

Electrical Panel/Service Update/Upgrade/Change-out

Residential Service Update

- Service update may be required for additions and alterations. Load calculations may be required.
- Service upgrade/update/change-out shall be done only by Electrical Contractors licensed by the State of Iowa and shall be permitted and inspected by the Ankeny Building Division.
- 100 amp minimum for updated panel – larger as required
- 2 ground rods required – 6’ apart and outside the drip line of eave
- Water ground, if available, with jumper wire
- Federal Pacific panels must be replaced if altered or additional load(s) imposed
- Zinsco panels must be replaced if altered or additional load(s) imposed

Ground Fault Circuit Interrupter Protection Update Requirements

- Kitchen receptacles shall be GFCI protected
- Bathroom receptacles shall be GFCI protected
- Unfinished basement receptacles shall be GFCI protected
- Garage (attached) receptacles shall be GFCI protected
- Exterior receptacle(s) shall be GFCI protected

Smoke Detector Update Requirements – Dual Sensor

Locations: Smoke Alarms listed in accordance with UL 217 are required in the following locations in dwellings:

- Smoke alarm locations: one in each sleeping room, outside of and within ten feet from the center of each bedroom(s) door frame and one on each floor level including basements. Alarms shall be interconnected (hardwired) and provided with battery backup -or- physical interconnection shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.
 1. Ionization smoke alarm shall not be installed less than 20’ horizontally from a permanently installed cooking appliance.
 2. Ionization smoke alarm with an alarm silencing switch shall not be installed less than 10’ horizontally from a permanently installed cooking appliance.
 3. Photoelectric smoke alarms and smoke alarms listed and marked “helps reduce cooking nuisance alarms” shall not be installed less than 6’ horizontally from a permanently installed cooking appliance.

Power: Smoke alarms shall receive their power from the house wiring and shall be equipped with battery backup. Smoke alarms may be solely battery operated, provided interior wall and ceiling finishes are not being removed and further provided there is no attic, crawl space or basement available that could provide access for hard wiring and interconnection.

Carbon Monoxide Detector Update Requirements

- In dwelling units within which fuel-fired appliances are installed and/or in dwelling units that have an attached garage, carbon monoxide alarms shall be installed outside of and within ten feet from the center of each bedroom(s) door frame. Single station carbon monoxide alarms shall be listed as complying with UL 2034.

Combination Smoke and Carbon Monoxide Alarms

- Combination smoke and carbon monoxide alarms shall be permitted to be installed in lieu of smoke alarms. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 217 and UL 2034.

* Smoke Alarms and carbon monoxide alarms must be installed and be operational prior to final inspection.

Arc Fault Circuit Interrupter Requirement

- Bedroom addition(s) receptacles or receptacles in a room(s) converted to a bedroom(s) shall be AFCI protected

CSST

- Corrugated stainless steel tubing (CSST) gas piping systems to be bonded to the electrical service grounding electrode system. The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent

Permitting

- For other than service upgrade/update/change-out work an owner/occupant may acquire permits for branch circuit wiring after passing the required homeowner’s electrical test

See additional information– requirements based on work

Note: new receptacles shall be tamper resistant

	Panel Change Out*	Service Upgrade*
Smoke Detectors	Required – battery operated ok	Required – battery operated ok
GFCI’s	Bathrooms, Kitchen, Basement	Bathrooms, Kitchen, Basement, Exterior
Bond CSST	Required	Required
Ground Rods	Required	Required
UG Water Pipe (metallic)	Required	Required
CO Detectors	Required	Required
Visible Fire Hazards	Required	Required
Two Kitchen Circuits	Not Required	Required
Confirm Minimum Circuits	Not Required	Laundry, Bathrooms, Central Heating
Confirm Receptacles	Not Required	Two per habitable room (min) required
New Mast	Not Required	Required
New Meter	Required	Required
Service Equipment Surge Protection	Required	Required
Emergency Disconnect	Required	Required

***NOTE: Installation of Solar Arrays are subject to requirements of Panel Change**

Corrections to Visible Fire Hazards might include, but are not limited to the following: incorrect breaker size, missing connectors in boxes, open splices, broken devices, missing cover plates, missing breakers in panel, damaged wiring, use of extension cords in place of permanent wiring, improper installation of electrical equipment