SPRINKLER TAMPER SWITCH				
FCU	FAN COIL UNIT	STL	STEEL		WALL SWITCH (3 OR 4 WAY WHERE SHOWN)		FIRE ALARM SYSTEM ANNUNCIATOR PANEL				
FEC	FIRE EXTINGUISHER CABINET	SW	SWITCH		DIMMER WALL SWITCH		FIRE ALARM CONTROL PANEL				
FLA	FULL LOAD AMPERES	SWBD	SWITCHBOARD								