

# ORIGINAL

## CITY OF BELLEVUE, WASHINGTON

ORDINANCE NO. 5530

AN ORDINANCE repealing Chapter 23.30 of the Bellevue City Code; adopting a new Chapter 23.30 adopting and amending the state electrical code; adopting certain figures and drawings; and establishing an effective date.

THE CITY COUNCIL OF THE CITY OF BELLEVUE, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. Chapter 23.30 of the Bellevue City Code is hereby repealed.

Section 2. A new Chapter 23.30 of the Bellevue City Code is hereby adopted as follows:

### **Chapter 23.30 ELECTRICAL CODE**

Sections:

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23.30.230.2	National Electrical Code Article 230.2 Amended -- Number of Services.

- 23.30.230.28 National Electrical Code Article 230.28 Amended -- Service Mast as Support.
- 23.30.230.43 National Electrical Code Article 230.43 Amended -- Wiring Methods for 600 Volts, Nominal, or Less.
- 23.30.230.70 National Electrical Code Article 230.70 Amended -- General.
- 23.30.230.90 National Electrical Code Article 230.90 Amended -- Service Equipment - Overcurrent Protection.
- 23.30.230.95 National Electrical Code Article 230.95 Amended -- Ground - Fault Protection of Equipment.
- 23.30.230.202 National Electrical Code Article 230.202 Amended -- Service-Entrance Conductors.
- 23.30.250.32 National Electrical Code Article 250.32 Amended -- Two or More Buildings or Structures Supplied from a Common Service.
- 23.30.250.50 National Electrical Code Article 250.50 Amended -- Grounding Electrode System.
- 23.30.250.56 National Electrical Code Article 250.56 Amended -- Resistance of Rod, Pipe and Plate Electrodes.
- 23.30.250.104 National Electrical Code Article 250.104 Amended -- Bonding or Piping Systems and Exposed Structural Steel.
- 23.30.250.184 National Electrical Code Article 250.184 Amended -- Solidly Grounded Neutral Systems.
- 23.30.300.4 National Electrical Code Article 300.4 Amended -- Protection Against Damage.
- 23.30.300.11 National Electrical Code Article 300.11 Amended -- Securing and Supporting.
- 23.30.310.12 National Electrical Code Article 310.12 Amended -- Conductor Identification.
- 23.30.314.15 National Electrical Code Article 314.15 Amended -- Damp, Wet or Hazardous (Classified) Locations.
- 23.30.314.29 National Electrical Code Article 314.29 Amended -- Boxes and Conduit Bodies to be Accessible.
- 23.30.334.10 National Electrical Code Article 334.10 Amended -- Uses Permitted.
- 23.30.334.12 National Electrical Code Article 334.12 Amended -- Uses Not Permitted.
- 23.30.358.12 National Electrical Code Article 358.12 Amended -- Uses Not Permitted.
- 23.30.394.12 National Electrical Code Article 394.12 Amended -- Uses Not Permitted.
- 23.30.410.30 National Electrical Code Article 410.30 Amended -- Cord-Connected Lampholders and Luminaires.
- 23.30.422.10 National Electrical Code Article 422.10 Amended -- Branch-Circuit Rating.
- 23.30.450.27 National Electrical Code Article 450.27 Amended -- Oil-Insulated Transformers Installed Outdoors.
- 23.30.514.11 National Electrical Code Article 514.11 Amended -- Circuit Disconnects.

- 23.30.517.31 National Electrical Code Article 517.31 Amended -- Emergency Systems.
- 23.30.520.44 National Electrical Code Article 520.44 Table Deleted -- Ampacity of Listed Extra-Hard-Usage Cords and Cables.
- 23.30.527.4(G) National Electrical Code Article 527.4(G) Amended -- Splices.
- 23.30.553.4 National Electrical Code Article 553.4 Amended -- Location of Service Equipment.
- 23.30.553.6 National Electrical Code Article 553.6 Amended -- Feeder Conductors.
- 23.30.553.7 National Electrical Code Article 553.7 Amended -- Wiring Methods.
- 23.30.55.1 National Electrical Code Article 555.1 Amended -- Scope.
- 23.30.555.5 National Electrical Code Article 555.5 Amended -- Transformers.
- 23.30.555.7 National Electrical Code Article 555.7 Amended -- Location of Service Equipment.
- 23.30.555.9 National Electrical Code Article 555.9 Amended -- Electrical Connections.
- 23.30.555.10 National Electrical Code Article 555.10 Amended -- Electrical Equipment.
- 23.30.555.13 National Electrical Code Article 555.13 Amended -- Wiring Methods and Installation.
- 23.30.555.19 National Electrical Code Article 555.19 Amended -- Receptacles.
- 23.30.555.21 National Electrical Code Article 555.21 Amended -- Gasoline Dispensing Stations -- Hazardous (Classified) Locations.
- 23.30.600.3 National Electrical Code Article 600.3 Amended -- Listing.
- 23.30.600.10 National Electrical Code Article 600.10 Amended -- Portable or Mobile Signs.
- 23.30.600.21 National Electrical Code Article 600.21 Amended -- Ballasts, Transformers, and Electronic Power Supplies.
- 23.30.600.30 National Electrical Code Article 600.30 Amended -- Applicability.
- 23.30.680.4 National Electrical Code Article 680.4 Amended -- Approval of Equipment.
- 23.30.680.12 National Electrical Code Article 680.12 Amended -- Maintenance Disconnecting Means.
- 23.30.680.13 National Electrical Code Article 680.13 New -- Field Installed Equipment.
- 23.30.680.4 National Electrical Code Article 680.4 Amended -- General.
- 23.30.680.70 National Electrical Code Article 680.70 Amended -- General.
- 23.30.700.9 National Electrical Code Article 700.9 Amended -- Wiring, Emergency Systems.
- 23.30.760.10 National Electrical Code Article 760.10 Amended -- Fire Alarm Circuit Identification.
- 23.30.010 Short title.

This chapter shall be known as the electrical code of the City of Bellevue, which is hereinafter referred to as the "City of Bellevue electrical code", "electrical code" or as "this chapter".

**23.30.015 National Electrical Code.**

The 2002 edition of the National Electrical Code (NFPA 70), including Annex B and C, but excluding Article 80; the 1999 edition of Centrifugal Fire Pumps (NFPA 20); Health Care Facilities (NFPA 99); the 2002 edition of Emergency and Standby Power Systems (NFPA 110); and the National Electrical Safety Code (NESC C2-2002), but excluding Appendixes A and B are adopted and shall be applicable within the city, as amended, added to and excepted in this chapter.

**23.30.020 Conflicts.**

A. The requirements of this chapter shall govern where there is any conflict between this chapter and the National Electrical Code (NFPA 70), Centrifugal Fire Pumps (NFPA 20), Health Care Facilities (NFPA 99), and Emergency and Standby Power Systems (NFPA 110).

B. The National Electrical Code shall govern where there is any conflict between Centrifugal Fire Pumps (NFPA 20), Health Care Facilities (NFPA 99), Emergency and Standby Power Systems (NFPA 110), or the National Electrical Safety Code (NESC C2-2002) and the National Electrical Code (NFPA 70).

**23.30.025 Purpose.**

A. General. The purpose of the City of Bellevue electrical code, as amended and adopted in this chapter, is the practical safeguarding of persons, property and buildings from hazards arising from the use of electricity. The electrical code contains provisions considered necessary for safety. Compliance therewith and proper maintenance will result in an installation essentially free of hazard, but not necessarily efficient, convenient or adequate for good service or future expansion of electrical service. It is not intended to create a special relationship with any individual, or individuals, or to identify and protect any particular class of persons.

B. Intent. The City of Bellevue electrical code is not intended as a design specification nor an instruction manual for untrained persons.

**23.30.030 Scope.**

A. The electrical code covers the installation of electric conductors, electric equipment and additions, alterations, modifications, or repairs to existing electrical installations for the following:

1. Electric conductors, electric equipment, and electrical raceways installed within or on public and private buildings, property or other structures.

2. Signaling and communications conductors and equipment, telecommunications conductors and equipment, fiber optic cables, and raceways installed within or on public and private buildings, property or other structures.

3. Yards, lots, parking lots, and industrial substations.
4. Temporary electrical installations for use during the construction of buildings.
5. Temporary electrical installations for carnivals, conventions, festivals, fairs, traveling shows, the holding of religious services, temporary lighting of streets, or other approved uses.
6. Installations of conductors and equipment that connect to a supply of electricity.
7. All other outside electrical conductors on the premises.
8. Optional standby systems derived from portable generators.

B. Exception. All wires and equipment that fall within section 90.2(b)(5) of the National Electrical Code, 1981 edition, are exempt from the requirements of this chapter.

### **23.30.100 National Electrical Code Article 100 amended — Definitions.**

Article 100 of the National Electrical Code is amended and supplemented by the addition of the following definitions to read as follows:

**"Certified electrical product"** means an electrical product to which a laboratory, accredited by the State of Washington, has the laboratory's certification mark attached.

**"Certification mark"** is a specified laboratory label, symbol, or other identifying mark that indicates the manufacturer produced the product in compliance with appropriate standards or that the product has been tested for specific end uses.

**"City"** means the City of Bellevue.

**"Chapter"** unless elsewhere specified means this chapter 23.30, unless expressly used for separate reference.

**"Electrical equipment"** includes electrical conductors, conduit, raceway, apparatus, materials, components, and other electrical equipment not exempted by RCW 19.28.006(8). Any conduit/raceway of a type listed for electrical use is considered to be electrical equipment even if no wiring is installed in the conduit/raceway at the time of the conduit/raceway installation.

**"Electrical products certification laboratory"** is a laboratory or firm accredited by the state of Washington to perform certification of electrical products.

**"Electrical products evaluation laboratory"** is a laboratory or firm accredited by the state of Washington to perform on-site field evaluation of electrical products for safety.

**"Field evaluated"** means an electrical product to which a field evaluation mark is attached. Field evaluation must include job site inspection unless waived by the department, and may include component sampling and/or laboratory testing.

**"Field evaluation mark"** is a specified laboratory label, symbol, or other identifying mark indicating the manufacturer produced the product in essential compliance with appropriate standards or that the product has been evaluated for specific end uses.

**"Fished Wiring"** is when cable or conduit is installed within the finished surfaces of an existing building or building structure (e.g., wall, floor or ceiling cavity).

**"Industrial control panel"** means a factory or user wired assembly of industrial control equipment such as motor controllers, switches, relays, power supplies, computers, cathode ray tubes, transducers, and auxiliary devices used in the manufacturing process to control industrial utilization equipment. The panel may include disconnecting means and motor branch circuit protective devices. Industrial control panels include only those used in a manufacturing process in a food processing or industrial plant.

**"Installation"** includes the act of installing, connecting, repairing, modifying, or otherwise performing work on an electrical system, component, equipment, or wire except as exempted by WAC 296-46B-925.

**"Identification plate"** is a phenolic or metallic plate or other similar material engraved in block letters at least 1/4" (6mm) high unless specifically required to be larger by this chapter, suitable for the environment and application. The letters and the background must be in contrasting colors. Screws, rivets, or methods specifically described in this chapter must be used to affix an identification plate to the equipment or enclosure.

**"Labeled"** means an electrical product that bears a certification mark issued by a laboratory accredited by the state of Washington.

**"Laboratory"** may be either an electrical product(s) certification laboratory or an electrical product(s) evaluation laboratory.

**"Like-in-kind"** means having similar characteristics such as voltage requirement, current draw, circuit overcurrent and short circuit characteristics, and function within the system. Like-in-kind also includes any equipment component authorized by the manufacturer as a suitable component replacement part.

**"Listed"** means equipment has been listed and identified by a laboratory approved by the State of Washington for the appropriate equipment standard per this chapter.

**"Low voltage"** means:

- (a) NEC, Class 1 power limited circuits at 30 volts maximum.
- (b) NEC, Class 2 circuits powered by a Class 2 power supply as defined in NEC 725.41(A).
- (c) NEC, Class 3 circuits powered by a Class 3 power supply as defined in NEC 725.41(A).
- (d) Circuits of Telecommunications systems as defined in chapter 19.28 RCW.

**"NRTL"** means Nationally Recognized Testing Laboratory accredited by the federal Occupational Safety and Health Administration (OSHA) after meeting the requirements of 29 CFR 1910.7

**"Point of contact"** for utility work, means the point at which a customer's electrical system connects to the serving utility system.

**"Stand-alone amplified sound or public address system"** is a system that has distinct wiring and equipment for audio signal generation, recording, processing, amplification, and reproduction. This definition does not apply to telecommunications installations.

**"Telecommunications installations"** is as defined in RCW 19.28.400 for both regulated carriers and unregulated local service providers.

**"Under the control of a utility"** for the purposes of RCW 19.28.091 is when electrical equipment is owned by the utility or when electrical equipment is not owned by a utility and:

- (a) Is located in a vault, room, closet, or similar enclosure that is secured by a lock or seal so that access is restricted to the utility's personnel; or
- (b) The utility is obligated by contract to maintain the equipment and the contract provides that access to the equipment is restricted to the utility's personnel or other qualified personnel.

**"Utility system"** means electrical equipment owned by or under the control of a serving utility that is used for the transmission or distribution of electricity from the source of supply to the point of contact.

**"Utilization voltage"** means the voltage level employed by the utility's customer for connection to lighting fixtures, motors, heaters, or other electrically operated equipment other than power transformers.

**"WAC"** means Washington Administrative Code.

### **23.30.110.2 National Electrical Code Article 110.2 amended — Approval.**

Article 110.2 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Article 110.2:

All materials, devices, appliances, and equipment, not exempted in state law chapter 19.28. RCW, must conform to applicable standards recognized by the Building Official, be listed, or field evaluated by an accredited electrical products testing laboratory. Equipment must not be energized until such standards are met, unless specific permission has been granted by the Building Official.

### **23.30.110.3 National Electrical Code Article 110.3 amended — Examination, Identification, Installation, and Use of Equipment.**

Article 110.3 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 110.3(C), to read as follows:

(C) Industrial control panels and utilization equipment. Control panels and utilization equipment installed in industrial plants will be determined to meet the minimum electrical safety standards for installations by one of the following methods:

(a) Listing and Labeling by an accredited electrical products testing laboratory.

(b) Field evaluation by and accredited electrical products testing laboratory;

(i) If the equipment usage is changed to other than industrial utilization equipment or electrical modifications are made to the equipment, the equipment must be successfully listed or field evaluated by a laboratory approved by the department.

(ii) The equipment must be permanently installed at the owner's facility and inspected per the requirements of this Chapter

(c) Normal inspection as part of the electrical inspection process included with the general wiring inspection of a building, structure, or other electrical installation for compliance with codes and rules adopted under this chapter. Normal inspection will only be made for equipment using listed components and wired to the requirements of the NEC.

Use of industrial control panel(s) or equipment before its evaluation or final inspection, must be authorized by the Building Official or designated representative prior to its being energized.

**23.30.110.12 National Electrical Code Article 110.12 amended — Mechanical Execution of Work.**

Article 110.12 of the National Electrical Code is amended and supplemented by the addition of new subsections to be known as 110.12(D) and 110.12(E), to read as follows:

(D) **Abandoned Conductors and Cables.** Electrical conductors or cables shall not be abandoned in place. Unused electrical conductors, or cables, regardless of voltage, and communication cables not in use shall be removed from the building or structure back to the originating panel board unless otherwise authorized by the Building Official or designated representative.

(E) **Old, Used or Damaged Material and Equipment.** Old, used or damaged electrical equipment, conductors or materials shall not be reinstalled or used in any new work without prior approval of the Building Official or designated representative.

**23.30.110.16 National Electrical Code Article 110.16 amended — Flash Protection.**

Article 110.16 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the first paragraph, to read as follows:

The flash protection marking must be an identification plate or label meeting ANSI Standards Z535.4-1998 or be of a type approved by the Building Official or designated representative. The plate or label may be installed at the factory or in the field. The plate or label may be mounted using adhesive.

**23.30.110.22 National Electrical Code Article 110.22 amended — Identification of Disconnecting Means.**

A. Article 110.22 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the first paragraph, to read as follows:

In other than dwelling units, an identification plate or label is required unless the disconnect is a circuit breaker or fused switch installed within a panelboard and its purpose is indicated by the panelboard schedule. The identification plate or label must include the identification designation of the circuit source panelboard that supplies the disconnect.

B. Article 110.22 of the National Electrical Code further is amended and supplemented by the addition of the following text to the end of the second paragraph, to read as follows:

The marking must be in the form of an identification plate or label that is substantially yellow in color. The words "**CAUTION - SERIES COMBINATION RATED SYSTEM**" must be on the plate or label in letters at least 13 mm (1/2") high.

**23.30.210.8 National Electrical Code 210.8 amended — Ground Fault Circuit-Interrupter Protection for Personnel.**

A. Article 210.8(B) of the National Electrical Code is amended and supplemented by the addition of new subsections (4) and (5), to read as follows:

- (4) Outdoors.
- (5) Crawl spaces - at or below grade.

B. Article 210.8 of the National Electrical Code is further amended and supplemented by the addition of new subsection to be known as 210.8(C) to read as follows:

(C) All Occupancies.

(1) All 125-volt, single phase, 15 and 20 ampere receptacles installed within 1.8 m (6 ft) of any sink, fixed water source, or a normally wet or damp location shall be provided with ground fault circuit-interrupter protection for personnel.

EXCEPTION: The laundry receptacle when installed within the dedicated wall space occupied by the clothes washer.

(2) All luminaires (lighting fixtures) permitted to be installed within the zone defined in Article 410.4(D) shall be ground-fault circuit-interrupter protected and shall be fully enclosed.

**23.30.210.11 National Electrical Code 210.11 amended — Branch Circuits Required.**

Article 210.11 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 210.11(C)(4), to read as follows:

(4) **Unfinished spaces.** In addition to the number of branch circuits required by other parts of this section, at least one additional branch circuit shall be provided for unfinished spaces adaptable to future dwelling unit living areas that are not readily accessible to the service or branch circuit panelboard. The circuits must

terminate in a suitable box(es). The box must contain an identification of the intended purpose of the circuit(s). The branch circuit panelboard must have adequate space and capacity for the intended load(s).

**23.30.215.10 National Electrical Code 215.10 amended — Ground-Fault Protection of Equipment.**

Article 215.10 of the National Electrical Code is amended and supplemented by the addition of a new paragraph following the first paragraph of Article 215.10 to read as follows:

Equipment ground fault protection systems shall be performance tested prior to being placed into service to verify proper installation and operation of the system as determined by the manufacturer's published instructions. This test or a subsequent test shall include all system feeders. A firm having qualified personnel and proper equipment must perform the tests required. A copy of the manufacturer's performance testing instructions and a written performance acceptance test record signed by the person performing the test must be provided for the inspector's records at the time of inspection. The performance acceptance test record shall include test details including, but not limited to all trip settings and measurements taken during the test. The equipment being tested shall be labeled identifying the date of the test, the firm performing the test, and all settings for the equipment tested.

**23.30.220.35 National Electrical Code 220.35 amended — Optional Calculations for Determining Existing Loads.**

Article 220.35 of National Electrical Code is amended and supplemented by the addition of the following text to the end of Subsection (1) Exception to read as follows:

In addition to the 30-day demand data, the following information must be provided:

- (a) The date of the measurements
- (b) A statement attesting to the validity of the demand data, signed by a professional electrical engineer or the electrical administrator of the electrical contractor performing the measurements.
- (c) A diagram of the electrical system identifying the point(s) of the measurements.

**23.30.225.32 National Electrical Code 225.32 amended — Location.**

A. Article 225.32 of the National Electrical Code is amended and supplemented by the addition of a new paragraph following the first paragraph of Article 225.32 to read as follows:

Feeder disconnects, panelboards, subpanels, and similar electrical equipment must be installed so that they are readily accessible and may not be installed in bathrooms, clothes closets, or shower rooms. All indoor feeder disconnects, panelboards and subpanels and similar electrical equipment must have adequate working space and be adequately illuminated.

B. Article 225.32 of the National Electrical Code is further amended and supplemented by the addition of new subsections to be known as Subsection 225.32(1) and 225.32(2), to read as follows:

(1) **Outside locations:** Where the feeder disconnecting means is installed outside of a building or structure it must be on the building or structure supplied. The building disconnecting means may supply only 1 building or structure unless the secondary building(s) or structure(s) has a separate building disconnecting means meeting the requirements of this subsection. The disconnecting means must have an identification plate with at least 1/2" high letters identifying:

- (a) The building or structure served; and
- (b) Its function as the building or structure main disconnect(s).

(2) **Inside location:** Where the feeder disconnecting means is installed inside the building or structure, it must be located so that the feeder raceway or cable extends no more than 15' inside the building or structure.

23.30.230.2 National Electrical Code Article 230.2 amended — Number of Services.

A. Article 230.2 of the National Electrical Code is amended and supplemented by the addition of a new paragraph following the first paragraph to read as follows:

Each portion of a building or structure separated by one or more Fire Walls that comply with Section 705 of the International Building Code may be considered a separate building. Fire Walls shall not be less than 2 hr fire-resistance rated. The extent and location of such Fire Walls shall provide a complete separation.

B. Article 230.2 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 230.2(A)(6), to read as follows:

- (6) Transient voltage surge suppressor.

**23.30.230.28 National Electrical Code Article 230.28 amended — Service Mast as Support.**

Article 230.28 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the first paragraph to read as follows:

Where a raceway-type service mast is used as support for service-drop conductors the following conditions must be met:

- (1) Raceway type service mast shall be a minimum of 2 inch rigid metal conduit.
- (2) An approved roof flashing shall be installed on each mast where it passes through a roof. Plastic, non-hardening mastic shall be placed between lead-type flashings and the conduit. Approved neoprene type roof flashings may be permitted.
- (3) Masts shall be braced, secured, and supported in such a manner that no pressure from the attached conductors will be exerted on a roof flashing, meter base, or other enclosures.
- (4) Utilization of couplings for a mast shall not be permitted above the point the mast is braced, secured, or supported.
- (5) Except as otherwise required by the serving utility, service mast support guys shall be installed if the service drop attaches to the mast more than 600 mm (24 in.) above the roof line or if the service drop is greater than 100' in length from the pole or support. Masts for support of other than service drops shall comply with this requirement as well.
- (6) Intermediate support masts shall be installed in an approved manner with methods identical or equal to those required for service masts
- (7) For altered services, where it is impractical to install U bolt mast supports due to interior walls remaining closed, it may be permissible to use other alternate mast support methods such as heavy gauge, galvanized, electrical channel material that is secured to 2 or more wooden studs with 5/16" diameter or larger galvanized lag bolts.
- (8) Conductors shall extend a minimum of 450 mm (18 in.) from all mastheads to permit connection to the connecting overhead wiring.

**23.30.230.43 National Electrical Code 230.43 amended — Wiring Methods for 600 Volts, Nominal, or Less.**

Article 230.43 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Article 230.43, to read as follows:

Wiring methods for service conductors not exceeding 600 volts, nominal, within a building or structure is limited to the following methods: Rigid metal conduit; Intermediate metal conduit; Wireways; Busways; Auxiliary gutters; Rigid nonmetallic conduit; Cablebus; or Mineral-insulated, metal-sheathed cable (type MI).

EXCEPTION: With the approval of the Building Official existing electrical metallic tubing used for service entrance conductors may be permitted to remain, provided it meets all of the following conditions:

- (a) It was installed prior to October 1984
- (b) It is properly grounded
- (c) The conduit is installed in a non-accessible location
- (d) It is the proper size for the installed conductors.

23.30.230.70 National Electrical Code 230.70 amended —General

A. Article 230.70 of the National Electrical Code is amended and supplemented by the addition of new subsections to be known as 230.70(A)(1)(a) and 230.70(A)(1)(b), to read as follows:

(a) Outside location: The service disconnect means shall be installed on the building or structure it serves. The service disconnection means shall be labeled with a plate with 1/2 inch letters providing the following information:

- (i) the building or structure served; and
- (ii) Its function as the building or structure main service disconnect(s).

(b) Inside location: Where the service disconnect is installed inside the building or structure, it shall be located so that the service raceway extends no more than 15 feet inside the building or structure served. Service disconnecting means, panel boards, subpanels and similar electrical equipment shall be adequately illuminated.

B. Subsection (2) of Article 230.70(A) of the National Electrical Code is amended and supplemented to read as follows:

(2) Bathrooms. Service disconnection means, panel boards, subpanels and similar electrical equipment shall not be installed in bathrooms, clothes closets, or shower rooms.

**23.30.230.90 National Electrical Code 230.90 amended — Service Equipment - Overcurrent Protection.**

Article 230.90 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Article 230.90(A) Exception No. 3 to read as follows:

Where the service conductors have a lesser ampacity than the overcurrent protection or the equipment rating that they terminate in or on, an identification plate showing the ampacity of the conductors must be installed on the service equipment.

**23.30.230.95 National Electrical Code 230.95 amended — Ground-Fault Protection of Equipment.**

Article 230.95 of the National Electrical Code is amended and supplemented by the addition of the following paragraph to follow the first paragraph to read as follows:

Equipment ground fault protection systems shall be performance tested prior to being placed into service to verify proper installation and operation of the system as determined by the manufacturer's published instructions. This test or a subsequent test shall include all system feeders. A firm having qualified personnel and proper equipment must perform the tests required. A copy of the manufacturer's performance testing instructions and a written performance acceptance test record signed by the person performing the test must be provided for the inspector's records at the time of inspection. The performance acceptance test record shall include test details including, but not limited to all trip settings and measurements taken during the test. The equipment being tested shall be labeled identifying the date of the test, the firm performing the test, and all settings for the equipment tested.

**23.30.230.202 National Electrical Code 230.202 amended — Service-Entrance Conductors.**

Article 230.202 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Article 230.202 Subsection (B) to read as follows:

Wiring methods for service conductors exceeding 600 volts, nominal, within a building or structure is limited to the following methods: Rigid metal conduit; Intermediate metal conduit; Busways; Schedule 80 rigid nonmetallic conduit; Cablebus; metal-clad cable that is exposed for its entire length.

**23.30.250.32 National Electrical Code 250.32 amended — Two or More Buildings or Structures Supplied from a Common Service.**

Article 250.32 of the National Electrical Code is amended by the deletion of subsection 250.32(B)(2) in its entirety.

**23.30.250.50 National Electrical Code 250.50 amended — Grounding Electrode System.**

Article 250.50 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 250.50(1), to read as follows:

(1) At each new building or structure served a concrete-encased grounding electrode consisting of at least 6.0 m (20 ft) of bare copper conductor not smaller than #4 AWG meeting the requirements of Article 250-52(A)(3) shall be required as part of the grounding electrode system. Other electrodes of bare or zinc coated steel reinforcing bars or rods meeting the requirements of 250.52(A)(3) may be used if approved by the Building official prior to installation. All electrodes shall be inspected prior to covering, concealing or the placing of concrete.

EXCEPTION: Job site construction trailers, mobile homes and manufactured homes, when not installed on a permanent foundation.

**23.30.250.56 National Electrical Code 250.56 amended — Resistance of Rod, Pipe and Plate Electrodes.**

Article 250.56 of the National Electrical Code is amended and supplemented by amending the last sentence of Article 250.56 and the addition of a new Exception, to read as follows:

Where multiple rod, pipe, or plate electrodes are installed to meet requirements of this section, they shall not be less than 4.9 m (16 ft) apart.

EXCEPTION: Temporary power services of 100 amperes or less.

**23.30.250.104 National Electrical Code 250.104 amended — Bonding of Piping Systems and Exposed Structural Steel.**

Article 250.104 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the first paragraph of Article 250.104(A), to read as follows:

Hot and cold metal water piping systems are not required to be bonded together if, at the time of inspection, the inspector can determine the metal water piping systems are mechanically and electrically joined by 1 or more metallic mixing valves. Metallic stubs or valves used in nonmetallic plumbing systems are not required to be bonded to the electrical system unless required by the equipment manufacturer's instructions.

**23.30.250.184 National Electrical Code 250.184 amended — Solidly Grounded Neutral Systems.**

A. Article 250.184(A) of the National Electrical Code is amended and supplemented by the addition of new subsections to be known as subsection 250.184(A)(1) and subsection 250.184(A)(2), to read as follows:

(1) Existing installations.

a. The use of a concentric shield will be allowed for use as a neutral conductor for extension, replacement, or repair, if all of the following are complied with:

(i) The existing system uses the concentric shield as a neutral conductor;

(ii) Each individual conductor contains a separate concentric shield sized to no less than 33½% of the ampacity of the phase conductor for 3-phase systems or 100% of the ampacity of the phase conductor for single-phase systems;

(iii) The new or replacement cable's concentric shield is enclosed inside an outer insulating jacket; and

(iv) Existing cable (i.e. existing cable installed directly in the circuit between the work and the circuit's overcurrent device) successfully passes the following tests:

(1) A cable maintenance high potential dielectric test. The test must be performed in accordance with the cable manufacturer's instruction or the 2001 NETA maintenance test specifications; and

(2) A resistance test of the cable shield. Resistance must be based on the type, size, and length of the conductor used as the cable shield using the conductor properties described in NEC Table 8 Conductor Properties.

An electrical engineer must provide a specific certification to the Building Official or designated representative in writing that the test results of the maintenance high potential dielectric test and the resistance test have been reviewed by the electrical engineer and that the cable shield is appropriate for the installation. The electrical engineer must stamp the certification document with the engineer's stamp and signature. The document may be in the form of a letter or electrical plans.

Testing results are valid for a period of 7 years from the date of testing. Cable will not be required to be tested at a shorter interval.

b. A concentric shield used as a neutral conductor in a multi-grounded system fulfills the requirements of an equipment grounding conductor.

(2) New installations.

(a) New installations shall not include extensions of existing circuits.

(b) The use of the concentric shield will not be allowed for use as a neutral conductor for new installations. A listed separate neutral conductor meeting the requirements of NEC 250.184(A) must be installed.

B. Article 250.184 of the National Electrical Code is further amended and supplemented by the deletion of the text of Subsection 250.184(B) and replacing it with the following text to read as follows:

(B) The neutral of a solidly grounded neutral system may be grounded at more than one point.

(1) Multiple grounding is permitted at the following locations:

(a) Services;

(b) Underground circuits where the neutral is exposed; and Overhead circuits installed outdoors.

(2) Multiple grounding is not allowed:

(a) For new systems where singlepoint and multigrounded circuits form a single system (e.g. where a singlepoint circuit is derived from a multigrounded circuit); or

(b) In new single phase (i.e. single phase to ground) installations.

C. Article 250.184 of the National Electrical Code is further amended and supplemented by the deletion of the text of Subsection 250.184(D) and replacing it with the following text to read as follows:

(D) Where a multigrounded neutral system is used, the following will apply for new balanced phase to phase circuits and extensions, additions, replacements; and repairs to all existing systems of 1 kV and over:

(1) For existing systems:

(a) The cable's concentric shield must be used as the neutral and all the requirements for neutral conductors described in WAC 296-46B-250-6(a) must be met; or

(b) The cable's concentric shield must be effectively grounded to a separate bare copper neutral conductor at all locations where the shield is exposed to personnel contact.

(2) For new systems a separate copper neutral must be installed and the cable's concentric shield is effectively grounded to the separate neutral at all locations where the shield is exposed to personnel contact.

(3) In addition to (1) and (2) of this subsection, the following is required:

(a) A minimum of 2 made electrodes, separated by at least 6', must be installed at each existing and new transformer and switching/overcurrent location and connected to the neutral conductor at that location;

(b) At least 1 grounding electrode must be installed and connected to the multigrounded neutral every 400m (1,300 ft.). The maximum distance between adjacent electrodes must not be more than 400m (1,300 ft.);

(c) In a multigrounded shielded cable system, the shielding must be grounded at each cable joint that is exposed to personnel contact;

(d) All exposed noncurrent carrying metal parts (e.g. mounting brackets, manhole covers, equipment enclosures, etc.) must be effectively grounded to the neutral conductor; and

(e) An electrical engineer must provide a specific certification to the electrical plan review supervisor in writing that the design of the multiple grounding installation has been reviewed by the electrical engineer and the design is in accordance with the requirements of chapter 19.28 RCW, this chapter, and normal standards of care. The electrical engineer must stamp the certification document with the engineer's stamp and signature. The document may be in the form of a letter or electrical plans.

#### **23.30.300.4 National Electrical Code 300.4 amended — Protection Against Damage.**

Article 300.4 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Subsection (B)(1), to read as follows:

The bushings or grommets used to protect the cable must be of a two piece interlocking type.

**23.30.300.11 National Electrical Code 300.11 amended — Securing and Supporting.**

Article 300.11 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Article 300.11(A), to read as follows:

Where permitted by the Building Official raceways, cables, or boxes may be supported by wires independent of the ceiling support system under the following conditions:

(i) The support wires must be independent of the ceiling support systems and be capable of securing and supporting the raceways, cables or boxes without reducing the integrity of the suspended ceiling system;

(ii) The independent support wires shall be a minimum #12 AWG and adequate to carry the weight and are securely fastened to the building structure and to the ceiling grid;

(iii) Raceways and/or cables are not larger than ¾" trade size;

(iv) No more than 2 raceways or cables may be supported by an independent support wires and are secured to the support wires by fittings designed and manufactured for the purpose;

(v) Where support wires are installed exclusively for telecommunications cables, Class 2, or Class 3 cables the maximum number of cables allowed shall not be more than 1½ inch diameter when bundled together.

**23.30.310.12 National Electrical Code Article 310.12 amended — Conductor Identification.**

Article 310.12 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 310.12(D), to read as follows:

(D) Each cable operating at over 600 volts and installed on customer owned systems must be legibly marked in a permanent manner at each termination point and at each point the cable is accessible. The required marking must use phase designation, operating voltage, and circuit number if applicable.

**23.30.314.15 National Electrical Code Article 314.15 amended — Damp, Wet, or Hazardous (Classified) Locations.**

Article 314.15 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 314.15(C), to read as follows:

(C) Single conductors, cables, taps, or splices installed in open bottom junction boxes or handholes shall be suitable for direct burial. Open bottom junction boxes manufactured specifically for electrical use shall be permitted to be used as an electrical junction box to enclose single conductors, cables, taps, or splices rated for wet locations, under the following conditions:

(1) In vehicular traffic areas the box shall be rated for not less than HS-20 loading required under the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) publication entitled "Standard Specifications for Highway Bridges". Covers shall be provided with a bolted, hinged, or slide-on lid embossed with the identification "ELECTRIC" or "ELECTRICAL."

(2) In incidental vehicular traffic areas (e.g., parks, sports fields, sidewalks, grass lawns, etc.) the box shall be rated for not less than HS-10 loading. Covers shall be provided with a bolted, hinged, or slide-on lid embossed with the identification "ELECTRIC" or "ELECTRICAL."

(3) In non-vehicular traffic areas (e.g. flower beds, patio decks, etc.) the box shall be designed and approved for the purpose. Covers shall be provided with a lid embossed with the identification "ELECTRIC" or "ELECTRICAL."

(4) All conductors must be installed in approved electrical raceways that enter vertically from the open bottom of the enclosure. These raceways must be fitted with a bushing, terminal fitting, or seal incorporating the physical protection characteristics of a bushing, and project not less than 5 cm (2") above the bottom surface material. The bottom surface material must be pea gravel or sand a minimum of 5 cm (2") thick or more if required by the box manufacturer.

**23.30.314.29 National Electrical Code Article 314.29 amended — Boxes and Conduit Bodies to be Accessible.**

Article 314.29 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the first paragraph of Article 314.29, to read as follows:

Boxes and conduit bodies shall not be cover with insulation material and shall remain visible and outside of or above the insulation material.

**23.30.334.10 National Electrical Code Article 334.10 amended — Uses Permitted.**

Article 334.10 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Subsection (2) of Article 334.10, to read as follows:

Where the building or structure exceeds three floors above grade, type NM, NMC and NMS cables shall be concealed within walls, floors, and ceilings that provide a

thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

**23.30.334.12 National Electrical Code Article 334.12 amended — Uses Not Permitted.**

Article 334.12 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 334.12(A) (11), to read as follows:

(11) In Type I or Type II non-combustible construction as defined by the Building Official.

**3.30.358.12 National Electrical Code Article 358.12 amended — Uses Not Permitted.**

Article 358.12 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 358.12(7), to read as follows:

(7) Installed in direct contact with the earth or in concrete on or below grade.

**23.30.394.12 National Electrical Code Article 394.12 amended — Uses Not Permitted.**

Article 394.12 of the National Electrical Code is amended and supplemented by the addition of a new Exception to Article 394.12(5), to read as follows:

Exception: In hollow spaces containing existing knob-and-tube wiring may be allowed to remain provided that all of the following conditions are met:

(i) The wiring shall be surveyed by an appropriately licensed electrical contractor who must certify in writing to the Building Official that the wiring is in good condition with no evidence of improper overcurrent protection, conductor insulation failure or deterioration, and with no improper connections or splices. The electrical inspector must inspect all repairs, alterations, or extensions to the electrical system;

(ii) The insulation shall meet Class I specifications as identified in the Uniform Building Code, with a flame spread factor of 25 or less as tested using ASTM E84-81a. Foam insulation may not be used with knob-and-tube wiring;

(iii) All knob-and-tube circuits shall have overcurrent protection in compliance with NEC Table 310.16, 60 degree centigrade, Column C. Overcurrent protection shall be circuit breakers or Type S fuses.

**23.30.410.30 National Electrical Code Article 410.30 amended — Cord-Connected Lampholders and Luminaires.**

Article 410.30 of the National Electrical Code is amended and supplemented by the addition of a new subsection to be known as subsection 410.30(C)(1)(3), to read as follows:

- (3) The flexible cord connection must comply with the following:
  - (1) Connection to a suspended pendant box must utilize an integral threaded hub;
  - (2) The length of the cord for a suspended pendant drop from a permanently installed junction box to a suitable tension take-up device must not exceed 1.8m (6 ft);
  - (3) The flexible cord must be supported at each end with an approved cord grip or strain relief connector fitting/device that will eliminate all stress on the conductor connections;
  - (4) The flexible cord must be a minimum #14 AWG copper;
  - (5) The flexible cord ampacity must be determined in NEC Table 400.5(A) column A;
  - (6) The flexible cord must be hard or extra hard usage; and
  - (7) A vertical flexible cord supplying electric discharge luminaires must be secured to the luminaire support as per NEC 334.30(A).

**23.30.422.10 National Electrical Code Article 422.10 amended — Branch-Circuit Rating.**

Article 422.10 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of Article 422.10(A), to read as follows:

Water heaters with a rated circuit load in excess of 3,500 watts at 208 or 240 volts shall be provided with branch circuit conductors not smaller than #10 AWG copper or equal. Overcurrent protection shall comply with NEC 422.11(E).

**23.30.450.27 National Electrical Code Article 450.27 amended — Oil-Insulated Transformers Installed Outdoors.**

Article 450.27 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the last paragraph of Article 450.27 to read as follows:

Oil-Insulated transformers located adjacent to building(s) or structures shall comply with the following:

(1) Transformers shall not be located closer than 2.5 m (8 ft) to any part of a building or structure constructed of combustible material including any eaves, overhangs or decks;

(2) Transformers shall not be located closer than 900 mm (2 ft) to any part of a building or structure constructed of non-combustible material including any eaves, overhangs or decks and must be outside a line extended vertically from the ends of the eaves, overhangs or rooflines of the building or structure;

(3) Transformers shall not be located closer than 2.5 m (8 ft) to any part of doors, windows, stairways, ventilation openings, other types of openings of all buildings or structures;

(4) Transformers shall be located such that any oil leaking from the transformer will flow away from the building or structure and will not pool; and

(5) Transformers located in areas subject to vehicular traffic shall be provided with adequate guarding.

(6) Enclosures for total underground oil filled transformers shall not be located closer than 2.5 m (8 ft) to any part of a doorway, window, stairway or fire escape. Adequate space must be maintained above the enclosure so that a boom may be used to lift the transformer from the enclosure.

**23.30.514.11 National Electrical Code Article 514.11 amended — Circuit Disconnects.**

Article 514.11 of the National Electrical Code is amended and supplemented by the addition of the following text to the last paragraph of Article 514.11(A), to read as follows:

The disconnecting means shall disconnect all conductors of the circuit supplying all station dispensers and or pumps (including the grounded conductor) simultaneously from the source(s) of supply.

For multi-circuit installations, an electrically held normally open contactor operated by a push-button or other suitable device may serve as the disconnecting means. The push button or disconnecting device shall not function as the resetting mechanism for the electrically held contactor. The resetting means shall meet the following:

- (1) Located at least 4.5 m (15 ft) or out of sight of the pushbutton; and
- (2) Protected by a suitable cover or guard; and

(3) Identified with an approved identification plate that is substantial black in color.

The disconnecting means shall be labeled with an identification plate, with letters at least 1" high, as the emergency disconnecting means.

The disconnecting means or operator must be:

- (1) Substantially red in color; and
- (2) For attended facilities – Must be readily accessible and must be located outdoors and within sight of the pump or dispensing equipment it controls; or
- (3) For unattended facilities – must be readily accessible and must be located within sight, but at least 20' from the pump or dispensing equipment it controls.

### **23.30.517.31 National Electrical Code Article 517.31 amended — Emergency Systems**

Article 517.31 of the National Electrical Code is amended and supplemented by the addition of the following new text to follow the last paragraph of Article 517.31, to read as follows:

In health care facilities, the following methods must be used to determine adequate capacity and ratings of equipment providing electrical power for the essential electrical systems.

- (1) Systems in new facilities:
  - (a) Emergency system: The emergency branch must consist of 2 branches known as:
    - (i) Life safety system: The feeder conductors and equipment used to supply electrical power to the life safety branch must be determined by summation of the connected loads as determined by article 220 NEC and may not be subjected to any reduction due to the diversity of the loads. Feeder and equipment will be subject to a 125% multiplier for continuous loads in accordance with article 220 NEC.
    - (ii) Critical branch system: The feeder conductors and equipment must be calculated in accordance with article 220 NEC, including a level of diversity as determined by such article.
  - (b) Equipment branch: The feeder conductors and equipment used to supply electrical power to the equipment branch of the essential electrical system

must be calculated in accordance with article 220 NEC, including a level of diversity as determined by such article.

(c) Generator sizing: The rating of the generator(s) supplying electrical power to the essential system of a health care facility must meet or exceed the summation of the loads determined in (a) and (b) of this subsection with no additional demand factors applied. Momentary X-ray loads may be ignored if the generator is rated at least 300% of the largest momentary X-ray load connected.

(2) Existing essential systems in facilities to which additional load is to be added:

(a) Existing loads: The existing loads of the separate branches of the essential electrical system may be determined by NEC Article 220.35(1).

(b) Added loads: Added loads to the separate branches of the essential electrical system must be determined by subsection (a) of this section.

(c) Generator sizing: The rating of the generator(s) supplying electrical power to the essential electrical system must meet or exceed the summation of the loads determined by (a) and (b) of this subsection with no additional demand factors applied.

**23.30.520.44 National Electrical Code Article 520.44 Table deleted — Ampacity of Listed Extra-Hard-Usage Cords and Cables.**

Article 520.44 Table of the National Electrical Code is deleted and all references to Table 520.44 in NEC Article 520. The Ampacity of conductors shall be determined as provided in NEC Article 400.

**23.30.527.4(G) National Electrical Code Article 527.4(G) amended — Splices.**

Article 527.4(G) of the National Electrical Code is amended and supplemented by amending the first sentence of Article 527.4(G), to read as follows:

(G) On construction sites, a box shall be required for splices or junction connections where splices of conductors are less than 2.5 m (8 ft) from grade or floor level or where subject to contact from personnel.

**23.30.553.4 National Electrical Code Article 553.4 amended — Location of Service Equipment.**

Article 553.4 of the National Electrical Code is amended and supplemented by amending Article 553.4 to read as follows:

The service equipment for floating buildings and similar facilities shall have a readily accessible service rated disconnect located on the shoreline within sight of the

shoreline connection of the dock, wharf or similar structure to which the floating building or similar facility is moored.

**23.30.553.6 National Electrical Code Article 553.6 amended — Feeder Conductors.**

Article 553.6 of the National Electrical Code is amended and supplemented by the addition new text to follow the first paragraph of Article 553.6, to read as follows: Floating buildings or similar facilities shall have a disconnecting means located within sight of each floating building or similar facility. The disconnecting means shall be installed adjacent to but not in or on, the floating building or similar facility.

**23.30.553.7 National Electrical Code Article 553.7(B) amended — Wiring Methods.**

Article 553.7(B) of the National Electrical Code is amended and supplemented by the addition new text to follow the first paragraph of Article 553.7(B), to read as follows:

Where flexible cables or cords are used they shall comply with Article 555.13(2). Conductors operating in excess of 600 volts, nominal, shall not be installed on floating portions of a floating building or similar facility.

**23.30.555.1 National Electrical Code Article 555.1 amended — Scope.**

Article 555.1 of the National Electrical Code is amended and supplemented by amending the last paragraph of Article 555.1 to read as follows:

Private, non-commercial docking facilities constructed or occupied for the use of the owner or residence of the associated single family dwelling are covered by this article.

**23.30.555.5 National Electrical Code Article 555.5 amended — Transformers.**

Article 555.5 of the National Electrical Code is amended and supplemented by amending the last paragraph of Article 555.5 to read as follows:

Transformers and enclosures shall be specifically approved for the intended location. The bottom of enclosures for transformers shall be located a minimum of 12" above the deck of a dock.

**23.30.555.7 National Electrical Code Article 555.7 amended — Location of Service Equipment.**

Article 555.7 of the National Electrical Code is amended and supplemented by amending the last paragraph of Article 555.7 to read as follows:

The service equipment for floating docks or marinas shall be located adjacent to and within sight but not on or in, the floating structure.

**23.30.555.9 National Electrical Code Article 555.9 amended — Electrical Connections.**

Article 555.9 of the National Electrical Code is amended and supplemented by the addition of new exception to read as follows:

Exception: Connections approved for wet locations.

**23.30.555.10 National Electrical Code Article 555.10 amended — Electrical Equipment Enclosures.**

Article 555.10 of the National Electrical Code is amended and supplemented by the addition of the following text to follow the first sentence of Subsection (B), to read as follows:

(B) Location. All enclosures must be corrosion resistant, gasketed enclosures must be arranged with a weep hole to discharge condensation.

**23.30.555.13 National Electrical Code Article 555.13 amended — Wiring Methods and Installation.**

Article 555.13 of the National Electrical Code is amended and supplemented by amending the first paragraph of Subsection (B)(1) of Article 555.13 to read as follows:

(1) Overhead Wiring. Overhead wiring shall be installed to avoid possible contact with masts and other parts of boats being moored, stored, service or moved.

**23.30.555.19 National Electrical Code Article 555.19 amended — Receptacles.**

Article 555.19 of the National Electrical Code is amended and supplemented by the addition of the following text to follow the first sentence of Article 555.19 to read as follows:

Shore Power Receptacles that provide shore power for boats must be rated not less than 20 amperes and must be single outlet type and must be of the locking and grounding type or pin and sleeve type.

**23.30.555.21 National Electrical Code Article 555.21 amended — Gasoline Dispensing Stations – Hazardous (Classified) Locations.**

Article 555.21 of the National Electrical Code is amended and supplemented by the addition of new subsections to follow the first sentence of Article 555.21 to be known as Article 555.21(A) and 555.21(B), to read as follows:

(A) Boundary classifications.

(1) Class I, Division 1. The area under the dispensing unit is a Class I, Division 1 location. If a dock has one or more voids, pits, vaults, boxes, depressions, or similar spaces where flammable liquid or vapor can accumulate below the dock surface and within 20' horizontally of the dispensing unit, then the area below the top of the dock and within 20' horizontally of the dispensing unit is a Class I, Division 1 location.

(2) Class I Division 2. The area 18" above the water line and within 20' horizontally of the dispensing unit is a Class I, Division 2 location. If a dock has one or more voids, pits, vaults, boxes depressions, or similar spaces where flammable liquid or vapor can accumulate below the dock surface and within 20' horizontally of the dispensing unit, then the area to 18" above the top and adjacent to the sides of the dock and within 20' horizontally of the dispensing unit is a Class I, Division 2 location.

(B) Portable power cable. Portable power cable will be allowed as a permanent wiring method in Class 1, Division 2 locations when protected from physical damage.

**23.30.600.3 National Electrical Code Article 600.3 amended — Listing.**

Article 600.3 of the National Electrical Code is amended and supplemented by the addition of the following new text to follow the first paragraph, to read as follows:

Electric signs within the scope of Underwriters Laboratories Standards for Electric Signs UL 48, shall be listed. Electric signs not covered under the Standards for Electric Signs UL 48 shall be required to be installed in conformance with this Code or be field evaluated by an accredited electrical products testing laboratory.

**23.30.600.10 National Electrical Code Article 600.10 amended — Portable or Mobile Signs.**

Article 600.10 of the National Electrical Code is amended and supplemented by the addition of a new Subsection (C) to Article 600.10, to read as follows:

(c) Wet or Damp Location. Portable or mobile signs in wet or damp locations shall comply with 600.10(C)(1) and (C)(2). Each portable or mobile sign shall have a receptacle outlet, which complies with 406.8(B), installed within 1.8 m (6 ft) of the sign.

Article 600.10 of the National Electrical Code is further amended and supplemented by the addition of a new Subsection (E) to read as follows:

(E) Supply. Extension cords shall not be permitted to supply portable or mobile signs.

**23.30.600.21 National Electrical Code Article 600.21 amended — Ballasts, Transformers, and Electronic Power Supplies.**

Article 600.21 of the National Electrical Code is amended and supplemented by the addition of a new Subsection (G), to read as follows:

(G) Outside Awnings. Luminaires installed in outdoor awnings shall be of a type that is suitable for wet locations and be connected by a wiring method suitable for wet locations. Fluorescent luminaires shall be installed so that no part of the luminaire is located closer than 6" to the awning fabric. Incandescent luminaires shall be installed so that no part of the luminaire is located closer than 18" to the awning fabric. Luminaires installed in outside awnings shall be controlled by a disconnect installed in conformance with 600.6.

**23.30.600.30 National Electrical Code Article 600.30 amended — Applicability.**

Article 600.30 of the National Electrical Code is amended and supplemented by amending Article 600.30 to read as follows:

Applicability. Part II of this article shall apply to all field-installed skeleton tubing and neon circuit conductors. These requirements are in addition to the requirements in Part I.

**23.30.680.4 National Electrical Code Article 680.4 amended — Approval of Equipment.**

Article 680.4 of the National Electrical Code is amended and supplemented by the addition of the following new text to follow the first paragraph, to read as follows:

Electrical components which have failed and require replacement shall be replaced with identical products unless the replacement part is no longer available; in which case, a like-in-kind product may be substituted provided the mechanical and grounding integrity of the equipment is maintained.

**23.30.680.12 National Electrical Code Article 680.12 amended — Maintenance Disconnecting Means.**

Article 680.12 of the National Electrical Code is amended and supplemented by the addition of a new Subsection (A) to read as follows:

(A) Location. The maintenance disconnect for a swimming pool, hot tub, spa, or swim spa shall not be located closer than 5' from the inside wall of the pool, hot tub, spa, or swim spa.

**23.30.680.13 National Electrical Code Article 680.13 new — Field Installed Equipment.**

Article 680 of the National Electrical Code is amended and supplemented by the addition of new Section to be known as Section 680.13 to read as follows:

**680.13 Field Installed Equipment.** Field installed electrical equipment for a swimming pool, hot tub, spa or swim spa shall not be located closer than 5' from inside wall of the swimming pool, hot tub, spa or swim spa. The 5' separation may be reduced by the installation of a permanent barrier, such as a solid wall, fixed glass windows or doors, etc. The 5' separation shall be determined by the shortest path or route that a cord can travel from the spa, hot tub, swim spa, or swimming pool to the equipment.

Field installed electrical equipment must meet the following additional requirements:

- (1) Heaters are listed as a "swimming pool heater or a spa heater";
- (2) Pumps are listed as a "swimming pool pump" or "spa pump" or "swimming pool/spa pump";
- (3) Other equipment such as panelboards, conduit, and wire are suitable for the environment and comply with the applicable codes.
- (4) The field assembly or installation of "recognized components" shall not be permitted.

**23.30.680.4 National Electrical Code Article 680.40 amended —General.**

Article 680.40 of the National Electrical Code is amended and supplemented by the addition of a new Subsection (A) and a new Subsection (B), to read as follows:

- (A) **Modular, Self-Contained Spa or Hot Tubs.** Equipment assemblies for self-contained spas or hot tubs shall be installed within 1.5 m (5 ft.) from the inside wall of the spa or hot tub. Equipment assemblies shall be listed or field evaluated as a unit with the spa or hot tub
- (B) **Packaged Spa or Hot Tub Equipment Assemblies.** Equipment assemblies (skid pack) pre-packaged by a factory shall not be installed closer than 1.5 m (5 ft.) from the inside wall of the spa or hot tub and shall be listed as a package unit.

**23.30.680.70 National Electrical Code Article 680.70 amended — General.**

Article 680.70 of the National Electrical Code is amended and supplemented by the addition of the following text to the end of the first paragraph, to read as follows:

Hydromassage bathtubs must be listed as a unit and bear a listing mark which reads "Hydromassage bathtub."

**23.30.700.9 National Electrical Code Article 700.9 amended — Wiring, Emergency Systems.**

Article 700.9 of the National Electrical Code is amended and supplemented by amending Article 700.9(A) to read as follows:

(A) Identification. All boxes and enclosures larger than 150 mm (6 in.) by 150 mm (6 in.) (including transfer switches, generators and power panels) for emergency circuits shall be permanently marked with an identification plate that is orange in color so they will be readily identified as a component of the emergency circuit or system. All other device and junction boxes for emergency systems and circuits must be orange in color, both inside and outside.

**23.30.760.10 National Electrical Code Article 760.10 amended — Fire Alarm Circuit Identification.**

Article 760.10 of the National Electrical Code is amended and supplemented by the addition of new text to follow the end of the first paragraph, to read as follows:

Device and junction boxes for fire alarm systems other than the surface raceway type shall be red in color, both inside and outside. Power-limited fire protective signaling circuit conductors shall be durably and plainly marked in or on junction boxes or other enclosures to indicate that it is a power-limited fire protective signaling circuit.

Section 3. The figures and drawings attached hereto as Attachment 1 are hereby adopted.

Section 4. This ordinance shall take effect and be in force five (5) days after its adoption and legal publication.

PASSED by the City Council this 21st day of June, 2004, and signed in authentication of its passage this 21st day of June, 2004.

(SEAL)

Connie Marshall  
Connie Marshall, Mayor

Approved as to form:

Richard L. Andrews, City Attorney

Lori M. Riordan  
Lori Riordan, Deputy City Attorney

0711-ORD  
6/17/2004

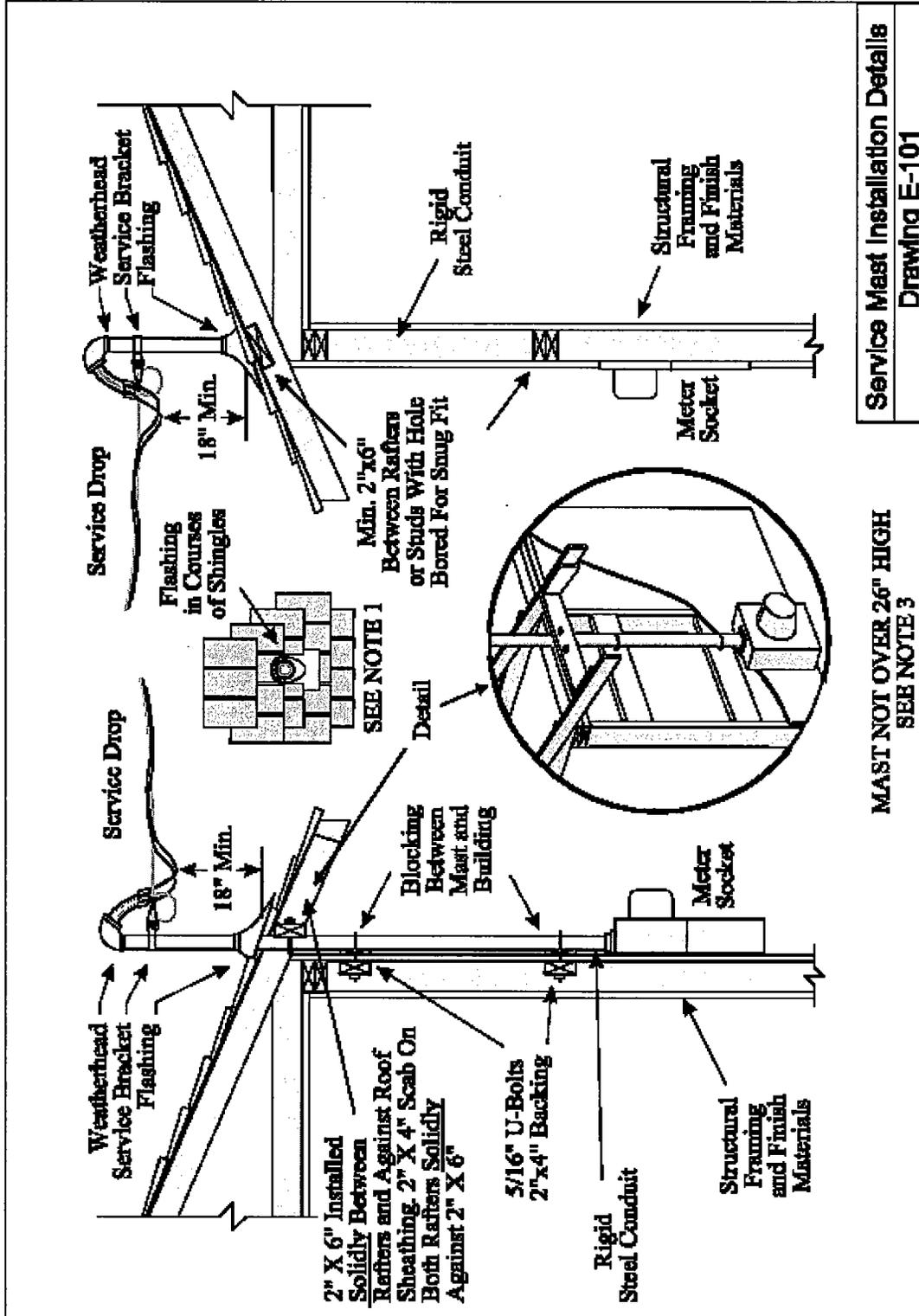
Attest:

*Myrna L. Basich*  
Myrna L. Basich, City Clerk

Published *JUNE 25, 2004*

ATTACHMENT 1  
FIGURES AND DRAWINGS

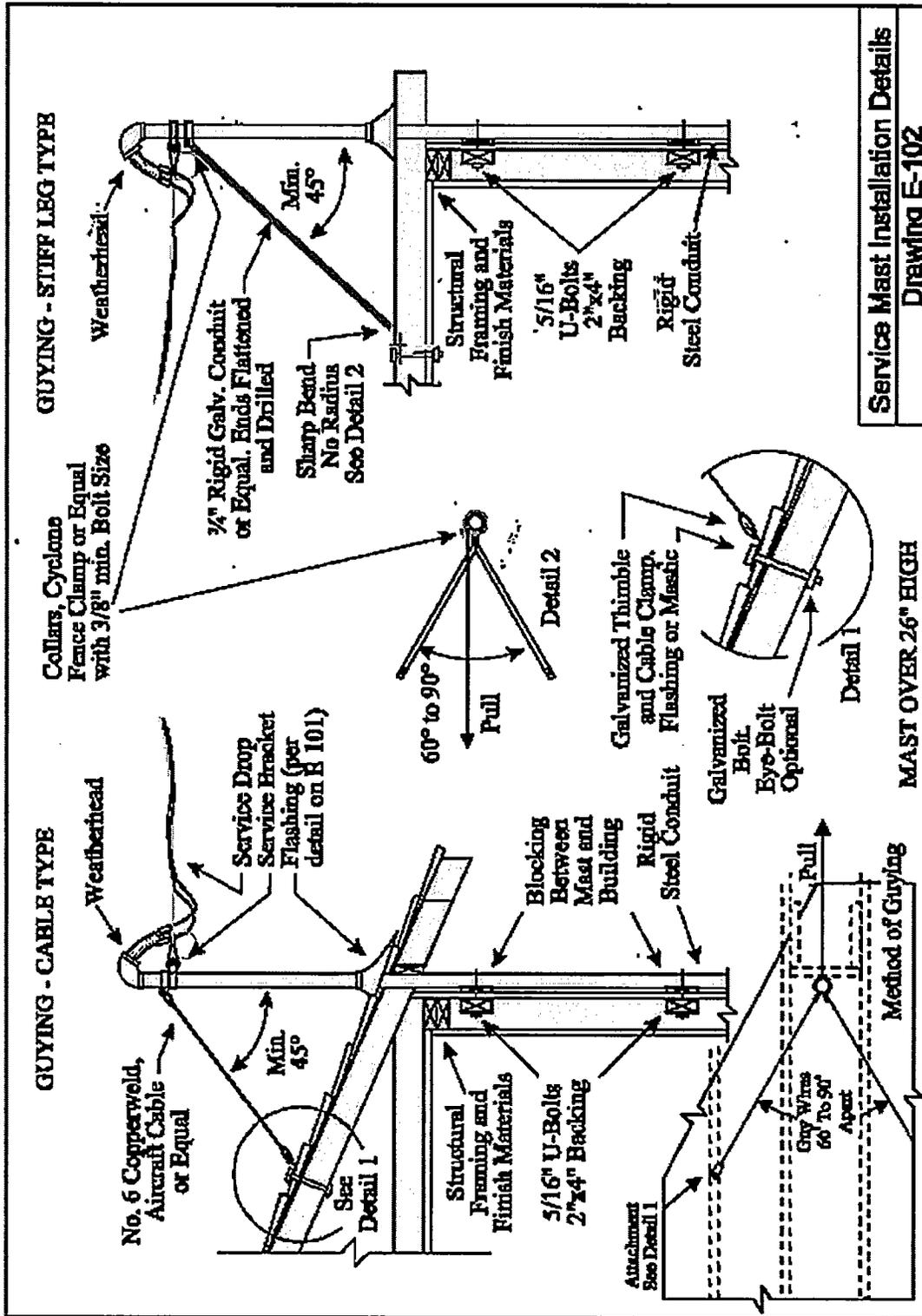
Drawing E-101



Service Mast Installation Details  
Drawing E-101

MAST NOT OVER 26" HIGH  
SEE NOTE 3

Drawing E-102



Service Mast Installation Details  
Drawing E-102

Drawing E-103

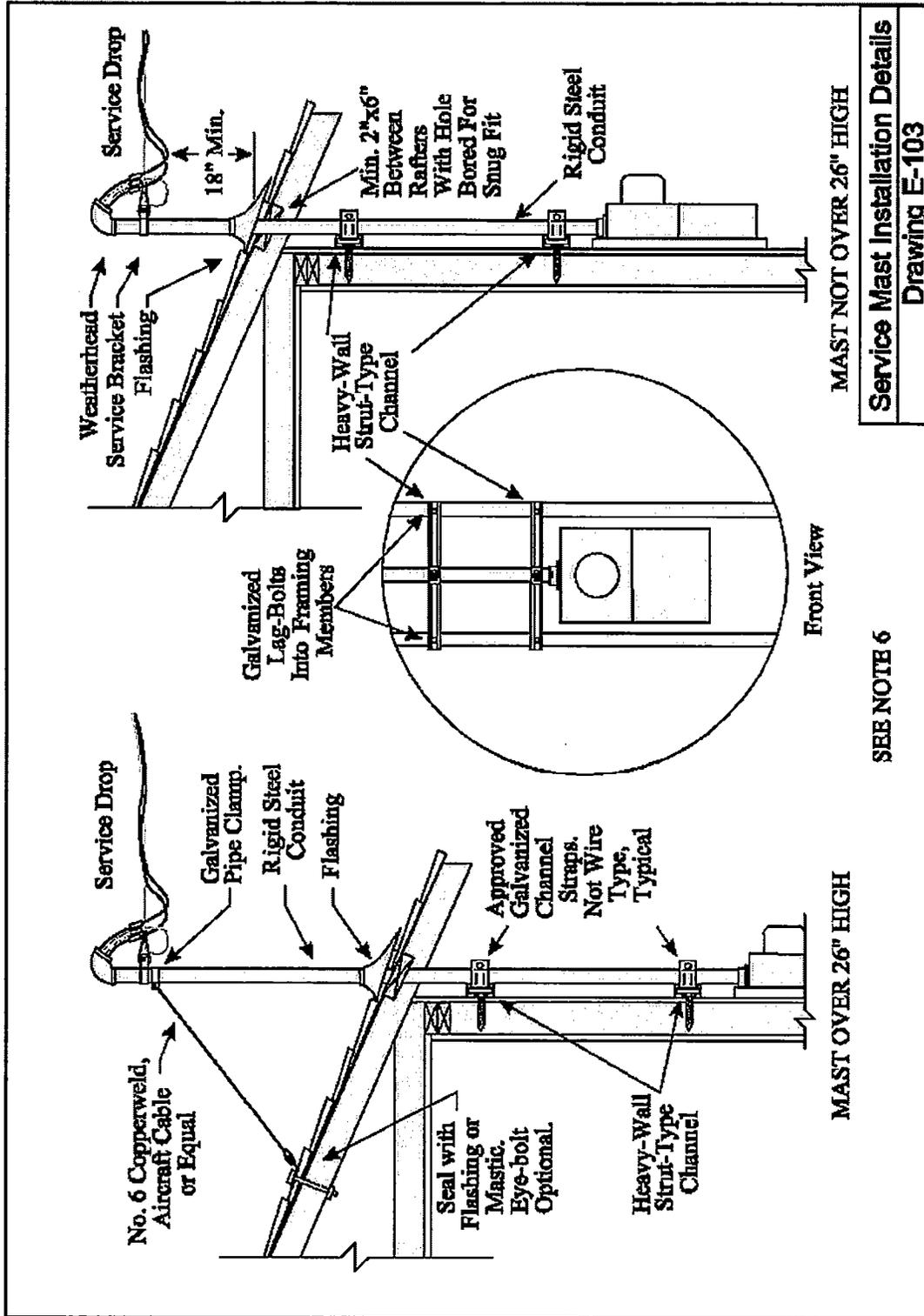


Figure 450-1 and 450-2

