

RESIDENTIAL ELECTRIC REQUIREMENTS 2011 NATIONAL ELECTRICAL CODE

(Including Part 8 of the Michigan Electric Code)

Note: Please refer to the 2011 National Electrical Code for specific sections along with Part 8 of the Michigan Electrical Code. Those code books are available at the Bay County Library System, Bay City Branch, 708 Center Avenue, Bay City, MI. Phone: (517) 893-9566

SERVICES:

Always consult the servicing agency for meter location and mounting height. Acceptable wiring methods and raceways for service entrance conductors at a readily accessible location nearest the point of entrance of the service entrance conductors. The service entrance equipment must be bonded. The service must be grounded. A metal underground water pipe used as a grounding electrode must be supplemented. The city requires two ground rods, 6' apart to supplement the interior water grounding source.

Interior metal piping shall always be bonded to the service equipment, the grounded service conductor, the grounded electrical conductor and other electrodes. A bonding jumper shall be provided at the water heater for the piping.

If a service mast is used to support the service drop, it shall be rigid metal conduit. If underground service conductors are used, and any part of them are exposed to earth fill, they must be listed as direct burial conductors type UF or USE.

LIGHTING:

A 15 ampere general purpose lighting circuit shall be provided for each 600 square feet of area (800 square feet for 20 ampere circuit) of the dwelling, including the basement, but not including open porches or garages.

A wall switch controlled lighting outlet must be installed at each outdoor entrance or exit as well as in every habitable room, in bathrooms, hallways, stairways, attached garages and detached garages with electric power. In habitable rooms other than kitchens and bathrooms, a wall switched receptacle outlet shall be permitted in lieu of a lighting outlet. Where lighting is installed according to the above, in interior stairways, there shall be a wall switch at each floor level to control the lighting. An occupancy sensor for lighting control is permitted in addition to wall switches. Combination units are permitted at customary wall switch locations. See Section 210-70.

A lighting outlet shall be installed in each basement; along with any attic, crawl space or utility room that contains equipment that could require servicing, or if the space is used for storage. Locate the lights at or near the equipment and the switch near the point of entry to the spaces mentioned above. See Section 210-70.

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LIGHTING (continued):

Surface light fixtures are not permitted in any clothes closets unless they meet requirements clearance and are not an open bulb configuration.

RECEPTACLES:

Receptacle outlets must be installed in every habitable room of the residence so that no point on any wall is over six-foot (6') from an outlet in the unbroken wall space of that room. In other words, you need an outlet within six-foot (6') of a doorway or fireplace, but in the rest of the room the outlets may be twelve-foot (12') apart if there is no break in the wall between them. It is permissible to measure around corners. Any wall space two-foot (2') wide or greater requires a receptacle outlet. Receptacle outlets in the ends of permanently installed baseboard heaters may be counted to meet the above requirements. Such receptacle outlets shall not be connected to the heater circuit. An outlet over five-foot six inches (5'6") above the floor cannot be counted as an outlet in that space.

You must install a receptacle outlet in any hallway of ten-foot (10') or more in length. You must install a GFCI-protected receptacle outlet adjacent to each basin in every bathroom. You must install at least one (1) receptacle outlet for laundry facilities. A 20-ampere circuit must feed the laundry receptacle outlets and this circuit shall have no other receptacle outlet or lights. The laundry outlet must be within six foot (6') of the intended location of the laundry equipment.

For one-family dwellings, and each unit of a two-family dwelling that is at grade level, at least one GFCI-protected receptacle outlet accessible at grade level and not more than six foot 6 inches (6'6") above grade must be installed at the front and back of the dwelling. For one and two-family dwellings you must install a receptacle outlet for the servicing of heating, air-conditioning and refrigeration equipment in attics and crawl

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RECEPTACLES (continued):

Spaces. These GFCI-protected receptacles shall be on the same level and within twenty-five foot (25') of the equipment. Rooftop equipment will also be included on multi-family dwellings. For a one-family dwelling, at least one receptacle outlet addition to any provided for laundry equipment must be installed in each basement and in each attached garage, and detached garage with electric power. In kitchens and dining areas, a receptacle outlet must be installed at each wall counter space twelve inches (12") or wider. Receptacles shall be installed so that no point along the counter wall is over twenty-four inches (24") from a receptacle island. Peninsular countertops with a long dimension of twenty-four inches (24") or more and a short dimension of twelve inches (12") or more shall have at least one receptacle outlet. It must generally be installed not more than eighteen inches (18") above the counter and can be installed no more than twelve inches (12") below the counter but only by consent of the Building Code enforcement official. A countertop broken by a range, refrigerator or sink creates a new wall space. Receptacle outlets behind refrigerators, freezers or other fixed or stationary equipment are not counted as an outlet in the wall space. Any outlets within six-feet of a sink must be provided with GFCI-protection.

CIRCUITS:

The kitchen countertop area must have receptacle outlets supplied by at least two (2) 20-ampere circuits. The receptacle outlets in the dining area must also be fed from a 20-ampere circuit, which may extend from the kitchen circuits. The circuits listed in this paragraph shall supply no other receptacle outlets or lights. If a dishwasher is to be installed, a separate circuit of proper ampacity shall be provided for it. If a kitchen waste disposal or compactor, or both, are to be installed, a separate circuit suitable for the load must be installed for them. A circuit suitable for the Load with a minimum of 40-amperes is required for a complete range of 8 ¾ kW or more, either free standing or drop-in type. A circuit suitable for the Load with a minimum of 30-amperes is required for an electric clothes dryer. A circuit suitable for 125% of the nameplate rating is required for a residential water heater.

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GFCI PROTECTION:

Ground-fault circuit-interrupter protection must be provided for the following 15-ampere and 20-ampere, 125-volt receptacles at dwelling units.

1. All bathroom receptacles.
2. All receptacles in garages and garage-level portions of unfinished accessory buildings. Except those that are not readily accessible, such as outlets for garage door openers and a single receptacle for one appliance, or a duplex receptacle for two appliances occupying a dedicated space and are not easily moved from one place to another, such as refrigerators and freezers.
3. All outdoor receptacles except those that are not readily accessible for electric snow melting and deicing.
4. All the receptacles in crawl spaces, at or below finished grade.
5. All the receptacles in unfinished basements, except those that are not readily accessible, and a single receptacle for one appliance or a duplex receptacle for two appliances occupying dedicated space and are not easily moved from one place to another, such as refrigerators or freezers.
6. All the receptacles in kitchens that serve countertop surfaces.
7. All receptacles that serve countertops within six foot (6') of wet bar sinks.