

DIVISION 26 - ELECTRICAL

A. General Instructions:

1. Codes, Permits and Inspections:
 - a. Wiring shall be in accordance with latest edition National Electrical Code (NEC), NFPA, and/or applicable local, state, and Utility Company rules, laws, codes, and ordinances.
 - b. Secure all permits and inspections required for the installation of the electrical work.
 - c. All work shall comply with the latest edition of the Americans With Disabilities Act (ADA).
2. Verifications:
 - a. Verify mounting heights and locations of electrical equipment before installation or rough-in.
3. Wiring Methods:
 - a. The Electrical Contractor shall cooperate with other Contractors and install equipment in proper sequence so as not to interfere with the progress of other Contractors.
 - b. All materials shall be new and carry the Underwriter's Label or be "listed" by that group, and be fully equal to makes specified.
 - c. Use only insulated copper conductors in conduit. Use flexible conduit for connections to motors and similar equipment.
 - d. All wiring shall be concealed and all outlets shall be flush mounted in finished spaces except as noted otherwise.
 - e. All systems wiring in return air plenums shall be in conduit or be plenum rated.
4. Tests:
 - a. This Contractor shall be responsible for performing all tests necessary to prevent concealment of defective or improper work.
 - b. Upon completion of work, test the installation thoroughly and render it free from shorts, grounds or improper connections.
5. Guarantee:
 - a. This Contractor shall guarantee that all defective items of workmanship, material, labor or mechanical operation developing within one (1) year from the date of final acceptance of completed installation shall be replaced to the complete satisfaction of the Owner.
6. Workmanship:
 - a. Electrical equipment shall be installed in a neat and workmanlike manner. Unightly installations shall be removed or reworked at no additional expense to the Owner.
7. Identification of Disconnecting Means:
 - a. Provide a permanent nameplate for each disconnect switch indicating its purpose. The marking shall be of sufficient durability to withstand the environment it is installed in as required by N.E.C. Section 110.22 and 230.72(A).

B. Electrical Equipment:

1. Conduits:
 - a. All conduit installed in earth, concrete, below concrete on earth, or exposed to weather shall be rigid steel or intermediate metal conduit. Electrical metallic tubing for all dry interior runs. Fittings shall be fully approved in accordance with N.E.C.
 - b. Flexible or P.V.C. conduit may be used where not exposed to damage and approved by N.E.C. and local codes.
 - c. Provide a ground wire sized per N.E.C. Art. 250.122 in all conduits, both metallic and nonmetallic.
 - d. Conduit shall be installed and sized according to code requirements and protected from damage during construction.
 - e. Conduit may be re-routed where such action does not adversely affect the intended design or circuiting.
 - f. Final connections to all kitchen and mechanical equipment shall be with U. L. approved liquidtight conduit. Liquidtight and fittings shall be U.L. listed for grounding.
2. Conductors:
 - a. Conductors shall be copper, generally with 600 volt rated insulation. Branch circuit wiring min. size #12 Type "THW" or "THWN/THHN" as required. Service entrance, feeder conductors Type "THWN/THHN" or "XHHW". Low voltage wire shall be Type "TF" or "TFF" minimum #18 gauge unless noted otherwise. All other types shall be as required by N.E.C.
 - b. All conductors shall be color coded with type and size marking. Connections to service equipment, feeder panels shall be made with solderless lugs. All splices, taps, connections to service entrance conductors shall be made by bronze solderless lugs. All other splices, connections shall be pressure type connectors.
 - c. Insulate joints, splices with Scotch #33 plastic tape or plastic moulded jackets.

3. Starters:
 - a. Starters shall be NEMA rated with H-O-A switch in cover and a control power transformer for controls.
 - b. Provide Class 20 melting alloy relays or bimetallic overload relays (as required for load served). Size and install overload relay in field based on motor nameplate current.
4. Fuses:
 - a. Furnish and install Class RK-5 time delay fuses for each active fuseholder, sized as scheduled or required.
 - b. Provide fuses made by Busmann or equal.
5. Wiring for Mechanical Equipment:
 - a. Electrical Contractor to provide all wiring remote from panel to panel. Electrical Contractor to provide all wires for mechanical equipment and controls. All WIRING TO BE IN CONDUIT. ELECTRICAL CONTRACTOR TO MAKE FINAL CONNECTIONS. Electrical Contractor shall provide disconnect switch and all power wiring.
 - b. Provide disconnect switches, starters, and all wiring for mechanical and kitchen equipment unless otherwise noted on plans. Coordinate requirements with equipment suppliers.
6. Grounding:
 - a. Provide system ground as required by N.E.C. and utility company if not already existing.
 - b. Bond mechanical equipment frames.
 - c. Bond all service entrance equipment and conduit system.
 - d. An equipment grounding conductor sized per N.E.C. Art. 250.122 shall be provided in all conduits. The ground wire is required for both metallic and nonmetallic conduit installations.
7. Equipment Supplied By Other Contractors And/Or The Owner:
 - a. The Electrical Contractor shall furnish, install and connect all wiring, conduit, boxes, toggle switches, thermal switches, disconnect switches, remote pushbutton stations, 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 E.C. 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, the E.C. shall check all Divisions of the specification to verify whether the equipment is specified to be factory prewired. 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.
 - b. All line and low voltage wiring and connections required to control the equipment are a part of this section. All wiring shall be in conduit.
 - c. It shall be assumed the Contractor is familiar with the equipment to be furnished by the other Contractors and/or the Owner in connection with this work and that provisions for such connections and work have been included in the Contractor's price. In no case will extra remuneration be allowed for such work.
 - d. Connections to all equipment have been designed from units as specified on the drawings or in the specifications. In the event equipment or control differs on approved mechanical shop drawings it shall be the responsibility of the supplying contractor to coordinate the electrical connections to the units and reimburse electrical contractor for any changes in the electrical system design. These changes shall not involve additional cost to the Owner.

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, MECHANICAL, STRUCTURAL, AND CIVIL 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.
5. COORDINATE OUTLET BOX LOCATIONS WITH MASONRY TO MINIMIZE CUTTING OF BRICK OR BLOCK.
6. CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
7. 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. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.

ELECTRICAL SHEET INDEX

SHEET NO.	SHEET TITLE
E0.1	ELECTRICAL LEAD SHEET
E0.2	ELECTRICAL ONE-LINE DIAGRAM
E4.1	ELECTRICAL POWER PLANS

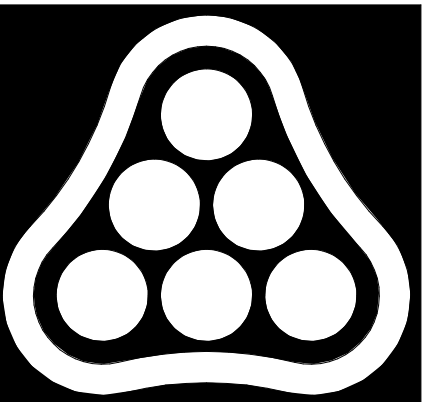
MECHANICAL EQUIPMENT CONNECTIONS														
UNIT DESIG	UNIT VOLTAGE	LOAD			PANEL DEVICE			DEVICE AT UNIT			FEEDER DESCRIPTION OR SEE THE FEEDER SCHEDULE	REMARKS OR SEE THE INDICATED NOTES BELOW		
		H.P.	FLA	KVA	CIRCUIT NUMBER	BKR	SW	FUSE	NEMA STARTER	BKR			SW	FUSE
DD	DEHUMIDIFIER													
①	1	480/3	4.84	44.5	36.98	MCC-3-4	70		3		100	60	3	1 3#4 AWG THWN; #8 AWG GRD; 1-1/4" C.
②	2	480/3	2.24	48.1	39.97	MCC-2-3	70		3		100	60	3	1 3#4 AWG THWN; #8 AWG GRD; 1-1/4" C.
③	3	480/3	2.24	48.1	39.97	MCC-2-4	70		3		100	60	3	1 3#4 AWG THWN; #8 AWG GRD; 1-1/4" C.
④	4	480/3	2.24	48.1	39.97	MCC-3-5	70		3		100	60	3	1 3#4 AWG THWN; #8 AWG GRD; 1-1/4" C.
⑤	5	480/3	2.24	48.1	39.97	MCC-2-13	70		3		100	60	3	1 3#4 AWG THWN; #8 AWG GRD; 1-1/4" C.
⑥	6	480/3	2.24	48.1	39.97	MCC-3-19	70		3		100	60	3	1 3#4 AWG THWN; #8 AWG GRD; 1-1/4" C.

- ① ALL CONNECTIONS AND ELECTRICAL EQUIPMENT LISTED IN SCHEDULE SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL 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 FUSING BASED ON 125% OF MANUFACTURER'S NAMEPLATE FULL LOAD AMPERAGE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ④ ALTERNATE #1
- ⑤ ALTERNATE #2
- ⑥ VERIFY FUSING AT LOCAL DISCONNECT SWITCH WITH ACTUAL EQUIPMENT PROVIDED. INSTALL NEW WIRING IN EXISTING CONDUIT PROVIDE NEW SEAL OFF TO REPLACE EXISTING AT EACH UNIT WHEN INSTALLING NEW WIRE.

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
POWER					
	BRANCH CIRCUIT PANEL AND PANEL DESIGNATION	72" TO TOP		ELECTRICAL DISTRIBUTION EQUIP	
	FEEDER DESIGNATION			EQUIPMENT - SEE EQUIPMENT CONNECTION SCHEDULE	
	THERMOSTAT/TEMP SENSOR	46" AFF		MOTOR	
				DISCONNECT SWITCH	
				MANUAL STARTER	
				CIRCUIT BREAKER	
				STARTER OR ATS (AS NOTED)	
				COMBINATION STARTER/DISC	
ONE-LINE					
	CIRCUIT BREAKER ACCESSORIES: LSIG = LONG TIME, SHORT TIME, INSTANTANEOUS, GROUND FAULT GFI = GROUND FAULT ST = SHUNT TRIP K = KIRK KEY INTERLOCK			FUSIBLE SWITCH (CIRCUIT NUMBER / SWITCH SIZE / FUSE SIZE / # OF POLES) (# OF POLES IF OTHER THAN 3)	
	INDICATOR LIGHT (G=GREEN, R=RED)			STARTER WITH FUSIBLE SWITCH (CIRCUIT NUMBER / SWITCH SIZE / FUSE SIZE / # OF POLES / STARTER SIZE) (# OF POLES IF OTHER THAN 3)	
	CONTACTS (N.O., N.C.)			CIRCUIT BREAKER (MOLDED CASE NON-ADJUSTABLE TRIP / ADJUSTABLE TRIP) (CIRCUIT NUMBER / TRIP SIZE / # OF POLES) (FRAME SIZE / TRIP SIZE) (# OF POLES IF OTHER THAN 3)	
	FUSE			3Ø TRANSFORMER (DELTA PRIMARY / WYE SECONDARY)	
	CIRCUIT BREAKER			1Ø TRANSFORMER	
	OVERLOADS			PANELBOARD (BUILT-IN SPD)	
	DRAWOUT CONTACTS			TRANSFER SWITCH (ATS = AUTOMATIC, MTS = MANUAL) (AMP SIZE / VOLTAGE / POLES / AIC RATING / NEMA RATING) (NEMA RATING IF OTHER THAN NEMA-1)	
	DISCONNECT SWITCH (SEE EQUIP CONN SCHED) (VOLTAGE / SWITCH SIZE / FUSE SIZE / # OF POLES - NOTED IF EQUIPMENT NOT SCHEDULED)			MOTOR STARTER (SINGLE SPEED ACROSS-THE-LINE (UON)) (NEMA SIZE / RV AT = REDUCED VOLTAGE / AUTO-TRANSFORMER / SS = SOLID STATE)	
	STARTER (SEE EQUIP CONN SCHED) (VOLTAGE / STARTER SIZE / # OF POLES - NOTED IF EQUIPMENT NOT SCHEDULED)				
	GROUND CONNECTION				
	LIGHTNING ARRESTOR				
	FEEDER DESIGNATION				
	SURGE PROTECTIVE DEVICE				
	METER (UTILITY / PANEL MOUNTED)				
	EQUIPMENT (SINGLE MOTOR / MULTI-MOTOR OR OTHER TYPE AS NOTED)				
	VARIABLE FREQUENCY DRIVE (HP SIZE IF NOT SCHEDULED)				

--- SYMBOL LIST IS FOR REFERENCE ONLY. ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT. ---

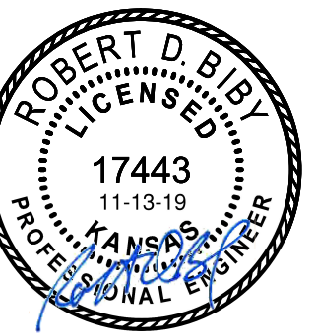


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2020 HESS PUMP STATION
DEHUMIDIFIER REPLACEMENT
WICHITA, KS

ELECTRICAL LEAD SHEET

JOB NO.197043-008
DATE 11/13/19
DRAWN BY ABP
CHECKED BY RDB

E0.1