List of Electrical and Welding Competencies for 2019 State Ag. Mech. CDE

* Safe working procedures
* Correct use of common electrical test equipment
* Utilize motors nameplate information to perform tasks
* Proper connections for various motors
* Ability to read/apply/written/spoken information to tasks
* Use NEC NFPA 70 rules as they apply to electrical tasks
* Ability to perform math functions that deal with electrical tasks
* Demonstrate proper use of manual starter 1or 3 phase AC and DC
* Demonstrate proper use of magnetic starters 1 or 3 phase AC and DC
* Ability to install various motor controls; contactors, starters, overload relays, motor starters, soft starters, control circuits, interlocks, timers, limit switches, sensors, delays, temperature control, transformers, switches, lights.
* Draw line and wiring diagrams
* Troubleshoot circuits
* Wire and troubleshoot circuits
* Select components for use in a circuit
* Two and Three wire control circuits
* Select devices when given specs.
* Identify devices from schematic symbols
* Install reversing motor circuits
* Calculate electrical loads, derating factors, wire size, box fill
* Install a service 150 amp
* Demonstrate grounding and bonding procedures
* Install switches, receptacle, and residential appliances to proper NEC NFPA 70 code
* Demonstrate ability to hand bend conduit
* Demonstrate ability to use various common forms of electrical wire

Welding and Cutting Competencies

* Cutting metal with torch: straight, bevel, and piercing holes (1/4” to ½”metal thickness)
* Laying out and preparing metal for welding.
* Welding beads on butt, lap, tee, corner, and edge joints using surface, fillet, groove, or plug and slot beads. In all positions with appropriate electrodes and equipment settings.

(1/4” to ½” metal thickness). Electrodes – 6010, 6011, 7018 possible. Syncrowave 200

MIG wire size .035. Millermatic 210 machines.

* Joining pipe by welding in all positions.
* Following procedures on AWS Procedure Sheets including welding symbols.