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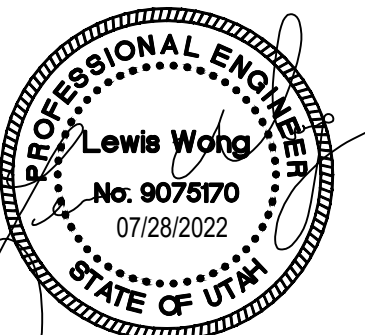
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ELECTRICAL SPECIFICATIONS	
<p>PART 1 - GENERAL</p> <p>A. DESCRIPTION</p> <p>1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TRANSPORTATION AS REQUIRED TO PROPERLY INSTALL A COMPLETE AND OPERABLE ELECTRICAL SYSTEM.</p> <p>B. RULES AND REGULATIONS</p> <p>1. ALL WORK AND MATERIALS SHALL BE INSTALLED AS SHOWN AND HEREIN SPECIFIED.</p> <p>2. THE LATEST EDITIONS OF THE FOLLOWING SPECIFICATIONS, STANDARDS, AND AMENDMENTS, AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION, SHALL FORM A PART OF THIS SPECIFICATION THE SAME AS IF HEREIN WRITTEN OUT IN FULL (ALL MATERIALS AND INSTALLATIONS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS THEREOF):</p> <p>a. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION), PUBLICATION NUMBER 70, "NATIONAL ELECTRICAL CODE"; PUB. NO. 72E, "AUTOMATIC FIRE DETECTORS".</p> <p>b. UL (UNDERWRITERS LABORATORIES, INC.).</p> <p>c. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION).</p> <p>d. UBC (UNIFORM BUILDING CODE) AND STANDARD BUILDING CODE.</p> <p>e. IBC (INTERNATIONAL BUILDING CODE)</p> <p>f. IFC (INTERNATIONAL FIRE CODE)</p> <p>g. IECC (INTERNATIONAL ENERGY CONSERVATION CODE)</p> <p>h. IEC (INTERNATIONAL ELECTRICAL CODE) STATE AND</p> <p>i. LOCAL BUILDING AUTHORITY AND CODES</p> <p>3. NO REQUIREMENT TO THESE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUCTED TO VOID ANY OF THE PROVISIONS OF THE ABOVE SPECIFICATIONS AND STANDARDS.</p> <p>C. PERMITS AND INSPECTIONS UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL APPLY, PAY FOR AND SCHEDULE ALL APPLICABLE PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY AND ALL PUBLIC AUTHORITIES HAVING JURISDICTION AND REQUIRING INSPECTION.</p> <p>1. EC SHALL INCLUDE ALL UTILITY COMPANY CHARGES IN THE BASE BID.</p> <p>D. WORKMANSHIP AND MATERIALS</p> <p>1. WORKMANSHIP SHALL BE OF THE BEST QUALITY AND NONE BUT COMPETENT PERSONNEL SKILLED IN THEIR TRADE SHALL BE EMPLOYED. THE CONTRACTOR SHALL FURNISH THE SERVICES OF AN EXPERIENCED SUPERINTENDENT, WHO WILL BE IN CHARGE OF THE EXECUTION OF WORK, UNTIL COMPLETED AND ACCEPTED.</p> <p>2. UNLESS OTHERWISE HEREIN AFTER SPECIFIED, ALL MATERIALS AND EQUIPMENT UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE NEW, OF BEST GRADE AND AS LISTED IN PRINTED CATALOGS OF THE MANUFACTURER. EACH ARTICLE OF ITS KIND SHALL BE THE STANDARD PRODUCT OF A SINGLE MANUFACTURER.</p> <p>3. THE OWNER'S REPRESENTATIVE SHALL HAVE THE RIGHT TO ACCEPT OR REJECT MATERIAL EQUIPMENT AND/OR WORKMANSHIP AND DETERMINE WHEN THEY HAVE COMPLIED WITH THE REQUIREMENTS HEREIN SPECIFIED.</p> <p>4. ALL MANUFACTURED MATERIALS SHALL BE CLEARLY MARKED OR STAMPED WITH THE MANUFACTURER'S NAME AND RATING.</p> <p>5. REFERENCE TO STANDARDS ARE INTENDED TO BE THE LATEST REVISION OF THE STANDARD SPECIFIED, OR THAT ACCEPTED BY THE AUTHORITY HAVING JURISDICTION.</p> <p>E. MANUFACTURER'S RECOMMENDATIONS</p> <p>1. EQUIPMENT INSTALLED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED.</p> <p>F. GUARANTEE ALL MATERIALS AND EQUIPMENT PROVIDED AND INSTALLED UNDER THIS SECTION SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR, SHOULD ANY TROUBLE OR MALFUNCTIONS DEVELOP DURING THIS PERIOD DUE TO DEFECTIVE MATERIALS OR FAULTY WORKMANSHIP, THE CONTRACTOR WILL BE HELD LIABLE AND SHALL FURNISH LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CORRECT THE TROUBLE OR MALFUNCTION WITHOUT ADDITIONAL COST TO THE OWNER. ALL DEFECTIVE MATERIAL OR INFERIOR WORKMANSHIP NOTICED DURING THE TIME OF INSTALLATION SHALL BE CORRECTED IMMEDIATELY TO THE ENTIRE SATISFACTION OF THE ARCHITECT, ENGINEER AND OWNER, AT NO ADDITIONAL COST.</p> <p>G. DEFINITIONS</p> <p>1. "PROVIDE" - MEANS FURNISH, INSTALL, AND CONNECT, UNLESS OTHERWISE INDICATED.</p> <p>2. "FURNISH" - MEANS PURCHASE NEW AND DELIVER IN OPERATING ORDER TO PROJECT SITE.</p> <p>3. "INSTALL" - MEANS TO PHYSICALLY INSTALL THE ITEMS IN-PLACE.</p> <p>4. "CONNECT" - MEANS MAKE FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE OPERATING PIECE OF EQUIPMENT. THIS INCLUDES PROVIDING CONDUIT, WIRE, TERMINATIONS, ETC. AS APPLICABLE.</p> <p>5. "OR EQUIVALENT" - MEANS TO PROVIDE EQUIVALENT EQUIPMENT. SUCH EQUIPMENT MUST BE APPROVED BY THE ENGINEER PRIOR TO BIDDING.</p> <p>H. SUBMITTALS</p> <p>1. PROVIDE SHOP DRAWINGS AND MANUFACTURER'S LITERATURE OF MATERIALS AND EQUIPMENT AS REQUIRED IN THE GENERAL CONDITIONS, AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND AS LISTED BELOW:</p> <p>2. CATALOG CUTS</p> <p>a. CIRCUIT BREAKERS (EACH SIZE AND TYPE)</p> <p>b. SAFETY SWITCHES</p> <p>c. MOTOR STARTERS</p> <p>d. THERMAL SWITCHES</p> <p>e. LIGHT FIXTURES</p> <p>THE ABOVE IS A STANDARD SUBMITTAL REQUIREMENT LIST. ELECTRICAL CONTRACTOR SHALL SUBMIT ALL APPLICABLE ITEMS FOR REVIEW. MATERIAL NOT SUBMITTED AND APPROVED BY THE ARCHITECT, ENGINEER OR OWNER'S REPRESENTATIVE SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS COST IF DIRECTED BY THE ARCHITECT, ENGINEER OR THE OWNER'S REPRESENTATIVE.</p> <p>PART 2 - MATERIALS</p> <p>A. GENERAL</p> <p>1. MATERIALS AND EQUIPMENT SHALL BE STANDARD CATALOGED PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF THE PRODUCT. UL LISTED, AND SHALL BE THE LATEST STANDARD DESIGN THAT CONFORMS TO SPECIFIED MATERIALS AND EQUIPMENT.</p> <p>B. RACEWAY</p> <p>1. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED IN INTERIOR DRY LOCATIONS.</p> <p>2. GALVANIZED FLEXIBLE STEEL (FMC) OR LIQUID TIGHT STEEL (LFMC) CONDUIT SHALL BE USED FOR</p>	<p>CONNECTIONS TO MECHANICAL EQUIPMENT, LUMINAIRES AND TRANSFORMERS AND AS INDICATED. LIQUID TIGHT CONDUIT SHALL BE USED IN EXTERIOR OR DAMP LOCATIONS.</p> <p>3. SCHEDULE 40 PVC (WITH PVC COATED OR VINYL TAPE DOUBLE WRAPPED RIGID STEEL ELBOWS AND RISES) SHALL BE USED FOR RUNS THAT ARE IN CONTACT WITH THE EARTH.</p> <p>4. 3/4" CONDUIT SHALL BE THE MINIMUM SIZE CONDUIT.</p> <p>5. OUTDOOR AND WET OR DAMP LOCATIONS: PROVIDE RIGID STEEL CONDUIT.</p> <p>C. FITTINGS</p> <p>1. ALL FITTINGS SHALL BE STEEL/MALLEABLE IRON WITH INSULATING BUSHINGS.</p> <p>D. OUTLET AND JUNCTION BOXES</p> <p>1. BOXES IN INTERIOR DRY LOCATIONS SHALL BE GALVANIZED ONE-PIECE PRESSED STEEL, KNOCKOUT TYPE, NOT LESS THAN 4 INCHES SQUARE AND 2 1/8" DEEP: APPLETON, RACO, OR EQUAL.</p> <p>2. BOXES SHALL BE EQUIPPED WITH PLASTER RINGS, EXTENSION RINGS, AND FIXTURE STUDS AS REQUIRED.</p> <p>3. BOXES FOR FLOOR OUTLETS SHALL BE OF THE CAST-METAL THREADED-CONDUIT-ENTRANCE, WATERPROOF TYPE WITH MEANS FOR ADJUSTING COVER PLATE TO FINISHED FLOOR LEVEL. BOXES SHALL BE SUCH AS HUBBELL B2503 OR EQUAL. THE COVER SHALL BE HUBBELL S3925, S3082 OR EQUAL TO MATCH THE FLOOR TYPE OR AS SHOWN ON THE PLANS.</p> <p>4. PROVIDE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS.</p> <p>5. BOXES FOR STRUCTURED CABLING (DATA &amp; PHONE) IN INTERIOR DRY LOCATIONS SHALL BE GALVANIZED ONE-PIECE PRESSED STEEL, KNOCKOUT TYPE 4 11/16" X 2 1/8", APPLETON, RAYCO OR EQUAL.</p> <p>6. ALL BOXES IN FINISHED SPACES SHALL BE PROVIDED WITH MUD RINGS AS REQUIRED FOR THE DEVICE AND WALL MATERIAL.</p> <p>7. OUTDOOR AND WET OR DAMP LOCATIONS: PROVIDE CAST METAL OR PVC OUTLET, JUNCTION, AND PULL BOXES.</p> <p>E. CONDUCTORS</p> <p>1. ALL CONDUCTORS SHALL BE SOFT DRAWN, ANNEALED COPPER IN RACEWAY SIZED AS SHOWN ON THE PLANS. ALL CONDUCTORS TO BE MINIMUM #12 AWG UNLESS NOTED OTHERWISE #8 AWG AND LARGER SHALL BE STRANDED.</p> <p>2. CONDUCTORS SHALL BE COPPER, THIN OR THWN-2 COLOR CODED IN ACCORDANCE WITH PART 3, SECTION C. 1. OF THESE SPECIFICATIONS OR AS INDICATED ON THE DRAWINGS.</p> <p>F. WIRING CONNECTIONS</p> <p>1. MAKE ALL ELECTRICAL CONNECTIONS.</p> <p>2. MAKE CONNECTION TO DEVICES USING "PIG-TAILS". DO NOT USE A DEVICE AS A CONNECTION OR A SPLICE UNIT.</p> <p>3. DO NOT PLACE STRANDED CONDUCTORS DIRECTLY UNDER SCREWS. INSTALL CRIMP-ON, INSULATED, FORK TERMINALS FOR CONDUCTOR TERMINATIONS, OR INSTALL SOLID CONDUCTORS.</p> <p>G. NAMEPLATES</p> <p>1. PROVIDE EACH PANEL BOARD, DISCONNECT SWITCH, AND BREAKER IN SWITCHBOARD WITH A MICARTA PLASTIC NAMEPLATE MADE OF WHITE-FACED BLACKCORE PLASTIC LAMINATE. NAMEPLATE SHALL BE MINIMUM 3" WIDE BY 3/4" HIGH FOR PANEL BOARD IDENTIFICATION INCLUDE DESIGNATION, PHASE, VOLTAGE, AND CIRCUIT NUMBER. FASTEN WITH EPOXY GLUE. DOUBLE STICK TAPE IS NOT ACCEPTABLE.</p> <p>J. FRACTIONAL HORSEPOWER MANUAL STARTER</p> <p>1. PROVIDE FRACTIONAL HORSEPOWER MANUAL STARTER WITH THE FOLLOWING FEATURES:</p> <p>a. MELTING ALLOY TYPE THERMAL OVERLOAD RELAY</p> <p>b. RED NEON PILOT LIGHT</p> <p>c. THERMAL ELEMENT SIZED FOR MOTOR LOAD</p> <p>2. PROVIDE A NAMEPLATE ON EACH COMPONENT OF MOTOR CONTROL EQUIPMENT AS SPECIFIED IN "NAMEPLATES".</p> <p>K. SAFETY SWITCHES</p> <p>1. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL SAFETY SWITCHES AS INDICATED ON THE DRAWINGS OR AS REQUIRED. ALL SAFETY SWITCHES SHALL BE UL LISTED. THE SWITCHES SHALL BE FUSED SAFETY SWITCHES OR NON-FUSED SAFETY SWITCHES AS SHOWN ON THE DRAWINGS OR REQUIRED BY CODE AND SHALL BE MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, SIEMENS OR CUTLER HAMMER.</p> <p>2. SWITCHES SHALL HAVE A QUICK-MAKE AND QUICK-BREAK OPERATING HANDLE AND MECHANISM WHICH SHALL BE AN INTEGRAL PART OF THE BOX. PADLOCKING PROVISIONS SHALL BE PROVIDED FOR PADLOCKING IN THE OFF POSITION WITH AT LEAST THREE PADLOCKS. SWITCHES SHALL BE HORSEPOWER RATED FOR 250 VOLTS AC OR DC OR 600 VOLTS AC AS REQUIRED. LUGS SHALL BE UL LISTED FOR COPPER AND ALUMINUM CABLE AND SHALL HAVE A TEMPERATURE RATING OF AT LEAST 75 DEGREES C.</p> <p>3. SWITCHES SHALL BE FURNISHED IN NEMA 1 HEAVY DUTY ENCLOSURES WITH KNOCKOUTS UNLESS OTHERWISE NOTED OR REQUIRED. SWITCHES LOCATED ON THE EXTERIOR OF THE BUILDING OR IN "WET" LOCATIONS SHALL HAVE NEMA 3R ENCLOSURES (WP).</p> <p>4. THE SAFETY SWITCHES SHALL BE SECURELY MOUNTED IN ACCORDANCE WITH THE NEC. THE CONTRACTOR SHALL PROVIDE ALL MOUNTING MATERIALS AND INSTALL FUSES IN THE FUSED SAFETY SWITCHES. THE FUSES SHALL BE DUAL ELEMENT ON MOTOR CIRCUITS.</p> <p>5. PROVIDE FUSES AS SPECIFIED BELOW. FUSES SHALL BE INSTALLED SO THAT THE RATING IS CLEARLY VISIBLE WITHOUT REMOVING FUSE. PROVIDE A SPARE FUSE FOR EACH FUSE INSTALLED.</p> <p>6. PROVIDE A NAMEPLATE ON EACH DISCONNECT SWITCH AS SPECIFIED IN "NAMEPLATES".</p> <p>L. FUSES</p> <p>1. FUSES SHALL BE CLASS "RK-1" REJECTION TYPE. FUSES SERVING MOTOR LOADS SHALL BE DUAL ELEMENT WITH A MINIMUM TIME DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL BE CURRENT LIMITING TIME DELAY TYPE WITH INTERRUPTING CAPACITY OF 200,000 AMP RMS SYMMETRICAL.</p> <p>2. FUSES SERVING SWITCH OR CIRCUIT BREAKER DISTRIBUTION PANELS, LIGHTING PANEL BOARDS AND OTHER NON - MOTOR LOADS NEED NOT BE TIME DELAY TYPE, BUT SHALL BE CURRENT LIMITING WITH THE INTERRUPTING CAPACITY OF 200,000AMP RMS SYMMETRICAL MINIMUM. FUSES SHALL BE BUSSMAN, GOULD OR LITTELFUSE.</p> <p>3. PROVIDE FUSES SIZED TO THE MAXIMUM SIZE RECOMMENDED BY THE MANUFACTURER OF THE EQUIPMENT OR AS SHOWN ON THE DRAWINGS IF THE MANUFACTURER DOES NOT HAVE A RECOMMENDED SIZE.</p> <p>PART 3 - EXECUTION</p> <p>A. GENERAL</p> <p>1. ALL MATERIALS SHALL BE INSTALLED IN A PROFESSIONAL MANNER INDICATIVE OF THE TRADE.</p> <p>2. ALL PENETRATIONS OF THE OUTSIDE WALLS OR ROOF SHALL BE SEALED WITH APPROPRIATE SEALANT OR CAULK FOR THE PARTICULAR SURFACE INVOLVED.</p> <p>3. PROVIDE CLEAR, TYPED, P-TOUCH LABEL FOR ALL RECEPTACLES COVERPLATES IDENTIFYING THE CIRCUIT NUMBER THAT THE RECEPTACLE IS CIRCUITED TO.</p> <p>4. PROVIDE UPDATED TYPED PANEL SCHEDULE INDEX FOR ALL PANELS WHERE CIRCUITS HAVE BEEN MODIFIED OR CHANGED.</p>



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• Van Boerum & Frank Assoc., 2021

ADELE YOUNG INTERMEDIATE  
SCHOOL COOLING UPGRADE  
830 LAW DRIVE, BRIGHAM CITY, UTAH 84302

REVISIONS

VBFA PROJECT #: 21493  
CHECKED BY: KC  
DRAWN BY: AC  
CURRENT/ISSUE DATE: 07/28/2022

SHEET CONTENTS

ELECTRICAL  
DETAILS

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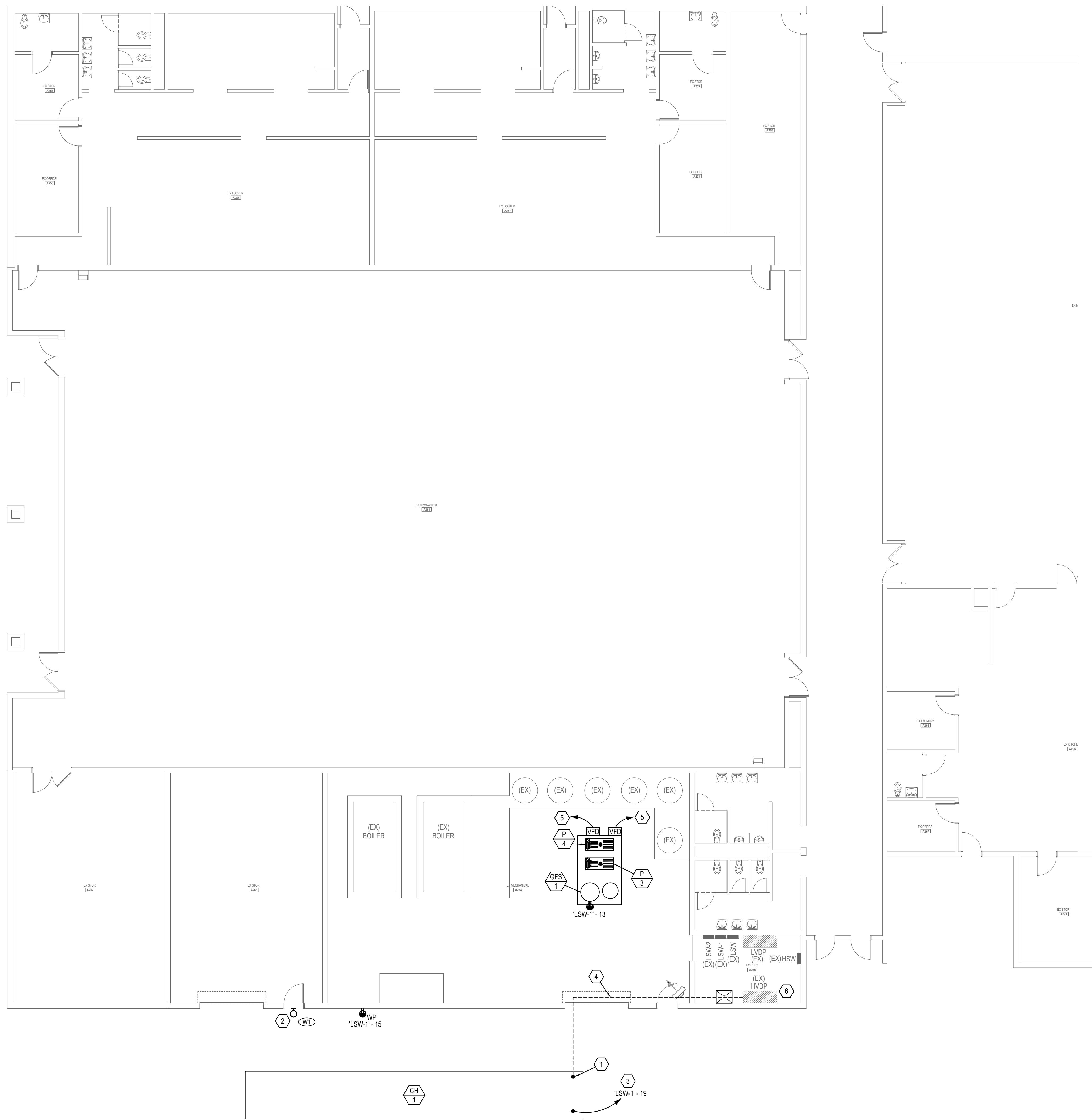
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**1 AREA 6 - ELECTRICAL PLAN**  
 EP1.6 SCALE: 1/8"=1'-0"

**# KEYED NOTES**

- ROUTE CIRCUIT. REFER TO EQUIPMENT SCHEDULE FOR SIZING REQUIREMENTS. TO BE CONNECTED TO A NEW 120V/200 CIRCUIT BREAKER WITHIN EXISTING MAIN DISTRIBUTION PANEL HVDP.
- REPLACE EXISTING WALL PACK FIXTURE WITH NEW FIXTURE SCHEDULED. REFER TO LIGHT FIXTURE SCHEDULE FOR MORE DETAIL.
- PROVIDE ADDITIONAL 120V/1PH/20A CIRCUIT FOR EQUIPMENT HEATERS AND CONTROLS. REFER TO EQUIPMENT MANUFACTURERS INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.
- APPROXIMATE CONDUIT ROUTING FOR NEW CHILLER 'C-1'. REFER TO EQUIPMENT SCHEDULE FOR CONDUIT AND CONDUCTOR SIZING.
- ROUTE CONDUIT AND CONDUCTORS. REFER TO EQUIPMENT SCHEDULE FOR MORE DETAIL. TO BE CONNECTED TO A NEW 90A/3P CIRCUIT BREAKER WITHIN EXISTING MAIN DISTRIBUTION PANEL HVDP. VFD AND UNISTRUT MOUNTING SYSTEM ARE TO BE PROVIDED BY MC.
- PROVIDE (1) 120V/3P & (2) 70A/3P CIRCUIT BREAKERS WITH AIC RATINGS THAT MATCH EXISTING BREAKERS/GEAR.

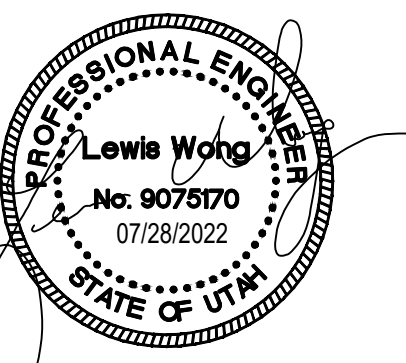
**GENERAL NOTES**

- EC SHALL COORDINATE WITH ALL OTHER TRADES DURING DEMOLITION AND CONSTRUCTION TO FACILITATE TIMELY WORK.
- ALL AREAS ARE TO BE KEPT CLEAN AND CLEAR OF DEBRIS AT ALL TIMES.
- CONTRACTOR SHALL PATCH AND REPAIR ALL WALLS, CEILING ETC. TO MATCH EXISTING CONDITIONS. PENETRATIONS SHALL BE SEALED WITH FIRE RATED CAULK.
- ROUTE ALL CONDUIT IN A NEAT AND ORDERLY FASHION. ALL CONDUIT SHALL BE CONCEALED ABOVE CEILING OR IN WALLS IN FINISHED SPACES UNLESS OTHERWISE INDICATED ON THE PLANS.
- EXISTING DEVICES SHOWN ON SHEETS ARE GATHERED FROM AS-BUILT DRAWINGS AND FIELD INVESTIGATION. NOT ALL DEVICES ARE SHOWN. DEVICE PLACEMENT IS SCHEMATIC AND NOT EXACT. CONTRACTOR TO FIELD VERIFY FOR EXACT LOCATIONS AND COORDINATE WORK WITH ALL OTHER DEVICES, EQUIPMENT, CONDUIT, ETC. WHETHER OR NOT SHOWN TO COMPLETE PROJECT.
- DEVICES/EQUIPMENT SHOWN IN GRAY ARE EXISTING TO REMAIN. PRESERVE AND PROTECT. MAINTAIN EXISTING CIRCUIT INTEGRITY.
- PROVIDE CLEAR, TYPED, P-TOUCH LABELS ON ALL NEW DEVICES/EQUIPMENT INDICATING THE PANEL AND CIRCUIT NUMBER IT IS TIED TO. LABEL SHALL BE 1/8" LONGER THAN TEXT ON BOTH ENDS.
- PROVIDE UPDATED TYPED CIRCUIT DIRECTORY WITH UNIQUE CIRCUIT DESCRIPTIONS PER NEC 408.4 FOR PANELS AFFECTED BY THIS PROJECT.
- ALL CORE DRILLING IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.



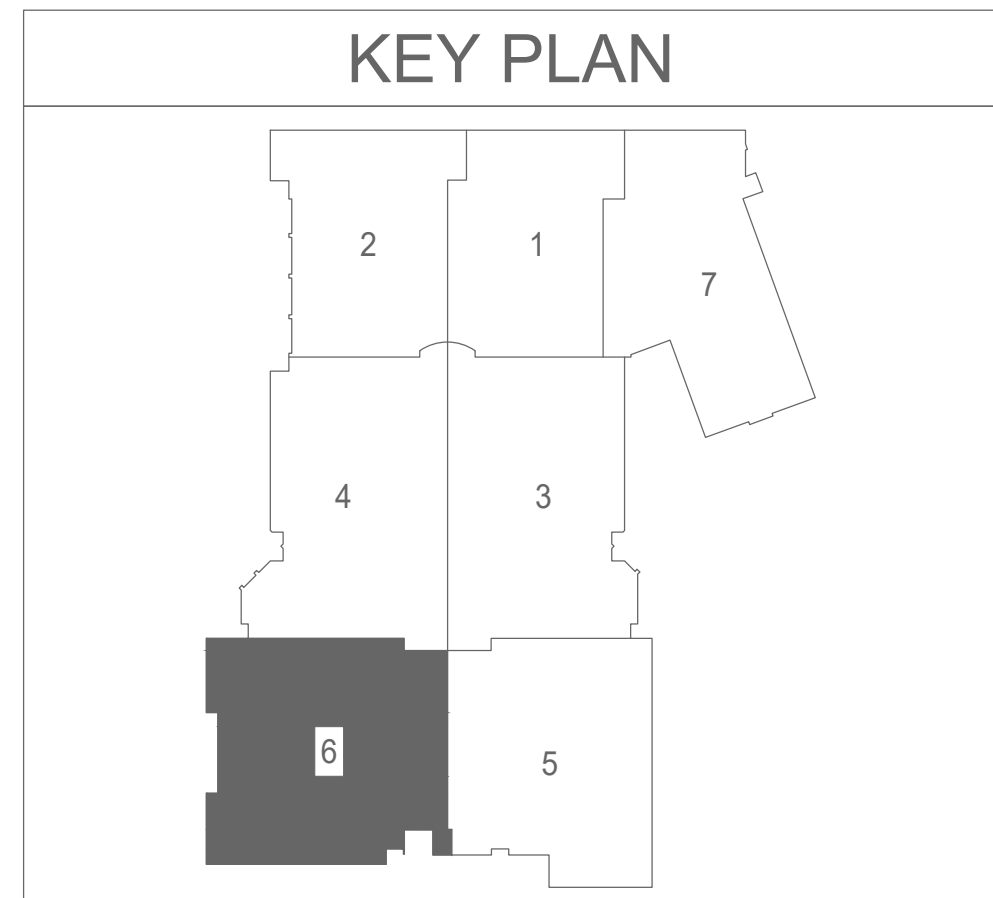
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**AREA 6 ELECTRICAL PLAN**

**EP1.6**