

# Village of Bartlett Electrical Code Amendments



Chapter 9

**ELECTRICAL REQUIREMENTS:**

9-9-1: AMENDMENTS:

9-9-2: LISTING; LABELING:

9-9-3: ELECTRICAL SERVICES:

9-9-4: WIRING METHODS:

9-9-5: ROUGH INSPECTION REQUIREMENTS FOR RESIDENTIAL, COMMERCIAL AND INDUSTRIAL:

9-9-6: ELECTRICAL REQUIREMENTS FOR ATTACHED OR DETACHED GARAGE:

9-9-7: SWIMMING POOL:

9-9-8: ELECTRICAL REQUIREMENTS FOR SIGNS:

9-9-1: AMENDMENTS:

Electrical work including the planning, installing, altering, extending, repairing, maintaining or inspecting electrical systems within the Village limits shall be performed only by a person, firm, corporation, limited liability company or entity that undertakes or offers to undertake electrical contractor services to plan for, lay out, supervise, or install, or to make additions, alterations, or maintenance of wiring apparatus or equipment for electric, light, heat or power with or without compensation and possess an electrical contractor's license issued by an approved testing municipality in the State of Illinois, and the Village electrical contractor's license. Electrical work in or on commercial or industrial properties in the Village limits shall be performed by an electrical contractor possessing a commercial and industrial electrical contractor's license. New residential construction and home remodeling work involving electrical work shall be performed only by electrical contractor's license. except an owner/occupant of a single family home, or the owner of a single family home being remodeled or repaired for his or her occupancy within six (6) months after the date of completion of the remodeling or repair work, provided the owner has filed an affidavit in compliance with Section 9-4-2F of this Chapter with the building department at the time of application for a building permit, may perform minor electrical work that does not include the hook up or extension of electrical wiring to the electric panel. Homeowners shall not be permitted to install electrical services, swimming pools, or hot tubs.

The following articles have been deleted, added, modified, clarified, elected or amended from the 2017 National Electrical Code:

Articles:	
210.8 (A) & (B)	2017 NEC 210.8 (A) & (B) was deleted and 2020 NEC 210.8 (A), (B), (F) was add to the current code.
310.106(B)	Aluminum, copper-clad conductors (deleted)
320	Armored cable type AC (deleted)
322	Flat cable assemblies type FC (deleted)

324	Flat conductor cable type FCC (deleted)
326	Integrated gas spacer cable (deleted)
328	Medium voltage cable type MV (deleted)
330	Metal-clad cable type MC (deleted)
332	Mineral-insulated, metal-sheathed cable type MI. It may be used for fire pumps, fire alarms, or hazardous locations (modified)
334 336	Nonmetallic sheathed cable types NM, NMC, NMS, NM-B (deleted) Power and control Tray Cable. Type TC (deleted)
338	Service entrance cable type SE and USE (deleted)
348 342	Limited to indoor use only and shall be limited to 6 ft. length (modified) Limited to indoor use only and not permitted in concrete or in direct contact with earth or outside. (modified)
350	Not in direct contact with earth or concrete and shall be limited to 6 ft. length (modified)
353 354 355 356	High density polyurethane conduit type HDPE conduit (deleted) Nonmetallic Underground Conduit With Conductors Type NUCC (deleted) Reinforced Thermosetting Rein Conduit Type RTRC (deleted) Not in direct contact with earth or concrete and shall be limited to 6 ft. length (modified)
358	Not permitted in concrete or in direct contact with earth or outside (modified)
362 370 372 374	Electrical nonmetallic tubing (deleted) Cablebus (deleted) Cellular Concrete Floor Raceway (deleted) Cellular METAL Floor Raceway (deleted)
382 393	Nonmetallic extension (deleted) Low-voltage suspended ceiling power distribution system (deleted)
394	Concealed knob-and-tube wiring (deleted)
396	Messenger supported wiring (deleted)
398	Open wiring on insulators (deleted)
590.4(B)&(C)	Type NM and type NMC or similar wiring methods (deleted)
604	Manufactured wiring (deleted)

Annex H

Administration and enforcement (deleted)  
Any voltage over 24 volts shall be in conduit system (added)

(Ord. 2007-45, 5-1-2007)

9-9-2: LISTING; LABELING: All electrical equipment shall be listed and labeled by a third party agency to U.S. standards. (Ord. 2007-45, 5-1-2007)

### 9-9-3: ELECTRICAL SERVICES:

Meter sockets on new construction must be installed on the side of the house closest to the source.

A. Metering: For all new construction, underground wiring and metering must be used.

B. Rigid metallic conduit shall be used from the meter socket to the panel. For elements below grade, rigid nonmetallic conduit shall be permitted for commercial and industrial building use.

#### C. Service Requirements:

1. Services for residential shall be a minimum of one hundred (100) amps and shall comply with the following table: New Construction shall comply with the following:

1 to 1,199 square foot home = 100 amps  
1,200 to 3,900 square foot home = 200 amps  
3,901 and larger square foot home = 400 amps

2. Commercial and industrial services shall be a minimum of two hundred (200) amps.

D. Article 310.15(B) (7) have been deleted from the 2017 NEC.

E. Overhead Electrical Services: All overhead electrical services shall be in rigid metal pipe for the riser (conduit) and shall be installed with galvanized backs and straps (a type of clamp to hold the conduit in place), with three-eighths inch ( $\frac{3}{8}$ " ) galvanized mounting hardware. No zinc parts shall be used.

F. Grounding Electrodes and Ground Electrode Conductors: Rod electrodes shall be five-eighths inch ( $\frac{5}{8}$ " ) copper rods eight feet (8') in length and delete 250.52(A) (5) (a). There shall be two rods in all cases. The rods shall be not less than 6 (six) feet apart. Modifying 250.53(D) (2) and the exception from the 2017 NEC. Modifying 250.64 (B) Exception: The wire between ground rods will not be required to be in pipe. Ground electrode conductors shall be protected from physical damage by means of RMC 344, EMT 358, and electrical PVC 352. There shall be no other wiring in the grounding electrode conductor conduit. Concrete-encased electrode shall be used for all dwellings and buildings. 250.52 (3) (1) & (2)

G. Main Disconnect: Each service shall be provided with one (1) main disconnect. Shunt trip capability shall be required for all services other than those serving Dwelling units. Shunt trip shall be remotely operated from a UL Listed mushroom-style or similar pushbutton switch secured inside a lockable weatherproof box. The box shall be located adjacent to the sprinkler room door or per direction of the Fire District. One main disconnect shall be provided per building.

H. Fusible Disconnecting: Fusible disconnecting means shall be installed for more than five feet (5') of conduit between the panel and the metering device or a transformer. This includes under a building.

I. Mogul LB: Mogul LB shall be used for all conductors larger than #8.

J. Panel Sizing:

Size	100 amp	150 amp	200 amp
Circuit spaces available	24/30	24/30	42/60
Service conductor sizing	#3 THHN	1/0 THHN	3/0 THHN

K. Prohibited Circuit Breakers: No tandem, buddy, duplex, piggyback and half circuit breakers.

L. Subpanels & Large Switchgear: 1. No subpanels for any new construction dwelling unit. 2. All switchboards or like floor mounted shall be installed on a concrete pad a minimum of 4 inch above the nominal floor. 3. Switchboard rooms containing equipment rated at 1000 amperes or greater shall have two (2) or more means of egress for personnel.

M. Identification of conductors in 3 phase installation. **Branch circuit ungrounded conductors:** (A) 1. Rated 150 volts to ground or less shall use the following color code: Black for A phase, Red for B phase, Blue for C phase. 2. Rated over 150 to ground shall use the following color code: Brown for A phase, Orange for B phase, Yellow for C phase. 3. On a delta 4 wire system the midpoint grounded phase, the high phase branch circuit conductor shall be marked with orange. All shall be durably and permanently marked. (B) **Branch circuit grounded conductors:** 1. Rated 150 volts to ground or less shall use the following color code: Continuous white outer finish up to #4. Larger than #4 shall be durably and permanently marked. 2. Rated over 150 to ground shall use the following color code: Continuous gray outer finish up to #4. Larger than #4 shall be durably and permanently marked.

N. Identification: Identification of the contractor shall be permanently displayed on the main service panel board upon completion of the project (Ord. 2007-45, 5-1-2007).

9-9-4: WIRING METHODS:

A. All two hundred twenty (220) volt electric ranges shall be installed with a minimum of three-fourths inch ( $\frac{3}{4}$ " ) conduit and wired with two (2) #6s, one (1) #8 white and green one (1) #10.

B. The microwave shall be on its own circuit (20 amps).

C. The family room shall be on its own circuit (20 amps).

D. Wires terminated on receptacles or switches shall be under the screw of the device. Backstabbing shall not be permitted.

E. Article and table 210.21(B) (3) have been changed to all outlets or receptacles. Must be rated at the branch circuit rating.

15 amp = 15 amp receptacle on circuit rating

20 amp = 20 amp receptacle on circuit rating

F. The minimum wire size for commercial and industrial shall be #12 AWG. Exception: Control wiring installation.

G. Bracketed boxes shall be used in new construction and remodeling if the wall cavity has been made accessible.



H. All center ceiling boxes in rooms that are not listed in article 210.70(A) shall be fan rated.



I. For one- and two-family and apartment buildings, a GFCI protected outlet shall be installed at all balconies with doors. Amending 210.52(E) (3).

J. All closets at least five (5) square feet or larger in area shall have an approved lighting fixture installed. All walk-in closets shall have a wall control switch for the light fixture(s).

K. There shall be no electrical device(s) within three feet (3') of a bathtub or shower (low voltage or 110/220 voltage). Exception: Power for hydromassage bathtub or listed steamer showers.

L. All furnace areas shall be equipped with a lighting fixture within six feet (6') of the furnace service panel and this light shall not be on the furnace circuit. In the same area there shall be a single outlet for a future water softener.

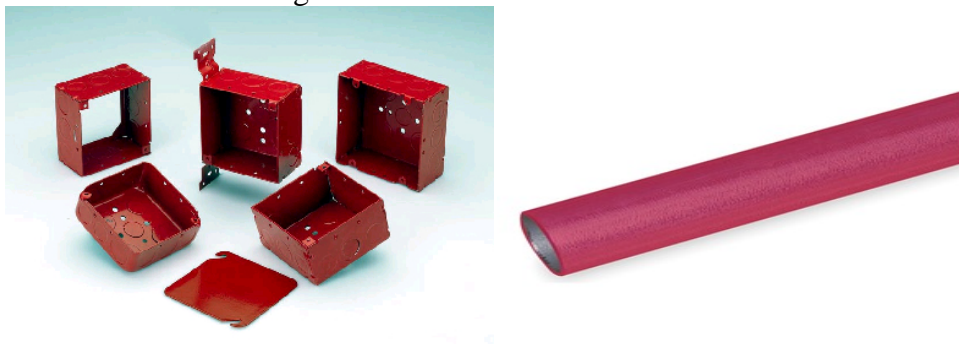
M. All flexible cords shall be grounded and rated for loads. The use of cords from fixture to fixture is not permitted (daisy chaining).

N. All underground conductors shall be installed in heavy wall metal conduit, elect PVC.



O. All commercial low voltage wiring that is not accessible or is subject to damage shall be in conduit and the stubs must have connectors and bushings and in bridle rings a maximum of ten feet (10') apart. All residential doorbell and thermostat wiring shall be in conduit system.

P. The fire alarm wiring shall be in conduit. Fire alarm conduit and boxes shall be red in color.



Q. All conduit systems and raceways and like systems shall have a green equipment grounding conductor sized in accordance with 250.122.

R. There shall be a minimum of two (2) kitchen appliance circuits that are required to be for countertop use only. Both circuits shall be available on all countertops if there is more than one outlet present. All island and peninsular outlets shall be hard piped into place.

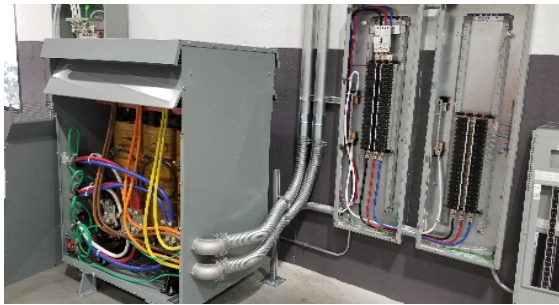
S. There shall be additional supports for floor boxes by expander braces or two by four (2 x 4) means or a listed/approved device.

T. Abandoned electrical equipment, wiring methods, raceways, low voltage cabling, cables, conductors, boxes, etc. shall be removed.

U. Residential smoke detectors shall be wall mounted to manufacturer's installation instructions. If ceiling mounted, pipes shall enter the sides of the boxes. (No overhead entry) Smoke detectors shall be located within 15 feet of a sleeping room doorway and with-in all sleeping rooms (bedrooms). Carbon monoxide detectors shall be installed within fifteen feet (15') of a sleeping room on all levels that have sleeping rooms. These detectors shall be one hundred twenty (120) volts with battery backup interconnected.

V. All dishwashers shall have a kill switch within six feet (6') of the unit. (Ord. 2007-45, 5-1-2007)

W. Separately Derived System- All bonding and grounding shall be done at the first point of disconnect.



X. A single receptacle (Simplex outlet) shall be required for all sump and ejector pits. Amending 210.8 No GFCI protection is required.

Y. A single receptacle (Simplex outlet) shall be required for all washer and gas dryers. Amending 210.8 No GFCI protection is required. GFCI protection shall be required for finished or non finished basements for receptacle only.

Z. A single receptacle with Garvin cover (Simplex outlet) shall be required for all Radon vent pipes in the attic. This receptacle shall be with-in three feet (3') of the Radon vent pipe.



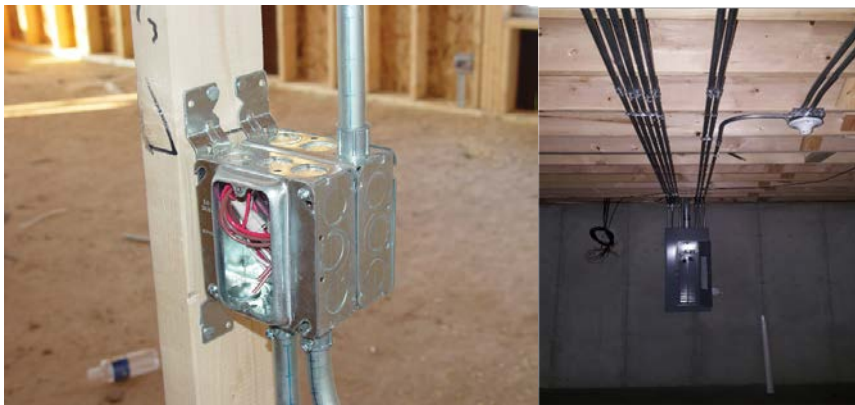
**9-9-5: ROUGH INSPECTION REQUIREMENTS FOR RESIDENTIAL, COMMERCIAL AND INDUSTRIAL:**

A. All wires shall be in at the time of rough inspection. This includes low voltage thermostat and doorbell wiring. (Except slab work.)

B. The basement must be roughed in and the wire pulled at the time of the rough inspection.

C. All splices shall have been made.

D. All drywall rings and flexible whips shall be installed at the time of the rough inspections (Ord. 2007-45, 5-1-2007).



9-9-6: ELECTRICAL REQUIREMENTS FOR ATTACHED OR DETACHED GARAGE:

A. All garages shall be provided with at least one branch circuit.

B. A separate twenty (20) amp circuit shall be installed to the GFCI protected wall receptacles for general use in the garage. This circuit shall have no other devices or outlets on it. One separate twenty (20) amp branch circuit for vehicle bays for GFCI protected wall receptacle outlets for vehicle charging at 120 volts. This circuit shall have no other devices or outlets on it.

C. For new construction and only for attached garages there shall be a  $\frac{3}{4}$  inch EMT pipe from the electrical panel to the garage. This pipe shall be installed into a deep 1900 box or an 11-B box for future installation of a 240-volt vehicle charging system.

D. Overhead outlets shall be installed for future garage door openers. These outlets shall be of a single receptacle type. (Simplex outlet) Amending 210.8 No GFCI protection is required (Ord. 2007-45, 5-1-2007).



9-9-7: SWIMMING POOL:



A. All swimming pool lighting fixtures shall be low voltage having not more than fifteen (15) volts between conductors (Ord. 2007-45, 5-1-2007).

B. The maintenance disconnecting means shall be six (6) feet from the inside wall of the pool. For above ground and in ground pools only. Hot Tubs disconnect shall be located a minimum of five (5) feet from the inside wall of the spa. But all shall be readily accessible and within sight.

C. No portion of a private residential swimming pool shall be located at a distance less than five feet (5') from any underground service. 9-21-3 of the Village of Bartlett Building Code



9-9-8: ELECTRICAL REQUIREMENTS FOR SIGNS:

- A. All signs' metal parts shall be grounded.
- B. All signs shall have a disconnect means outside.
- C. All signs shall be third party listed and labeled to U.S. standards (Ord. 2007-45, 5-1-2007).



# NOTES

