












WEST DES MOINES RESIDENTIAL ELECTRICAL SERVICE UPGRADE & PANEL CHANGE-OUT REQUIREMENTS


When it is desired to replace existing or install higher amperage electrical service to any residential property, the following items will also be required, with the intent of promoting additional fire and life/safety within the community. Installations will comply with the State of Iowa adopted Electrical Code and Amendments.


Panel Change or Upgrade all numbered items *MUST* be addressed.
(Additional updating is strongly encouraged.)

1.  **Outdoor Emergency Disconnects and Surge Protection** must be addressed per the State of Iowa adopted electrical code policy. (See next page.)
2.  **Ground fault circuit interrupters (GFCI)** shall be installed in required locations in all kitchens & bathrooms. Existing unprotected receptacles in locations currently required to be GFCI protected shall be updated, these locations may include kitchens, bathrooms, basements, exteriors, garages, out buildings, etc.
3.  **Smoke Detectors** shall be installed in all required locations per code. Hard wired and interconnected detectors are encouraged but battery powered smoke detectors will be deemed adequate. The State of Iowa requires all new smoke detectors installed or replaced must be listed in accordance with UL 217 and have a non-removable, non-replaceable 10 year battery.
4.  **Carbon Monoxide Alarms** shall be provided per the NEC and IRC (International Residential Code). In existing dwellings that have attached garages or in dwellings within which fuel-fired appliances exist. An alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms.
5.  **Grounding:** update the service grounding system including ground rods, water pipe bonding, jumpers, etc. per current code.
6.  **Gas Bonding:** properly bond CSST gas piping per code and manufacturer's requirements.
7.  **Any hazardous or substandard conditions** shall be rectified.

 Although **receptacle spacing** as per new construction will not be strictly enforced, habitable rooms should have an adequate number of receptacles. Typically, at least one per wall and/or kitchen counter.

 **Tamper-Resistant receptacles** shall be provided where replacements are made as required by code.

 **Ungrounded Circuits:** existing circuits which do not include an equipment grounding conductor must be wired into non-grounding-type (two prong) receptacles or protected as allowed in the code [NEC 406.4(D)(2)].

 **Arc-Fault Protection:** Any **new** circuits or additions to existing circuits added in areas of the home where currently required shall be AFCI protected. Existing circuits do not require updating to AFCI protection.

The City is NOT responsible for the service and metering ahead of the disconnecting means.
Mid-American Energy should be contacted concerning this portion of an upgrade.

Applying Art. 230.85 Per the 2023 NEC - Is EM Disconnect required to be installed YES/NO

<p>2023 NEC 230.85 Emergency Disconnects - For one and two-family dwelling units, an emergency disconnecting means shall be installed. C Replacement: Where service equipment is replaced. All of the requirements of this section apply. Exception: Where only meter-sockets, service entrance conductors, or related raceways and fittings are replaced, the requirements of this section shall not apply.</p>	<p align="center">Applying the 2023 NEC</p>
New one and two family dwellings	YES
Alterations or Repairs to the Service which would upgrade the Service in size.	YES
Overhead service mast (conduit and conductors) are replaced	NO
Only the Conductors in overhead service mast are replaced	NO
Service is converted from overhead to underground	NO
Meter socket is replaced	NO
Service entrance conductors are replaced (conductors between the meter and the panel)	NO
Service panel is replaced	YES
Service panel AND service entrance conductors are replaced (conductors between the meter and the panel)	YES
Service panel interior only is replaced (box remains)	YES
Service panel interior AND service entrance conductors are replaced (conductors between the meter and the panel)	YES
Main breaker in service panel is replaced (balance of panel remains)	NO
Main breaker in service panel AND service entrance conductors are replaced (conductors between the meter and the panel)	NO
All repairs required due to storm damage are exempt from this requirement	NO
<p>Per NEC 230.67 all dwelling, dormitory, guest rooms (hotel/motel) service equipment shall be provided with a surge-protective device, (SPD).</p>	



SMOKE & CARBON MONOXIDE ALARM REQUIREMENTS

For Residential Additions, Alterations and Repairs

The City of
West Des Moines

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The International Residential Code (IRC) requires that Smoke Alarms and Carbon Monoxide (CO) Alarms shall be installed within a dwelling unit *per current code requirements* when an Addition, Alteration or Repair requiring a Building Permit is issued for a property, including Seasonal and Screened Porches. Exceptions to this requirement include roofing, siding, windows, decks and plumbing or mechanical work.

- All alarms should receive their primary power from the building wiring when possible.

Smoke Alarms shall comply with NFPA 72, be listed in accordance with UL 217 and installed per the manufacturer's installation instructions.

The required locations are as follows:

- 1) In each sleeping room.
- 2) Outside each separate sleeping area in the immediate vicinity of bedrooms.
- 3) On each story of the dwelling, including basements and habitable attics.
- 4) At least 3' horizontally from the doorway of a bathroom with a shower\tub. (To prevent false alarms)

- New alarms are required to be sealed 10 year battery powered when installed in conjunction with Additions, Modifications or Repairs to an existing dwelling structure when the scope of the work does not permit a wired connection.

Carbon Monoxide Alarms shall be listed in accordance with UL 2034. Combination CO and smoke alarms shall be listed in accordance with UL 2034 and UL 217. Alarms shall be installed per the manufacturer's installation instructions.

The required locations are as follows:

- 1) Outside each separate sleeping area in the immediate vicinity of bedrooms. (To prevent false alarms, the unit should be a minimum of 3 feet horizontally from the doorway of a bathroom that has a shower or tub).
- 2) Where a fuel-burning appliance (i.e.: fireplace) is located in a bedroom or its attached bathroom, a CO alarm shall be installed within the bedroom.