ARTICLE 24.1-06
ELECTRICAL WIRING STANDARDS

CHAPTER 24.1-06-01
GENERAL REQUIREMENTS

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

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

24.1-06-01-03. [Reserved].

24.1-06-01-04. [Reserved].

24.1-06-01-05. [Reserved].

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

24.1-06-01-07. [Reserved].

24.1-06-01-08. [Reserved].

24.1-06-01-09. [Reserved].

24.1-06-01-10. Requirement for electrical installations.

Electrical installations shall be planned to provide adequate capacity for the load.

1. Wiring systems shall have conductors of sufficient capacity to furnish each outlet without excessive line loss or voltage drop. The voltage drop shall not exceed five percent at the farthest outlet of power, heating and lighting loads, or combinations of such loads. (See appendix for example.)

2. All wiring materials and equipment shall be listed by nationally recognized testing laboratories to safeguard life and property. It is the duty of the electrical installer to secure permission from the executive director to use materials, devices, and methods of installation not specifically covered by these standards. Equipment not approved under a testing laboratory category shall be evaluated by a registered professional engineer and recorded on evaluation forms accepted by the board.

   Exception: Manufacturing firms that install industrial machinery for use by the firm itself and employ professional engineers may evaluate the industrial machinery according to NFPA 79 or UL 508 Standards. This evaluation shall be maintained with the equipment at all times and a copy submitted to the board.

3. When wiring public school buildings, approval shall be received from the department of public instruction and the board.

4. Overhead conductors shall not cross over water wells or known sites where water wells may be drilled. A minimum distance of twenty feet [6.10 meters] in all directions shall be maintained for overhead conductors.

5. In the wiring of nursing homes and hospitals, reference shall be made to the state department of health for special requirements pertaining to operating rooms, delivery rooms, and emergency lighting.

6. Aluminum or copper-clad aluminum conductors in sizes smaller than no. 6 must be used only for class II and class III circuits.

7. All new construction shall follow the energy-efficient related requirements for design and construction of buildings in accordance with the locally adopted codes or the State Building Code.

8. In any room of an existing building where the sheetrock or wall covering has been removed from all walls, the electrical wiring requirements must comply with the 2023 edition, National Electrical Code (first version, printed in 2022).

9. If the occupancy of an existing building or part of an existing building is changed, the electrical wiring and equipment of the building or portion thereof that contains the proposed occupancy must comply with the 2023 edition, National Electrical Code (first version, printed in 2022).

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General Authority: NDCC 43-09-05
Law Implemented: NDCC 43-09-21, 43-09-22

24.1-06-01-11. [Reserved].

24.1-06-01-12. [Reserved].

24.1-06-01-13. [Reserved].

24.1-06-01-14. [Reserved].

24.1-06-01-15. [Reserved].

24.1-06-01-16. [Reserved].

24.1-06-01-17. [Reserved].

24.1-06-01-18. [Reserved].

24.1-06-01-19. [Reserved].

24.1-06-01-20. Water damaged electrical equipment.

Water damaged electrical equipment wiring and equipment exposed to water damage must comply with the following:

1. All breaker panel boards, breakers, fuses, disconnect switches, controllers, receptacles, switches, light fixtures, and electric heaters that have been submerged or exposed to water damage must be replaced or all electrical equipment, switchgear, motor control centers, boilers and boiler controls, electric motors, transformers, and other similar equipment, such as

appliances, water heaters, dishwashers, ovens, and ranges that have been submerged must be reconditioned by the original manufacturer or by its approved representative or replaced.

2. Electrical wiring may require replacement depending on the type of wire or cable and what application it was listed for.

3. Splices and terminations must be checked to ensure compliance with article 110.14, 2023 edition, National Electrical Code (1st version, printed in 2022).

4. Energized electrical panels that have been submerged must be de-energized to prevent loss of life and property.

   Other recommendations can be found in "Guidelines for Handling Water Damaged Electrical Equipment" published by the national electrical manufacturers association (NEMA).

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24.1-06-01-21. [Reserved].

24.1-06-01-22. [Reserved].

24.1-06-01-23. [Reserved].

24.1-06-01-24. [Reserved].

24.1-06-01-25. [Reserved].

24.1-06-01-26. [Reserved].

24.1-06-01-27. [Reserved].

24.1-06-01-28. [Reserved].

24.1-06-01-29. [Reserved].

24.1-06-01-30. Markings of means of egress, illumination of means of egress, and emergency lighting.

The purpose of this section is to provide marking of means of egress, illumination of means of egress, and emergency lighting of means of egress. Installations must comply with the requirements of NFPA 101® (7.10.6 and 7.10.7), Life Safety Code®, 2021 edition or more stringent locally adopted codes. A condensed guide is included in the appendix for convenience, for complete and official information refer to the applicable standard.

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24.1-06-01-32. [Reserved].

24.1-06-01-33. [Reserved].

24.1-06-01-34. [Reserved].

24.1-06-01-35. [Reserved].

24.1-06-01-36. [Reserved].

24.1-06-01-37. [Reserved].

24.1-06-01-38. [Reserved].

24.1-06-01-39. [Reserved].

24.1-06-01-40. Smoke alarms, heat alarms, fire alarm systems, and carbon monoxide alarm requirements for evacuation and life safety.

Alarm systems stated in this section shall be installed in accordance with the locally adopted codes or the State Building Code and state fire code under the supervision of a master or class B electrician. In new construction, all alarm systems shall receive their primary power from the building wiring and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.

1. Dwelling units, congregate residences, and hotel or lodging house guest rooms that are used for sleeping purposes shall be provided with smoke alarms. Alarms shall be installed in accordance with the approved manufacturer's instructions.

    a. When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. Smoke alarms shall be installed in the following locations:

        (1) In each sleeping room.

        (2) Outside each separate sleeping area in the immediate vicinity of the sleeping rooms.

        (3) On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

        (4) In dwelling units where the ceiling height of a room open to the hallway serving the bedrooms exceeds that of the hallway by twenty-four inches [60.96 centimeters] or more, smoke alarms shall be installed in the hallway and in the adjacent room.

b. Heat alarms. For new construction, an approved heat alarm shall be installed in the attached single tenant garage of a residence and interconnected with the smoke alarms within the residence.

c. Household fire alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detectors and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required by this section for smoke alarms. Where a household fire warning system is installed using a combination of smoke detector and audible notification device, it shall become a permanent fixture of the occupancy and owned by the homeowner. The system shall be monitored by an approved supervising station and be maintained in accordance with NFPA 72 upper level.

2. Apartment houses, hotels, and congregate residences shall be provided with a manual and automatic fire alarm system in accordance with the requirements of locally adopted codes or the State Building Code and state fire codes.

3. An approved carbon monoxide alarm shall be installed in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages in the following locations:

   a. Outside each sleeping area in the immediate vicinity of the bedrooms.

   b. On every habitable level.

   c. In each bedroom or its attached bathroom within which a fuel-fired appliance is located.

   If more than one carbon monoxide alarm must be installed within an individual dwelling unit, the alarm devices must be interconnected to activate all alarms in the individual dwelling unit if one alarm is activated.

4. Rooms and areas within dwelling units, basements and attached garages in which an energy storage system is installed must be protected by smoke alarms. The smoke alarm must receive power from the premise wiring and be interconnected to any existing smoke alarm system. A heat detector listed and interconnected must be installed if a smoke alarm cannot based on its listing.

   A condensed guide is included in the appendix, and for further information consult the locally adopted codes or the State Building Code and state fire codes.

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