

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, 2023 edition, National Electrical Code (first version, printed in 2022).

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, 2023 edition, National Electrical Code, (first version, printed in 2022).
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: 2023 edition, National Electrical Code (first version, printed in 2022), article 210.11(C)(4): Requirements shall not include buildings two hundred fifty square feet [23.23 square meters] or smaller.
10. Exception: 2023 edition, National Electrical Code (first version, printed in 2022), article 210.12(B): 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.
11. Exception: 2023 edition, National Electrical Code (first version, printed in 2022), article 210.8(A): GFCI protection shall not be required for refrigeration appliances in dwelling units if a single receptacle on an individual branch circuit is installed.
12. Exception: 2023 edition, National Electrical Code (first version, printed in 2022), article 210.52(C)(2), island and peninsular countertops and work surfaces: receptacle outlets shall be permitted to be located not more than twelve inches [30.48 centimeters] below the countertop or work surface. Receptacles installed below a countertop or work surface shall not be located where the countertop or work surface extends more than six inches [15.24 centimeters] beyond its support base.

History: Effective April 1, 2017; amended effective October 1, 2020; July 1, 2024.

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. (NEC 215) Feeders.

Surge protection for feeders is not required in the following occupancies:

1. Dwelling units.
2. Dormitory units.
3. Guest rooms and guest suites of hotels and motels.
4. Areas of nursing homes and limited care facilities exclusively used as patient care sleeping rooms.

History: Effective July 1, 2024.

General Authority: NDCC 43-09-05

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

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, 2023 edition, National Electrical Code (first version, printed in 2022).

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 [.6061 meter] above grade level unless listed for such purpose.
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, 2023 edition, National Electrical Code (first version, printed in 2022).

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.

History: Effective April 1, 2017 amended effective October 1, 2020; July 1, 2024.

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, 2023 edition, National Electrical Code (first version, printed in 2022).

1. Exterior overcurrent devices must be located at a height of no less than two feet [.61 meter] 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 spaces, except in bathrooms where only a sink and toilet or similar plumbing fixture is installed. Switchboards and panel boards may not be installed within six feet [1.83 meters] of the edge of these plumbing fixtures.

History: Effective April 1, 2017; amended effective October 1, 2020; July 1, 2024.

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, 2023 edition, National Electrical Code (first version, printed in 2022).

1. At motor connections, a bonding jumper sized in accordance with table 250.122, 2023 edition, National Electrical Code (first version, printed in 2022), 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 2023 edition, National Electrical Code (first version, printed in 2022), 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.
4. Exception: In addition to same raceway, auxiliary gutter, or cable tray, if multiconductor cables are paralleled, a single equipment grounding conductor that is sized in accordance with 250.122(F)(2)(c) is also permitted in a trench.

History: Effective April 1, 2017; amended effective October 1, 2020; July 1, 2024.

General Authority: NDCC 43-09-05

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