

ORDINANCE NO. 020-19

ELECTRICAL CODE
Table of Contents

Section Number	
Section 1	Repeal and Replace Chapter 34
34.01	Title
34.02	Purpose and Scope
34.03	Definitions
34.04	Exemptions
34.05	Electrical Inspection Section
34.06	Electrical Board of Appeals
34.07	Electrical Contractor and License
34.08	Electrician and License
34.09	Wiring in Prefabricated Assemblies
34.10	Temporary Work Permit
34.11	Apprentice Electrician and Apprentice Residential Electrician
34.12	Application for License
34.13	Sponsorship for Examination
34.14	Issuance of Licenses
34.15	Reciprocity
34.16	License Renewal
34.17	Electrical Inspector
34.18	Conflict of Interest
34.19	Permit to do Electrical Work
34.20	Wiring by Homeowner
34.21	Plans and Specifications
34.22	Electrical Maintenance
34.23	Emergency Work
34.24	Unsafe Electrical Systems or Equipment
34.25	Repairs or Damaged Systems
34.26	Moved Buildings
34.27	Inspections
34.28	Re-inspection Fees
34.29	Right of Entry
34.30	Order for Corrections; Unsafe Conditions; Authority to Cut Off Power
34.31	Wiring not to be Concealed Before Inspection
34.32	Wiring in or on Public Property
34.33	Liability for Compliance
34.34	Permit Fees
34.35	National Electrical Code Adopted
34.36	Variations from the National Electrical Code
34.37	Exterior Service Wiring
34.38	Electrical Service and Meter
34.39	Single, Two and Multiple Family Dwelling Service
34.40	Two Family and Multiple Family Dwelling Service
34.41	Feeders and Panel Requirements for Individual Apartments

Section Number	
34.42	Rule for Computing Range and Dwelling Loads
34.43	Additions to Buildings or Remodeling
34.44	Prohibited Electrical Construction
34.45	Conductors
34.46	Wiring Methods – Dwellings
34.47	Wiring Methods – Other Buildings
34.48	Emergency Lighting
34.49	Conversion of Buildings
34.50	Bonding of Gas Piping
34.51	Temporary Wiring
34.52	State Amendments

AN ORDINANCE REPEALING CHAPTER 34 OF THE MUNICIPAL CODE,
ELECTRICAL CODE, AND ENACTING AND ADOPTING IN LIEU
THEREOF A NEW ELECTRICAL CODE AND THE 2017 NATIONAL
ELECTRICAL CODE WITH PROPOSED AMENDMENTS.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CEDAR RAPIDS, IOWA,
as follows:

SECTION 1. The Cedar Rapids Municipal Code is hereby amended by repealing Chapter 34 consisting of the National Electrical Code, 2014 Edition, as amended, and as adopted by ordinance, and substituting in lieu thereof a new Chapter 34 to be known as the Cedar Rapids Electrical Code, as follows:

CHAPTER 34 – ELECTRICAL CODE

34.01 – TITLE

This Chapter shall be known as the Cedar Rapids Electrical Code, may be so cited and may be referred to hereinafter as the "Code."

34.02 – PURPOSE AND SCOPE

It is the purpose of this Chapter to adopt an electrical code by reference, including provisions for the inspection and regulation of electrical installation, issuance of permits, the collection of fees, and to provide penalties for violations of this Code in order to protect the public health, safety and welfare. The provisions of this Code shall apply to and govern all uses, installations, alterations, repairs, removals, renewals, replacements, connections, disconnections, and maintenance of all electrical equipment within the City of Cedar Rapids, Iowa.

34.03 – DEFINITIONS

For use within this Chapter, the following terms are defined:

- (a) The term "electrical contracting" means undertaking, or offering to undertake, the planning and installation of electrical systems and equipment and the employment, management, supervision, and control of electricians, residential electricians, apprentice electricians, and apprentice residential electricians doing electrical work.
- (b) The term "electrical contractor" means any person responsible for the activity of planning, or supervising electricians, residential electricians, apprentice electricians, and apprentice residential electricians doing electrical wiring, work, or equipment installations and connections to apparatus, which is or will be connected to an electric light and power source. Such persons shall have a current State of Iowa Contractors license and a Class "A" master electrical license.
- (c) The term "electrical work" means all installations, alterations, repairs, removals, replacements, disturbances, connections, disconnections, and maintenance of wiring and electrical equipment or control above, or under any building, structure or open space in the City of Cedar Rapids, Iowa, including 101 volts or less in commercial applications.

Exception: The installation of electrical systems under 25 volts in residential construction is not considered "electrical work".

- (d) The term "electrical equipment" means all electrical materials, wiring, conductors, fittings, conduits, devices, appliances, fixtures, signs and apparatus or parts thereof

comprising an electrical system or control of such system, within a structure or facility or control of such system.

- (e) The term "electrician" means any person doing electrical work for an electrical contractor. Such person shall have a current State of Iowa Class "A" journeyman electrician license.
- (f) The term "residential electrician" means any person doing electrical work for an electrical contractor in a residential one or two family dwelling unit, multifamily building with 4 or less dwelling units and not more than three floors above grade, or garages, sheds, or storage buildings accessory to dwelling units. Such person shall have a current State of Iowa Residential Electrician license.
- (g) The term "apprentice electrician" means any person working for an electrical contractor for the purpose of becoming an electrician, and enrolled in, and satisfactorily progressing toward the completion of a registered apprenticeship-training program, signatory by an electrical contractor and accredited by the U.S. Department of Labor. Such person shall have a current State of Iowa Apprentice license.
- (h) The term "apprentice residential electrician" means any person working for an electrical contractor assisting one or more residential electricians as defined in subsection (f) above, and enrolled in, and satisfactorily progressing toward the completion of a registered apprenticeship training program, signatory by an electrical contractor and accredited by the U.S. Department of Labor. Such person shall have a current State of Iowa Residential Apprentice license.
- (i) The term "electrical maintenance work" shall mean the repair of the existing electrical equipment, that was installed by a licensed electrical contractor, within a manufacturing, industrial, or public utility establishment, or limited replacement of branch circuits as determined by the Chief Electrical Inspector or by the State of Iowa. Assembled processing machinery, which serves the existing operations within a manufacturing, industrial, or public utility establishment may be connected to existing branch circuits.
- (j) Routine Maintenance means the repair or replacement, by a licensed, insured electrical contractor or employee of faulty existing electrical apparatus or equipment including but not limited to wires, cables, switches, receptacles, outlets, fuses, circuit breakers and fixtures, of the same size and type for which no changes in wiring are made, but does not include any new electrical installation or the expansion or extension of any circuit. Replacement of circuit breakers limited to less than 250 volts single phase not exceeding 30 amps is considered routine maintenance.
- (k) The term "licensed" means licensed under this Code or by the State of Iowa, unless otherwise specified.
- (l) When the word "shall" is used, the meaning is that the act to be performed is mandatory.
- (m) The word "Department" means the Building Services Division of the City of Cedar Rapids, Iowa.

34.04 – EXEMPTIONS

The provisions of Section 34.07 and 34.08 of this Code shall not apply to any of the following:

- (a) A regular employee of a manufacturing, industrial, or public utility establishment, who does electrical maintenance work for that establishment only.

- (b) A regular employee of any railroad who does electrical work on railroad equipment only as a part of their employment.
- (c) A regular employee who works at assembling, fabricating, manufacturing, or testing electronic or electrical appliances, machinery, products, or other electrical materials; however, this provision does not exempt employees who wire prefabricated buildings.
- (d) A State of Iowa licensed Master or Journeyman HVAC or Master or Journeyman Refrigeration employee may perform disconnection and reconnection of existing air conditioning and refrigeration systems.

34.05 – ELECTRICAL INSPECTION SECTION

There is hereby established in the Cedar Rapids Building Services Department an Electrical Inspection Section, consisting of one or more electrical inspectors, under the jurisdiction of the Building Official as defined in Section 33.04 of the Municipal Code of the City of Cedar Rapids. The term "inspector" as used within this Code shall mean "Electrical Inspector."

34.06 – ELECTRICAL BOARD OF APPEALS

- (a) Establishment of the Board. There is hereby established an Electrical Board of Appeals, hereinafter referred to as the "Board," with authority and responsibility as follows:
 - 1. To act as a Board of Appeals as provided in the Cedar Rapids Electrical Code
 - 2. To periodically review the provisions of the Cedar Rapids Electrical Code and make recommendations to the City Council for improving and updating said Code.
- (b) Composition of the Board. The Board shall consist of seven members, all of whose place of business, residence, or work shall be located within the corporate limits of the City of Cedar Rapids both at the time of appointment and during the term to which the member was appointed.
- (c) Qualifications. All members of the Board shall be qualified by experience and training to pass judgment upon matters pertaining to electrical construction. The membership shall be as follows: Two licensed electrical contractors, one licensed working electrician, a representative from a public service company furnishing electrical power to the City, one practicing electrical engineer capable of designing systems governed by this code, a member of the Fire Department, and a representative directly involved with electrical maintenance from a manufacturing plant, with no one company or interest being represented by more than one member of the Board. Said Board shall serve without compensation.
- (d) Appointment of Members and Terms of Office. The Mayor shall appoint the members of the Board with the approval of the City Council. The terms of the members shall be for 3 years; the terms shall expire on June 30th of each year. A vacancy within any term shall be filled by appointment by the Mayor with the approval of the City Council for the unexpired portion of that term only.
- (e) Officers and procedures. The Board shall designate a member as chairperson and vice-chairperson and shall adopt reasonable rules for conducting its investigations and proceedings, and shall render all decisions and findings in writing to the Building Official with a duplicate copy to the appellant and may recommend to the City Council new legislation as is consistent therewith.

- (f) Quorum. Four members of the Board shall constitute a quorum for the transaction of business.
- (g) Powers and Duties of the Board. The Board shall have the following powers and duties:
 - 1. To keep a complete record of the official proceedings of the Board; to preserve all documents, books, and papers relating to appeals and hearing of complaints and charges for at least three years.

- 2. To hear appeals from the decision of the electrical inspector and to rule on interpretations of the provisions of this Code, and to determine the suitability of alternate materials and methods of construction consistent with the provisions of this Code.

Limitations on Authority. An application for appeal shall be based on a claim that the true intent of this Code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this Code do not fully apply, or an at least equivalent method of protection or safety is proposed. The Board shall have no authority to waive the requirements of this Code.

- 3. To periodically review the National Electric Code and Chapter 34 of the Cedar Rapids Municipal Ordinance and make recommendations to the Building Official.

34.07 – ELECTRICAL CONTRACTOR AND LICENSE

- (a) Except as provided in Section 34.03, 34.04 and 34.09 of this Code, no person shall engage in the activity of electrical contracting, as defined in Section 34.03 of this Code without first obtaining an electrical contractor's license from the State of Iowa. Contractors shall carry a current State of Iowa class "A" master license.

Exception: Those who have been issued a City of Cedar Rapids, or Metro Contractor and Masters licenses prior to January 1, 2008 and carry a State of Iowa Contractor and "B" Masters license shall continue to be considered qualified contractors under section 34.07 of this Municipal Code.

- (b) An electrical contractor's license issued to an individual, partner, or officer of a firm, corporation or other association, authorizes such firm, corporation or other association to conduct an electrical contracting business in the City of Cedar Rapids, Iowa, for the period of time for which such license is granted, provided such licensee is supervising the operations of said firm or corporation and further provided that such licensee, firm, corporation, or other association shall be insured.
 - (c) Before any permit for electrical work shall be issued to an electrical contractor in the City of Cedar Rapids, Iowa, he/she shall execute and file with the Cedar Rapids Building Services Department a certificate of insurance written by a company authorized to transact business in the State of Iowa, in limits of not less than One Million Dollars (\$1,000,000) aggregate amount liability and property damage per occurrence; said certificate to be written on a standard form and carrying an endorsement naming the City of Cedar Rapids, Iowa and its employees as additional insureds as their interest may appear and conditioned upon the faithful performance of all duties required of such electrical contractor by this Code, or by the rules and regulations of the City of Cedar Rapids, Iowa or the State of Iowa. It shall be a further condition of said Certificate of Insurance that the obligator shall hold the City of Cedar Rapids and its agents and employees harmless from any and all damages sustained by reason of neglect or incompetence on the part of such electrical contractor, his/her agents or employees in the performance of the work done, or any negligent guarding of hazardous areas, or by

reason of any other cause growing out of the negligence or carelessness of such electrical contractor, his/her agents or employees or the issuance of such license or permit.

Said Certificate of Insurance shall be for one year and shall expire no sooner than the 31st day of December of each year, and shall be re-filed on or before said date for each subsequent year.

- (d) Each active contractor shall furnish the City his or her State contractor's registration number, contractor's license, and "A" Masters license before a permit will be issued or renewed.

34.08 – ELECTRICIAN AND LICENSE

Except as provided in Sections 34.03, 34.04, 34.09, 34.10, 34.11 and 34.22 of this Code, no person shall engage in doing electrical work or installing electrical wiring or equipment and apparatus which is or will be connected to any electric power source in the City of Cedar Rapids, Iowa, unless said person shall have obtained an electrician's license, an apprentice electrician's license, a residential electrician's license, or a residential apprentice electrician's license from the State of Iowa, before doing any such electrical work and further provided that such licensee is employed by a licensed electrical contractor. Electricians shall carry a State of Iowa "A" Journeyman Electrician license, and a Residential Electrician shall carry a State of Iowa Residential Electricians license.

Exception: Those who have been issued a Metro area or City of Cedar Rapids Master, Journeyman, or Residential Journeyman licenses prior to January 1, 2008 and who are issued a Class "B" license by the State of Iowa, shall continue to be considered as qualified installers as defined in Section 34.08 of this Municipal Code.

34.09 – WIRING IN PREFABRICATED ASSEMBLIES

The provisions of Sections 34.07, 34.08, 34.21 and 34.22 of this Code, shall not be applicable to electrical work and wiring installed and concealed in prefabricated assemblies where such fabricating plant is more than fifteen (15) miles outside the corporate limits of the City of Cedar Rapids, Iowa. The electrical permits normally required for fabrication of prefabricated assemblies shall be the responsibility of the approved and certified fabricator for those assembly plants.

The provisions of Section 34.21 and 34.22 of this Code shall be applicable to electrical work and wiring installed within prefabricated assemblies within the corporate limits of the City the same as for any other electrical work within the City.

34.10 – TEMPORARY WORK PERMIT

A temporary work permit may be issued to any person by the Cedar Rapids Electrical Board of Appeals.

34.11 – APPRENTICE ELECTRICIAN AND APPRENTICE RESIDENTIAL ELECTRICIAN

An apprentice electrician or apprentice residential electrician shall be licensed by the State of Iowa and may perform electrical work, provided that he/she is employed by an electrical contractor to assist one or more licensed electricians or residential electricians and further provided that such apprentice performs work under the direct supervision of a licensed electrician or residential electrician responsible for such work. The ratio of apprentice residential electrician(s) to residential electricians shall be one to one. The ratio of apprentice electrician(s) to electricians shall be one to one.

34.12 – APPLICATION FOR LICENSE

Each individual, partner, or officer of a company or corporation desiring an electrical contractor license, each individual desiring an electrician license, or residential electrician license shall make application to the State of Iowa Electrical Licensing Board.

34.13 – SPONSORSHIP FOR EXAMINATION

Each person applying for sponsorship to take an examination for an electrical contractor license, electrician license, or residential electrician license shall be sponsored by the State of Iowa per the State of Iowa Electrical Examination Board as provided for in Iowa Code Chapter 103 (2009), as amended, and Chapter 661 of the Iowa Administrative Code.

34.14 – ISSUANCE OF LICENSES

All new Electrical licenses issued after January 1, 2009 shall be issued by the State of Iowa Electrical Examining Board pursuant to Iowa Code Chapter 103 (2009), as amended and Chapter 661 of the Iowa Administrative Code, unless an applicant therefore has met the requirements for an exception as set forth in Section 34.08 hereinabove.

34.15 – RECIPROCITY

Reciprocity shall be determined by the State Electrical Examination Board.

34.16 – LICENSE RENEWAL

State of Iowa licenses shall be renewed per Iowa Code.

34.17 – ELECTRICAL INSPECTOR

- (a) Qualifications. Each electrical inspector shall be a practical expert electrician and shall be appointed by the Mayor, upon approval of the City Council, from the approved list of the Civil Service Commission in accordance with the statutes governing civil service appointments. Each inspector shall know and understand practical and theoretical electricity, electrical materials, systems and methods of construction, and all orders, rules, regulations and codes that pertain to municipal electrical inspection. An electrical inspector shall not engage in the sale, installation, or maintenance of electrical equipment, materials, or systems that are regulated by this Code, either directly or indirectly, nor have any financial interest in any concern engaged in such business in the City of Cedar Rapids, Iowa, at any time while employed as an inspector, except an inspector's personal primary residence.
- (b) Duties. It shall be the duty of each inspector to administer and enforce the provisions of the Cedar Rapids Electrical Code and other related ordinances, codes, regulations or statutes, and to perform such other duties as may be required by the Building Official. Such duties are not intended to include designing of, or laying out of, electrical work or systems, except as such activity contributes to the enforcement of this Code. The inspector(s) shall hereafter require that the installation of all electrical light and power wiring, conduit and raceway systems, all electrical fixtures, equipment and appliances, or apparatus, and all electrical work and materials shall be of such grade and type of installation as to be free of electrical hazards and to conform to the provisions of this Code.
- (c) Authority. Each electrical inspector is authorized and empowered to inspect any and all buildings or installations, and to order the necessary removal, disconnection or repair to put in proper and safe condition for the safety of life and the prevention of fire, all electrical

heating and lighting apparatus, power generators, motors, machinery, conduits, raceways, fixtures and connections, electrical wires and electrical apparatus used for light, heat or power purposes or control of such and to control the disposition and arrangement of the same so that persons and property shall not be in danger therefrom.

34.18 – CONFLICT OF INTEREST Conflict of interest is hereby added as follows:

Conflict of interest. Inspectors and other employees who are engaged in electrical inspections, plan review or permit issuance activities shall not directly or indirectly perform and/or be involved in any work, sales of services, equipment, materials or systems regulated by the Code for any financial gains/benefits nor enter into any written or verbal contractual agreements for financial gains/benefits. Employees may perform work or activities regulated by the Code when it is without compensation or other financial benefits. In no event, shall the employee inspect or be involved in the inspection process on any project where the employee performed work or has a financial interest.

34.19 – PERMIT TO DO ELECTRICAL WORK

Before commencing the installation, alteration, removal or disconnection of any wiring system through or by which is conveyed or intended to be conveyed, electrical current for power, heating, cooling or illuminating purposes or control on, or under any building or structure in the City of Cedar Rapids, Iowa, a permit therefor shall first be obtained by the licensed insured electrical contractor in charge of such work from the Electrical Inspection Section of the Building Services Division or the State of Iowa, and it shall be unlawful to commence or proceed with such work unless such permit shall have first been obtained. An investigation fee may be charged when a permit has not first been obtained. Any person who commences any work on an electrical system before obtaining the necessary permits shall be subject to a fee established by The City Council of the City of Cedar Rapids, Iowa by resolution that shall be in addition to the required permit fees

Exceptions: The provisions of this section shall not apply to the following:

1. The installation of electrical systems under 25 volts in residential construction.
2. Entities installing commercial applications under 101 volts, which are not covered under the scope of work of a licensed electrical contractor, provided this non-licensed entity first obtains a permit for the scope of work covered in the installation.
3. Such electrical maintenance work which is accomplished within or about a manufacturing, industrial, or public utility establishment in compliance with the provisions of Section 34.10 of this Code.
4. Such integral electrical wiring and equipment which was permanently wired or installed on or within a factory built structure in an approved factory by qualified mechanics, and which was inspected, approved and certified by an approved third party inspection agency in compliance with the Iowa State Building Codes; however, any part of the electrical wiring or electrical system which was installed or added to a factory built structure after its location and erection on a local building site by qualified factory mechanics, shall be installed and connected under the authority of an electrical permit by a licensed insured electrical contractor in compliance with this Code.
5. Routine Maintenance as defined in Section 34.03(j) of this Code.

34.20 – WIRING BY HOMEOWNER

A permit shall be issued to a homeowner who proposes to install, repair, or add to the electrical system in his/her own existing single family dwelling that is used as his/her own permanent place of residence provided the residence shall qualify for the homestead tax exemption.

34.21 – PLANS AND SPECIFICATIONS

The inspector(s) may require that plans and specifications, showing the materials, layout and specific details of the electrical system, be submitted with the application for the electrical permit. If a review of the plans and specifications indicates major deviations from the provisions of this Code, the applicant shall submit revised plans and specifications. If any changes are made to the plans and specifications for which a permit was issued, amended plans and specifications shall be submitted.

34.22 – ELECTRICAL MAINTENANCE

A regular full-time employee of a manufacturing, industrial, or public utility establishment, who does electrical maintenance work for that establishment only, shall be permitted to do electrical maintenance work only on that establishment's property as defined in Section 34.03(i) of this Code.

34.23 – EMERGENCY WORK

- (a) In case of an emergency involving imminent hazard to life or property, authorized personnel may proceed with necessary corrective work to alleviate the hazardous or dangerous condition as it relates to the electrical system prior to obtaining a permit if same is required, providing that the permit is applied for and tentative approval obtained at the earliest practicable occasion thereafter. All emergency work shall be made to comply with the provisions of this Code and shall be inspected by an electrical inspector in the same manner as for other electrical work.
- (b) After furnishing or restoring emergency service, the local power company representative shall inform an electrical inspector of the date, time, location, and nature of such emergency power restoration.

34.24 – UNSAFE ELECTRICAL SYSTEMS OR EQUIPMENT

Electrical systems or equipment regulated by this Code which are unsafe, are beyond their normal useful life, or which constitute a fire hazard, or are otherwise dangerous to human life are, for the purpose of this section, unsafe. Use of electrical systems or equipment regulated by this Code constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is, for the purpose of this section, an unsafe use.

Unsafe electrical systems or equipment are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition or removal in accordance with the procedures adopted by this jurisdiction. As an alternative, the Building Official or other employee or official of this jurisdiction as designated by the governing body may institute other appropriate action to prevent, restrain, correct or abate the violation including the immediate termination of power.

34.25 – REPAIRS OF DAMAGED SYSTEMS

Any part of an electrical system damaged by explosion, fire, act of God, or any other damage, shall be replaced or repaired in conformance with the provisions of this Code for new work.

Exception: Parts of an electrical system which were not damaged and had been installed in compliance with the electrical code which was in effect at the time of the installation, may be salvaged and retained in said electrical system, provided that the safety of the system is maintained equal to new work complying with the provisions of this Code.

34.26 – MOVED BUILDINGS

- (a) The electrical system in a moved building shall be made to comply with the provisions of this Code the same as for new construction.
- (b) The permanent service connection shall not be made by the utility company until the electrical system is completely installed and is approved by the inspector.
- (c) The existing service on the moved building shall not be connected to the electrical power source unless specifically approved by an inspector.

34.27 – INSPECTIONS

Upon the completion or near completion of electrical work that has been done under a permit, the electrical contractor, electrical contractor designee, or the homeowner doing the work shall notify an inspector that the work is ready for inspection.

If an inspector finds the work to be in conformity with the provisions of this Code, he/she shall affix an approval sticker to a conspicuous and logical place on the premises, and shall note such approval in the Department records. Such approval shall authorize the use of the work and its connection to the supply of electricity.

An inspector may grant conditional approval by authorizing the temporary connection and use of an installation, with such approval to expire at a stated time.

Electrical work or equipment which is installed or added to a factory built structure or a mobile home, after its location and erection on a local building site, shall be inspected by an inspector and be subject to local codes and required permits.

An inspector is hereby also authorized, if he/she determines that good cause exists, to inspect the entire electrical system of a facility.

34.28 – RE-INSPECTION FEES

Re-inspections: An inspection fee may be assessed for each inspection or re-inspection when such portion of work for which inspection is called is not complete or when corrections called for are not made.

This section is not to be interpreted as requiring re-inspection fees the first time a job is rejected for failure to comply with requirements of this Code, but as controlling the practice of calling for inspections before the job is ready for such inspection or re-inspection.

Re-inspection fees may be assessed when the inspection card is not posted or otherwise available on the work site, when the property and building address are not properly posted and the location of the inspection cannot be readily ascertained, the approved plans are not

readily available to the inspector, for failure to provide access on the date for which inspection is requested, or for deviating from plans requiring the approval of the building official.

34.29 – RIGHT OF ENTRY

An inspector shall have the right, during reasonable hours and upon consent of the occupant, to enter any building or premises in the discharge of official duties to make an inspection, re-inspection, or tests of electrical equipment, in accordance with the provision of the law.

When the building or premises is unoccupied, the consent of the owner or owner's agent shall be obtained prior to entering.

In case of an emergency involving hazard or danger to life or property, the inspector shall take immediate action to alleviate the hazard from the faulty electrical system.

34.30 – ORDERS FOR CORRECTION; UNSAFE CONDITIONS; AUTHORITY TO CUT OFF POWER

Each electrical inspector is hereby empowered to inspect, and re-inspect as necessary all wiring, poles, raceways, fixtures and apparatus used in conducting electrical current for the purpose of light, heat or power or control of light, heat or power within the City of Cedar Rapids. Whenever such wiring, raceways, apparatus or fixtures are found to be hazardous to life or property, unsafe by reason of obsolescence, or to have been installed in violation of this Code or regulations of the City, said inspector shall notify the person, firm or corporation who owns, uses or operates such wiring, raceways, apparatus, or fixtures, by personal service, or by certified mail to their last known address, directing them to place the same in a safe and secure condition, conforming to this Code and the other ordinances and regulations of the City, within a reasonable time as specified by the inspector, and also notify such person, firm or corporation in the same notice of the right to obtain a hearing by appealing such direction or order from the Inspector to the Electrical Board of Appeals in accordance with the procedure established by the Electrical Board of Appeals. If the necessary changes or repairs are not completed within the specified time, the inspector shall have the authority to disconnect or order the disconnection of electrical service to the equipment or installation 48 hours after written disconnect notice.

No such disconnection shall be ordered during the pending of a related appeal to the Electrical Board of Appeals, except in the case where the conditions in question may be imminently dangerous to life or property.

In cases where continuance of electrical service to an electrical system or equipment contributes to the existence of an electrical hazard to persons or property, an inspector shall have the authority to cause immediate discontinuance of such service.

Said inspector shall present written notification, by personal service or certified mail, to any person, firm or corporation owning abandoned, dead or dangerous wiring, apparatus, or fixtures which are no longer used, requiring the removal of same within a reasonable time, to be set by the inspector.

Upon their failure or refusal to comply with the terms of said notice, the inspector may report the same through the Building Official to the City Council, which may order the removal of same, and order the cost of such removal to be assessed against the property from which removed.

34.31 – WIRING NOT TO BE CONCEALED BEFORE INSPECTION

No person shall cover or conceal or cause to be covered or concealed any wiring for which a permit has been issued or is required by this Code, before said wiring has been inspected and approved.

An inspector shall have the authority to remove or cause removal of lath, plaster, boarding, paneling, insulation, earth, concrete or other cover which may prevent the proper inspection of wires or electrical apparatus before it has been approved.

34.32 – WIRING IN OR ON PUBLIC PROPERTY

It shall be unlawful for any person to locate any electrical raceway or to conduct electrical energy over, under or across any street, alley, sidewalk, or other public property, or to make any excavation in such public property for the purpose of laying an electrical raceway or wiring, without first obtaining written approval from the City Council. Said Council approval shall be requested in writing, prior to the start of any such work, by submitting an application through the Traffic Engineering Department to said Council, stating in detail the location, depth, extent, number of ducts, and the purpose which the raceway, wiring or crossing will serve. All such raceways or crossings shall be constructed and installed in compliance with this Code and with the provisions of the resolution of the City Council.

34.33 – LIABILITY FOR COMPLIANCE

The issuance of electrical permits, the inspection and enforcement of compliance with this Code, or the approval of electrical wiring, apparatus, poles, raceways and other electrical systems or equipment by an electrical inspector, shall not relieve the person, firm, or corporation having control of such electrical systems or equipment from responsibility, nor lessen the liability of a person, firm or corporation installing or owning such wiring, apparatus, poles, raceways, or other electrical equipment, as would exist in the absence of such permits, inspection, code enforcement, or the granting of such approval.

34.34 – PERMIT FEES

The City Council shall establish the associated fees for electrical permits, inspections, re-inspections, special inspection fees, Temporary Certificates of Occupancy and investigation fees by resolution. Electrical permits shall not be issued until the fees, as set forth and established by resolution of the City Council, have been paid to the City Treasurer.

34.35 – NATIONAL ELECTRICAL CODE ADOPTED

Except as herein added to, modified or amended, there is hereby adopted as the Electrical Code of the City of Cedar Rapids, Iowa, that certain electrical code known as the National Electrical Code, 2017 edition, as published by the National Fire Protection Association of Quincy, Massachusetts; and the provisions of said Electrical Code of the City of Cedar Rapids, as may be amended from time to time, shall be controlling in the installation, alteration, repair, relocation, replacement, addition to, use, maintenance or removal of electrical appliances, equipment, conduits, raceways, apparatus, or control of such system and in all matters covered by said Electrical Code within the corporate limits of the City of Cedar Rapids, Iowa, and shall be known as the Cedar Rapids Electrical Code.

34.36 – VARIATIONS FROM THE NATIONAL ELECTRICAL CODE

The provisions of Section 34.22 through Section 34.33 of this Code hereafter set out shall be mandatory provisions which shall supersede and take precedence over similar provisions of

the 2017 National Electrical Code in all instances where the following sections differ from the provisions of the 2017 National Electrical Code.

34.37 – EXTERIOR SERVICE – WIRING

- (a) All electrical service wiring shall be run in rigid metal conduit, intermediate metallic conduit or electrical metallic tubing.

Exception: Rigid nonmetallic conduit may be approved for the underground part of commercial, industrial, and residential installation in compliance with Article 352 of the 2014 National Electrical Code. Rigid non-metallic conduit is approved for conduits from 400 ampere or less meter sockets that are direct metered, to the electric service panels.

- (b) Communication equipment under the exclusive control of communication utility companies and outdoor signs having a continuous electrical load with not more than 80% ampacity of the conductors, may be wired with copper #10 AWG ungrounded service conductors and copper # 8 AWG grounded service conductor in 1/2 inch minimum size conduit.

34.38 – ELECTRIC SERVICE AND METER

- (a) Service Attachment Devices. An approved attachment device for the overhead electrical service wiring shall be provided by the electrical contractor or by the customer. Any service riser mast used as an attachment point shall be a minimum of 2 inches diameter rigid or intermediate steel conduit and be suitably supported.
- (b) Raceway Seal. The service conduit shall be sealed at the exit point of the load side of the meter socket.

34.39 – SINGLE, TWO AND MULTIPLE FAMILY DWELLING SERVICE

Minimum Size Distribution Panels.

- (a)
 1. The minimum size service entrance panel for a single family dwelling with up to 1000 square feet of finished floor space, or space which may be finished, shall be equipped to provide protection against over-current with no less than a 100 ampere main over-current protective device having at least 20 available 120 volt branch circuit spaces.
 2. The minimum size service entrance panel for a single family dwelling with 1001 to 2000 square feet of finished floor space, or space which may be finished, shall be equipped to provide protection against over-current with no less than a 150 ampere main over-current protective device having at least 30 available 120 volt branch circuit spaces.
 3. The minimum size service entrance panel for a single family dwelling with over 2000 square feet of finished floor space, or space which may be finished, shall be equipped to provide protection against over-current with no less than a 200 ampere main over-current protective device having at least 40 available 120 volt branch circuit spaces.
- (b) All service disconnects shall be of circuit breaker type.

34.40 – TWO FAMILY AND MULTIPLE FAMILY DWELLING SERVICE

The minimum electrical capacity for an electrical service which serves more than one apartment shall be computed from the provisions of Article 220 of the 2014 National Electrical Code.

34.41 – FEEDERS & PANEL REQUIREMENTS FOR INDIVIDUAL APARTMENTS

- (a) Feeders to individual apartments shall be computed from the provisions of Article 220 of the 2014 National Electric Code.
- (b) Apartments with not over 500 sq. feet of finished floor area shall have a minimum 70-ampere main lug panel with 12 available spaces.
- (c) Apartments with 501 to 1000 sq. ft. of finished floor area shall have a minimum 100-ampere main lug panel with 16 available spaces.
- (d) Apartments with 1001 to 2000 sq. ft. of finished floor area shall have a minimum 150-ampere main lug panel with 24 available spaces.
- (e) Apartments over 2000 sq. ft. of finished floor area shall have a minimum 200 ampere main lug panel with 30 available spaces.

34.42 – RULE FOR COMPUTING RANGE AND DWELLING LOADS

- (a) Branch Circuit Requirements: One circuit for lighting shall be provided for every 600 square feet of finished floor space, or space which may be finished.

In addition, Provision for the following appliance circuits shall be made:

Two separate 20-ampere circuits for kitchen and breakfast area receptacles. The garbage disposal unit may be wired on one of the kitchen receptacle circuits or the dishwasher circuit. There must be at least two circuits on the main usable counter top area.

One separate 20-ampere circuit for each laundry area.

Other circuits, if installed, shall be as follows:

One separate 20-ampere circuit for microwave oven.

One separate circuit for each no gravity furnace with disconnect switch.

One separate 20-ampere circuit for each food freezer.

One separate 20-ampere circuit for each dishwasher.

One separate 20-ampere circuit for a workshop.

One separate 20-ampere circuit for a refrigerator.

One separate 20-ampere circuit for a garage.

Additional separate circuits for other heavy loads.

34.43 – ADDITIONS TO BUILDINGS OR REMODELING

- (a) Where kitchens and bathrooms are reconfigured, the wiring shall conform to the 2017 National Electrical Code and the provisions of this Code.
- (b) Where any habitable room has the wall covering removed, exposing the structure, the wiring shall conform to the 2017 National Electrical Code and the provisions of this Code.
- (c) The minimum size of electrical service(s), over-current panel(s) for the electrical system of an existing dwelling(s) which is being remodeled or added to shall be computed and installed according to Section 34.39, 34.40, 34.41 and 34.42 of this Code, the same as for new dwellings.

Existing equipment which meets the computed minimum requirements shall be approved by the inspector.

- (d) Where the construction, alteration or modification of a building reduces the clearance of the service drop conductors below the acceptable minimum clearance required by ARTICLE 230.24, as amended, of the 2017 National Electrical Code, such service conductors shall be relocated according to the directions of the electric utility company.

34.44 – PROHIBITED ELECTRICAL CONSTRUCTION

- (a) Armored Cable Wiring: The installation of Armored Type AC and MC cable wiring as provided in Article 320 and 330 of the 2017 National Electrical Code is prohibited.

Exception: Type AC and MC cables with separate equipment grounding conductors may be installed in walls and ceilings, above lay in ceilings, or in concealed areas, and as approved in 34.46 Exception.

- (b) Service Entrance Cable: The installation of Type SE service entrance cable as provided in Article 338 of the 2017 National Electrical Code is prohibited, except as feeders in the interior of single and multi-family dwellings.

34.45 – CONDUCTORS

- (a) All conductors smaller than 4/0 AWG, other than aerial service drop conductors, medium and high voltage cables (601 volt insulation level and above), and conductors comprising an integral part of switchboards, transformers or busways meeting N.E.M.A. standards and the provisions of the 2014 National Electrical Code, shall be copper.

Exceptions:

1. #6 AWG minimum aluminum service drop cable or underground cable installed in accordance with the 2017 National Electrical Code may be used for the overhead, aerial service to outside accessory installations such as outbuildings and signs.
 2. #4 AWG minimum trade size aluminum conductor may be used as a substitute for copper conductor provided that such aluminum conductors are appropriately sized and further provided that such conductors are terminated in an approved connection. Such conductors shall be used as service conductors or branch panel feeder conductors only.
- (b) All wiring in outlet or fixture boxes shall be continuous (pigtailed) before the receptacle, fixture or electrical device is installed.

34.46 – WIRING METHODS – DWELLINGS

- (a) Habitable Space. Non-metallic sheathed cable may be installed for the conductors in the concealed wood or steel frame portions of one and two family dwellings, or multi-family buildings with twelve or less dwelling units and three floors or less above grade. Garages, sheds, and storage buildings accessory to said dwellings may be wired in nonmetallic cable. For the purpose of this section, area separation walls shall not define separate buildings.
- (b) The residential part(s) of group homes may be wired in non-metallic sheathed cable if the occupant load is not more than twenty persons.
- (c) Habitable spaces in accessory buildings do not need ground fault protection for outlets.
- (d) Electric panels shall not be installed within six inches of the corner in an unfinished basement in new construction.
- (d) Basements and garages.
 - 1. In all unfinished basements and attached/detached garages, non-metallic sheathed cable running horizontally shall be protected from a height of 7 feet and below by EMT, other approved conduit or drywall.
 - 2. Required Basement Lights. A lighting outlet with lamp-holder shall be provided in each room of a basement or cellar of a residential building. At least one such fixture shall be located in every 200 square feet of such floor space.
 - 3. Circuits. No connection shall be made between the basements or cellar wiring and the wiring in the floors above except as provided in this section.
- (e) Exceptions:
 - 1. Basement or cellar wiring in a single family dwelling may be fed by grounded nonmetallic sheathed cable from the floor above if the entrance panel is not located inside the basement or cellar.
 - 2. The lighting outlet with lamp-holder at the bottom of the basement or cellar stairs may be fed from either the first floor or basement.
 - 3. When rewiring, the circuits may be fed from the basement.
 - 4. It is permissible to wire the smoke detectors from either the basement circuit or a circuit from the floor(s) above.
 - 5. It is permissible to wire basement appliance circuits through the floor(s) above.

34.47 – WIRING METHODS – OTHER BUILDINGS

Conductors in and upon all buildings other than those covered by Section 34.45 of the Cedar Rapids Electrical Code shall be run in approved raceways. Exceptions:

- 1. Type AC and MC cable as approved in 34.44. Type FCC Flat Conductor Cable may be installed in compliance with Article 324 of the 2014 National Electrical Code. Type AC, TC, and MC cable that are tray rated may be installed in approved cable trays, in industrial applications, for feeders, motor wiring, and control of motor wiring.

34.48 – EMERGENCY LIGHTING

Emergency lighting and exit lighting shall be powered from a secondary independent source, notwithstanding the provisions of Section 230.82(5) and Subsection 700.12 of the 2017 National Electrical Code.

34.49 – CONVERSION OF BUILDINGS

Conversion of a Residence to Business or Commercial Building. Conversion of a residence into a business or commercial building or the construction of a business or commercial building in combination with a residence will place the residence in the same class of wiring as the business or commercial building unless separated by a two-hour fire wall.

34.50 – BONDING OF GAS PIPING

Gas piping systems shall be bonded in accordance to the manufacturer's installation requirements. The bonding jumper shall not be smaller than #6 AWG copper wire or equivalent.

34.51 – TEMPORARY WIRING

Temporary wiring shall be per Article 590 of the 2014 National Electrical Code. Exception: Triplex and quadplex Ariel cable may be used if protected to within two feet of the ceiling and further protected from physical damage. The bare messenger wire shall not be used as a current carrying conductor. The voltage shall be limited to 150 volts to ground and 250 volts between phases. All wire splices shall be installed in junction boxes.

34.52 – STATE AMENDMENTS

504.1(1) Delete section 210.12(D).

504.1(2) Delete section 406.4(D)(4).

SECTION 2. SEVERABILITY OF PROVISIONS. It is the intention of the Council that each section, paragraph, sentence, clause, and provision of this Ordinance is severable, and if any provision is held unconstitutional or invalid for any reason, such decision shall not affect the remainder of this Ordinance nor any part thereof other than that affected by such decision.

SECTION 3. EFFECTIVE DATE. This Ordinance shall be in full force and effect from and after its passage and publication as provided by law.

SECTION 4. REPLACEMENT PAGES. The changes as provided in this Ordinance shall be made a part of the replacement pages of the Municipal Code, City of Cedar Rapids, Iowa, and made part of said Code as provided by law.

SECTION 5. ORDINANCES IN CONFLICT ARE REPEALED. All ordinances or parts of ordinances in conflict with any provision of this Ordinance are hereby repealed.

Introduced this 23rd day of April, 2019.

Passed this 14th day of May, 2019.

Voting: Council member Olson (Scott) moved the adoption of the ordinance; seconded by Council member Poe. Adopted, Ayes, Council members Hoeger, Olson (Scott), Olson (Tyler), Overland, Poe, Todd, Vanorny, Weinacht and Mayor Hart.



Bradley G. Hart, Mayor

Attest:



Amy Stevenson, City Clerk