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**ORDINANCE**

**03-0-00**

Be it ordained by the City Council of the City of Waukegan, Illinois, as follows:

**SECTION I  
NATIONAL ELECTRICAL CODE**

That the 2002 National Electrical Code adopted by reference in Ordinance 03-0-00, be and hereby is amended as follows:

**Article 60 is deleted in its entirety.**

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**SECTION II  
DEFINITIONS**

**A. DEFINITION OF ELECTRICAL EQUIPMENT**

The term **ELECTRICAL EQUIPMENT** as used in this Ordinance means any conductor or equipment installed for the utilization of electricity for light, heat or power, signal and communication systems, but does not include radio apparatus or equipment for wireless reception of sound and signals, and does not include conductors, apparatus and other equipment installed for or by public utilities, including common carriers, which are under the jurisdiction of the Illinois Commerce Commission, for use in their operation as public utilities.

#### **B. DEFINITION OF ELECTRICAL CONTRACTOR**

The term **ELECTRICAL CONTRACTOR** as used in this Ordinance means any person, firm or corporation engaged in the business of installing, altering or modifying, by contract, any electrical equipment for the utilization or supply of electricity for light, heat or power, signal and communications, but excluding radio apparatus or equipment for wireless reception of sounds and signals, and excluding common carriers, which are under the jurisdiction of the Illinois Commerce Commission, in their use or operation as public utilities. The term Electrical Contractor does not include employees of such contractor who perform or supervise such work.

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### **SECTION III**

#### **OFFICE ESTABLISHED**

##### **A. OFFICE ESTABLISHED**

There is hereby established within the Building Department of the City of Waukegan, the Office of Chief Electrical Inspector. Further, that the Chief Electrical Inspector may be assisted in these duties by other Electrical Inspectors as may be provided for by the City Council.

##### **B. CHIEF ELECTRICAL INSPECTOR APPOINTED**

The Chief Electrical Inspector, as provided for above, shall be appointed by the Mayor, by and with the consent of the City Council, at the same time and in the same manner as other City Officers.

##### **C. QUALIFICATIONS**

No person shall be eligible to hold the Office of Chief Electrical Inspector unless he or she shall possess technical training in Electrical Engineering, or shall have at least five (5) years

actual experience as a Journeyman Electrician, three (3) years of which experience shall have been in a supervisory position. The Chief Electrical Inspector shall be, or shall within 18 months of hire date become a certified Electrical Inspector through I.A.E.I. or B.O.C.A. and shall maintain the certification for the duration of their tenure.

#### **D. DUTIES AND POWERS OF CHIEF ELECTRICAL INSPECTOR**

The Chief Electrical Inspector shall be charged with duties of enforcing the provisions, rules and regulations, fixing standards and specifications for the regulation and use of electrical equipment as defined in this chapter and prescribed in any other Ordinance of the City of Waukegan.

The Chief Electrical Inspector shall be and is hereby authorized to control, supervise, inspect and approve all electrical installations. If any equipment or wiring is found unsafe to life or property, the Inspector shall notify the person, firm or corporation owning, using, installing or operating said equipment or wiring to place in a safe condition within a reasonable time, not to exceed five (5) days thereafter. It shall be and is hereby declared to be the duty of such person, firm, company or corporation to make necessary corrections to put the same in safe condition.

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The provisions for inspection of work authorized by permits issued by the City shall not be construed as prohibiting the inspection of any electrical wiring or apparatus now or whenever installed at such time as the Electrical Inspector shall determine that public safety requires it. No inspection fee shall be charged for this inspection, however, if it is determined necessary to replace, repair or correct any wrong or defective wiring or apparatus as a result of such inspection, a permit in like manner as the original permit shall be obtained.

Whenever, the Chief Electrical Inspector shall find any electrical installation, equipment or wiring not conforming to the rules and regulations, as set forth in this or any other governing electrical ordinance, said Chief Electrical Inspector is hereby empowered to stop work on any installation being made by any person, firm, company or corporation to whom or for which a registration or permit has not been issued or granted, or who or which does not otherwise comply with the terms of this ordinance.

#### **E. ELECTRICAL COMMISSION**

There is hereby created a commission to be known as the Electrical Commission of the City of Waukegan. This Commission shall consist of a minimum of six (6) members.

The membership of the Electrical Commission shall consist of: the chief Electrical Inspector who will serve as Ex-Officio chairman of such Commission, the Chief of the Fire Department, a Registered Professional Engineer, an Electrical Contractor, a Journeyman Electrician, a representative of a local Electric Utility Company and such others as may be appointed by the Mayor, by and with the consent of the City Council, as soon as possible after the beginning of the fiscal year. The Chief Electrical Inspector shall serve without additional compensation. Other members of the Commission shall receive such compensation as may be provided for in the annual Appropriation Ordinance.

## **F. DUTIES OF ELECTRICAL COMMISSION**

Said Commission shall be and is charged with the duties of recommending safe and practical standards and specifications for installation, alteration and use of electrical equipment designed to meet the necessities and conditions that prevail in the City of Waukegan. The Commission shall also recommend the fees to be paid for inspections by the Electrical Department for all electrical equipment installed, altered or used in the City of Waukegan.

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The Electrical Commission may from time to time as the need or occasion demands and/or the interest of the public requires, recommend such changes of standards, specifications and fees as they may unanimously agree are necessary. A copy of any change of any provision as set forth in this ordinance shall be filed in the Office of the City Clerk and in the office of the Chief Electrical Inspector. A copy of such changes shall be provided to each Electrical Contractor registered in the City of Waukegan. A copy of such changes shall be made available to any person upon request and payment of any established fee.

**SECTION IV**  
**ELECTRICAL PERMITS**

**A. PERMITS REQUIRED**

All persons, firms companies or corporations shall, before beginning any installation, alteration or change of electrical wiring or equipment in the City of Waukegan, obtain a permit for such work. Permits for electrical work shall be issued upon receipt of a proper application made out on a printed form provided by the Building Department. The application for each such permit shall contain; the Name of the owner or user of the electrical equipment to be installed, altered or changed; the location of such work by the correct address, street and number; a description of the work to be performed; the name and address of the person, firm, company or corporation making the installation or doing the work.

**B. ISSUANCE OF PERMITS**

Permits for electrical work to be performed under this code shall be issued only to Electrical Contractors as herein defined. Permits shall be issued only after payment of the required fees. Permit fees shall be paid, in advance, to the City of Waukegan. Permits for electrical work shall be valid for a period of six (6) months from date of issuance and no refunds shall be made for any such permits.

Permits cards shall be posted in plain view.

***Any contractor or owner doing electrical work in the city of Waukegan without an electrical permit shall pay double the amount of the standard permit fee as a penalty for doing such work without a permit, prior to the issuance of any permit.***

**C. PENALTIES**

Where an Electrical Contractor is found doing electrical work without a permit on two (2) separate occasions in one year, a hearing shall be held by the Chief Electrical Inspector at which time the permit privileges of said Electrical Contractor may be suspended for a period of time not to exceed one (1) year. The members of the Electrical Commission shall be present at such hearings to assist and advise the Chief Electrical Inspector in determining the proper course of action to be taken in each case.

***Any and all electrical work installed in the City of Waukegan without obtaining an electrical permit shall be removed at the discretion of the chief Electrical Inspector, until such time as a permit is applied for all fees above are paid and the permit is approved.***

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**SECTION V**  
**COIN OPERATED TELEPHONES**

**A.** These provisions shall apply to all coin-operated telephones in the City of Waukegan, with the sole exception of those telephones, which are, governed by existing franchise agreements between the City and a carrier regulated by the Illinois Commerce Commission. The provision of such franchise agreements and regulations of the Illinois Commerce Commission shall govern the installation, maintenance and removal of such telephones.

**B.** Owners/installers of existing coin-operated telephones and those wishing to install new coin-operated telephones shall register with the City Collector on forms provided by the Collector's Office which shall include information as to the current address, telephone number and license number of the owner/installer.

**C.** No coin-operated telephone shall be installed until a permit for such installation shall be issued by the Building Department of the City of Waukegan. The fee for such permit shall be twenty-five dollars (\$25.00).

**D.** To obtain a permit an application shall be filed including a drawing showing the proposed location of the said telephone, and the permit fee must be paid. The Electrical Inspector shall determine whether the proposed coin-operated telephone is necessary and reasonable for the proposed location. The Electrical Inspector may canvass residents and businesses in the area adjacent to and within 500 feet of the proposed telephone to determine if the proposed telephone is reasonable and necessary. No coin-operated telephone shall be located within 500 feet of an existing coin-operated telephone, unless a showing of hardship and necessity is made by the individual or corporation requesting the permit.

**E.** All coin-operated telephones and their surroundings shall be checked and maintained on a regular basis by the owner. Any debris or graffiti shall be removed. All coin-operated telephones shall be located within the property lines on which they are located, and shall be set back from said property line a minimum of three (3) feet, or more if necessary so the telephone shall not block or restrict movement upon the public sidewalk or right-of-way.

**F.** Any telephone found by the Electrical Inspector to not be regularly maintained shall receive a written notice of violation. Said notice shall provide the owner fourteen (14) days to correct the violation. If the violation is not corrected, the telephone may be removed with notice by mail to the owner/installer.

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**G.** The Electrical Inspector shall authorize the issuance of permits for the installation of coin-operated telephones, and shall further regulate the placement of such telephones, and shall enforce such other rules and regulations as he and the Electrical Commission of the City of Waukegan may from time to time promulgate with regard to the technical requirements for installation, maintenance and removal of such telephones.

**H.** Decisions of the Electrical Inspector to deny a permit or to remove a telephone may be appealed to the Electrical Commission, upon a written request made to the Building Department within seven (7) calendar days of the issuance of the Electrical Inspector's decision. Decisions of the Electrical Commission shall be final.

**I.** Coin-operated telephones installed in violation of this ordinance shall be removed and confiscated with seven (7) days notice to owners of the property on which they are

located. In addition, telephones which, although validly installed, have, in the opinion of the corporate authorities of the City of Waukegan, become a public nuisance, or have otherwise contributed to criminality or decay, may be removed and confiscated with fourteen (14) days written notice. Individuals and corporations guilty of a violation of the provision of this ordinance may be cited and fined an amount not to exceed five hundred dollars (\$500.00) for each violation. Each day that a violation continues shall be a separate violation of this ordinance.

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## SECTION VI INSPECTIONS

### A. INSPECTIONS

1. Any installation, alteration or change of electrical equipment or wiring shall be inspected before any of the work is covered or hidden from view. The person, firm, company or corporation responsible for such work shall notify the chief electrical inspector, at least 24 hours in advance, requesting the required inspection before any work is concealed.

2. Upon completion of any installation, alteration or change of electrical equipment or wiring, it shall be the duty of the person, firm, company or corporation performing such work to notify the Chief Electrical Inspector, at least 24 hours in advance, requesting an inspection of the work. The Chief Electrical Inspector shall inspect the work within 24 hours and, if the work meets all standards, will issue a certificate of inspection. No Certificate of Inspection shall be issued unless the electrical installation and equipment is in strict conformance with the provisions of all electrical ordinances of the City of Waukegan and the statutes of the State of Illinois.

3. Re-inspections required due to faulty work, failure to meet code requirements, etc. ***Shall be as follows: Before a third inspection is made the owner/builder must pay a re-inspection fee of \$75.00 (seventy-five dollars).***

4 The inspection and control of the installation of electrical equipment or wiring, and the granting of certificates by the city shall not make the City of Waukegan liable on account of such control or granting of certificates, nor shall it lessen the liability of persons, firms, companies or corporations installing, owning or operating such electrical equipment.

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## SECTION VII REGISTRATION

### A. CONTRACTOR REGISTRATION

Prior to receiving a certificate of registration as an Electrical Contractor, the applicant shall provide a certificate of insurance, naming the City of Waukegan as the certificate holder, said certificate shall indicate a policy of comprehensive general liability with minimum bodily injury limits of 100/300 thousand dollars, and property damage minimum of 100/100 thousand dollars.

***All Electrical Contractors doing work in the City of Waukegan shall furnish the Building Department with a Yearly Performance Bond in the amount of \$10,000.00 to assure that all work is completed in a satisfactory and safe manner.***

Electrical Contractors registered in cities other than Waukegan, shall be required to show the same minimum amount of insurance as locally registered Electrical Contractors prior to obtaining permits in the City of Waukegan. The applicant shall also provide proof of Workman's Compensation Insurance coverage as required by the State of Illinois.

### B. APPLICATION

Application for a Certificate of Registration as an electrical contractor shall be made in writing to the Chief Electrical Inspector. Application shall state the name and address of the business of the applicant and the name of the representative of the applicant who will act as supervisor of the work to be done under the registration. Such application shall be accompanied by a satisfactory affidavit that the applicant, or the representative of the applicant, has a minimum of four (4) years of practical experience installing or altering "Electrical Equipment" as defined in Section II of this Ordinance.

### C. REGISTRATION

1. It shall be unlawful for any person, firm, company or corporation to engage in the business of "Electrical Contractor." As herein defined, without first being registered as an Electrical Contractor in the manner set forth herein.

2. Initial registration will be for a period of one (1), two (2) or three (3) years. Thereafter, each renewal will be on a three-year cycle. As a prerequisite for renewal, each contractor will be required to provide proof of continuing education in the Electrical field for a minimum of 8 Contact Hours Per Year or will be required to take a renewal test based on code changes in the most recent N.E.C. (NFPA-70). This requirement will demonstrate continuing competency in the electrical trade.

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3. Any person, firm, company or corporation already registered for the current year, in another city or village within the State of Illinois, as an Electrical Contractor shall not be required to pay any registration fee but shall be required to provide a copy of such registration, which will be kept on file, along with a certificate of insurance. Electrical contractors registration from another city or Village within the State of Illinois shall be honored **ONLY** if the city or village in which they are registered honors the City of Waukegan's registration and examination procedures. The City of Waukegan does not recognize the registration of any jurisdiction that does not have requirements, which are similar to those of the City of Waukegan.

4. In any case, the Chief electrical Inspector reserves the right to require a sufficient display of mechanical knowledge of an elementary and practical nature so as to determine qualifications and knowledge of the electrical work to be done in the interest of safeguarding life and property.

#### **REGISTRATION SHALL BE REQUIRED FOR ALL ELECTRICAL WORK**

#### **D. REGISTRATION CLASSES**

**CLASS "A" - ELECTRICAL CONTRACTOR:** There are no restrictions to this classification.

**CLASS "H" - H.V.A.C. ELECTRICIAN:** This class is engaged in the installation, repair and maintenance of H.V.A.C. Equipment and may install circuits required for operation of H.V.A.C. Equipment.

This class is limited to circuits not exceeding 40 Amp single phase, and not longer than 50 feet.

**CLASS "S" - SIGN ELECTRICIAN:** This class is engaged in the installation, alteration, maintenance and repair of electrical signs.

This class is limited to circuits not exceeding 20 AMP single phase and shall not extend more than 5 feet inside a building.

**CLASS "D" - RESIDENTIAL ELECTRICIAN:** This class is engaged in the installation, alteration, maintenance and repair of one (1), two (2), three (3) and four (4) family residences.

This class is limited to residential type work not exceeding four (4) dwelling units per building.

**CLASS "L" - LOW VOLTAGE ELECTRICIAN:** This class is engaged in the installation, alteration, maintenance and repair of circuits operating at 50 volts or less.

This class is limited to low voltage wiring only but **does not** include alarm systems.

**CLASS "P" - PLANT ELECTRICIAN:** This class is engaged in the maintenance, repair, replacement, relocation and installation of electrical circuits of 100 AMPS or less capacity within existing buildings.

This class is limited to electrical work only on the premises of the company, which employs them. Members of this class shall maintain a complete record of work done during each calendar month, and shall make this record available to the Chief Electrical Inspector upon request.

**CLASS "W" - WITHDRAWN ELECTRICIAN:** This class is intended for inactive electrical contractors who may wish to continue their registration. This class is prohibited from taking out permits or doing electrical work as a contractor. This class is not required to provide proof of insurance as specified in Section "A" above.

Members of this classification may reactivate their registration at any time by providing a certificate of insurance and paying the required fees.

The fee for this class shall be as set forth in the Fee Schedule of the City of Waukegan. All other provisions of this ordinance shall apply.

#### **E. REGISTRATION FEE**

The fee for registration as an electrical contractor shall be as set forth in the fee schedule of the City of Waukegan. The applicant shall pay registration fees, to the City of Waukegan and a registration certificate issued. The certificate of registration issued there under shall expire on the 31st day of December of the year indicated on the certificate.

#### **F. EXAMINATION**

1. Prior to an Electrical Certificate of Registration being issued, the applicant for registration shall, following reasonable advance notice, present himself for examination before the Electrical Commission at a time and place set by it. Said Commission shall examine such applicant as to his practical knowledge of the rules and regulations set forth in the statutes of Illinois and in the Ordinance of the City of Waukegan. 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 experiences and qualifications of the applicant. Examinations shall be conducted the first Monday in the months of **June and December**.

2. The Electrical Commission shall arrange with a National Testing Agency to provide for the number of pre-registered applicants in each class. The cost of the examination shall be the cost of the examination plus ten dollars (\$10.00) administrative costs.

**I. ELECTRICAL CONTRACTOR REGISTRATION SHALL NOT BE LOANED NOR ASSIGNED AND MAY BE REVOKED**

Registration issued by the City of Waukegan shall not be loaned, rented, assigned or transferred to any other person. Each and every registration may, after hearing, be suspended or revoked by the Chief Electrical Inspector, with the concurrence of the electrical Commission, upon failure or refusal of the Electrical Contractor to comply with the rules, requirements or provisions of this Ordinance.

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**SECTION VIII  
ELECTRICAL STANDARDS**

**A. REQUIREMENTS**

All electrical work in the City of Waukegan **SHALL** be done in a neat and workmanlike manner, and, except as modified herein, **SHALL** be in accordance with the adopted edition of the National Electrical Code (NFPA-70).

The City of Waukegan has an **OPEN WALL** inspection requirement. Inspections **SHALL** be called for prior to closing any walls or in any way causing electrical work to be hidden from view.

**1. GENERAL**

- **90-8 - WIRING PLANNING.** For future expansion, a minimum of ten percent (10%) of the available spaces in a panel shall be provided as spares or blank.

- **110-5 - CONDUCTORS.** All conductors used to carry current shall be of copper.

**110-8 - WIRING METHODS.** Where there is a question as to methods or material to be used, the ruling of the chief electrical inspector shall govern.

**110-16 - WORKING SPACE.** Required access and working clearances about electrical equipment shall be provided and maintained at all times.

**110-18 - SITE LIGHTING.** Cut off type light fixtures shall be used for all parking lots; lighting at the lot lines shall not exceed 1 fc (foot-candles). On all new projects photo-metrics shall be submitted with all site lighting plans.

*(parking lot  
by # of spaces)*

**110-20 -** Blank covers installed on all junction boxes shall be legibly marked giving the circuit number and panel designation of the wiring contained in the junction box. This may be done with a permanent ink marker.

**110-22 -** All seals in explosion proof areas shall be sealed at the final inspection. Any seal found that is not poured will be subject to a \$100.00 fine for each occurrence.

**110-24 -** Splices in wire will not be allowed in conduit bodies.

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## 2. **WIRING AND PROTECTION**

**210-19 - CONDUCTORS—MINIMUM AMPACITY AND SIZE.** Branch circuit conductors shall have an AMPACITY of not less than the load to be served.

A. Conductors supplying circuits in kitchens, dining rooms, family rooms, and garages in residential occupancies shall be not less than #12 AWG copper and shall be protected by a 20 AMP circuit breaker.

B. Conductors supplying circuits in commercial occupancies shall be not less than #12 AWG copper for any circuit.

C. Conductors in any occupancy or use shall be of sufficient ampacity to carry the connected load.

### **210-52 - DWELLING UNIT RECEPTACLE OUTLETS**

A. **GENERAL.** Receptacle outlets shall insofar as practical be equally spaced around each room so that no point measured along the baseline is more than five (5) feet from an outlet as outlined in Article 210-52 (a), 1 of the NEC (NFPA-70).

B. **COUNTER TOPS.** In kitchens and dining areas of dwelling units, a receptacle **SHALL** be installed at each wall counter space 9 inches or wider.

C. **BASEMENTS.** Not less than 18" AFF.

D. **GARAGES.** Not less than 42" AFF.

**210-70 - LIGHTING OUTLETS REQUIRED.** Lighting outlets **SHALL** be installed as specified in Article 210-70 of the NEC (NFPA-70) and below.

A. When lighting outlets are installed according to 210-70 (a) in interior stairways, there will be a wall switch installed at each floor level, including basements to control the lighting outlet at each floor level where the difference between floor levels is four (4) or more steps.

**220-4 - BRANCH CIRCUITS REQUIRED.** For dwelling unit garages, receptacles **SHALL** be 20 AMP and **SHALL** be minimum #12 AWG wiring on an individual branch circuit.

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#### **ARTICLE 225 - OUTSIDE BRANCH CIRCUITS AND FEEDERS.**

**225-6 (a) - OVERHEAD BRANCH CIRCUITS AND FEEDERS.** Overhead Branch circuits and feeders are discouraged. Overhead wiring will be considered on a case by case basis however, underground wiring is the preferred method.

**225-10 - WIRING ON BUILDINGS.** Wiring on the outside of buildings **SHALL** be installed in **APPROVED** raceway. Open wiring is **NOT** approved.

**225-12 - All straps and hangers used exposed to the weather or to a corrosive atmosphere shall be required to be of malleable metal with back straps where required.**

#### **ARTICLE 230 - SERVICES**

**GENERAL.** Overhead service-drops and underground services **SHALL** be installed in accordance with the local public utility rules as filed and approved by the Illinois Commerce Commission.

**230-9 - CLEARANCE FROM BUILDING OPENINGS.** **ALL** windows **SHALL** be considered as being designed to be opened.

**230.41 - Exception:** Bare neutral conductors **SHALL NOT** be used.

#### **230-42 - SIZE AND RATING**

(a) Service entrance conductors shall be of sufficient size to carry the loads as computed in accordance with Article 220. But shall not be less than the ampacity required by 230-79, herein

**230-43 - WIRING METHODS 600 VOLTS NOMINAL OR LESS.** Service entrance conductors shall be installed in accordance with the applicable requirements of the code covering rigid metal conduit (Article 346) or intermediate metal conduit (Article 345). The only approved raceway for the exterior of a building is rigid metal conduit, rigid aluminum conduit or intermediate metal conduit.

**230-50 - PROTECTION OF CONDUCTORS ABOVE GROUND.** Service entrance conductors installed above ground **SHALL** be protected against physical damage as specified in 230-43 above. This protection shall extend to not less than ten (10) feet above final grade level.

**230-70 - SERVICE REQUIREMENT - DISCONNECT MEANS.**

(A) **LOCATION.** The service disconnect means shall be installed at a readily accessible location either on the outside of a building or inside nearest the point of entry of the service conductors. (NOTE: The nearest point of entry is considered to be **NOT** more than five (5) feet inside the building.)

**230-79 - RATING OF DISCONNECT.** The service disconnect shall have a rating not less than the load to be carried as determined in accordance with Article 220 of the NEC. In no case **SHALL** the rating be less than specified in (a), (b) or (c) below.

(A) Existing single family and two family residences. 100 Ampere, 3-Wire per dwelling.

New construction single family and two family residences. 200 Ampere, 3 Wire per dwelling unit.

(B) Multi-family and/or mixed-use buildings. 100 Ampere, 3 Wire per occupancy or as approved.

(C) All other. For all other installations, the rating shall be as approved by the Chief Electrical Inspector.

(D) *Electric Services for residences in the City of Waukegan shall be as follows, the wire size required for a 100 AMP service shall be #2 AWG copper, the wire size for a 200 AMP service shall be 3/0 copper AWG.*

(E) *The rating of the meter socket or C/T Cabinet shall determine the size and number of conductors supplying the C/T or Meter.*

**THE SERVICE DISCONNECT SHALL IN NO CASE BE RATED LESS THAN THE LOAD TO BE CARRIED**

**ARTICLE 250 - GROUNDING**

**250-91 - MATERIAL.** The grounding electrode conductor **SHALL** be copper.

## **250-81 - GROUNDING ELECTRODE SYSTEM.**

(A) A metal underground water pipe in direct contact with the earth for **20 feet or more** and electrically continuous. The grounding Electrode Conductor **SHALL**, as much as practical, be installed as a bare conductor beneath the concrete floor of the basement to the point of water service entry. A bonding jumper is also required around the water meter. In addition, a supplemental grounding electrode **SHALL** be installed at the electric meter enclosure. The supplemental electrode **SHALL** be copper or copper-clad ground rod with a minimum dimension of 5/8-inch diameter by 8 feet in length. The ground rod **SHALL** be driven to a depth that is flush with or below final grade level.

(B) Where a City water service is not available the grounding method will be to install (2) Two 5/8" x 8'0" ground rods spaced a minimum of 6' 0" apart and connected to the metering terminal in the meter pedestal or socket. Two (2) grounding bushings must be installed with a minimum #4 AWG CU conductor to the neutral bar and to the ground rod system. Generators must follow the same criteria.

**250-94** - Size of grounding electrode conductors **SHALL NOT** be less than #4 AWG.

## **250-92 - INSTALLATION**

a. Where exposed, the grounding electrode conductor **SHALL** be protected from physical damage by installing the conductor in an approved raceway. Raceway shall be continuous and shall be bonded to the grounding electrode conductor.

**250-115 - CONNECTION TO ELECTRODES.** Connection to the water service, and bonding across the water meter **SHALL** be made with two-jaw type clamps listed, and of suitable material, for the application.

Connection to the supplemental ground rod **SHALL** be made with an "acorn" style clamp listed and approved for the application.

**250.116** – 2 (two) ground rods required where city water service is not available or for portable generators see 250.81 (b).

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## **ARTICLE 300 - WIRING METHODS**

### **300-1 - SCOPE**

24" 

**(A) ALL WIRING INSTALLATIONS.** All new wiring installations or any changes or additions to electrical systems previously constructed **SHALL** be with rigid metal conduit (RMC), intermediate metal conduit (IMC) or electrical metallic tubing (EMT).

**EXCEPTION:** Where necessary to fish through existing partitions, flexible metal conduit (GREENFIELD) may be used.

(B) Where Greenfield type methods are used as provided in (a) above, for concealed spaces, the system **SHALL** adapt back to approved conduit within 36 inches after leaving the concealed space.

(C) All wiring systems in new installations **SHALL** be installed in RMC, IMC or EMT.

(D) Fixture whips of Greenfield shall not exceed 36".

(E) *All flexible metal conduits shall contain an equipment-grounding conductor as per table 250-95 of the NEC.*

**300-4 - PROTECTION AGAINST PHYSICAL DAMAGE.** Where subject to physical damage, conductors **SHALL** be adequately protected.

(A) Raceways through wood members.

(1) **BORED HOLES:** In both exposed and concealed locations, holes bored through joists, rafters, studs or other wood members **SHALL** be bored so that the bored hole is not less than 1 inch from the edge of the wood member. Top and bottom plates may be notched at the edge. Holes bored through wood members **SHALL** in no case be greater than 150% of the conduit diameter.

(2) **NOTCHES IN WOOD.** Wood members **SHALL NOT** be notched for raceway or boxes without prior approval of the Building Inspector and the Electrical Inspector.

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### **300-5 - UNDERGROUND INSTALLATIONS**

(a) Direct buried cable or raceway **SHALL** be installed to meet or exceed the minimum cover requirements of NEC table 300-5.

(b) Direct buried cable emerging from the earth **SHALL** be protected from damage by RGC or IMC extending from the minimum cover distance (required above) to the point of entry into a building or to a point ten (10) feet above finish grade.

**300-6 - PROTECTION AGAINST CORROSION.** Metal raceways, boxes, fittings, supports and support hardware **SHALL** be of materials suitable for the environment in which they are installed.

A. Metal raceways installed exposed to the weather, on or below grade, encased in concrete or in a wet location **SHALL** be galvanized rigid, rigid aluminum or galvanized intermediate conduit.

### **305 - TEMPORARY WIRING**

#### **305- 3 TIME CONSTRAINTS**

a. **DURING THE PERIOD OF CONSTRUCTION.** Temporary electrical power and lighting installations are permitted during the period of construction, remodeling, repair or demolition.

B. **30 DAYS.** Temporary electrical power and lighting installations are permitted for a period not to exceed 30 days, (90 days for Christmas decorative lighting) or for the period of construction

C. **EMERGENCIES AND TESTS.** Temporary electrical power and lighting installation are permitted during emergencies and for testing, experimental and development work.

D. **REMOVAL.** All temporary wiring **SHALL** be removed immediately upon completion of the purpose for which it was installed.

#### **305-4 - GENERAL**

a. **SERVICES.** Services **SHALL** be installed in conformance with the provisions of this code.

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### **310 - CONDUCTORS FOR GENERAL WIRING**

#### **310-2 - CONDUCTORS**

a. **INSULATED.** All line voltage conductors **SHALL** be insulated.

B. **CONDUCTOR MATERIAL.** All conductors **SHALL** be **COPPER** unless special permission is given for an alternate material.

C. **AERIAL CABLE.** Exterior aerial cable may be aluminum triplex or duplex messenger supported wiring in accordance with Article 321.

#### **320 - OPEN WIRING ON INSULATORS**

1. **SHALL NOT** be used.

#### **321 - MESSENGER SUPPORTED WIRING**

1. Messenger Supported Wiring such as "DUPLEX and TRIPLEX" **MAY** where necessary be installed as aerial cable **WITH PRIOR APPROVAL**.

#### **324 - CONCEALED KNOB-AND-TUBE WIRING**

1. Concealed Knob-and-Tube wiring **SHALL NOT** be used **EXISTING** Knob-and-Tube wiring **SHALL** be maintained in good condition and **SHALL NOT** be extended nor rearranged in any manner. Existing Knob-and-Tube wiring **SHALL NOT** be covered with insulation either loose, rolled or foamed in place insulating material which envelopes the conductors.

#### **331 - ELECTRICAL NON-METALLIC TUBING**

1. **SHALL NOT** be used.

#### **333 - ARMORED CABLE (Commonly called "BX")**

1. Type AC Cable ("BX") **SHALL NOT** be used **without prior approval**.
2. **Where approval is granted**, Type AC Cable ("BX") **SHALL** be installed in strict compliance with the provisions of **Article 333** of the **NATIONAL ELECTRICAL CODE**.

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#### **334 - METAL-CLAD CABLE**

1. **SHALL NOT** be used **without prior approval**.

#### **336 - NON-METALLIC SHEATHED CABLE (Commonly called "ROMEX")**

1. **SHALL NOT** be used.

#### **337 - SHIELDED NON-METALLIC-SHEATHED CABLE**

1. **SHALL NOT** be used **without prior approval**.

#### **338 - SERVICE-ENTRANCE CABLE**

1. Type SE Cable **SHALL NOT** be used.
2. Type USE Cable **MAY** be used, but **SHALL NOT** be used for other than its identified listing.

#### **339 - UNDERGROUND FEEDER AND BRANCH-CIRCUIT CABLE**

1. Type UF Cable may be used **ONLY** for approved applications and locations. UF Cable **SHALL NOT** be installed where subject to physical damage without adequate protection.
2. Type UF Cable **SHALL NOT** be used for interior wiring.

**340 - POWER AND CONTROL TRAY CABLE**

1. **SHALL NOT** be used without prior approval.

**342 - NON-METALLIC EXTENSIONS**

1. Non-metallic extensions **SHALL NOT** be used without prior approval.

**343 - PRE-ASSEMBLED CABLE IN NON-METALLIC CONDUIT**

1. **SHALL NOT** be used without prior approval.

**347 - RIGID NON-METALLIC CONDUIT**

1. **USES PERMITTED.** Rigid Non-metallic Conduit **MAY** be used for underground and under slab installations, but **MUST** transition to Rigid or Intermediate Metal Conduit at the last bend before exiting the underground or under slab location.

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**349 - FLEXIBLE METALLIC TUBING**

1. **SHALL NOT** be used without prior approval.

**351 - LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT**

1. Liquid tight Flexible Non-metallic Conduit **SHALL NOT** be used.

**362 - METAL WIREWAYS AND NON-METALLIC WIREWAYS**

1. Non-metallic wire ways **SHALL NOT** be used.

**370 - OUTLET, DEVICE, PULL AND JUNCTION BOXES, CONDUIT BODIES AND FITTINGS**

**370.1 – Back to back boxes are not allowed (either for receptacles or switches)**

**370-3 - NON-METALLIC BOXES SHALL NOT** be used.

**370-27 (c) - Boxes at Fan Outlets**

1. In residential occupancies, new construction or remodeling, outlet boxes installed, four feet (1.22M) or more horizontally from the nearest wall, for ceiling mounted fixtures in habitable rooms (bedrooms, dens, family rooms, living rooms, bonus rooms, etc.) shall be "Acceptable for Fan Support."

**370-27 (d) – The smallest box allowed to be installed will be a 4 inch square or 1900 box.**

**410 - LIGHTING FIXTURES, LAMPHOLDERS, LAMPS AND RECEPTACLES**

**410-8 - FIXTURES IN CLOTHES CLOSETS**

(b) **Fixture Types Permitted.** Listed fixtures of the following types **SHALL** be permitted to be installed in a closet.

- (1) A recessed incandescent fixture with a completely enclosed lamp
- (2) A surface mounted or recessed fluorescent fixture with completely enclosed tube(s).

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(c) **FIXTURE TYPE NOT PERMITTED**

(1) Surface mounted incandescent fixtures with enclosed; partially enclosed; or open bulbs; pendant style fixtures and lamp holders.

**Exception:** Walk-in closets of large area where no storage exists within forty (40) inches in any direction of a vertical line extending from floor to ceiling, away from any wall, incandescent fixtures with totally enclosed bulb(s) may be used.

**422 - APPLIANCES**

**422-7 - CENTRAL HEATING EQUIPMENT.** Central heating equipment other than fixed electric space heating equipment **SHALL** be supplied by an individual branch circuit. (Auxiliary equipment such as a humidifier, electrostatic air cleaner, pump or valve directly associated with the heating equipment shall be permitted to be connected to the same branch circuit.)

(a) Central heating equipment **SHALL** have a fused disconnect switch (such as an "SSY" type switch) mounted on or near the equipment and **SHALL** be fused with the minimum fuse size consistent with the appliance nameplate ampacity rating.

**Chapter 6 – Article 604.4 – Exceptions 1 and 2 are deleted from the NEC by this Amendment.**

**Chapter 6 – Article 604.5 – Only armored cable systems shall be used.**

**CHAPTER 7 and 8**

**GENERAL:** Low-Voltage wiring **SHALL** be installed in a raceway where such wiring is concealed by building construction or otherwise made inaccessible. The raceway will protect the conductors during construction and provide ready means for replacement. Raceways need not terminate in a junction box but normal precautions should be taken to prevent damage or injury to the conductors. See 300.1 (a) for required raceways.

**760- FIRE ALARM SYSTEMS**

**D. HOUSEHOLD FIRE WARNING EQUIPMENT** (Note, this section complies with State of Illinois Public Act 85-936 - "Smoke Detectors.")

#### 760-81 - GENERAL

1. Equipment required by this section is the minimum requirements and shall be installed in accordance with NFPA-70 (N.E.C.), NFPA-72 (National Fire Alarm Code) and this section.
2. This section applies to single and two family residential dwelling units only. All other occupancies shall comply with requirements of NFPA-70, NFPA-72, Waukegan Fire Department and any other code or ordinance, which is applicable.

#### 760-82 – APPROVAL

1. Devices, combination of devices and equipment to be installed in conformity with this section shall be listed and approved for the intended use.

#### 760-83 - SMOKE DETECTORS REQUIRED

1. One and two family residential dwelling units shall have at least one (1) detector installed (more if required) on each living level including the basement
2. Smoke detectors shall be required in attics and crawl spaces when those areas contain heat-producing equipment(s).

#### 760-84 - POWER SUPPLY

1. Devices shall receive primary power from the building electrical (A.C.) system. Devices shall have battery back-up power to provide operation of the alarm upon failure of the A.C. primary power.
2. The alarm circuit shall not be connected to an individual dedicated branch circuit, but shall be powered by the unswitched portion of a general-purpose circuit such as bedroom, bathroom or hall lighting
3. Operation of any switch other than an overcurrent device shall not cause loss of primary A.C. power.
4. Existing dwelling units may have battery only powered devices installed. However, existing units, which are reconstructed, substantially remodeled, or added onto, shall require the installation of approved devices.
5. Devices shall be interconnected such that the operation of any device shall cause all other devices within the living unit to also sound an alarm. (Exception: existing units as outlined in 760-84 (4)) where interconnection is not feasible)

#### 760-85 - LOCATION

1. Smoke detectors in rooms with sloped ceilings shall be located at the high point of the room.

2. Smoke detectors shall be located such that no detector is more than 10 feet from any room used for sleeping purposes.

3. Smoke detectors installed in basements shall be located in close proximity to the stairway leading to the floor above.

4. Smoke detectors installed on a living level without a separate sleeping room shall be located in close proximity to the stairway leading to the floor above.

5. Smoke detectors shall be mounted on the ceiling, not less than 8 inches from any wall. Where ceiling mounting is not possible, detector may be mounted on the wall, with the top edge of the detector not less than 4 inches nor more than 8 inches from the ceiling. Detectors mounted on the wall shall also be not less than 12 inches from an adjoining wall.

6. Smoke detectors shall not be located in kitchens, garages, or spaces where temperatures can fall below 32 degrees or exceed 100 degrees. Smoke detectors shall not be located closer than 3 feet from:

- a. The door or entry to a kitchen or the door to a bathroom which contains a tub or shower
- b. Supply registers of a forced air heating or cooling system.

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**SECTION IX  
MINIMUM ELECTRICAL STANDARD FOR  
EXISTING SINGLE AND TWO FAMILY DWELLING UNITS**

- A.** Existing dwelling units in the City of Waukegan **SHALL** comply with the **MINIMUM** requirements of the "Waukegan Property Maintenance and Housing Code" Ordinance #94-0-78 and Amendments thereto.
- B.** Existing single and two families shall also comply with requirements of NFPA-73 "Residential Electrical Maintenance Code."

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## **SECTION X**

### **PENALTIES**

Any person, firm, company or corporation engaging in the business of Electrical Contracting without first obtaining a Certificate of Registration as herein provided, or who shall violate any of the provisions of this Ordinance shall be fined not less than Twenty-five (\$25.00) Dollars, nor more than Seven Hundred and Fifty (\$750.00) Dollars for each offense, and a separate distinct offense shall be regarded as committed for each day on which such person, firm, company or corporation shall continue to operate contrary to the provisions of the Ordinance.

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**SECTION XI**

**REPEAL**

All Ordinances, or parts of Ordinances, in conflict with the terms of this adopting Ordinance, are, to the extent of such conflict, hereby repealed.

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**SECTION XII**  
**EFFECTIVE DATE**

This Ordinance shall be in full force and effect from and after its passage, approval and publication as provided by law.

\_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

Presented and read at a regular meeting of the Waukegan City Council on the  
\_\_\_\_\_ day of \_\_\_\_\_, 2003.

Passed and approved at a regular meeting of the Waukegan City Council on the  
\_\_\_\_\_ day of \_\_\_\_\_, 2003.

Roll Call:

Ayes:

Nays.

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### CHECKLIST OF REVISIONS

03/03	Initial issue replacing Ordinance
Rev/	Page
Rev/	Page

**CITY OF WAUKEGAN**

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**ORDINANCE NO. \_\_\_\_\_**

Herein set forth  
what the title of  
the ordinance is:

**Adopting 2002 National Electrical Code (NFPA 70-96)**

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**ADOPTED AND PASSED BY THE CITY COUNCIL  
OF THE CITY OF WAUKEGAN**

**ON THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 2003**

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**PUBLISHED IN PAMPHLET FORM BY AUTHORITY OF THE CITY COUNCIL OF THE CITY  
OF WAUKEGAN, LAKE COUNTY, ILLINOIS, ON THE \_\_\_\_\_ DAY OF  
\_\_\_\_\_, 2003**

\_\_\_\_\_  
**CITY CLERK**

**AN ORDINANCE ADOPTING THE 2002 NATIONAL ELECTRICAL CODE (NFPA 70-96) AND AMENDING CHAPTER 6, ARTICLE III, SECTION 6-71 OF THE CODE OF ORDINANCES OF THE CITY OF WAUKEGAN**

**WHEREAS**, the Waukegan Electrical Commission has reviewed and considered the 2002 National Electrical Code and has approved its various terms and provision; and

**WHEREAS**, the City Council of the City of Waukegan has determined that it is in the best interests and general welfare of the City of Waukegan to adopt said 2002 National Electrical Code as the standard by which all electrical work within the City shall be performed;

**NOW, THEREFORE, BE IT ORDAINED** by the City Council of the City of Waukegan, Illinois, as follows.

**SECTION 1:** Section 6-71 entitled "Code Adopted" of Chapter 6 entitled "Electricity" of the Code of Ordinances of the City of Waukegan shall be amended to read as follows:

The National Electrical Code, 2002 Edition, three (3) copies of which have been on file in the office of the City Clerk of the City of Waukegan, for more than fifteen (15) days prior to the adoption of this Section, be and is hereby adopted by reference as if fully set forth herein.

**SECTION 2:** All ordinances and parts of ordinances in conflict with the terms and provisions of this Ordinance are hereby repealed.

**SECTION 3:** This ordinance shall be in full force and effect from and after its passage, approval and publication in pamphlet form, as provided by law.

\_\_\_\_\_  
MAYOR

ATTEST:

\_\_\_\_\_  
CITY CLERK

Presented and Read at the regular meeting of the Waukegan City Council on the \_\_\_\_\_ day  
of \_\_\_\_\_, 2003.

Passed and Approved at the regular meeting of the Waukegan City Council on the \_\_\_\_\_ day  
of \_\_\_\_\_, 2003.

ROLL CALL.

AYES:

NAYS:

ABSENT:

ABSTAIN: