

# **VILLAGE OF LIBERTYVILLE**

## **Municipal Code Chapter 6 Buildings and Technical Regulations**

### **Electrical Code**

**Incorporating the 2014 International Building  
Code  
as amended**

Adopted 4/12/16 as part of Ord. 16-O-21

Effective 5/1/16

ARTICLE III. ELECTRICAL CODE\*

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\*Cross reference(s)--Electrical commission, ' 2-321 et seq.

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DIVISION 1. GENERALLY

**Sec. 6-221. Definitions**

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

*Approved* means acceptable to the authority having jurisdiction.

*Electrical contractor* means any person, firm or corporation engaged in the business of installing or altering, by contract, electrical equipment for the utilization of electricity supplied for light, heat or power, not including radio apparatus or equipment for wireless reception of sounds and signals, and not including common carriers, which are under the jurisdiction of the Illinois Commerce Commission, for use in their operations as public utilities. The term "electrical contractor" does not include employees of such contractor to do or supervise such work.

*Licensed contractor* means a contractor granted permission by a competent authority to engage in a business or occupation.

*Mechanical execution* of work means electric equipment shall be installed in a neat and workmanship like manner.

*Qualified person* means one familiar with the construction and operation of the equipment and the hazards involved.

*Registered contractor* means a contractor who has been formally qualified by an official testing procedure as defined in section 6-316.

*Special permission* means the written consent of the authority having jurisdiction.

(Ord. No. 89-0-65, ' 1(35.5), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Cross reference(s)**--Definitions and rules of construction generally, ' 1-2.

**Sec. 6-222. Penalties.**

- (a) Any person, firm, company or corporation who shall violate any of the provisions of this chapter or of any of the applicable provisions of the National Electrical Code or shall fail to comply therewith or who shall violate or fail to comply with any order made thereunder and from which no appeal has been taken, or who shall fail to comply with such an order as may be affirmed or modified on appeal

or by a court of competent jurisdiction, within the time duly fixed for compliance or who shall make installations or repairs in violation of any detailed statement of specifications or plans submitted and approved thereunder, or any certificate or permit issued hereunder shall severally for each and every such violation and non-compliance respectively, be guilty of a misdemeanor, punishable as provided in section 1-12.

- (b) The application of any penalty shall not be held to prohibit the enforced removal of prohibited conditions.

(Ord. No. 89-0-65, ' 1(35.11), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Secs. 6-223--6-240. Reserved.**

## DIVISION 2. ADMINISTRATION AND ENFORCEMENT

### *Subdivision I. General Provisions*

#### **Sec. 6-241. Electrical inspection department.**

- (a) *Office of chief electrical inspector established.* The village may regulate the installation, alteration and use of all electrical equipment as provided for in article II, division 37 of the Illinois Municipal Code (65 ILCS 5/11-37-1 et seq.), as amended, and may establish an electrical inspection department for this regulation. Therefore, there is established, within the building division of the village, office of chief electrical inspector.
- (b) *Duties and power of the electrical inspector.*
  - (1) The chief electrical inspector shall be charged with the duties of enforcing the rules and regulations, fixing standards and specifications for the regulation and use of electrical equipment as defined in this article pertaining to the electrical code, and prescribed in any other ordinance of the Village of Libertyville. Plans, specifications and schedules in detail shall be filed with the electrical inspection department, showing the location and capacity of all lighting facilities, electrically operated equipment, apparatus and electrical circuits required for all service equipment of the building, structure or premises; except as may be modified by the administrative official. The chief electrical inspector shall and is hereby authorized to review, inspect and approve all electrical drawings, specifications, installations and equipment. The items covered are all electrically controlled devices, including signal, communicating and lighting systems and their wiring, whenever required, shall be shown on the plans and elevations of the building or structure with respect to those uses covered by LMC Chapter 6, Article II, Building Code. Where required by local law or ordinance, the plans and specifications for electric

wiring shall be approved by all authorities having jurisdiction.

- (2) The electrical regulations of this code may be modified or waived where such modification or waiver is specifically permitted by the code or in particular cases where an advancement in the technology of electricity makes such modification or waiver advisable. Underwriters Laboratories (U.L.), or any other Nationally Recognized Testing Lab may be accepted as prima facie evidence of acceptability. However, the provisions of section 6-281(d) shall be applied in all cases.
- (3) The electrical inspector shall have the authority, during reasonable working hours to enter upon any premises or into any building or structure or portion thereof, as per the provisions of section 6-58.
- (4) Whenever the chief electrical inspector finds any electrical installation and/or equipment not conforming to the rules and regulations set forth in this chapter or any other electrical ordinance or code of the Village of Libertyville, the chief electrical inspector is empowered to stop work on any installation being made by any person, firm, or corporation. The chief electrical inspector may also stop work on any installation to which a permit has not been issued or for inspection fees which have not been paid.

(Ord. No. 89-0-65, ' 1(35.10), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

#### **Sec. 6-242. Appeals**

If any person shall deem themselves aggrieved by any decision, finding, interpretation or order of the Building Commissioner made pursuant to this division, such person shall have the right of appeal therefrom to the electrical commission in accordance with procedures as shall be applicable as in the case of application for variation made to the village board. The board of trustees shall have authority to affirm, overrule or modify such interpretation, finding, decision or order of the electrical commission.

(Ord. No. 89-0-65, ' 1(35.12), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

#### **Sec. 6-243. Stop work orders and suspension of permit privileges.**

- (a) The building official is hereby authorized to issue and post stop work orders to stop work on any building, structures or premises, as provided for in section 6-62, pertaining stop work orders. When any condition exists, as set forth in section 6-61 the electrical inspector shall with a copy of the violation notice inform the building official, who shall issue a stop work order per Section 6-61 until the violations have been corrected and shall remove the stop work order as provided for in section 6-62.

- (b) When any person, firm, company or corporation has been issued two (2) stop work orders, in one (1) calendar year, the electrical inspector shall inform the electrical commission, who shall set a date for a hearing, to determine whether or not the permit privileges of said person, firm, company or corporation shall be suspended. A suspension of permit privileges may be for two (2) weeks or more, but not to exceed one (1) year.

(Ord. No. 89-0-65, '1(35.7.4), 12-19-89; Ord. No. 94-0-37, '1, 7-26-94)

**Sec. 6-244. Electrical commission.**

Refer to Code section 2-321 through 2-340.

(Ord. No. 94-0-37, '1, 7-26-94)

**Secs. 6-245--6-260. Reserved.**

*Subdivision II. Permits, Inspections and Approvals\**

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\*State law reference(s)--Electrical permits and fees, 65 ILCS 5/11-37-2.

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**Sec. 6-261. Electrical permits.**

- (a) Electrical wiring or equipment shall not be installed within or on any building, structure or premises, nor shall any alteration be made in any such existing installations, without first securing approval and a permit from the electrical inspection official pursuant to Section 6-86, Permits of the Libertyville Municipal Code (LMC 6-86) except as specifically provided herein after. It shall be unlawful to use or permit the use of, or to supply current for an electrical system in a building, structure or premises unless the required permit has been issued by the electrical inspection official. A copy of the electrical contractor's registration and license, with a certificate of insurance pursuant to LMC 6-86(k) shall be presented when a permit is applied for.
- (b) The provisions for inspection of work authorized by electrical permits issued by the electrical inspection official shall not be construed as prohibiting the inspection of any electrical wiring, apparatus or equipment, either revised or original, now or whenever installed. If the inspection reveals deficiencies or unsafe conditions, the owner or responsible person shall correct and/or replace any defective electrical wiring, apparatus or equipment. Defective electrical wiring, apparatus or equipment shall not be energized under any conditions until the necessary repairs or replacements have been made. A separate electrical permit will be required and inspections will be made of the corrected work.

- (c) Permits for work performed under this code may be issued only to electrical contractors who furnish the Village of Libertyville with proof of minimum insurance as required in LMC 6-86(k).
- (d) Exemptions to the permit requirements of this section are as follows:
  - (1) Licensed stationary engineers may be approved to perform emergency electrical repairs and minor electrical installations not to exceed one hundred twenty (120) volts to ground and twelve (12) feet in length.
  - (2) Homeowners of record in the Village of Libertyville requesting an electrical permit to be issued in their name to do electrical work on their private property, shall not be required to register as a contractor or to pay a registration fee. However, the chief electrical inspector shall require sufficient display of mechanical and electrical knowledge so as to show competency to be sufficient in accomplishing the proposed electrical installation, alteration or change in the interest of safeguarding life and property. The homeowner assumes any and all responsibility and liability for the work performed. He shall be the only person approved to do electrical work on his property other than a "registered contractor" as defined in section 6-316 et seq.

(Ord. No. 89-0-65, ' 1(35.7.1, 35.7.2), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**State law reference(s)**--Electrical permits and fees, 65 ILCS 5/11-37-2.

**Sec. 6-263. Permit fees and display.**

- (a) *Fees.* Fees for the electrical permits required under this subdivision shall be as established in the annual fee ordinance.
- (b) *Payment.* All fees provided for in this section shall be paid to the village before a permit is issued.
- (c) *Display.* Each permit shall be posted on the jobsite so as to be seen from the street or accessible area.

(Ord. No. 89-0-65, ' 1(35.8), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-264. Inspections, reinspections and certification of inspections.**

- (a) *Inspection of electrical installations and/or equipment.* All installations or alterations of electrical equipment shall be inspected before any of the work is hidden from view or concealed in any way. The person, firm, company or corporation doing the work shall notify the building division that the work is ready for inspection at least twenty-four (24) hours in advance. The chief

electrical inspector will have twenty-four (24) hours in which to make the required inspection before any such work is concealed.

- (b) *Advance notice for inspection.* Upon completion of any installation or alteration of electrical equipment, the person, firm, company or corporation doing the work shall notify the building division that the work is ready for inspection at least twenty-four (24) hours in advance. The chief electrical inspector shall make the required final inspection.
- (c) *Issuance of certificate of inspection.* No certificate of inspection approval shall be issued unless the electrical installation and equipment is in conformity with the provisions of all electrical ordinances, the code requirements of the Village of Libertyville and the Statutes of the State of Illinois including applicable provisions of the National Electrical Code as adopted in Sec. 6-281.
- (d) *Reinspections of new installations.* A reinspection fee shall be charged for work not ready for inspection, as provided in section 6-90(g). Fees shall be paid prior to reinspection.
- (e) *Reinspection of existing installations.* The chief electrical inspector may periodically make inspections of existing electrical equipment, or installations. This will include, but not be limited to, commercial establishments, places of assembly, factories, multi-family and rental type dwellings within the Village of Libertyville. Inspections will be made in all other buildings upon the request of an owner or occupant, the fire department and/or other units of government. An inspection may also be made in the event of fire, emergency or probable cause. Electrical inspections may be made as part of housing inspections and/or property maintenance programs. If an installation is found to be unsafe, the electrical inspector shall notify the person, firm, company or corporation owning, using, installing or operating such equipment to make the necessary repairs or changes required to place the installation in a safe, operating condition. The necessary work shall be completed in a timely manner, commensurate with the hazard to life, safety and/or property.
- (f) *Village liability.* The inspections and control of the installation of electrical equipment or the granting of inspection certificates by the Village of Libertyville, shall not make the village liable on account of such control of or granting of such certificates, or lessen the liability of persons, firms, company or corporation owning or installing such electrical equipment.

(Ord. No. 89-0-65, ' 1(35.9), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Secs. 6-265--6-280. Reserved.**

### DIVISION 3. TECHNICAL STANDARDS

**Sec. 6-281. National Electrical Code--Adopted.**

- (a) The National Electrical Code of 2014 (NFPA 70- 2014) as issued and promulgated by the National Fire Protection Association, and approved by the American National Standards Institute, which by this reference is hereby adopted and incorporated as fully as if set out at length herein, except as amended, added to, or modified hereafter as set forth and applicable to existing or proposed buildings, structures or premises containing wiring or electrical equipment, is hereby adopted as the Electrical Code of the Village of Libertyville, Lake County, Illinois.
- (b) Three (3) copies of the National Electrical Code shall be kept on file in the office of the building official for public inspection.
- (c) The administration and enforcement provisions of article II, the building code of the village, shall be and are the administration and enforcement provisions to be applied to the building code, the plumbing code, the electrical code, the mechanical code, the fire prevention code, the property maintenance code and such other codes and ordinances of the village which pertain to the construction or alteration of buildings and structures, as stated in such article.
- (d) Where there are practical difficulties involved in carrying out structural or mechanical provisions of this code or of an approved rule, the electrical inspector may vary or modify such provision upon application of the owner or owner's agent, provided that the spirit and intent of the provisions shall be observed and public safety and welfare be ensured. Such modification shall be properly recorded in the permanent records and files of the department and further providing that all provisions of the subsections of section 6-34, pertaining to materials and equipment, are applied to the requested modification.

(Ord. No. 89-0-65, ' 1(35.1), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**State law reference(s)**--Adoption by reference, 65 ILCS 5/1-3-1 et seq., 50 ILCS 220/1 et seq.

**Sec. 6-282. Deletions, Additions, and Modifications.** The following articles and sections of the National Electrical Code as adopted in Sec. 6-281 are hereby revised as follows:

Article 90.8 Wiring Planning. Add the following:

*90.8(A)(1) Dwelling Units.* An unused 35mm (1-1/4 in.) raceway shall be provided from the basement to the attic.

*90.8(A)(2) New Panelboards and Load Centers.* Newly installed panelboards and load centers shall have 10% of circuit spaces available for future expansion.

**110.3 Examination, Identification, Installation, and Use of Equipment.** Add the following

sentence to the end of paragraph (A) Examination "All equipment shall be tested by a Nationally recognized testing laboratory."

**Article 110.12 Mechanical Execution of Work.** Add sections:

*110.12(C) Inspection of Mechanical Work.* Conductors shall not be pulled in conduit, until wall finishes are applied or all mechanical work is completed, without the consent of the electrical inspector. Any conductors that are installed must remain de-energized during inspections.

*110.12(D) Abandoned Wiring.* All abandoned conduit, wire, or other electrical equipment and material must be removed. This includes low-voltage wiring, data processing cable, etc.

*110.12(E) Housekeeping Pad.* Freestanding electrical equipment designed for floor installations must be mounted on a 10 cm. (4in.) thick concrete housekeeping pad.

**Article 210.8(A) Dwelling Units.** Delete the first paragraph and replace with the following:

*210.8(A) Dwelling Units.* All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in 210.8(A)(1) through (10) shall have ground-fault circuit-interrupter protection for personnel. GFCI protected receptacles with slave capability shall not be permitted to connect to downstream receptacles or outlets other than those which are installed in the immediate area the lead GFCI receptacle is located.

**Article 210.8(B) Other Than Dwelling Units.** Delete first paragraph and replace with the following:

*210.8(B) Other Than Dwelling Units.* All 125-volt, single phase, 15- and 20- ampere receptacles installed in the locations specified in 210.8(B)(1) through (8) shall have ground fault circuit-interrupter protection for personnel. GFCI protected receptacles with slave capability shall not be permitted to connect to downstream receptacles or outlets other than those which are installed in the immediate area the lead GFCI receptacle is located.

**Article 210.12(B) Branch Circuit Extensions or Modifications—Dwelling Units.** Delete in its entirety.

**Article 210.52(B)(3) Kitchen Receptacle Requirements.** Add a new sentence at the end of paragraph to read as follows: Receptacle outlet(s) shall be 20 amp rated.

**Article 210.52(G)(1) Garages.** Add new sections at the end of paragraph to read as follows:

- (a) A separate 20-ampere circuit shall be provided for plug-in equipment and devices.
- (b) A separate circuit shall be provided for overhead garage door(s).
- (c) A separate circuit shall be provided for lighting. In addition there shall be at least one lighting outlet on the interior of the garage and at least one lighting outlet on the exterior of the garage. A switch shall be installed to control these outlet(s).

**Article 210 Branch Circuits.** Add the following section:

**Article 210.53 Other than Dwelling Units Receptacles.** Receptacle outlets in offices or similar areas shall be installed as specified in (A), (B) and (C).

- (A) Spacing. Receptacles shall be installed so that no point along the floor line in any wall space is more than 1.83 m (6 ft.) measured horizontally, from an outlet in that space.
- (B) Wall Space. As used in this section, a wall space shall include the following:
  - 1) Any space 610 mm (2 ft.) or more in width (including spaces measured around corners) and unbroken along the floor line by doorways, and other similar openings.
  - 2) The space occupied by fixed panels in exterior wall, except sliding doors.
  - 3) Hallways shall have at least one receptacle outlet installed every 6 m (20 ft.) or fraction thereof. As used in this subsection, the hall length shall be considered the length along the centerline of the hall without passing through a doorway.
- (C) Floor Receptacles. Receptacle outlets in the floor shall not be counted as part of the required number of receptacle outlets unless located within 457 mm (18 in.) of the wall. Permanently installed electric baseboard heaters equipped with factory installed receptacle outlets or outlets provided as a separate assembly by the manufacturer shall be permitted as the required outlet or outlets for the wall space utilized by such permanently installed heaters. Such receptacle outlets shall not be connected to the heater circuits.

Exception: Wall spaces inside of unoccupied spaces such as warehouses, bathrooms, storage rooms, utility closets, and other areas allowed by the Authority Having Jurisdiction.

**Article 210.70(A)(1) Habitable Rooms.** Delete first paragraph and replace with the following:

*210.70(A)(1) Habitable Rooms.* At least one wall switch-controlled lighting outlet shall be installed in every habitable room, bathroom, and exterior door. Said wall switch(es) shall be located at all entries to the room, hallway, stairway, and the like.

**Article 210.70(A)(3) Storage or Equipment Spaces.** Delete in its entirety and replace with the following:

*210.70(A)(3) Storage or Equipment Spaces.* For attics, underfloor spaces, utility rooms, basements, closets, storerooms, and similar locations 1 sq. m (9 sq. ft.) or larger, at least one

lighting outlet containing a switch or controlled by a wall switch shall be installed. At least one point of control shall be at the usual point of entry to these spaces. The lighting outlet shall be provided at or near the equipment requiring servicing.

**Article 220.14(A) Specific Appliances or Loads.** Delete in its entirety and replace with the following:

*202.14(A) Specific Appliances or Loads.* An outlet for a specific appliance or other load not covered in 220.14(b) through (l) shall be calculated based on the ampere rating of the appliance or load served. In addition, independent circuits shall be provided for each of the following appliances: range, oven if separate from range, water heater, clothes washer/gas clothes dryer, garbage disposal/dishwasher, microwave, compactor, freezer, refrigerator, whole house vacuum, garage door operator(s), tubs with pumps, steam generators, built-in ironing, sump and ejector pumps, furnaces, air conditioners, permanently connected heating appliances rated at one thousand (1,000) watts or more, including motors rated at one-quarter (1/4) horse power and over.

**Article 225.10 Wiring On Buildings.** Delete in its entirety and replace with the following:

*225.10 Wiring On Buildings.* All conduit installed on the exterior of any building, sign, pole or the like, shall be rigid galvanized metal conduit, galvanized intermediate metal conduit or rigid aluminum conduit. However, rigid aluminum conduit shall not be used where exposed to mechanical damage. At no time shall rigid aluminum conduit be installed between grade level and 2 m (6 ft.) above grade level where vehicular traffic is present or where vehicular traffic could be present (rear of buildings, in alleyways, delivery areas, etc.). In these areas, the use of rigid galvanized metal conduit shall be approved.

**Article 225.36 Type.** Delete in its entirety and replace with the following:

*225.36 Suitable for Service Equipment.* The disconnecting means specified in 225.31 shall be suitable for use as service equipment and contain a minimum of four breaker spaces, plus a main. All circuits supplying the garage or outbuilding must originate in said building. See 210.52(G) for circuit requirements.

**Article 230.30 Insulation.** Delete exceptions in their entirety with no replacements.

**230.41 Insulation of Service-Entrance Conductors.** Delete exceptions in their entirety with no replacements.

**230.28 Service Masts as Supports.** Delete in its entirety and replace with the following:

*230.28 Service Masts as Supports.* Where a service mast is used for the support of service-drop conductors, it shall follow the requirements as outlined in Commonwealth Edison's "Service and Meter Requirements", 2016 edition

**230.42(C) Grounded Conductors.** Delete in its entirety and replace with the following:

*230.42(C) Grounded Conductors.* The grounded conductor must be at least the same size as the ungrounded conductors.

**230.43 Wiring Methods for 600 Volts, Nominal, or Less.** Delete in its entirety and replace with the following:

*230.43 Wiring Methods For 600 Volts, Nominal, or Less.* Rigid Metal Conduit or Intermediate Metal Conduit is required for all service entrances.

**230.44 Cable Trays.** Delete in its entirety with no replacements

**Article 230.70(A)(1) Readily Accessible Location.** Delete in its entirety and replace with the following:

*230.70(A)(1) Readily Accessible Location.* The service disconnecting means shall be installed at a readily accessible location **outside** of the residential, commercial or other building or structure near the utility metering, or other approved location. A switch, fuse, circuit breaker, shunt-trip control, or other approved means may be used.

If an over-current type disconnect is **not** used, the service entrance conductors shall not be more than 1.5 m (5 ft.) in length from where they enter the building.

If a shunt-trip control is used, see Electrical Inspector for approved switches.

**230.79(C) One-Family Dwelling.** Delete in its entirety and replace with the following:

*230.79(C) One and Two Family Dwelling Services.* New one and two family dwellings shall have a minimum two hundred (200) amp main disconnect, with an adequate number of branch circuits. The conductors shall not be less than #3/0 copper, installed in minimum 53 mm (2 in.) conduit (See 230.43 Amendments), and shall comply with disconnect requirements in accordance with 230.70(A)(1) amendments.

**Article 230.79(D) All others.** Delete in its entirety and replace with the following:

*230.79(D) Multi-Family Dwelling Services.* The service size shall be determined according to NEC article 220. Each unit in a multi-family dwelling shall have a minimum one hundred (100) amp main disconnect, with at least 20 branch circuit openings. The conductors shall not be less than #3 copper, installed in a minimum 35 mm (1-1/4 in.) conduit (See 230.43 Amendments), and shall comply with disconnect requirements in accordance with 230.70(A)(1) amendments.

**Article 230.79 Rating of Service Disconnecting Means.** Add sections:

*230.79(E) Residential Service Revisions.* All residential service revisions shall have a minimum one hundred (100) amp main disconnect, with at least 20 branch circuit openings. The conductors shall not be less than #3 copper, installed in a minimum 35 mm (1-1/4 in.) conduit

(see 230.43 Amendments), and shall comply with disconnect requirements in accordance with 230.70(A)(1) amendments.

*230.79(F) All others.* For all other installations, the service disconnecting means shall have a rating of not less than 60 amperes. The conductors shall be sized in accordance with 310.16 and shall be installed in conduit ( see 230.43 Amendments), and shall comply with disconnect requirements in accordance with 230.70(A)(1) amendments.

**Article 240 Overcurrent Protection.** Add section:

*240.88 Circuit Breakers For Other Than Dwelling Units.* All circuit breakers shall be of the bolt-on type.

**Article 250.64(B) Securing and Protection against Physical Damage.** Delete in its entirety and replace with the following:

*250.64(B) Securing and Protection against Physical Damage.* All grounding electrode conductors shall be in rigid metal conduit, intermediate metal conduit, or electrical metallic tubing, and shall be securely fastened to the surface on which it is carried.

Exception: A bare grounding conductor may be installed under a concrete slab.

**Table 250.66 Grounding Electrode Conductor for Alternating-Current Systems.** Delete in its entirety and replace with the following:

Table 250-66. Grounding Electrode Conductor for AC Systems

Size of Largest ungrounded Service-Entrance Conductor or Equivalent Area for Parallel Conductors (AWG/kcmil)	Minimum Size of Grounding Electrode Conductor (AWG/kcmil)
Copper	Copper
3/0 or smaller	4
Over 3/0 through 350	2
Over 350 through 600	1/0
Over 600 through 1100	2/0
Over 1100	3/0

**Article 250.112 Specific Equipment Fastened in Place or Connected by Permanent Wiring Methods (Fixed).** Add the following:

Article 250.112(I) Power-Limited Remote-Control, Signaling, and Fire Alarm Circuits. Delete in its entirety and replace with the following:

*250.112(I) Power-Limited Remote Control, Signaling, and Fire Alarm Circuits.* Equipment supplied by Class 1 power-limited circuits, and Class 1, Class 2 and Class 3 remote-control and signaling circuits, and by fire alarm circuits, and by security system circuits shall be grounded.

**Article 300 Wiring Methods.** Add section:

*300.24 Abandoned Raceways, Cables and Wiring.* All abandoned conduit, low voltage wiring, fire alarm wiring and electrical equipment shall be removed from all ceilings, walls and floor areas.

**Article 310.15(B)(7).** Delete in its entirety.

**Article 310.106(A) Minimum Size of Conductors.** Delete the first sentence in its entirety and replace with the following:

*310.106(A) Minimum Size of Conductors.* The minimum size of conductors shall be as shown in Table 310.106(A), but shall not be smaller than #12 AWG for commercial or industrial applications.

**Article 310.106 (B) Conductor Material.** Delete in its entirety and replace with the following:

*310.106 (B) Conductor Material.* Conductors in this article shall be of copper and capable of withstanding the load connected.

Exception: Feeders sized 350 kcmil or greater may be aluminum as specified in NEC 310.14

**Article 312.10(C) Nonmetallic Cabinets.** Delete in its entirety with no replacement.

**Article 314.16(A)(1) Standard Boxes.** Delete in its entirety and replace with the following:

*314.16(A)(1) Standard Boxes.* The minimum size box that can be used is a 100 x 38 mm (4 by 1-1/2 in.) square/octagonal, unless approved by the electrical inspector. The volumes of standard boxes that are not marked shall be as given in Table 314.16(A).

**Article 314.20 In Wall or Ceiling.** Add paragraph to this section:

*314.20 Boxes in Wall or Ceiling*

In addition, the offset between interior and exterior boxes shall be at least 200 mm (8 in.). Back to back installations are not approved.

**Article 314.27(A)(2) Ceiling Outlets.** Add paragraph to this section:

*314.27(A)(2) Ceiling Outlets.*

For Dwelling Units, all junction boxes roughed in for ceiling openings in bedrooms, family rooms, living rooms, dining room, kitchens, dens, foyers and other rooms or areas where ceiling fans are commonly installed, shall be installed so as to provide adequate support for ceiling fans and shall be listed for this purpose.

**Article 320.10 Uses Permitted.** Delete in its entirety and replace with the following:

*320.10 Uses Permitted.* Type AC cable (AC-HCF with pre-installed green ground wire) shall be permitted to be used in exposed and concealed locations only where necessary to fish through existing partitions, or where use of EMT is not feasible, and shall terminate into an approved metal raceway system or junction box within 1 m (3 ft) of exposure.

**Article 322 Flat Cable Assemblies: Type FC.** Delete in its entirety with no replacement.

**Article 324 Flat Conductor Cable: Type FCC.** Delete in its entirety with no replacement.

**Article 330.10 Uses Permitted** Delete in its entirety and replace with the following:

*330.10 Uses Permitted.* Type MC cable shall be permitted to be used in exposed and concealed locations only where necessary to fish through existing partitions, or where use of EMT is not feasible, and shall terminate into an approved metal raceway system or junction box within 1 m (3 ft) of exposure

**Article 332 Mineral-Insulated, Metal-Sheathed Cable: Type MI.** Delete in its entirety with no replacement.

**Article 334.10 Uses Permitted.** Delete in its entirety and replace with the following:

*334.10 Uses Permitted.* Type NM, NMC and NMS cables shall be permitted to be used in the following:

- (1) For low voltage wiring as may be required in Article 411.
- (2) For temporary wiring as may be required in Article 590.

**Article 338 Service Entrance Cable: Types SE and USE.** Delete in its entirety with no replacement.

**Article 340 Underground Feeder and Branch Circuit Cable: Type UF.** Delete in its entirety with no replacement.

**Article 348.10 Uses Permitted.** Delete in its entirety and replace with the following:

*348.10 Uses Permitted.* Flexible metal conduit shall be permitted to be used in exposed and concealed locations only where necessary to fish through existing partitions, or where use of EMT is not feasible, and shall terminate into an approved metal raceway system or junction box within 1 m (3 ft.) of exposure.

**Article 348.60 Grounding and Bonding.** Delete in its entirety and replace with the following:

*348.60 Grounding and Bonding.* An equipment grounding conductor shall be installed regardless of length of Flexible Metal Conduit. Equipment grounding conductors shall be installed in accordance with 250.134(B). Equipment bonding jumpers shall be installed in accordance with 250.102.

**Article 350.60 Grounding and Bonding.** Delete in its entirety and replace with the following:

*350.60 Grounding and Bonding.* An equipment grounding conductor shall be installed regardless of length of Liquidtight Flexible Metal Conduit. Equipment grounding conductors shall be installed in accordance with 250.134(B). Equipment bonding jumpers shall be installed in accordance with 250.102.

**Article 352.10 Uses Permitted.** Delete in its entirety and replace with the following:

*352.10 Uses Permitted.* PVC conduit shall be permitted in accordance with 352.10(G).

*(G) Underground Installations.* For underground installations, PVC shall be permitted for direct burial and underground encased in concrete. See 300.5 and 300.50. The conduit must transition to an approved metallic conduit before becoming exposed or subject to physical damage.

Exception: Concrete bases where poles or other equipment encloses conduit and wiring.

**Article 355 Reinforced Thermosetting Resin Conduit: Type RTRC.** Delete in its entirety with no replacement.

**Article 356.60 Grounding.** Delete in its entirety and replace with the following:

*356.60 Grounding.* An equipment grounding conductor shall be installed regardless of length of Liquidtight Flexible Nonmetallic Conduit. Equipment grounding conductors shall be installed in accordance with 250.134(B). Equipment bonding jumpers shall be installed in accordance with 250.102.

**Article 358.10 Uses Permitted.** Delete in its entirety and replace with the following:

*358.10 Uses Permitted.*

- (A) *Exposed and Concealed.* The use of Electrical Metallic Tubing shall be permitted for both exposed and concealed work.
- (B) *Corrosion Protection.* Ferrous or nonferrous Electrical Metallic Tubing, elbows, couplings, and fittings shall be permitted to be installed in concrete where protected by corrosion protection and approved as suitable for the condition.

**Article 358.12 Uses Not Permitted.** Add Sections:

358.12(7) Electrical metallic tubing is not permitted where in direct contact with the earth.

358.12(8) Electrical metallic tubing is not permitted in wet locations.

**Article 360.60 Grounding.** Delete in its entirety and replace with the following:

*360.60 Grounding.* An equipment grounding conductor shall be installed regardless of length of Flexible Metallic Tubing. Equipment grounding conductors shall be installed in accordance with 250.134(B). Equipment bonding jumpers shall be installed in accordance with 250.102.

**Article 362.10 Uses Permitted.** Delete in its entirety and replace with the following:

*362.10 Uses Permitted.* Electrical Nonmetallic Tubing is permitted as a raceway for low voltage wiring for control, signaling or communication systems.

**Article 378 Nonmetallic Wireways.** Delete in its entirety with no replacements.

**Article 382 Nonmetallic Extensions.** Delete in its entirety with no replacements.

**Article 386.60 Grounding.** Delete in its entirety and replace with the following:

*386.60 Grounding.* Surface metal raceway enclosures shall have an equipment grounding conductor installed.

**Article 388 Surface Nonmetallic Raceways.** Delete in its entirety with no replacements.

**Article 394 Concealed Knob and Tube Wiring.** Delete in its entirety with no replacements.

**Article 398 Open Wiring on Insulators.** Delete in its entirety with no replacements.

**Article 404.10 Mounting of Snap Switches.** Add section:

*404.10(C) Mounting Location.* Switches shall be mounted on latch side of doorway

**Article 404.14 Rating and Use of Snap Switches.** Add section:

*404.14 (G) Other Than Dwelling Units.* Snap switches for other than dwelling units shall be rated 20 amperes minimum.

**Article 406.3 (B) Rating.** Add section:

*406.3 (B)(1) Other Than Dwelling Units.* Receptacles and cord connectors shall be rated not less than 20 amperes, 125 volts, or 20 amperes, 250 volts.

**Article 408.36 Overcurrent Protection.** Add the following sentence to existing paragraph:

*408.36 Overcurrent Protection.* Main disconnects shall be provided in all panels installed for remodeling, replacement, or new construction.

**Article 408.40 Grounding of Panelboards.** Delete first paragraph in its entirety and replace with the following:

*408.40 Grounding of Panelboards.* Panelboard cabinets and panelboard frames shall be in physical contact with each other and shall be grounded. A grounding terminal bar shall be secured to the cabinet and shall be properly bonded.

**Article 422.34 Unit Switch(es) as Disconnecting Means.** Delete in its entirety and replace with the following:

*422.34 Unit Switch(es) as Disconnecting Means.* Unit switches shall not be permitted as disconnecting means. A separate disconnect, within sight of appliance, shall be required.

**Article 590.3(B) 90 Days.** Delete in its entirety and replace with the following:

*590.3(B) 30 Days.* Temporary electrical power and lighting installations shall be permitted for a period not to exceed 30 calendar days for holiday decorative lighting and similar purposes. The provisions of this section shall apply to all temporary use of electrical current for the purpose of illuminating, animating, activating or displaying in connection with temporary expositions, exhibits shows, conventions, meetings or assemblies. The use of this type of wiring is limited to

locations which are classified by the Code Official as suitable for the intended temporary occupancy and use, and which are equipped, if required, with the proper type of emergency lighting systems. Each individual display booth shall have its own overcurrent protection.

**Article 590.4 General.** Add section:

*590.4 (K) Voltage Limitations.* There shall be no temporary wiring voltage to ground, in excess of one hundred fifty (150) volts, unless by written permission of the electrical inspector.

**Article 590.4(B) Feeders.** Delete in its entirety and replace with the following:

*590.4(B) Feeders.* Feeders shall be protected as provided in Article 240. They shall originate in an approved distribution center. Conductors shall be permitted within cable assemblies within multi-conductor cords or cables of a type identified in Table 400.4 for hard usage or extra hard usage. For the purpose of this section, Type NM and Type NMC cables shall be permitted to be used in any dwelling, building, or structure without height limitations. Feeders in excess of one hundred (100) amperes capacity shall be installed in a permanent manner and in conformance with all applicable provisions of this code. Feeders of lesser ampacity may be installed in conformance with the applicable provisions of this section.

**Article 680.71 Protection.** Delete in its entirety and replace with the following:

*680.71 Protection.* Hydromassage bathtubs and their associated electrical components shall be on an individual branch circuit(s) and protected by a ground-fault circuit interrupter installed in the main electrical panel. In addition, an insulated green equipment grounding conductor shall be installed from the motor outlet to the panel grounding bus sized per table 250-122. All 125-volt, single-phase receptacles not exceeding 30 amperes and located within 1.83 m (6 ft.) measured horizontally of the inside walls of a hydromassage tub shall be protected by a ground-fault circuit interrupter(s).

**Article 700.16 Emergency Illumination.** Delete in its entirety and replace with the following:

*700.16 Emergency Illumination.* Emergency illumination shall include all required means of egress lighting including that which is required outside an exit door, illuminated exit signs, and all other lights specified as necessary to provide required illumination.

Emergency lighting systems shall be designed and installed so that the failure of any individual lighting element, such as the burning out of a lamp, cannot leave in total darkness any space that requires emergency illumination.

Where high-intensity discharge lighting such as high- and low-pressure sodium, mercury vapor, and metal halide is used as the sole source of normal illumination, the emergency lighting system shall be required to operate until normal illumination has been restored.

Emergency (battery pack or other approved method) lighting shall be installed in each electrical room, closet or vault, wherever an electrical service is located, adjacent to any electric panel or fire alarm control panel and in bathrooms.

Where emergency light heads are installed remote from the main unit, an approved raceway

system shall be provided.

Circuits for emergency and exit lighting shall have a lockout device installed on their respective circuit breakers.

**Article 725.24 Mechanical Execution of Work.** Add section:

*725.24 (A) Protection and Accessibility of Wiring.* Low voltage wiring for Signaling or Control Systems which are enclosed in building partitions, walls, or in any way made inaccessible by the building construction shall be encased in a raceway wherever they are so enclosed. The above raceways need not terminate in a box or fitting as long as normal precautions are taken to protect the conductors against injury.

Exception: One and two family dwellings

**Article 760.8 Mechanical Execution of Work.** Add section:

*760.8(A) Protection and Accessibility of Wiring.* Low voltage wiring for Fire Alarm and similar systems which are enclosed in building partitions, walls, or in any way made inaccessible by the building construction shall be encased in a raceway wherever they are so enclosed. The above raceways need not terminate in a box or fitting as long as normal precautions are taken to protect the conductors against injury.

Exception: One and two family dwellings

**Article 770.24 Mechanical Execution of Work.** Add section:

*770.24(A) Protection and Accessibility of Wiring.* Optical fibers, which are enclosed in building partitions, walls, or in any way made inaccessible by the building construction, shall be encased in a raceway wherever they are so enclosed. The above raceways need not terminate in a box or fitting as long as normal precautions are taken to protect the conductors against injury.

Exception: One and two family dwellings

**Article 800.24 Mechanical Execution of Work.** Add section:

*800.24(A) Protection and Accessibility of Wiring.* Low voltage wiring for Communications Circuits, which are enclosed in building partitions, walls, or in any way made inaccessible by the building construction shall be encased in a raceway wherever they are so enclosed. The above raceways need not terminate in a box or fitting as long as normal precautions are taken to protect the conductors against injury.

Exception: One and two family dwellings

**Article 820.24 Mechanical Execution of Work.** Add section:

820.24(A) *Protection and Accessibility of Wiring* . Low voltage wiring for Community Antenna Television and Radio Distribution Systems, which are enclosed in building partitions, walls, or in any way made inaccessible by the building construction shall be encased in a raceway wherever they are so enclosed. The above raceways need not terminate in a box or fitting as long as normal precautions are taken to protect the conductors against injury.

**Article 830.24 Mechanical Execution of Work.** Add section:

830.24(A) *Protection and Accessibility of Wiring.* Low voltage wiring for Network-Powered Broadband Communication Systems, which are enclosed in building partitions, walls, or in any way made inaccessible by the building construction shall be encased in a raceway wherever they are so enclosed. The above raceways need not terminate in a box or fitting as long as normal precautions are taken to protect the conductors against injury.

Exception: One and two family dwellings

**Sec. 6-283. Reserved.**

**Sec. 6-284. Smoke Alarm Detectors.**

- (a) The Smoke Detector Act of the State of Illinois (425 ILCS 60/1 et seq.) is adopted by reference as a part of the electrical code of the Village.
- (b) In addition to that which is described in such act, the following shall become a requirement and made part of this section.
  - (1) “Smoke Alarms” as referenced in Section R314 of the 2015 International Residential Code.
  - (2) Attics, rooms and/or closets which contain mechanical equipment, i.e., heating, ventilating, cooling, shall contain an approved smoke detector. The location shall be determined by the electrical inspector.
  - (3) An automatic fan shut-down device shall be installed if a whole house fan or attic fan is used. This will interconnect with the smoke detector and de-energize the power to the fan thereby discontinuing the induced air flow from one area to another.
  - (4) Household fire alarm systems installed in accordance with NFPA 72 that included smoke alarms, or a combination of smoke detector and audible notification device installed as required for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required for smoke alarms.

(Ord. No. 89-0-65, ' 1(35.4), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**State law reference(s)**--Adoption by reference, 65 ILCS 5/1-3-1 et seq., 50 ILCS 220/1 et seq.

**Sec. 6-285. Carbon Monoxide Alarm Detector.**

- (a) The Carbon Monoxide Detector Act of the State of Illinois (430 ILCS 135/) is adopted by reference as a part of the electrical code of the Village.
- (a) In addition to that which is described in such act, the following shall become a requirement and made part of this section.
  - (1) “Carbon Monoxide Alarms” as referenced in Section R315 of the 2015 International Residential Code.
  - (2) In new construction, carbon monoxide detectors shall be 120 volt with battery backup and be hardwired and interconnected with any required smoke detectors and fire alarm system.
  - (3) Exception: Carbon monoxide detectors shall not be required in a building that complies with all of the following: (i) the building does not rely on combustion of fossil fuel for heat, ventilation, or hot water; and (ii) the building is not connected in any way to a garage; and (iii) the building owner indicates in writing that the building will never have any carbon monoxide enter the building from any source; and (iv) written documentation is provided, signed and sealed by an Illinois licensed mechanical engineer indicating that the building is not sufficiently close to any source of carbon monoxide so as to be at risk of receiving carbon monoxide from that source.

**Secs. 6-286--6-300. Reserved.**

DIVISION 4. ELECTRICAL CONTRACTORS

*Subdivision I. General Provisions*

**Secs. 6-301--6-315. Reserved.**

*Subdivision II. Registration*

**Sec. 6-316. Required.**

It shall be unlawful for any person to engage in the business of electrical contractor without being registered as an electrical contractor in the manner set forth in this subdivision; provided, however, that if such person is already registered for the current year in any other municipality in the State of Illinois which is validly authorized by ordinance to administer a written test and said person has received a passing grade on a written test administered by such municipality based

upon the current National Electrical Code (NFPA 70), then such person shall not be required to pay a registration fee to the Village of Libertyville and shall not be required to take and pass an examination by the Village of Libertyville as described herein.

(Ord. No. 89-0-65, ' 1(35.6.1), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-317. Application and issuance.**

Application for an electrical contractor's certificate of registration shall be made in writing on a form provided by the village and submitted to the village chief electrical inspector stating the name and place of business of the applicant and who will act as supervisor of the work to be done under the certificate. Such application shall be accompanied by a satisfactory affidavit that the applicant has had at least four (4) years' practical experience as a journeyman installing and/or altering electrical wiring and/or equipment. A list of educational facilities attended, areas of on-the-job training, and names of former employers shall also accompany the application. Certificates of registration shall be issued in accordance with section 6-322.

(Ord. No. 89-0-65, ' 1(35.6.2), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-318. Revocation.**

Registration certificates issued by the electrical commission shall not be loaned, rented, assigned or transferred. Each and every registration certificate may, after hearing, be suspended or revoked by a majority vote of the electrical commission upon failure or refusal of the electrical contractor to comply with the rules and requirements of the commission or the provisions of this article.

(Ord. No. 89-0-65, ' 1(35.6.3), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-319. Classification.**

The classification of electrical contractor are as follows:

Class A - Persons desiring to do all phases of electrical work.

Class B - Persons desiring to do residential electrical work.

(Ord. No. 89-0-65, ' 1(35.6.4), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-320. Fee.**

The fee for registration application and fee for registration as an electrical contractor and registered supervising electrician shall be in an amount as established in the annual fee ordinance, which sum shall be paid by the applicant to the village. The certificate of registration shall expire on December 31 of the year in which it is issued.

(Ord. No. 89-0-65, ' 1(35.6.5), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-321. Renewal.** The electrical contractor may renew the registration certificate as indicated in section 6-320 prior to expiration. However, upon expiration of the certificate, a notice will be sent informing the contractor he has fifteen (15) days to comply. Failure to comply will result in forfeiture of registration. Re-application and testing would be required for reinstatement.

(Ord. No. 89-0-65, ' 1(35.6.6), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-322. Examination requirements.**

Before an electrical contractor's and registered supervising electrician's certificate of registration shall be issued, the applicant, following reasonable advanced notice, shall present himself for examination before the electrical commission at a time and place set by the commission. The applicant must provide documentation which proves a minimum of 8000 hours of field experience in the electrical field. The commission shall examine such applicant as to his practical knowledge of the rules and regulations for the installation of electrical equipment as set forth in the statutes of the state and in this article pertaining to the electrical code of the village. Such examination shall be in whole or in part, in writing and shall be of a practical character as determined by the commission but sufficiently strict to thoroughly test the experience and qualifications of the applicant. The commission may delegate the responsibility, as herein described, to the chief electrical inspector, ex-officio chairman of the electrical commission in order to expedite the examination procedures within a convenient time frame.

(Ord. No. 89-0-65, ' 1(35.6.7), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Sec. 6-323. Re-examination.**

Each new applicant requesting certification as a registered supervising electrician in the village shall be required to take and pass an examination as described in this subdivision before each supervising electrician may be certified. The applicant is permitted two (2) attempts to pass the exam in any twelve (12) month period.

(Ord. No. 89-0-65, ' 1(35.6.8), 12-19-89; Ord. No. 94-0-37, ' 1, 7-26-94)

**Secs. 6-324--6-340. Reserved.**