

CHAPTER 24.1-06-02 WIRING AND PROTECTION

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24.1-06-02-01. [Reserved].

24.1-06-02-02. [Reserved].

24.1-06-02-03. [Reserved].

24.1-06-02-04. [Reserved].

24.1-06-02-05. [Reserved].

24.1-06-02-06. [Reserved].

24.1-06-02-07. [Reserved].

24.1-06-02-08. [Reserved].

24.1-06-02-09. [Reserved].

24.1-06-02-10. (NEC 210) Branch circuits.

Branch circuits shall comply with article 210, 2017 edition, National Electrical Code through December 31, 2020, and article 210, 2020 edition, National Electrical Code thereafter.

1. The total connected load shall be divided as evenly as practicable, between the two ungrounded conductors of a three-wire system and three conductors of a four-wire wye system.
2. In a dwelling unit, a separate circuit with disconnect shall be provided for the purpose of operating or controlling electrical equipment for primary source heating units. Wiring requirements for fixed electrical space heating equipment is provided under article 424, 2017 edition, National Electrical Code through December 31, 2020, and article 424, 2020 edition, National Electrical Code, thereafter.
3. A minimum of six 20-amp small appliance branch circuits shall be installed for counter receptacles in kitchens that are used to serve public gatherings at schools, churches, lodges, and similar buildings. Any island counter in these locations shall have at least one receptacle.
4. In dwelling occupancies. A minimum of three 20-amp small appliance branch circuits shall be installed to supply receptacle outlets in kitchen, pantry, dining room, and breakfast room. These circuits shall not supply other outlets and shall have conductors not smaller than no. 12. Two of these circuits shall supply receptacle outlets on or near work counter area and so arranged that adjacent receptacles are not on the same circuit.
5. In dwelling occupancies, one 20-amp bathroom circuit for receptacles shall not feed more than two bathrooms.
6. Fifteen and twenty ampere receptacles supplying sewer pumps and sump pumps shall not need arc fault circuit protection, but shall be ground-fault protected or a single receptacle on a dedicated circuit.

7. Fifteen and twenty ampere receptacles supplying power for garage door openers located in attached or detached garages associated with dwelling units shall be ground-fault protected or a single receptacle installed.
8. Portable cleaning equipment receptacle outlets shall be installed in corridors and located so that no point in the corridor along the floor line, measured horizontally, is more than twenty-five feet [7.62 meters] from an outlet.
9. Exception: 2017 edition, National Electrical Code through December 31, 2020, and 2020 edition, National Electrical Code thereafter, article 210.11(C)(4): Requirements shall not include buildings two hundred fifty square feet or smaller.
10. Exception: 2017 edition, National Electrical Code through December 31, 2020, and 2020 edition, National Electrical Code thereafter, article 210.12(A): AFCI protection is not required for the following:
 - a. Refrigeration appliances if a single receptacle on a dedicated circuit is installed;
 - b. Furnaces used for main heating source.

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General Authority: NDCC 43-09-05

Law Implemented: NDCC 43-09-21, 43-09-22

24.1-06-02-11. [Reserved].

24.1-06-02-12. [Reserved].

24.1-06-02-13. [Reserved].

24.1-06-02-14. [Reserved].

24.1-06-02-15. [Reserved].

24.1-06-02-16. [Reserved].

24.1-06-02-17. [Reserved].

24.1-06-02-18. [Reserved].

24.1-06-02-19. [Reserved].

24.1-06-02-20. [Reserved].

24.1-06-02-21. [Reserved].

24.1-06-02-22. [Reserved].

24.1-06-02-23. [Reserved].

24.1-06-02-24. [Reserved].

24.1-06-02-25. [Reserved].

24.1-06-02-26. [Reserved].

24.1-06-02-27. [Reserved].

24.1-06-02-28. [Reserved].

24.1-06-02-29. [Reserved].

24.1-06-02-30. (NEC 230) Services.

Electrical services shall comply with article 230, 2017 edition, National Electrical Code, through December 31, 2020, and article 230, 2020 edition, National Electrical Code thereafter.

1. Perpendicular mast used for support of a service may not be less than two-inch [5.08-centimeter] galvanized rigid steel conduit or intermediate metal conduit, fitted with storm collar flashing.
2. Outside switch location. The equipment may not be mounted lower than two feet [.6096 meter] above grade level unless listed for such purpose. If installed outside, the service or services must be installed on the structure or within ten feet of the structure.
3. All services in single-family dwellings must be located in a single accessible location.

Exception: Special permission shall be granted by the electrical inspector for a second service location to be added where there is no available space for the service equipment. The second service location must be installed in accordance with article 230.2, 2017 edition, National Electrical Code, through December 31, 2020, and article 230.2, 2020 edition, National Electrical Code thereafter.

4. Rating of service switch. Any new or old single-family dwelling where the main house panel or service is altered or repaired, the dwelling is moved, or where the dwelling is rewired, a minimum one hundred ampere service-rated panel must be installed. Replacement of service mast or meter enclosure is an alteration of the service.
 - a. A one hundred ampere main house panel must be installed using ungrounded conductors sized for the proper ampacity. The panel must contain provisions for a minimum of twenty full-sized branch circuit spaces.
 - b. A greater than one hundred ampere but less than two hundred ampere main house panel must be installed using ungrounded conductors sized for the proper ampacity. The panel or panels must contain provisions for a minimum of thirty full-sized branch circuit spaces.
 - c. A two hundred ampere or larger main house panel must be installed using ungrounded conductors sized for the proper ampacity. The panel or panels must contain provisions for a minimum of forty full-sized branch circuit spaces.
 - d. Service and feeder calculation for electric heating loads must be sized to one hundred twenty-five percent of the full load rating.

5. For the purpose of separating services within one building, each portion of a building separated by one or more fire walls must be considered a separate building as defined by the locally adopted codes or the State Building Code and state fire codes.
6. 230.67 surge protections for dwelling unit services is not required.

History: Effective April 1, 2017' amended effective October 1, 2020.

General Authority: NDCC 43-09-05

Law Implemented: NDCC 43-09-21, 43-09-22

24.1-06-02-31. [Reserved].

24.1-06-02-32. [Reserved].

24.1-06-02-33. [Reserved].

24.1-06-02-34. [Reserved].

24.1-06-02-35. [Reserved].

24.1-06-02-36. [Reserved].

24.1-06-02-37. [Reserved].

24.1-06-02-38. [Reserved].

24.1-06-02-39. [Reserved].

24.1-06-02-40. (NEC 240) Overcurrent protection.

Overcurrent protection must comply with article 240, 2017 edition, National Electrical Code through December 31, 2020, and article 240, 2020 edition, National Electrical Code thereafter.

1. Exterior overcurrent devices must be located at a height of no less than two feet [.6096 meters] above grade level to the bottom of the enclosure.

Exception: If raising the switch would exceed the height requirements of NEC 240.24(A).

2. Switchboards and panel boards may not be located in bathrooms, clothes closets, stairways, or crawl spaces.

History: Effective April 1, 2017; amended effective October 1, 2020.

General Authority: NDCC 43-09-05

Law Implemented: NDCC 43-09-21, 43-09-22

24.1-06-02-41. [Reserved].

24.1-06-02-42. [Reserved].

24.1-06-02-43. [Reserved].

24.1-06-02-44. [Reserved].

24.1-06-02-45. [Reserved].

24.1-06-02-46. [Reserved].

24.1-06-02-47. [Reserved].

24.1-06-02-48. [Reserved].

24.1-06-02-49. [Reserved].

24.1-06-02-50. (NEC 250) Grounding and bonding.

Grounding and bonding must conform to article 250, 2017 edition, National Electrical Code through December 31, 2020, and article 250, 2020 edition, National Electrical Code thereafter.

1. At motor connections, a bonding jumper sized in accordance with table 250.122, 2017 edition, National Electrical Code through December 31, 2020, and table 250.122, 2020 edition, National Electrical Code thereafter, must be provided around all flexible conduit. The bonding jumper is not required if a separate grounding conductor is included.
2. Grounding of metal outdoor lighting standards.
 - a. Definition of lighting standard is a pole exceeding twelve feet [3.66 meters] in height measured from the bottom of the base or from the intended grade level of poles.
 - b. The metal lighting standard must be connected to a one-half inch [12.70-millimeter] by ten-foot [3.05-meter] copperweld ground rod, or twenty feet [6.10 meters] of one or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods (rebar) of not less than one-half inch [1.27 centimeters] in diameter, by the means of a bonding jumper. The ten-foot [3.05-meter] ground rod must be driven in the center of the metal standard base and project slightly above the base. Both ground rod and equipment grounding conductor must be connected to the metal standards. The bonding jumper must be in accordance with 2017 edition, National Electrical Code through December 31, 2020, and 2020 edition, National Electrical Code thereafter, and in no case smaller than no. 8 copper or no. 6 aluminum.
3. The grounding electrode conductor must be connected to the grounded service conductor in the enclosure for the service disconnect.

History: Effective April 1, 2017; amended effective October 1, 2020.

General Authority: NDCC 43-09-05

Law Implemented: NDCC 43-09-21, 43-09-22