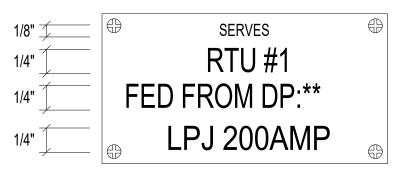
GENERAL NOTES

- 1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) & THE AMERICANS WITH DISABILITIES ACT (ADA).
- 2. REFER TO RELATED ARCHITECTURAL AND MECHANICAL DRAWINGS FOR RELATED INFORMATION.
- 3. REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
- 4. E.C. SHALL REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTION OF INTERLOCKING AND CONTROLS OF MECHANICAL UNITS AND THERMOSTAT LOCATIONS.
- COORDINATE OUTLET BOX LOCATIONS WITH MASONRY TO MINIMIZE CUTTING OF BRICK OR BLOCK.
- 6. ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH-IN.
- CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
- 8. WHEN INCREASED CONDUCTOR SIZES ARE SHOWN ON THE PLANS, THE LARGER CONDUCTOR SIZE SHALL BE USED THROUGHOUT THE LENGTH OF THE CIRCUIT, INCLUDING NEUTRAL AND GROUND.
- 9. "CT" INDICATED ADJACENT TO DEVICE INDICATES DEVICE MOUNTED ABOVE BACKSPLASH OF COUNTER TOP. VERIFY EXACT HEIGHT WITH ARCHITECTURAL PLANS AND ELEVATIONS.
- 10. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH.
- 11. LABEL THE FRONT OF EACH RECEPTACLE COVERPLATE WITH PANEL DESIGNATION AND CIRCUIT NUMBER USING CLEAR THERMAL TRANSFER (ELECTRONIC DYMO) LABELS WITH 1/8" HIGH BLACK LETTERS (OR CONTRASTING COLOR IF PLATES ARE BLACK OR BROWN). LABELS SHALL BE SUITABLE FOR INDOOR/OUTDOOR USE. LABEL THE BACK OF EACH LIGHT SWITCH COVERPLATE WITH PANEL DESIGNATION AND CIRCUIT NUMBER USING A FINE BLACK PERMANENT MARKER.
- 12. JUNCTION BOX OR RECEPTACLE FOR DRINKING FOUNTAINS SHALL BE LOCATED BEHIND THE EQUIPMENT SKIRT UNLESS OTHERWISE NOTED. COORDINATE CONNECTION TYPE AND LOCATION WITH EQUIPMENT
- T1. EACH DATA, TELEPHONE, VIDEO, OR OTHER SYSTEMS OUTLET REQUIRES 1"C. WITH PULL ROPE STUBBED 6" ABOVE NEAREST ACCESSIBLE CEILING UNLESS OTHERWISE NOTED ON PLANS. CONDUITS STUBBED UP ABOVE CEILINGS SHALL BE TURNED OUT 90°. PROVIDE INSULATED BUSHINGS ON ALL CONDUITS. LABEL CONDUIT TO IDENTIFY ITS INTENDED USE (IE: TELEPHONE, DATA, ETC.).

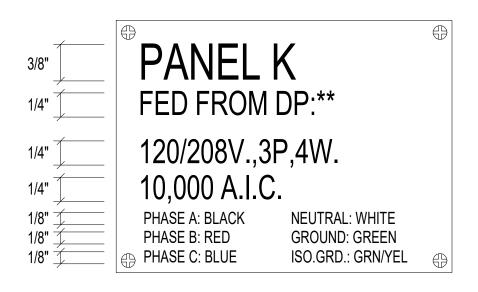
SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
		POWER AN	ND DATA		1
$\overline{}$	SINGLE GROUNDED RECEPTACLE	18"AFF	WP	WEATHERPROOF	
\rightarrow	DUPLEX GROUNDED RECEPTACLE	18"AFF	\triangleright	1-DATA OUTLET & JACK (NOTE T1)	18"AFF
\ominus	CLG-MTD DUPLEX GROUNDED RECEPTACLE	CEILING	AFF	ABOVE FINISHED FLOOR	
	DOUBLE DUPLEX GROUNDED RECEPTACLE	18"AFF	DF	DRINKING FOUNTAIN	
	GROUND FAULT DUPLEX RECEPTACLE	18"AFF	•	PUSH BUTTON	
	GROUND FAULT DOUBLE DUPLEX RECEPTACLE	18"AFF	J	JUNCTION BOX	
$\overline{}$	DUPLEX GRD. RECEPT. BOTTOM SWITCHED	18"AFF	F	FUSTAT BUSS #SSY	
	SPECIAL OUTLET	FLOOR/WALL	<u>'A'</u>	BRANCH CIRCUIT PANEL & PANEL DESIG.	72" TO TOP
	DISCONNECT			ELECTRICAL DISTRIBUTION EQUIPMENT	
<u>x-x</u> <u>x-x</u>	EQUIPMENT - SEE EQUIPMENT		1	FEEDER DESIGNATION	
<u>x-x</u> <u>x-x</u>	CONNECTION SCHEDULE			FEEDER DESIGNATION	
	CONDUIT SLEEVE				
	PLUGMOLD SURFACE RACEWAY	WALL		MACTERIOLANIE ENTERE MILIE	CEILING
		CEIL./WALL		MASTER/SLAVE FIXTURE WHIP	
	CONDUIT HOME RUN, 1 CIRCUIT. 2#10	CEIL./WALL		CONDUIT RUN 2#12 & 1#12 GRD	CEIL./WALL
/#10	& 1#10 GRD. 1/2"C.			1/2"C.	
	CONDUIT HOME RUN, 1 CIRCUIT. 2#12	CEIL./WALL		CONDUIT RUN 2#12 & 1#12 GRD	EARTH/FLOOR
	& 1#12 GRD. 1/2"C.			3/4"C.	
. 44-	CONDUIT HOME RUN, 2 CIRCUITS. 4#12	CEIL./WALL		CONDUIT HOME RUN, 2 CIRCUITS	CEIL./WALL
	& 1#12 GRD. 1/2"C.			PHASE CONDUCTORS (#12 UON)	
	CONDUIT HOME RUN, 3 CIRCUITS. 6#12	CEIL./WALL		NEUTRAL CONDUCTOR (#12 UON)	
#III	& 1#12 GRD. 1/2"C.			SWITCH LEGS (#12 UON)	
	CONDUIT RUN PARTIAL CIRCUIT. 2#12	CEIL./WALL		GROUND CONDUCTOR (#12 UON)	
/	& 1#12 GRD. 1/2"C.				

SERVES

SWITCHBOARD/DISTRIBUTION PANEL/MOTOR **CONTROL CENTER BREAKER/SWITCH**



DISCONNECT SWITCH



BRANCH CIRCUIT/DISTRIBUTION PANEL

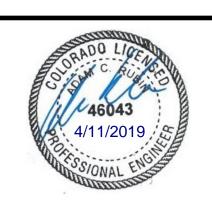


PEN WEIGHT LEGEND DESCRIPTION SYMBOL ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN DARK SOLID LINES ARE NEW TO BE INSTALLED. NEW DUPLEX GROUNDED RECEPTACLE NEW LIGHT FIXTURE ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN LIGHT SOLID LINES ARE EXISTING TO REMAIN. EXISTING DUPLEX GROUNDED RECEPTACLE TO REMAIN EXISTING LIGHT FIXTURE TO REMAIN ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN DARK DASHED LINES ARE TO BE REMOVED. DUPLEX GROUNDED RECEPTACLE TO BE REMOVED

LIGHT FIXTURE TO BE REMOVED

9	SHEET INDEX
NUMBER	SHEET TITLE
E0.0	ELECTRICAL COVER SHEET
E0.1	ELECTRICAL SPECIFICATIONS
E1.1	ELECTRICAL ROOF PLAN
E2.1	ENLARGED ELECTRICAL PLANS
E4.0	ELECTRICAL DETAILS

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CEN AVENUE CO 80521 2407 FORT S S

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ELECTRICAL COVER SHEET

100% CONSTRUCTION DOCUMENTS

JOB NO.190168-000 DATE 4/12/2019 DRAWN BY TLP CHECKED BY ACR

ELECTRICAL SPECIFICATIONS

SECTION 16050 - BASIC METHODS AND REQUIREMENTS (ELECTRICAL)

PART 1 - GENERAL

- 1.1 GENERAL CONDITIONS
- A. THE GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS, GENERAL REQUIREMENTS, AND SPECIAL CONDITIONS SHALL BE AND ARE HEREBY MADE A PART OF THIS SECTION OF THE SPECIFICATIONS.
- 1.2 EXAMINATION OF SITE
- A. VISIT THE SITE, INSPECT THE EXISTING CONDITIONS AND CHECK THE DRAWINGS AND SPECIFICATIONS SO AS TO BE FULLY INFORMED OF THE REQUIREMENTS FOR COMPLETION OF THE WORK.
- B. LACK OF SUCH INFORMATION SHALL NOT JUSTIFY AN EXTRA TO THE CONTRACT
- 1.3 SCOPE
- A. THE ELECTRICAL WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION, EQUIPMENT, SERVICES AND FACILITIES, REQUIRED FOR THE COMPLETE, PROPER AND SUBSTANTIAL INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE PLANS, AND/OR OUTLINED IN THESE SPECIFICATIONS. THE INSTALLATION SHALL INCLUDE ALL MATERIALS, APPLIANCES, AND APPARATUS NOT SPECIFICALLY MENTIONED HEREIN OR NOTED ON THE DRAWINGS BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION OF ALL ELECTRICAL
- B. ALL OF THE ELECTRICAL RELATED WORK REQUIRED FOR THIS PROJECT (UNLESS SPECIFIED OTHERWISE) IS A PART OF THE ELECTRICAL CONTRACT PRICE AND IS NOT NECESSARILY SPECIFIED UNDER THIS DIVISION OF THE SPECIFICATIONS OR SHOWN ON THE ELECTRICAL DRAWINGS. THEREFORE, ALL DIVISIONS OF THE SPECIFICATIONS AND ALL DRAWINGS SHALL BE CONSULTED.
- C. THE DRAWINGS SHOWING THE LAYOUT OF THE WORK INDICATE THE APPROXIMATE LOCATIONS OF OUTLETS, APPARATUS, AND EQUIPMENT. THE DRAWINGS ARE SCHEMATIC ONLY AND ARE NOT INTENDED TO SHOW THE EXACT ROUTING OF CONDUITS, ETC. THE FINAL DETERMINATION AS TO THE ROUTING SHALL BE GOVERNED BY STRUCTURAL CONDITIONS AND OTHER OBSTRUCTIONS. THIS SHALL NOT BE CONSTRUED TO MEAN THE DESIGN OF THE SYSTEM MAY BE CHANGED. IT MERELY REFERS TO THE EXACT RUN OF A RACEWAY BETWEEN GIVEN POINTS. THE CONTRACTOR SHALL CONSULT ALL CONTRACT DRAWINGS WHICH MAY AFFECT THE LOCATION OF ANY OUTLET, APPARATUS OR EQUIPMENT TO AVOID POSSIBLE INTERFERENCE AND PERMIT FULL COORDINATION OF ALL WORK. THE RIGHT TO MAKE ANY REASONABLE CHANGE (WITHIN 6"-0") IN THE LOCATION OF APPARATUS, OUTLETS, AND EQUIPMENT UP TO THE TIME OF ROUGHING-IN IS RESERVED BY THE ARCHITECT WITHOUT INVOLVING ANY ADDITIONAL EXPENSE TO THE OWNER.
- D. SHOW ON BLUE LINE PRINTS IN RED INK ALL CHANGES FROM ORIGINAL PLANS MADE DURING THE INSTALLATION. RETURN TWO (2) SETS OF RED MARKED DRAWINGS, SPECIFICATIONS AND ADDENDA, AS SET FORTH IN THE GENERAL CONDITIONS, TO THE ARCHITECT UPON COMPLETION OF THE PROJECT.
- E. PROVIDE SUBMITTALS IN ELECTRONIC FORM FOR LIGHT FIXTURES, PANELBOARDS, WIRING DEVICES, ETC.
- 1.4 CODES RULES AND REGULATIONS
- A. EXECUTE ALL WORK UNDER THE LATEST RULES AND REGULATIONS OF THE NATIONAL ELECTRICAL CODE STANDARD OF THE NATIONAL BOARD OF FIRE UNDERWRITERS AND WITH ALL LAWS, REGULATIONS AND ORDINANCES OF THE COUNTY, STATE, AND CITY.
- B. CODES SHALL GOVERN IN CASE OF ANY DIRECT CONFLICT BETWEEN CODES AND PLANS AND SPECIFICATIONS: EXCEPT WHEN PLANS AND SPECIFICATIONS REQUIRE HIGHER STANDARDS THAN THOSE REQUIRED BY CODE. VARIANCE FROM THE PLAN AND SPECIFICATIONS MADE TO COMPLY WITH CODE MUST BE APPROVED BY THE ARCHITECT. IF APPROVED THEY SHALL BE MADE WITH NO INCREASED COST TO THE
- 1.5 PERMITS
- A. OBTAIN AND PAY FOR ALL LICENSES AND PERMITS, FEES, INSPECTION AND CERTIFICATES REQUIRED FOR THE EXECUTION OF THIS WORK.
- B. DELIVER PERMITS AND CERTIFICATES TO THE ARCHITECT TO BE TRANSMITTED TO THE OWNER.
- 1.6 RESPONSIBILITY
- A. THIS CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGE TO ANY PART OF THE BUILDING OR TO THE WORK OF OTHER CONTRACTORS, AS MAY BE CAUSED THROUGH HIS OPERATION.
- 1.7 WORK TO BE DONE BY GENERAL CONTRACTOR
- A. BUILD IN ALL OPENINGS SLEEVES, CHASES ETC., FOR CONDUIT AND EQUIPMENT AS ESTABLISHED, FURNISHED AND SET BY THIS CONTRACTOR. HE SHALL SEAL OR GROUT ALL OPENINGS AFTER THIS CONTRACTOR HAS INSTALLED HIS CONDUITS.
- 1.8 WORK DONE BY THE MECHANICAL CONTRACTOR
- A. THE MECHANICAL CONTRACTOR SHALL FURNISH WIRING DIAGRAMS AND TEMPERATURE CONTROL DRAWINGS OF ALL EQUIPMENT FURNISHED TO THE ELECTRICAL CONTRACTOR. CATALOG INFORMATION IS UNACCEPTABLE, PROVIDE POINT TO POINT DRAWINGS.
- B. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL EQUIPMENT REQUIRING CONNECTIONS TO AIR, WATER, STEAM, ETC., SUCH AS PNEUMATIC ELECTRIC RELAYS, REMOTE BULB TEMPERATURE CONTROLS, SOLENOID VALVES, AQUASTATS AND PRESSURE CONTROLS.
- C. THE MECHANICAL CONTRACTOR SHALL REIMBURSE THE ELECTRICAL CONTRACTOR FOR ANY CHANGES IN SYSTEM DESIGN I.E; CONTROL OR EQUIPMENT WHICH EFFECTS THE ELECTRICAL CONTRACTOR.
- 1.9 WORKMANSHIP AND COORDINATION
- A. MAKE INSTALLATION SUBSTANTIALLY AS SHOWN ON THE PLANS.
- B. MAKE ALTERATIONS IN LOCATION OF APPARATUS OR CONDUIT AS MAY BE REQUIRED TO CONFORM TO BUILDING CONSTRUCTION WITHOUT EXTRA CHARGE.

- C. MECHANICAL EQUIPMENT SERVICE CLEARANCES AND ELECTRICAL APPARATUS SERVICE CLEARANCES AS SPECIFIED IN THEIR RESPECTIVE MANUFACTURER'S PRODUCT DATA SHALL BE MAINTAINED FREE FROM CONDUIT.
- D. COOPERATE WITH OTHER CONTRACTORS IN THEIR INSTALLATION OF WORK.
- E. COMPLETE THE INSTALLATION IN A WORKMANLIKE MANNER, COMPLETELY CONNECTED AND READY TO GIVE PROPER AND CONTINUOUS SERVICE.
- F. USE ONLY EXPERIENCED LICENSED ELECTRICIANS. 1.10 EQUIPMENT CONNECTIONS, CONTROLS AND INSTRUMENTATION

PROVIDED BY OTHERS.

- A. GENERAL: THE FOLLOWING APPLIES TO ALL ELECTRICAL POWER AND CONTROL CONNECTIONS FOR ALL EQUIPMENT REQUIRING ELECTRICAL INSTALLATION WORK
- B. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL WIRING, CONDUIT, BOXES, TOGGLE SWITCHES, THERMAL SWITCHES, DISCONNECT SWITCHES, REMOTE PUSHBUTTON STATIONS NOT INCLUDED IN MAGNETIC STARTERS, ETC., FOR ALL EQUIPMENT REQUIRING ELECTRICAL POWER THAT IS EITHER FURNISHED OR SPECIFIED BY OTHER CONTRACTORS AND/OR THE OWNER, SHOWN ON DRAWINGS OR LISTED BELOW. THE ELECTRICAL CONTRACTOR SHALL RECEIVE, INSTALL AND CONNECT ALL MAGNETIC STARTERS AND CONTROLLERS, CAPACITORS, POWER FACTOR CORRECTION DEVICES, TRANSFORMERS, ALARMS, BELLS, HORNS, RELAYS, REMOTE SWITCHES FOR EQUIPMENT SUPPLIED BY OTHERS (I.E. STARTERS OR CAPACITORS OR POWER FACTOR CORRECTION DEVICES FOR MECHANICAL EQUIP., ETC.). IN GENERAL, ALL MAJOR EQUIPMENT WILL BE SPECIFIED TO BE FACTORY PREWIRED WITH ONLY SERVICE AND INTERCONNECTING REQUIRED AT THE SITE BY THE ELECTRICAL CONTRACTOR; HOWEVER, ALL DIVISIONS OF THE SPECIFICATION SHALL BE REVIEWED TO VERIFY WHETHER THE EQUIPMENT IS SPECIFIED TO BE FACTORY PREWIRED AND IF NOT, THEN IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE THE COMPLETE WIRING OF THE EQUIPMENT IN ACCORDANCE WITH WIRING DIAGRAMS PROVIDED BY OTHER CONTRACTORS AND/OR OWNER TO THE ELECTRICAL CONTRACTOR. ALL INTERCONNECTING OF EQUIPMENT SHALL BE BY THE ELECTRICAL CONTRACTOR
- C. ALL LINE VOLTAGE WIRING AND CONNECTIONS REQUIRED TO CONTROL THE EQUIPMENT ARE A PART OF THIS SECTION. ALL WIRING SHALL BE IN CONDUIT. LOW VOLTAGE CONTROL WIRING SHALL BE IN CONDUIT. CONDUIT SYSTEM, WIRING AND TERMINATIONS OF LOW VOLTAGE CONTROL WIRING SHALL BE THE RESPONSIBILITY OF THE TEMPERATURE CONTROLS CONTRACTOR.
- D. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT CONTROL POWER SUPPLY; #12 GAUGE CU. THWN IN 3/4"-INCH C. MINIMUM AT ALL POINTS REQUIRED BY CONTROLS, AND INSTRUMENTATION AND SPRINKLER RISERS. CIRCUIT TO THE NEAREST 120 VOLT PANEL. USE SPARE 20 AMP. BREAKERS. EACH CONTROL PANEL SHALL BE ON A SEPARATE CIRCUIT UNLESS OTHERWISE INDICATED.
- E. THE CONTRACTOR SHALL BE FAMILIAR WITH THE EQUIPMENT TO BE FURNISHED BY THE OTHER CONTRACTORS AND/OR THE OWNER IN CONNECTION WITH THIS WORK AND PROVISIONS FOR SUCH CONNECTIONS AND WORK SHALL BE INCLUDED IN THE CONTRACTOR'S PRICE. IN NO CASE WILL EXTRA REMUNERATION BE ALLOWED FOR
- F. CONNECTIONS TO ALL EQUIPMENT HAVE BEEN DESIGNED FROM UNITS AS SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS. IN THE EVENT EQUIPMENT DIFFERS ON APPROVED SHOP DRAWINGS IT SHALL BE THE RESPONSIBILITY OF THE SUPPLYING CONTRACTOR TO COORDINATE ELECTRICAL CONNECTIONS TO THE UNITS AND REIMBURSE ELECTRICAL CONTRACTOR FOR ANY CHANGES IN SYSTEM DESIGN. THESE CHANGES SHALL NOT INVOLVE ADDITIONAL COST TO THE OWNER.
- G. REVIEW ALL PLANS AND SPECIFICATIONS TO VERIFY ALL EQUIPMENT CONNECTIONS THAT ARE REQUIRED BY MECHANICAL AND/OR OTHER CONTRACTORS. ALTHOUGH THE ELECTRICAL DRAWINGS WILL SHOW EQUIPMENT CONNECTION REQUIREMENTS. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO CONNECT ALL EQUIPMENT FURNISHED BY OTHER CONTRACTORS AT NO EXTRA COST TO THE OWNER EVEN IF THIS EQUIPMENT CONNECTION IS NOT SHOWN ON THE ELECTRICAL DRAWINGS. COORDINATE ALL REQUIRED CONNECTIONS NOT SHOWN ON THE ELECTRICAL DRAWINGS WITH THE ENGINEER.
- 1.11 NAMEPLATES
- A. PROVIDE PANELBOARD WITH ENGRAVED PLASTIC LABEL 1/4" WHITE LETTERS ON BLACK BACKGROUND WITH VOLTAGE AND PHASE. ATTACH WITH SCREWS OR
- B. PROVIDE SEPARATELY MOUNTED DISCONNECTS AND STARTERS WITH 3/16" LABEL (SAME STYLE AS ABOVE). NAMEPLATE SHALL PROVIDE MOTOR DESIGNATION, VOLTAGE, AND PHASE; IN ADDITION TO PANEL AND CIRCUIT NUMBER. INSCRIPTION: NAMEPLATES SHALL ADEQUATELY DESCRIBE THE FUNCTION OR USE OF THE PARTICULAR EQUIPMENT INVOLVED.
- C. ALL BRANCH CIRCUIT PANELBOARDS SHALL HAVE THEIR DIRECTORIES NEATLY
- D. ALL SWITCHES THAT CONTROL MECHANICAL EQUIPMENT, PUMPS, FANS, BOILERS, ETC., SHALL HAVE PLASTIC NAMEPLATES WITH A MINIMUM LETTER HEIGHT OF 1/8".
- E. DEVICE COVERS (RECEPTACLES, SWITCHES) SHALL BE LABELED NEATLY WITH A PERMANENT MARKER OR LABEL MAKER WITH PANEL & CIRCUIT NUMBER. (EX. L1A-10)
- F. ON THE COVER OF EACH JUNCTION BOX AND PULL BOX: THE CIRCUIT NUMBER(S) OF THE ENCLOSED CONDUCTORS ARE TO BE LEGIBLY WRITTEN WITH A BLACK PERMANENT INK BROAD TIP MARKING PEN AND THE SYSTEM IDENTIFICATION.
- G. PANELBOARD DIRECTORIES SHALL BE LABELED WITH THE ACTUAL FINISHED BUILDING ROOM NUMBERS FOR CIRCUIT IDENTIFICATION AND NOT THE ROOM NUMBERS FROM THE CONSTRUCTION PLANS. (UNLESS THEY ARE THE SAME)
- 1.12 MATERIALS
- A. MATERIAL AND EQUIPMENT SHALL BE NEW, OF BEST QUALITY AND DESIGN AND FREE FROM DEFECTS. A MANUFACTURER'S NAMEPLATE AFFIXED IN A CONSPICUOUS PLACE WILL BE REQUIRED ON EACH MAJOR COMPONENT OF EQUIPMENT STATING MANUFACTURER'S NAME, ADDRESS AND CATALOG NUMBER. ALL ITEMS USED ON THIS PROJECT SHALL BE OF ASBESTOS FREE MATERIAL.
- B. WHERE ITEMS OF EQUIPMENT AND/OR MATERIALS ARE SPECIFICALLY IDENTIFIED HEREIN BY A MANUFACTURER'S NAME, MODEL OR CATALOG NUMBER, ONLY SUCH SPECIFIC ITEMS MAY BE USED IN THE BASE BID.

- 1.14 MANUFACTURER'S INSTRUCTIONS
- A. APPLY, INSTALL, CONNECT, ERECT, USE, CLEAN, AND CONDITION ARTICLES, MATERIALS AND EQUIPMENT AS DIRECTED BY THE MANUFACTURER.
- 1.15 CUTTING AND PATCHING
- A. NOTIFY THE GENERAL CONTRACTOR IN AMPLE TIME, OF THE LOCATION OF ALL CHASES, SLEEVES, AND ANY OTHER OPENINGS REQUIRED IN CONNECTION WITH THE WORK OF THIS CONTRACT.
- B. CUTTING AND PATCHING MADE NECESSARY BECAUSE OF FAILURE TO COMPLY WITH THE ABOVE SHALL BE DONE BY THE GENERAL CONTRACTOR AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
- C. WHEN IT IS NECESSARY FOR THE ELECTRICAL CONTRACTOR TO CUT BUILDING MATERIALS TO INSTALL HIS WORK, IT SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER MEETING WITH THE APPROVAL OF THE ARCHITECT.
- D. HOLES THROUGH CONCRETE SHALL BE CAREFULLY DONE WITH A "CONCRETE TERMITE" DRILL. A STAR DRILL OR AIR HAMMER WILL NOT BE PERMITTED. STRUCTURAL MEMBERS SHALL NOT BE CUT WITHOUT APPROVAL FROM THE
- E. ANY PENETRATIONS THRU ROOF SHALL BE MADE WITH "STONEMAN" FLASHING CONNECTIONS AS MANUFACTURED BY STONEMAN ENGINEERING AND MANUFACTURING CO., INGLEWOOD, CALIFORNIA, AND ANY PENETRATIONS MADE IN EXTERIOR OR BASEMENT FOUNDATION WALLS SHALL BE SEALED WITH THUNDERLINE "LINK-SEAL" CONNECTIONS, AS MANUFACTURED BY THUNDERLINE CORPORATION, WAYNE, MICHIGAN.
- 1.16 MUTILATION
- A. ANY MUTILATION OF FINISHING INITIATED BY ELECTRICAL CONSTRUCTION SHALL BE PROPERLY CORRECTED BY THE RESPECTIVE FINISHING CONTRACTOR AND PAID FOR BY THE ELECTRICAL CONTRACTOR.
- 1.17 TESTING AND ADJUSTMENT
- A. WHEN INSTALLATION IS COMPLETE, TEST ALL ELECTRICAL CONDUCTORS TO INSURE CONTINUITY, FREEDOM FROM GROUNDS, AND INSULATION RESISTANCE VALUES..
- B. ALL FEEDERS AND BRANCH CIRCUITS SHALL BE MEGGER TESTED BETWEEN PHASE CONDUCTORS AND GROUND, USING A 1,000V MEGGER. TESTS SHALL BE MADE UPON COMPLETION OF ALL CONNECTIONS AND SPLICES AND INSERTION OF ALL OVERCURRENT DEVICES. TESTS SHALL INDICATE FREEDOM FROM SHORT CIRCUITS AND GROUNDS.
- 1.18 FINAL INSPECTION
- A. FINAL INSPECTION WILL BE MADE UPON WRITTEN REQUEST FROM THE GENERAL CONTRACTOR AFTER THE PROJECT IS COMPLETED; IN ACCORDANCE WITH THE SUPPLEMENTARY GENERAL CONDITIONS.

- A. GUARANTEE ALL WORK, MATERIAL AND EQUIPMENT FOR A PERIOD OF TWO YEARS AFTER DATE OF SUBSTANTIAL COMPLETION. PROVIDE WRITTEN DOCUMENTATION OF WARRANTY TO OWNER WITH RELEVANT CONTACT INFO.
- B. DURING THE YEAR GUARANTEE PERIOD THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEFECTS WHICH DEVELOP IN THE ELECTRICAL SYSTEMS. UPON NOTIFICATION OF A DEFECT BY THE GENERAL CONTRACTOR, THE ELECTRICAL CONTRACTOR SHALL MAKE IMMEDIATE EFFORT TO CORRECT IT AND SHALL NOTIFY THE ARCHITECT WHEN THIS WORK IS COMPLETED.
- C. REPAIRS AND/OR REPLACEMENTS SHALL BE MADE WITH NO COST TO OWNER. END OF SECTION

SECTION 16100 - BASIC MATERIALS

- 1.1 CONDUIT A. MATERIALS:
 - 1. EMT TUBING SHALL BE ALLIED, REPUBLIC, LTV, OR EQUAL WITH U.L. APPROVED NATIONAL ELECTRIC CODE TYPE FITTINGS. INDENTER TYPE FITTINGS SHALL NOT BE USED. A GROUND WIRE SIZED PER N.E.C. ART. 250-122 SHALL BE PULLED IN EACH CONDUIT CONTAINING PHASE CONDUCTOR(S).
- 2. LIQUID-TIGHT FLEXIBLE METAL CONDUIT: FLEXIBLE GALVANIZED STEEL TUBING COVERED WITH EXTRUDED LIQUID-TIGHT JACKET OF POLYVINYL CHLORIDE (PVC). PROVIDE CONDUIT WITH A CONTINUOUS COPPER BONDING CONDUCTOR SPIRAL BETWEEN THE CONVOLUTIONS. PROVIDE STEEL OR MALLEABLE IRON FITTINGS. CONNECTORS SHALL HAVE INSULATED THROATS.
- 3. ALL CONDUIT EXPOSED TO PHYSICAL ABUSE (I.E. INDUSTRIAL LOCATIONS), INSTALLED IN WET LOCATIONS, IN SLABS, BELOW GRADE OR EXPOSED EXTERIOR TO THE BUILDING, SHALL BE RIGID STEEL OR INTERMEDIATE METAL CONDUIT (IMC).
- B. BUSHINGS AND LOCKNUTS:
- 1. BUSHINGS FOR TERMINATING CONDUITS SMALLER THAN 1-1/4-INCHES ARE TO HAVE FLARED BOTTOM AND RIBBED SIDES, WITH SMOOTH UPPER EDGES TO PREVENT INJURY TO CABLE INSULATION.
- 2. WHERE REQUIRED, BUSHINGS OF STANDARD OR INSULATED TYPE SHALL HAVE SCREW TYPE GROUNDING TERMINAL.
- C. CONDUIT INSTALLATION:
- 1. ALL EXPOSED CONDUITS SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO BUILDING ELEMENTS.
- 2. CONDUIT SHALL BE INSTALLED TO THE REQUIREMENTS OF THE STRUCTURE AND TO REQUIREMENTS OF ALL THE OTHER WORK ON THE PROJECT. CONDUIT SHALL BE INSTALLED TO CLEAR ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, REINFORCING STEEL, ETC.
- 3. CONDUIT SHALL BE INSTALLED CONTINUOUS BETWEEN CONNECTIONS TO OUTLETS, BOXES AND CABINETS WITH A MINIMUM POSSIBLE NUMBER OF BENDS AND NOT MORE THAN THE EQUIVALENT OF 4-90 DEGREE BENDS BETWEEN CONNECTIONS. BENDS SHALL BE SMOOTH AND EVEN AND SHALL BE MADE WITHOUT FLATTENING CONDUIT OR FLAKING ENAMEL. RADIUS OF BENDS SHALL BE AS LONG AS POSSIBLE AND NEVER SHORTER THAN THE CORRESPONDING TRADE ELBOW. LONG RADIUS ELBOWS SHALL BE USED WHERE NECESSARY.
- 4. CONDUITS SHALL BE SECURELY FASTENED IN PLACE WITH APPROVED STRAPS, HANGERS, AND SUPPORTS AS REQUIRED.

- 5. ALL WORK SHALL BE PROTECTED AGAINST DAMAGE DURING CONSTRUCTION AND ANY WORK DAMAGED OR MOVED OUT OF LINE AFTER ROUGHING-IN SHALL BE REPAIRED AND RESET TO THE APPROVAL OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- 6. CONDUIT PENETRATIONS THROUGH EXTERIOR WALLS/FLOORS SHALL HAVE SEALED FITTINGS TO PREVENT PASSAGE OF WATER VAPOR.
- 7. CONDUIT TERMINATIONS AT PANELBOARDS, JUNCTION BOXES, ETC., SHALL BE ALIGNED AND INSTALLED TRUE AND PLUMB. WOOD OR STEEL BUCKS OR TEMPLATES SHALL BE USED WHERE REQUIRED.

1.2 WIRES AND CABLES

- A. HARBIRSHAW, CRESCENT, SOUTHWIRE, GENERAL CABLE, AMERICAN, U.S. RUBBER COMPANY OR EQUAL CODE GAUGE WIRE, FINISHED WITH FADELESS COLOR SOLUTION FOR NATIONAL ELECTRIC CODE SYSTEM OF COLOR CODING AND BEARING UNDERWRITER'S LABEL. WIRES SHALL BE SOFT ANNEALED STRANDED COPPER WITH PROPERTIES CONFORMING TO THE NATIONAL ELECTRIC CODE REQUIREMENTS. NO. 10 GAUGE AND LARGER SHALL BE STRANDED. NO. 12 GAUGE CAN BE SOLID OR STRANDED.
- B. WIRE SMALLER THAN NO. 12 GAUGE SHALL NOT BE USED UNLESS SPECIFICALLY CALLED FOR.
- C. WIRES FOR GENERAL USE WITHIN THE BUILDING SHALL BE TYPE THWN, XHHW, OR COMBINATION THHN/THWN EXCEPT WHERE CALLED FOR ON THE DRAWINGS. ALL CONDUCTOR SIZES MUST BE AS SPECIFIED ON DRAWINGS REGARDLESS OF INSULATION TYPE.
- D. A GROUND WIRE SIZED PER N.E.C. ART. 250-122 SHALL BE INSTALLED IN EACH CONDUIT CONTAINING PHASE CONDUCTORS.
- E. ALL CONTROL WIRING SHALL BE COPPER, SOLID OR STRANDED, #L4 GA. OR LARGER DEPENDING UPON CURRENT REQUIREMENTS. INSULATION TYPE FOR 90 DEGREE C. WHERE STRANDED CONDUCTORS ARE USED PROVIDE WITH SPADE TYPE INSULATED COPPER TERMINALS.
- F. ALL CONDUCTORS SHALL BE IDENTIFIED AT ALL TERMINATION POINTS AND IN ALL PULL AND JUNCTION BOXES BY THE FOLLOWING METHOD OF COLOR CODING. MEANS OF IDENTIFICATION SHALL BE PERMANENTLY POSTED AT EACH BRANCH CIRCUIT PANEL WITH A NAMEPLATE IDENTIFYING COLOR CODING WHERE MORE THAN ONE NOMINAL VOLTAGE SYSTEM IS IN THE SAME BUILDING.
- 208Y/120 VOLT SYSTEM:
- PHASE A BLACK
- PHASE B RED
- PHASE C BLUE **NEUTRAL - WHITE**
- GROUND GREEN
- G. ALL CONDUCTORS SIZE #8 AWG AND SMALLER SHALL HAVE COLORED INSULATION. WHERE CONDUCTORS WITH BLACK INSULATION ARE USED FOR THE LARGER WIRE SIZES (#6 AWG AND LARGER) COLOR CODING SHALL BE PROVIDED WITH TWO LAYERS-ONE HALF LAPPED OF NO. 35 COLORED SCOTCH VINYL ELECTRICAL TAPE.
- 1.3 FIRE BARRIER PENETRATION SEALS
- A. MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE FIRE BARRIER PENETRATION SEALS SHALL BE EQUAL TO ELECTRO PRODUCTS DIV./3M.
- B. PROVIDE SEALS FOR ANY OPENING THROUGH FIRE-RATED WALLS, FLOORS OR CEILINGS USED AS PASSAGE FOR COMPONENTS SUCH AS CONDUITS OR CABLES.
- 1. CRACKS, VOIDS OR HOLES UP TO 4-INCHES DIAMETER: USE PUTTY OR CAULKING, ONE-PIECE INTUMESCENT ELASTOMER, NON-CORROSIVE TO METAL, COMPATIBLE WITH SYNTHETIC CABLE JACKETS, AND CAPABLE OF EXPANDING 10 TIMES WHEN EXPOSED TO FLAME OR HEAT, UL-LISTED.
- 2. EXECUTION: FILL ENTIRE OPENING WITH SEALING COMPOUND. ADHERE TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL FIRE BARRIER SEALS SHALL MEET THE RATING OF THE WALL.

1.4 WIRE CONNECTIONS

- A. ALL WIRES SHALL BE RUN IN CONDUIT, SHALL BE CONTINUOUS BETWEEN OUTLETS AND BOXES (WITH NO SPLICES OR TAPS IN CONDUITS). SPLICES AND TAPS FOR #6 AND LARGER CONDUCTORS SHALL BE WITH BLOCK TYPE WITH INSULATING JACKET OR SPLIT BOLT CONNECTORS, COVERED AND COMPLETELY INSULATED WITH A MINIMUM OF THREE HALF-LAPPED LAYERS OF SCOTCH NO. 33+ (105°C) PLASTIC ELECTRICAL TAPE OR BY APPROVED INSULATED FASTENER. ALL SPLICES AND TAPS HAVING IRREGULAR SURFACES SHALL BE PROPERLY PADDED WITH SCOTCHFIL PUTTY BEFORE APPLICATION OF INSULATING PLASTIC TAPE. SCOTCHLOK ELECTRICAL PRE-INSULATED SPRING PRESSURE CONNECTORS OR EQUAL MAY BE USED FOR UP TO #8 CONDUCTORS. CONNECTORS SHALL BE INSTALLED SO THAT ALL WIRES ARE PROPERLY INSULATED.
- 1.5 PULL AND JUNCTION BOXES
- A. PULL AND JUNCTION BOXES SHALL BE CODE GAUGE STEEL BOXES WITH HINGED. BOLTED OR SCREWED COVERS. BOXES SHALL BE FLUSH OR SURFACE MOUNTED AS SHOWN OR REQUIRED.
- B. PROVIDE JUNCTION AND PULL BOX AS REQUIRED FOR PULLING OF WIRE AS REQUIRED BY THE NEC. ALL BOXES SHALL BE CODE CONSTRUCTION WITH SCREW TYPE COVER AND SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.
- 1.6 OUTLET BOXES
- A. J-BOXES IN BOILER ROOMS, MECH./ELECT. ROOMS, STORAGE ROOMS OR ABOVE CEILINGS SHALL BE A MINIMUM OF 2 1/8" DEEP 4" SQ. BOXES W/ COMBO 1/2" & 3/4" CONCENTRIC KO'S.
- 1.7 WIRING DEVICES
- A. RECEPTACLES SHALL BE 20A COMMERCIAL GRADE. DUPLEX RECEPTACLES SHALL BE EXTRA HEAVY-DUTY TYPE WITH NYLON FRONTS AND BACKS.
- B. THE GROUND WIRE SHALL BE PIGTAILED TO THE BOX WITH A 10/32 GREEN SCREW AND WRAPPED ON THE GROUNDING SCREW / YOKE OF THE DEVICE.
- C. METAL COVER PLATES SHALL BE USED ON ALL FLUSH DEVICES.
- D. SWITCHES SHALL BE EXTRA HEAVY-DUTY TYPE WITH NYLON FRONTS AND BACKS.

- E. DEVICES SHALL BE PIGTAILED FROM BRANCH CIRCUIT FOR EASE OF DEVICE REMOVAL OR REPLACEMENT.
- F. FUSTATS SHALL BE BUSSMANN "SSY" WITH FUSTAT AND INTEGRAL TOGGLE SWITCH FOR MOTORS 1/2 HP 120V. AND LESS. FUSES FOR MOTORS SHALL BE SIZED BASED ON 125 PECENT OF MANUFACTURER'S NAMEPLATE FULL LOAD AMPERAGE UNLESS OTHERWISE INDICATED ON DRAWINGS.

SECTION 16400 - SERVICE AND DISTRIBUTION

1.1 GROUNDING

A. ALL CONDUCTORS, MOTOR FRAMES, ETC., THAT REQUIRE GROUNDING SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

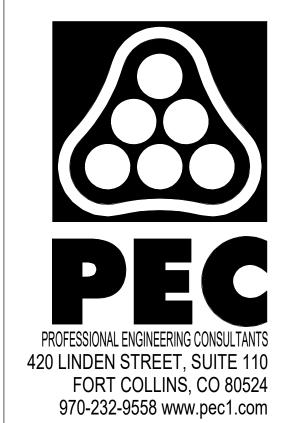
1.2 PANELBOARDS

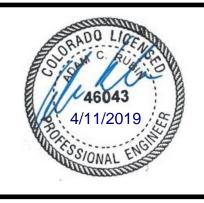
- A. PROVIDE PANEL BY SQUARE D WITH THERMAL MAGNETIC BREAKERS AND GROUND BUS. LOAD CENTER CONSTRUCTION IS NOT PERMITTED. PROVIDE DOOR-IN-DOOR CONSTRUCTION WITH NAMEPLATE MOUNTED ON FRONT OF PANEL.
- B. PROVIDE LOCKS WITH TWO KEYS FURNISHED PER LOCK.

1.3 DISCONNECT SWITCHES

A. THE CONTRACTOR SHALL FURNISH AND INSTALL SQUARE 'D' EXTERNALLY OPERATED, HEAVY DUTY, HORSEPOWER RATED DISCONNECT SWITCHES AT ALL POINTS INDICATED ON THE DRAWINGS OR REQUIRED BY CODE. THE ENCLOSURE SHALL HAVE THE PROPER NEMA RATING FOR THE ENVIRONMENT.

END OF SECTION





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ELECTRICAL SPECIFICATIONS

100% CONSTRUCTION DOCUMENTS

JOB NO.190168-000 DATE 4/12/2019 DRAWN BY TLP

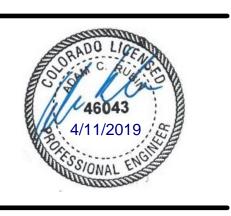
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PROFESSIONAL FAIGURETURE CONCILITANTS

420 LINDEN STREET, SUITE 110

FORT COLLINS, CO 80524

970-232-9558 www.pec1.com



2407 LAPORTE AVENUE

ELECTRICAL ROOF PLAN

100% CONSTRUCTION DOCUMENTS

JOB NO.190168-000
DATE 4/12/2019
DRAWN BY TLP
CHECKED BY ACR

4/11/2019 8:17:48 AM

REMOVE EXISTING FEEDERS TO

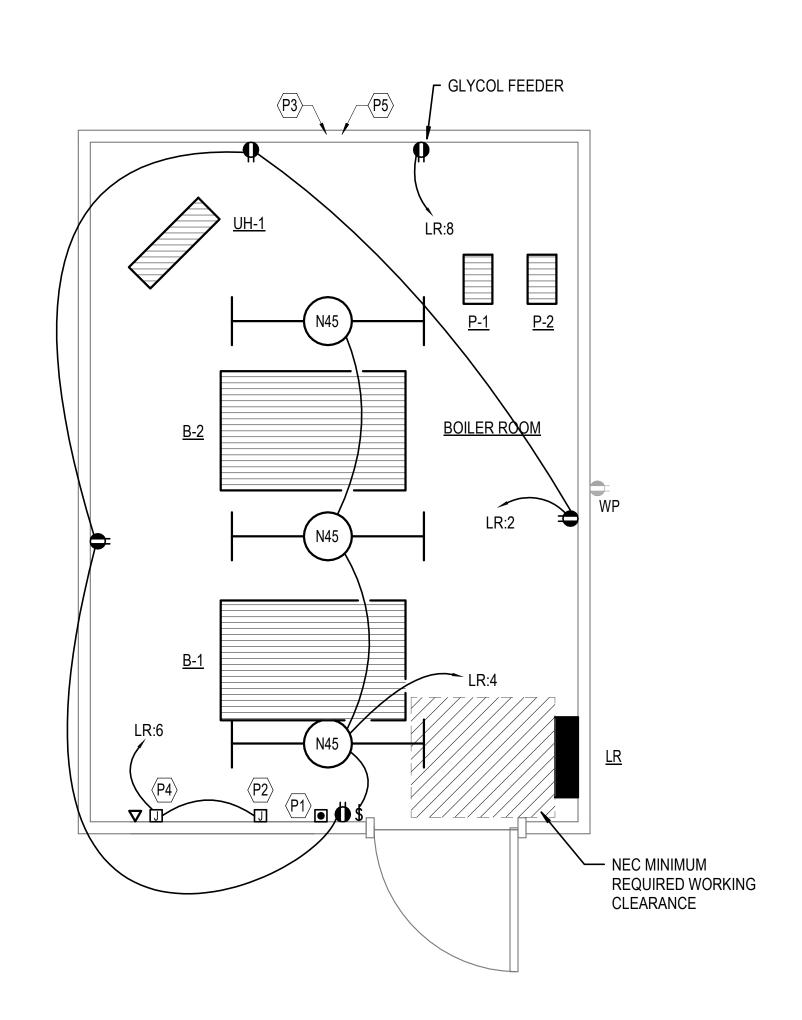
KEYED NOTES:

P3 PENETRATE WALL IN THIS AREA FOR 1"C WITH PULLROPE FOR DATA ROUTED TO DATA LOCATION AS INDICATED ON THE SOUTH WALL. REFER TO ELECTRICAL ROOF PLAN FOR CONTINUATION.

P4 PROVIDE 120V CONNECTION AND CAT5 FROM MAIN COMM/DATA ROOM FOR TEMPERATURE CONTROL CABINET. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.

P5 PENETRATE WALL IN THIS AREA FOR PANEL LR FEEDER. ROUTE TO PANEL LOCATION AS INDICATED ON THE EAST WALL. REFER TO ELECTRICAL ROOF PLAN FOR CONTINUATION.

GLYCOL FEEDER. UPDATE EXISTING PANEL M DIRECTORY WITH ALL CHANGES — — ELECTRICAL CONDUITS. JUNCTION BOXES AND - EXISTING PUMP DEVICES WITHIN THE DISCONNECTS, STARTERS ROOM TO BE REMOVED AND ASSOCIATED WIRING TO REMOVE EXISTING BE REMOVED. UPDATE STRIP LIGHT AND **EXISTING PANEL M DIRECTORY** ASSOCIATED FEEDERS. WITH ALL CHANGES **UPDATE EXISTING** PANEL M DIRECTORY WITH ALL CHANGES -_____ - REMOVE EXISTING PUMP CIRCUITS AND FEEDERS. REMOVE EXISTING UPDATE EXISTING PANEL M FEEDERS TO BOILERS. DIRECTORY WITH ALL CHANGES **BOILER ROOM UPDATE EXISTING** PANEL M DIRECTORY — EXISTING RECEPTACLE TO WITH ALL CHANGES -REMAIN. MAINTAIN CIRCUIT CONTINUITY TO EXTERIOR ROOF RECEPTACLES TO REMAIN ______ DEMO (4) THRU WALL CONDUITS IN THIS AREA AND PATCH WALL







- 1. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH.
- 2. A GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 IS REQUIRED IN ALL CONDUITS.
- 3. FOR CONNECTION REQUIREMENTS TO MECHANICAL UNITS, SEE MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
- 4. ALL PENETRATIONS IN THE RATED WALLS AND CEILINGS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. THE SEALANT SHALL HAVE A T-RATING OF ONE HOUR.
- 5. ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL.

DEMOLITION PLAN NOTES:

- 1. DEMOLITION PLANS SHOW THE GENERAL EXTENT OF THE ELECTRICAL DEMOLITION WORK. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT ELECTRICAL SERVICES TO ALL EQUIPMENT BEING REMOVED, SEE MECHANICAL PLANS. OWNER SHALL HAVE THE OPTION TO RETAIN REUSABLE ITEMS. SUCH AS COVERPLATES. RECEPTACLES, LIGHTS, PANELS, ETC. NOT BEING USED IN THE FINISHED WORK. COORDINATE WITH OWNER PRIOR TO STARTING DEMOLITION. PROPERLY AND LEGALLY DISPOSE OF ALL EQUIPMENT AND MATERIALS BEING REMOVED.
- 2. REMOVE ALL CONDUIT LEFT EXPOSED BY REMOVAL OF WALLS AND CEILINGS IN REMODELED AREAS. PLUG BOTH ENDS OF REMAINING CONDUIT IN WALL OR FLOOR WHERE CUT.
- 3. ELECTRICAL OUTLETS, ETC. POSSIBLY CONCEALED BY STORAGE SHELVING, CASEWORK, FURNITURE, ETC. ARE NOT SHOWN AND MAY REQUIRE REMOVAL.
- 4. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING ALL OPENINGS IN EXISTING CONSTRUCTION AFTER REMOVAL OF EQUIPMENT AND ELECTRICAL DEVICES, ETC.
- 5. WHERE EQUIPMENT AND OTHER DEVICES ARE BEING REMOVED, THE CIRCUITING SHALL BE REMOVED, IF POSSIBLE, BACK TO POINT OF SUPPLY. WHERE REQUIRED, CIRCUITING SHALL BE EXTENDED TO MAINTAIN CONTINUITY OF THE CIRCUIT OR OPERATION OF THE SYSTEM.
- 6. ALL DEVICES SHOWN DASHED ON THE DEMOLITION PLAN(S) SHALL BE REMOVED, UNLESS NOTED OTHERWISE.
- 7. PROVIDE MATCHING BLANK COVERPLATES WHERE DEVICES ARE BEING REMOVED FROM EXISTING WALLS TO REMAIN.
- 8. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO BEGINNING WORK.



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ENLARGED ELECTRICAL **PLANS**

100% CONSTRUCTION **DOCUMENTS**

JOB NO.190168-000 CHECKED BY

PANELBOARD: LR											
		CONNEC	TED KV	۹:	DEMAN	ND	CONT.	SIZING AMPS:			
	PH-A	PH-B	PH-B PH-C TOTAL			KVA	FACT	TOTAL	PH-A	PH-B	PH-C
Lighting	0.0	0.2	0.0	0.2	1.0	0.2	1.25	0.5	0.0	1.6	0.0
Receptacles	8.0	0.0	0.0	8.0	1.0	0.8	1.0	2.2	6.7	0.0	0.0
Power	0.5	0.0	0.2	0.7	1.0	0.7	1.0	1.9	4.2	0.0	1.7
Largest Motor	0.7	0.0	0.0	0.7	1.0	0.7	1.25	2.5	7.5	0.0	0.0
Motors	0.7	0.7	0.7	2.1	1.0	2.1	1.0	5.8	5.7	6.0	5.7
Heating	2.5	2.5	2.5	7.5	1.0	7.5	1.25	26.0	26.0	26.0	26.0
Spare					0.2	2.4	1.0	6.6	6.6	6.6	6.6
TOTAL KVA:	5.2	3.4	3.4	11.9		14.3	TOTA	L AMPS:	PH-A	PH-B	PH-C
TOTAL AMPS:	43.0	28.0	28.0	33.2				45.5	56.7	40.2	40.0

	© EQUIPMENT CONNECTION SCHEDULE																
	MECHANICAL EQUIPMENT CONNECTIONS																
	LINIT	LINIT	LOAD		PANEL DEVICE				DEVICE AT UNIT				SE	FFEDER RECORDINATION	REMARKS		
	UNIT DESIG.	UNIT VOLTAGE	H.P.	FLA	KVA	CIRCUIT NUMBER	BKR. S AMPSA	SW. FUSI MPSAMP	P NEN STAF E SIZ	IA BKR. RT. AMPS	SW. F AMPSA	USE (P NEMA START E SIZE	OTHER	 S	FEEDER DESCRIPTION OR SEE THE FEEDER SCHEDULE	OR SEE THE INDICATED NOTES BELOW
_[B BOILER																
4	1	120/1	6A		0.72		20		1					FUSTAT	1	2 #12 AWG THWN; #12 AWG GRD; 1/2"C.	
4)	2	120/1	6A	6.0	0.72	LR:3	20		1					FUSTAT	1	2 #12 AWG THWN; #12 AWG GRD; 1/2"C.	
	Р	PUMP															
	1	120/1	5.69A		0.684		20		1					FUSTAT	1	2 #12 AWG THWN; #12 AWG GRD; 1/2"C.	
	2	120/1	5.69A	5.7	0.684	LR:7	20		1					FUSTAT	1	2 #12 AWG THWN; #12 AWG GRD; 1/2"C.	
	UH	UNIT HEAT															
	1	208/3	A	20.8	7.488	LR:9	30		3					DISC W/ EQUIP	1	3 #10 AWG THWN; #10 AWG GRD; 3/4"C.	
[$\perp \perp$		\sqcup						\perp		
	(1) AI	LL CONNEC	CTION	S ANI) ELE	CTRICAL E	QUIP	MFNT	LISTE	-D IN	SCH	FDI	JI F SI	HALL BE PROV	'IDF	D AND INSTALLED BY THE ELECT	RICAL

I (1) ALL CONNECTIONS AND EFECTRICAL EMOISMENT FISTED IN SCHEDULE SHAFF RE AKOAIDED AND INSTAFFED BY THE EFECTRICAL CONTRACTOR. FIELD VERIFY CONNECTION REQUIREMENTS AND EQUIPMENT PROVIDED BY OTHERS PRIOR TO ROUGH-IN.

- 2 REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTIONS OF INTERLOCKING, THERMOSTAT LOCATIONS, EXHAUST FAN CONTROL SWITCHES, AND OTHER CONTROLS OF MECHANICAL EQUIPMENT.
- ③ SIZE FUSES FOR MOTOR FUSTATS BASED ON 125% OF MANUFACTURER'S NAMEPLATE FULL LOAD AMPERAGE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 4 PROVIDE 20A., 1 POLE, 125V. TOGGLE SWITCH WITH LIFT UP COVER FOR EMERGENCY SHUTDOWN OF BOILER AT EACH ENTRY/EXIT TO BOILER ROOM. LABEL SWITCH 'BOILER EMERGENCY SHUTDOWN'. WIRE SWITCH TO SHUT OFF POWER TO THE BOILER CONTROLS. SEE PLANS. THE DISCONNECT SWITCH FOR BOILERS SHALL BE PAD-LOCKABLE IN THE OFF POSITION. IF LOCAL DISCONNECTING MEANS FOR THE BOILER IS A FUSTAT, ALSO PROVIDE A HORSEPOWER RATED TOGGLE SWITCH WITH LOCKABLE COVER.

FEEDER SCHEDULE

	DESIG.			(CONDUCTORS	GROUND SIZE PER SET	ISOLATED GROUND SIZE	CONDUIT SIZE PER SET	SPARI
		EQUIPMENT SERVED	SETS	NO.	SIZE				CONDU
	1	PANELBOARD:LR	1	4	#1 AWG CU	#8		1-1/2"	

MDC 1200A BUSSING, NEMA 3R 208Y/120V, 3P, 4W, 65K AIC RATED

200A

200A

400 AF 125 AT

TO EXISTING ATS, GENERATOR AND 'EM' PANEL TO REMAIN

SQUARE D QED2 SWITCHBOARD

200A

200A

PANEL PANEL

200A

200A

100A

EAST

COMPUTER

ROOM

NO SCALE

N45 STRIP LIGHT RAB LIGHTING SEAL4-50N/D10

(E) UTILITY XMFR

CT CABINET MAIN DISCONNECT

METERING

1200A 1200A **KEYED NOTES:**

PROVIDE NEW 100A FUSES AND CONNECT TO EXISTING 100A SPARE DISCONNECT IN EXISTING SWITCHBOARD, PROVIDE NAMEPLATE.

GENERAL ONE-LINE DIAGRAM NOTES:

- 1. UNLESS OTHERWISE NOTED, ALL CIRCUIT BREAKERS AND/OR SWITCHES ARE THREE POLE.
- 2. ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A LIGHT LINE, IS EXISTING TO REMAIN.
- 3. ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A DARK LINE, IS NEW WORK UNDER THIS CONTRACT.

800A, NEMA 3R

800A

800A

600 AF

600 AT

208Y/120V, 3P, 4W

SQUARE D PANELBOARD

800 AF

300 AT

PANEL

0.3 | 4.0 | 0.2 | 3 | 5700 LUMENS, 4000K

LOAD RECAP: MAXIMUM DEMAND OVER PAST YEAR: 111 kW DIVIDED BY .9 POWER FACTOR: 123.3 kW ADD 25% PER NEC: 154.2 kW REMOVED LOAD: 6.16 kW ADDED LOAD: 11.9 kW NET CHANGE IN LOAD: 5.74 kW

NEW SERVICE TOTAL: 159.94 kW NEW SERVICE TOTAL LOAD: 444.28 AMPS

100A

ONE-LINE DIAGRAM

EXISTING SERVICE IS 1200 AMPS @ 208/3 PHASE

100A

100A

100A

ELEVATOR

CONTROLLER

100A

100A

PANEL LA1

100A

100A

UPPER LEVEL

COMPUTER

ROOM

420 LINDEN STREET, SUITE 110 FORT COLLINS, CO 80524 970-232-9558 www.pec1.com



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LIGHTING FIXTURE SCHEDULE MANUFACTURER LENS/LOUVER/FINISH | W | L | D | REF. | NOTE MARK DESCRIPTION # TYPE WATTS VOLTS

1 LED 50 120 POLYCARBONATE

- 1. MANUFACTURERS LISTED IN THIS SCHEDULE OR APPROVED BY WRITTEN ADDENDUM WILL BE THE ONLY APPROVED MANUFACTURERS TO BID THE LIGHTING FIXTURES FOR THIS PROJECT. CONTRACTORS AND SUPPLIERS USING PRICING FROM MANUFACTURERS NOT LISTED ON SCHEDULE OR BY ADDENDUM DO SO AT THEIR OWN RISK.
- 2. ALL LIGHT FIXTURES SHALL BE SECURED TO THE CEILING FRAMING SYSTEM BY MECHANICAL MEANS (SUCH AS BOLTS, SCREWS, OR RIVETS) OR BY CLIPS IDENTIFIED FOR USE WITH THE TYPE OF CEILING FRAMING MEMBER AND LIGHT FIXTURE.
- 3. LIGHT FIXTURES SHALL BE PROVIDED WITH 0-10V DIMMING DRIVERS. DRIVERS SHALL BE CAPABLE OF DIMMING TO A MINIMUM OF 10% OF TOTAL LIGHT OUTPUT. LED DRIVERS SHALL HAVE A DISCONNECTING MEANS MEETING THE REQUIREMENTS OF NEC SECTION 410.130(G), EXCEPT FOR THOSE INSTALLED IN CORD-AND-PLUG CONNECTED FIXTURES. WHERE APPLICABLE, WHEN DIMMING SWITCHES ARE NOT PROVIDED AS PART OF THE DESIGN, CONTRACTOR SHALL CAP OFF 0-10V DIMMING WIRES FOR FUTURE EXTENSION BY OWNER.

ELECTRICAL DETAILS

100% CONSTRUCTION DOCUMENTS

JOB NO.190168-000 CHECKED BY