BILL NO. 2006-72

ORDINANCE NO. _____

AN ORDINANCE TO ADOPT THE 2005 EDITION OF THE NATIONAL ELECTRICAL CODE, TOGETHER WITH AMENDMENTS AND SUPPLEMENTARY MATERIAL, AND TO PROVIDE FOR OTHER RELATED MATTERS.

Proposed by: Paul K. Wilkins, Director of Building and Safety

Summary: Adopts the 2005 Edition of the National Electrical Code, together with amendments and supplementary material.

THE CITY COUNCIL OF THE CITY OF LAS VEGAS DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1: Title 16, Chapter 12, Section 10, of the Municipal Code of the City of Las Vegas, Nevada, 1983 Edition, is hereby amended to read as follows:

16.12.010: Those certain documents, three copies of which are on file in the Office of the City Clerk, and being marked and designated as follows, are adopted by reference as and for the City's Electrical Code:

(A) National Electrical Code, [2002] 2005 Edition, hereby designated as Part 1 of this Chapter;

(B) A document entitled "A Supplemental Document Amending the National Electrical Code, [2002] 2005 Edition," deleting from and adding to the National Electrical Code, [2002] 2005 Edition, hereby designated as Part 2 of this Chapter; and

(C) The Southern Nevada Amendments to the [2002] 2005 National Electrical Code, hereby designated as Part 3 of this Chapter.

SECTION 2: The document entitled "A Supplemental Document Amending the National Electrical Code, 2005 Edition," is attached hereto. The document entitled the "Southern Nevada Amendments to the 2005 National Electrical Code," which is attached hereto, is modified as set forth in Sections 3 and 4 of this Ordinance.

SECTION 3: Where necessary for the sake of consistency, references in the Southern Nevada Amendments to the 2005 National Electrical Code to "Article" numbers shall be deemed to refer to "Section" numbers as contemplated in the National Electrical Code.

SECTION 4: The document entitled the "Southern Nevada Amendments to the 2005

National Electrical Code" is amended by adding the following after the heading reference to Section 210.8:

The introductory language of Subsection (B) of Section 210.8 of the National Electrical Code, 2005 Edition, following the heading and ending with the colon, is amended to read as follows:

All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in (1) through (6) shall have ground fault circuit-interruptor protection for personnel:

SECTION 5: The National Electrical Code, 2002 Edition, the supplemental document amending that edition, and the Southern Nevada Amendments to the 2002 National Electrical Code, are hereby repealed in their entirety.

SECTION 6: If any section, subsection, subdivision, paragraph, sentence, clause or phrase in this ordinance or any part thereof is for any reason held to be unconstitutional or invalid or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this ordinance or any part thereof. The City Council of the City of Las Vegas hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases be declared unconstitutional, invalid or ineffective.

SECTION 7: All ordinances or parts of ordinances or sections, subsections, phrases, sentences, clauses or paragraphs contained in the Municipal Code of the City of Las Vegas, Nevada, 1983 Edition, in conflict herewith are hereby repealed.

PASSED, ADOPTED and APPROVED this _____ day of _____, 2007.

APPROVED:

By _____
OSCAR B. GOODMAN, Mayor

ATTEST:

_____
BARBARA JO RONEMUS, City Clerk

APPROVED AS TO FORM:

Val Steed 12-7-06
Date

The above and foregoing ordinance was first proposed and read by title to the City Council on the _____ day of _____, 2006, and referred to the following committee composed of _____ and _____ for recommendation; thereafter the said committee reported favorably on said ordinance on the _____ day of _____, 2007, which was a _____ meeting of said Council; that at said _____ meeting, the proposed ordinance was read by title to the City Council as first introduced and adopted by the following vote:

VOTING "AYE": _____

VOTING "NAY": _____

ABSENT: _____

APPROVED:

By _____
OSCAR B. GOODMAN, Mayor

ATTEST:

_____
BARBARA JO RONEMUS, City Clerk

A SUPPLEMENTAL DOCUMENT AMENDING
THE NATIONAL ELECTRICAL CODE, 2005 EDITION

Section 1: Certain provisions of the National Electrical Code, 2005 Edition, are hereby amended, deleted or added to as set forth in this Supplemental Document. Except as otherwise indicated, all section and chapter references contained in this Supplemental Document are to the National Electrical Code, 2005 Edition.

Section 2: Chapter 1 of the National Electrical Code, 2002 Edition, is hereby amended by adding thereto a new article designated as Article 120, reading as follows:

Article 120 - ADMINISTRATION

Section 120-1. ABBREVIATIONS AND DEFINITIONS. For the purpose of this Code, as adopted and amended by the City, certain terms, phrases, words and their derivatives shall be construed as specified in this section. Where terms are within the context with which they are used. Webster's Third New International Dictionary of the English Language, Unabridged, Copyright 1981, shall be considered as providing ordinarily accepted meanings. Words used in the singular include the plural and the plural the singular. Words used in the masculine gender include the feminine and the feminine the masculine.

"APPROVED" - As to materials, equipment or method of construction, refers to approval by the Building Official as the result of investigation and tests by recognized authorities, technical or scientific organizations. Unless otherwise stated, a current listing of a product by the Underwriter's Laboratories (UL) or other testing agency approved by the Building Official shall be considered as an approval of that product.

"AWG" - American Wire Gauge; a standard of conductor measure.

"BUILDING OFFICIAL" - The officer or employee of the City who is charged with the administration and enforcement of the building and technical codes; or the Authority Having Jurisdiction as specified in the National Electrical Code. Except as otherwise provided, the term includes a designated representative of the Building Official who is duly authorized with respect to a particular act or responsibility.

"CITY ELECTRICAL INSPECTOR" - One or more of the electrical inspectors employed by the City.

"FIRE ASSEMBLY AND FIRE RESISTIVE CONSTRUCTION" - As defined in the IBC.

"IBC" - International Building Code, adopted as the Building Code of the City of Las Vegas.

"LISTED, LABELED, and LISTING" - Refer to equipment and materials which are shown in a list

published by an approved testing agency, qualified and equipped for experimental testing and maintaining an adequate periodic inspection of current productions and whose listing states that the equipment complies with recognized safety standards.

"MASTER" - A generic term including Master Electricians, Master Neon Electricians and Master Technicians certified as such by Clark County before July 1, 1985 as well as individuals who have passed the appropriate examination(s) of the State of Nevada Contractor's Board subsequent to July 1, 1985 and otherwise met the qualifications of and been accepted by the State of Nevada Contractor's Board as Qualified Individuals for the full extent of Category C-2 Electrical Contractor after July 1, 1985.

"MASTER NEON ELECTRICIAN" - A person capable of laying out, installing and supervising electrical and gas-tube sign fabrication and erection who was certified as such by Clark County before July 1, 1985.

"MASTER TECHNICIAN" - A person capable of laying out and supervising commercial sound, radio, television, and low voltage control systems involving solid state devices or electronic tubes who was certified as such by Clark County before July 1, 1985.

"OCCUPANCY" - The purpose for which a building, or part thereof, is used or intended to be used.

"QUALIFIED INDIVIDUAL/QI" - For the purposes of this ordinance, an individual who has passed an appropriate examination(s) of the State of Nevada Contractor's Board subsequent to July 1, 1985 and otherwise met the qualifications of and been accepted by the State of Nevada Contractor's Board as a Qualified Individual in one or more of the subcategories of electrical contracting after July 1, 1985.

"UL" - Underwriters' Laboratories, Inc.

"UNIT" - One home, apartment building, store, warehouse, hall auditorium, condominium unit or hotel. Each interior remodel for single occupancy of a store or warehouse shall establish a new unit.

Section 120-2. AUTHORITY AND ENFORCEMENT

I. **Administration.** The purpose of this Code is to provide requirements for installation of electric wiring devices, appliances, and equipment within the City of Las Vegas. The provisions of this Code are intended to be used in conjunction with the Uniform Administrative Code adopted by the City of Las Vegas (the "UAC") and other appropriate codes and ordinances. Several provisions of this Code are parallel or similar to

provisions of the UAC. Both codes shall be applied to the extent possible. In the event of conflict, the provisions of Section 106 of the UAC shall govern, unless otherwise deemed appropriate by the Building Official or his designee.

II. Compliance. It shall be unlawful for any person, firm, or corporation to use within the City of Las Vegas any electrical wiring, fixture, appliance, or apparatus that does not conform to the requirements of this Code and the UL (or any other approved testing agency with equivalent standards). Upon notice or otherwise, the City Electrical Inspector is authorized to conduct any inspection necessary to ascertain that all electrical wiring, fixtures, appliances, and apparatuses for use, used, or installed within the City comply with the requirements of this Code and the UL (or any other approved testing agency with equivalent standards).

III. Unlawful Installations. If the City Electrical Inspector finds any part of any electric light or power wiring, appliance, apparatus, or fixture in or upon any building in the City of Las Vegas to have been installed without a permit or installed in such a manner to constitute a hazard, the Building Official shall have the right and power to disconnect electrical service and place a seal upon the same, and shall at the same time give written notice of such disconnection to the owner or occupant of the building and the electrical power utility company. After the wiring, fixtures, appliances or apparatus have been put in the condition required by this Chapter, the seal so placed shall be removed by order of the Building Official. It shall be unlawful for any person to use any current in or through such disconnected wiring, appliance, apparatus, or fixture, or otherwise supply current to such disconnected wiring, fixture, appliance, or apparatus, or to remove, break, or deface any seal so placed.

Section 120-3. PERMITS, CERTIFICATION AND LICENSING

I. Permit Requirements.

A. General. No wiring shall be installed or laid out for any lights, power, heating devices, or any apparatus which generates, transmits, transforms, or utilizes any electricity, including private telephone systems, nor shall any alteration or addition be made in existing wiring without securing a permit therefor; provided, however, that no permit shall be required for service work or changeouts up to the first means of disconnect, in single family dwellings only, of existing air conditioning/heating units which have identical ampacity requirements. Permit applications must describe the proposed work and shall be made in writing

by the person, firm or other entity that will do the work. The application must identify the work location by street and house number, and the permit shall be valid only for that location.

B. Drawings. Each application for a permit to install electrical wiring in a single family dwelling or an accessory building (shed, garage, etc.) must have attached thereto a drawing showing the electrical layout, including the wire apparatus. Load calculations must be included if required by the City Electrical Inspector or by the Building Official or his designee. Each application for a permit to install electrical wiring in a structure other than a single family dwelling or an accessory building must have attached thereto drawings showing in detail the electrical layout, including the wire apparatus and load calculations. The City Electrical Inspector may waive drawings for small, insignificant structures or additions.

II. Journeyman Electrician. A Journeyman Electrician is an individual who has demonstrated qualifications in having the skills to perform independent work in the electrical field or to supervise lesser qualified electricians. The individual has taken and passed the Journeyman Electrician examination given by an independent agency accepted by the Building Official. Such examination shall be designed for the purpose of establishing qualifications to perform the work of a Journeyman Electrician. An individual holding a valid, current certificate of Journeyman Electrician qualification from an accepted independent testing agency or from a political subdivision of the State of Nevada within the geographic boundaries of Clark County may be recognized as a Journeyman Electrician.

III. Master Electrician and Qualified Individual.

A. General. A Master Electrician and Qualified Individual (QI) are individuals who have demonstrated competency to lay out, inspect, install and supervise all aspects of electrical work in one or more categories of the field. The term "Master" shall be considered generic to include Master Neon Electricians, Master Electricians, and Master Technicians who were certified under the Joint Board of Electrical Examiners of Clark County program prior to July 1, 1985.

B. Duties.

(1) Supervision and Inspection. The Master or QI is responsible to supervise and inspect the work to be performed pursuant to the scope of the permit and the approved plans and verify that said work shall meet all the requirements of this Code, and to ensure that the work is installed in good

workmanlike manner. The Master or QI is responsible to the Building Official for conformance with the requirements of this Code and other applicable standards and requirements.

(2) Plan/Calculation Preparation. When plans and calculations have been required pursuant to this Code or other building-related code and are not done by an electrical engineer who is responsible for the work, the Master or QI is responsible for the correctness of calculation and design in conformance to the Electrical Code of the City of Las Vegas. This includes all work provided for review by the Building Official prior to issuance of a permit or provided for approval of a change to approved plans. Electrical plans shall be prepared only by one or more of the following: an electrical engineer registered in the State of Nevada, an architect registered in the State of Nevada, a Master, or a QI. Plans prepared by an engineer or architect shall be stamped, dated, and signed by that person. Plans prepared by a Master or a QI must be signed by that person and shall indicate whether the person is a Master or a QI.

(3) Pretesting Required. It is the responsibility of the Master or QI to ensure that all required life safety systems provided in any building (i.e., fire alarms, emergency generators, duct detector devices, voice alarm/paging systems, central controls, and other electrical systems) are pretested and in proper working order prior to making inspection requests to the Building Official.

C. Certification. A certification issued by a third-party independent agency in compliance with the following standards and maintained in current standing by renewal of the certification shall be recognized by the Official as meeting the technical requirements inherent in the duties of a Master or QI stated above:

(1) A Master Electrician, Master Neon Electrician or Master Technician who was previously tested and certified under the Joint Board of Electrical Examiners of Clark County Program prior to July 1, 1985.

(2) A Qualified Individual who, after July 1, 1985, has taken and passed the qualification examination of the State of Nevada Contractor's Board (or their authorized third-party testing agency) for one or more categories of electrical contracting.

The City of Las Vegas accepts a QI who has been tested and certified by the State of Nevada Contractor's Board as being competent to perform duties equivalent to any or all functions of Masters identified in the Electrical Code of the City of Las Vegas to the extent of this qualification. This means that

a Qualified Individual must be verified as competent in the specific area of electrical work related to the scope of work requested for the permit.

D. Renewal of Certificates. It is the duty of every Master and QI to maintain Master and QI certifications in a current active status in accordance with the third-party testing agency accepted by the State of Nevada Contractor's Board and to renew as required.

E. Currency of State Certification. A Master or QI found not to meet the qualification standard of the State of Nevada Contractor's Board for a Qualified Individual in any electrical contractor's license classification, or whose certification has been revoked, shall not be recognized as certified, until that person again meets the standards of certification by re-examination.

F. Multiple Affiliations. In order for a Master or QI to act as such on behalf of more than one electrical contracting business, the Master or QI must have supervisory responsibility for, and at least a 50% ownership interest in, each such business.

IV. Contractors' Responsibilities.

A. Business License. Any person engaged in the business of installing electrical wires (including, but not limited to power, signal, or control fixtures, appliances, apparatus, raceways or conduits, or any parts thereof), which utilize energy in any form and in connection with which electrical energy is used for any purpose whatsoever in the City of Las Vegas shall first secure the appropriate contractor's license from the State Contractor's Board and a contractor's business license from the City's Department of Finance and Business Services.

B. Competent Employees. No person, firm or corporation shall engage in the installation, alteration, construction of any electrical work, wiring devices, fixtures, appliances or equipment inside or outside of any building either by himself or through his agents or employees unless he holds an appropriate category of business license, and he or one of his employees holds an appropriate Master or QI certification or its equivalent, issued by the County. The contractor is responsible to hire competent employees to perform all electrical work.

(1) Master or QI Required. It is the contractor's responsibility to employ at least one Master or QI of the appropriate category for permits requested to perform the duties of a Master or QI. In

addition, the contractor shall ensure that all employees engaged in electrical work are qualified to perform that work. Upon written request by the City Electrical Inspector or other representatives of the Building Official, the contractor shall provide a written list of Masters, QI, and other employees performing electrical work with their respective certification qualification control numbers and issuing agency, by each job or permit in effect.

(2) Supervision on Site. Every building construction job site, at which there is electrical work being performed under a permitted scope of work, shall have one or more Journeyman Electricians present during work hours in a supervisory capacity for the permitted work.

(3) Duties. Each electrical contractor, whether he possesses a valid appropriate Master or QI certification or employs a person possessing either the Master or QI certification shall at all times be responsible for the proper supervision and inspection of the work to be performed pursuant to the scope of the electrical permit(s) issued to him and that said work shall meet all the requirements of the Electrical and Building Codes of the City of Las Vegas, and be installed in a workmanlike manner.

C. Exception. The requirements of this Subsection IV do not apply to work done under a permit issued to an owner/builder for a work in or on a one or two family dwelling used exclusively for living purposes, including any customary and incidental accessory structure, if the permittee:

(1) Is the bona fide owner of the premises on which the structures are located; and

(2) Occupies or demonstrates an intention to occupy those premises for living purposes.

Section 120-4. Violation and Penalties. It shall be unlawful for any person, firm or corporation to erect, install, alter, repair, relocate, add to, replace, use, or maintain electrical installation or electrical fixtures in this jurisdiction, or cause the same to be done, contrary to or in violation of any of the provisions of this Code, as amended. Maintenance of an electrical installation or electrical fixtures which was unlawful at the time it was installed and which would be unlawful under this Code if installed after the effective date of this Code or any amendment thereto, shall constitute a continuing violation of this Code.

Southern Nevada Amendments

To The

2005

National Electrical Code

Published: October 12, 2006

Clark County 4701 W. Russell Road Las Vegas, NV 89118 (702) 455-3030 Inspections: 455-8040	**City of Las Vegas** 731 S. 4th Street Las Vegas, NV 89101 (702) 229-6251 Inspections: 229-2071
Boulder City 401 California Ave. Boulder City, NV 89005 (702) 293-9282	**City of Mesquite** 10 East Mesquite Blvd. Mesquite, NV 89027 (702) 346-2835
North Las Vegas 2240 Civic Center Drive North Las Vegas, NV 89030 (702) 633-1577 Inspections: 633-1576	**City of Henderson** 240 Water Street Henderson, NV 89015 (702) 267-3600 Inspections: 267-3900
Pahrump Regional Planning District 1210 E. Basin Suite 1 Pahrump, NV 89060 (775) 751-3773	

Preface

This document comprises the Southern Nevada Amendments to the 2005 National Electrical Code as published by the National Fire Protection Association. It was developed by the jurisdictions listed on the cover page as a document to be adopted by reference. These provisions are not code unless adopted and codified by governmental jurisdictions. These amendments are not intended to prevent the use of any material or method of construction not specifically prescribed herein, provided any alternate has been approved and its use authorized by the Building Official (Authority Having Jurisdiction). This document is available to be adopted as code by any jurisdiction without permission or approval from the jurisdictions listed.

Table of Contents

Preface

Chapter 1 General

100 Definitions: General 1
110.12 Requirements for Electrical Installations: Mechanical Execution of Work 1
110.26 Requirements for Electrical Installations: Spaces About Electrical Equipment 1
110.33 Requirements for Electrical Installations: Entrances and Access to Work Space 1

Chapter 2 Wiring and Protection

210.8 Branch Circuits: Ground-Fault Circuit-interrupter Protection for Personnel 1
210.23 Branch Circuits: Permissible Loads 2
210.52 Branch Circuits: Dwelling Unit Receptacle Outlets 2
210.62 Branch Circuits: Show Windows 3
210.70 Branch Circuits: Lighting Outlets Required 3
220.5 Branch-Circuit: Feeder & Service Calculations: Calculated Loads 4
220.84 Optional Calculations: – Multifamily Dwelling 4
225.32 Outside Branch Circuits and Feeders: Location 4
230.11 Services: Location of Customer Owned Service Lateral or Drops 4
230.70 Services: General 5
240.6 Overcurrent Protection: Standard Ampere Ratings 6
250.32 Grounding: Building or Structures Supplied by Feeder(s) or Branch Circuit(s) 6
250.50 Grounding: Grounding Electrode System 6
250.52 Grounding: Grounding Electrodes 6
250.53 Grounding: Grounding Electrode System Installation 6
250.56 Grounding: Resistance of Rod, Pipe, and Plate Electrodes 6
250.118 Grounding: Types of Equipment Grounding Conductors 6
250.120 Grounding: Equipment Grounding Conductor Installation 6

Chapter 3 Wiring Methods and Materials

300.1 Wiring Methods and Materials: Scope 7
310.5 Conductors for General Wiring: Minimum Size of Conductors 7
314.24 Outlet, Device, Pull & Junction Boxes: Depth of Outlet Boxes 7
334.10 Nonmetallic-Sheathed Cable: Uses Permitted 8
334.12 Nonmetallic-Sheathed Cable: Uses Not Permitted 8
352.10 Rigid Nonmetallic Conduit: Uses Permitted 8
358.12 Electrical Metallic Tubing: Uses Not Permitted 8

Chapter 4 Equipment for General Use

408.35 Switchboards and Panelboards: Number of Overcurrent Devices on One Panelboard 8
410.4 Luminaires, Lampholders & Lamps: Fixtures in Specific Locations 8

Chapter 5 Special Occupancies

514.11 Motor Fuel Dispensing Facilities: Circuit Disconnects 8
550.30 Mobile Homes, Manufactured Homes, & Mobile Home Parks: Distribution System 9
590.2 Temporary Installations: All Wiring Installations 9

Chapter 6 Special Equipment

600.9 Electric Signs and Outline Lighting: Location 9
680.26 Swimming Pools, Fountains and Similar Installations: Equipotential Bonding 9
682 Natural and Artificially Made Bodies of Water 10

Chapter 7 Special Conditions

700.1 Emergency Systems: Scope 10
700.9 Emergency Systems: Wiring 10
700.12 Emergency Systems: General Requirements 10
700.16 Emergency Systems: Illumination 11

Article 100

100 Definitions.

Add a new Definition to Article 100 to read:

Bedroom. A room or area which may be used for sleeping with clothes storage, provisions for privacy and meeting Building Code requirements for emergency escape and rescue.

Chapter 1 General

110.12 Mechanical Execution of Work.

Add a new Sentence to the end of 110.12 to read as follows:

Every contractor shall provide qualified supervision while performing electrical installations. To meet this requirement, the individual leading or directing the installation shall have a current approved Clark County Journeyman electrical certification.

Add a new Subsection (D) to Article 110.12 to read as follows:

(D) Abandoned Conductors and Cables. No electrical conductors or cables shall be abandoned in place. Such conductors or cables shall be removed from the building or structure back to the panelboard unless otherwise approved by the Building Official or designated representative based upon consideration of safety and combustibility.

Add a new Subsection (E) to Article 110.12 to read as follows:

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

110.26 Spaces About Electrical Equipment

Add a new Sentence to the end of 110.26(C)(2) to read as follows:

When more than one entrance is required by this section both entrances shall open to the exterior of the building or into an approved means of egress that is not under the control of an individual tenant.

110.33 Entrance and Access to Work Space

Add a new Sentence to the end of 110.33(A)(1) to read as follows:

When more than one entrance is required by this section both entrances shall open to the exterior of the building or into an approved means of egress that is not under the control of an individual tenant.

Chapter 2 Wiring and Protection

210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

Add a new Subsection (6) to Article 210.8(B) to read as follows:

(6) Commercial Bars ---- Where the receptacles are installed to serve the countertop surfaces

Add a new Subsection (D) to Article 210.8 to read as follows:

(D) All Occupancies.

(1) All 125-volt, single-phase, 15-and 20-ampere receptacles installed within 1.8 m (6 ft) of sinks or basins shall have ground-fault circuit-interrupter protection for personnel.

(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.

210.23 Permissible Loads.

Add a new Subsection (E) to Article 210.23 to read as follows:

(E) Dwelling Branch Circuits.

(1) **Maximum Number.** The maximum number of outlets on a 15-ampere, 125-volt (nominal) lighting fixture circuit shall be twelve (12) and shall not contain general purpose outlets.

Exception No 1: Dedicated branch circuits feeding only IC rated recessed fixtures may use Article 220.14(D) for maximum number of lighting outlets.

Exception No 2: In branch circuits serving smoke detectors the smoke detectors outlets need not be counted with the other lighting outlets

(2) **Maximum Number.** The maximum number of outlets on a 20-ampere, 125-volt (nominal) circuit used either exclusively for receptacles, for lighting outlets or for any combination of receptacles and lighting outlets shall be twelve (12).

Exception No 1: Dedicated branch circuits feeding only IC rated recessed fixtures may use Article 220.14(D) for maximum number of lighting outlets.

Exception No 2: In branch circuits serving smoke detectors the smoke detectors outlets need not be counted with the other lighting outlets.

(3) **Counter Receptacles.** No more than five (5) duplex receptacle outlets serving the required counter top receptacles shall be installed on any small appliance branch circuit.

Exception: Receptacles installed to provide power for electric ignition systems or clock timers for gas-fired ranges, ovens or counter-mounted cooking units.

(4) **Individual Branch Circuits.** The following fastened-in-place appliances are required to have a separate minimum 20-ampere circuit: dishwasher, trash compactor, microwave oven, and hydromassage bathtub. The required laundry circuit may serve one (1) additional outlet in the laundry area.

210.52 Dwelling Unit Receptacle Outlets.

Add a new sentence to the end of Subsection 210.52(A)(2) (2) to read as follows:

Where panels consist of multiple sliding panels only the first panel in each direction may be excluded.

Add a new sentence to the end of Subsection 210.52(A)(2) (3) to read as follows:

Where room dividers consist of multiple moving panels only the first moving panel in each direction may be excluded as a wall space.

Delete the exception to 210.52(C)(1) and Figure 210.52:

Add a new statement to the end of Subsection 210.52(C)(2) to read as follows:

This outlet shall serve the first 1.22 m (4 ft) of counter space, measured horizontally, in the long dimension. An additional outlet shall be required to serve each additional 1.22 m (4 ft) or fraction thereof, of counter space in the long dimension.

Add a new statement to the end of Subsection 210.52(C)(3) to read as follows:

This outlet shall serve the first 1.22 m (4 ft) of counter space, measured horizontally, in the long dimension. An additional outlet shall be required to serve each additional 1.22 m (4 ft) or fraction thereof, of counter space in the long dimension.

Add a new Exception No. 3 to Subsection 210.52(F) to read as follows:

Exception No. 3: In structures more than four (4) stories in height where the configuration of a laundry area is such that only an electrically heated stackable type washer/dryer unit utilizing 208 volt or 240 volt power can be accommodated, the receptacle may be considered as meeting the laundry circuit requirement.

Add a new Subsection (I) to Article 210.52 to read as follows:

(I) Stairwell Landings. Stairwell landings, which are 3.66 m (12 ft) or more from a receptacle outlet, shall have at least one receptacle.

210.62 Show Windows.

Add a new statement to the end of 210.62 to read as follows:

The receptacle outlet shall be located within 450mm (18 inches) of the top of the show window. Show windows that exceed 3.0 m (10 feet) in height shall require a receptacle at the first available structural member above the height of 3.0 m (10 feet) measured from the floor.

210.70 Lighting Outlets Required.

Add a new statement to the end of Article 210.70(A)(1), but before the exceptions, to read as follows:

Unless prohibited by structural design a wall switch shall be located within 1.8 m (6 ft) of the point of entry, and shall not be located behind an active door in the fully open position.

Add a new statement to the end of Article 210.70(A)(2)(a) to read as follows:

Hallways of 3.0 m (10 ft) or more in length shall have wall switches at every end. There shall be a wall switch within 1.8 m (6 ft) of each bedroom door unless prohibited by structural design.

Add a new statement to the end of 210.70(A)(2)(b) to read as follows:

At least one wall switch that controls an interior lighting outlet shall be located at each keyed exterior entry. This switch shall be located within 1.8 m (6 ft) of the latching jamb side, unless prohibited by structural design, and not behind an active door in the fully open position.

Add a new Subsection (A)(4) to Article 210.70 to read as follows:

(4) **Closet.** All walk-in closets or storage areas of 1.86 sq. m (20 square feet) or more in floor area shall contain a light fixture controlled by a wall switch.

Add a new Subsection (D) to Article 210.70 to read as follows:

(D) Mini Storage. All mini storage units shall have illumination as required in the Building Code for egress illumination.

220.5 Calculations.

Add a new Subsection (C) to Article 220.5 to read as follows:

220.5 (C) Calculated Loads. The calculated load of a new single family dwelling service shall allow a minimum of 4800 volt-amperes for future expansion. These 4800 volt-amperes shall be added to the total net computed load.

220.84 Optional Calculations – Multifamily Dwelling.

Delete 220.84(C)(5)and add a new Subsection (D) to read as follows:

(D) Heating and Air Conditioning Load. The largest of the following six selections (load in kVA) shall be included:

(1) 100 percent of the nameplate rating(s) of the air conditioning and cooling.

(2) 100 percent of the nameplate rating(s) of the heating when a heat pump is used without any supplemental electric heating.

(3) 100 percent of the nameplate ratings of electric thermal storage and other heating systems where the usual load is expected to be continuous at the full nameplate value. Systems qualifying under this selection shall not be calculated under any other selection in 220.84(D).

(4) 100 percent of the nameplate rating(s) of the heat pump compressor and 65 percent of the supplemental electric heating for central electric space heating systems. If the heat pump compressor is prevented from operating at the same time as the supplementary heat, it does not need to be added to the supplementary heat for the total central space heating load.

(5) 65 percent of the nameplate rating(s) of electric space heating if less than four separately controlled units.

(6) 40 percent of the nameplate rating(s) of electric space heating if four or more separately controlled units.

225.32 Location.

Delete Article 225.32 and add a new Article 225.32 to read as follows:

225.32 Location. The disconnecting means shall be installed as described in 230.70 of these amendments. For the purposes of this section the requirements in 230.6 shall be utilized.

Exception No. 5: For accessory buildings to one and two-family dwellings the disconnecting means may be installed either inside or on the exterior of the accessory structure.

230.11 Location of Customer Owned Service Lateral or Drop.

Add a new Article 230.11 to read as follows:

230.11 Location of Customer Owned Service Lateral or Drop. All conductors shall traverse only the property to be served except through recorded power easements.

230.70 General.

Delete Article 230.70 and add a new Article 230.70 to read as follows:

230.70 General. Means shall be provided to disconnect all ungrounded service entrance conductors to a building or structure.

(A) Location. The service disconnecting means shall be installed in accordance with 230.70(A)(1), (2), (3), (4) and (5).

(1) **Exterior of the Building.** The service disconnecting means shall be installed in a readily accessible exterior location and within 3.7 m (12 ft.) of the building or structure. Where the distance is greater than 3.7 m (12 ft.) from the building or structure the service disconnecting means shall be considered as a separate structure.

Exception No1: A fire pump and its associated electrical equipment.

(2) **Electrical Equipment Room.** The service disconnecting means may be installed within a dedicated electrical equipment room with a readily accessible direct access on the exterior of a building or structure. Such rooms shall be separated from all other rooms or spaces within the building by a minimum of one (1) hour fire resistive construction and shall have approved Fire Department access.

FPN: A recessed 3200 series Knox Box may serve as the approved Fire Department access in some jurisdictions.

(3) **Bathrooms.** Service disconnecting means shall not be installed in bathrooms.

(4) **Remote Control.** Where a remote control device(s), required by another code such as in a fire command center, is used to actuate the service disconnecting means, the service disconnecting means shall be located in accordance with 230.70(A)(1) or (2).

(5) **Emergency Systems, Information Technology Equipment and Uninterruptible Power Supplies (UPS).** Emergency Systems driven by prime movers and UPS Systems shall have separate disconnecting means with separate identification. Information Technology Equipment rooms complying with Article 645.2 shall be permitted to have their disconnecting means installed per article 645.10 and 645.11 if identified at the same location as the "Service Disconnect."

(B) Marking. Each service disconnecting means shall be marked with a sign(s). When located in an dedicated electrical room the exterior door(s) providing access to the disconnecting means located in a dedicated electrical room shall be permanently marked with a sign(s). Each sign shall be a minimum 0.093sq.m (1 sq. foot), colored yellow with 25.4mm (1 inch) high, 6.35 mm (¼ inch) stroke raised or engraved letters and/or numbers indicating the address or unit it serves and be identified as the "Electrical Service Disconnect(s)" and/or "Electrical Service Disconnect(s) Inside." Emergency Systems disconnects shall be permanently marked with sign(s), identified as "Emergency Electrical Disconnect(s)" and/or "Main Emergency Electrical Disconnect(s) Inside." When the service disconnecting means is located inside a dedicated electrical room and it is not the first service disconnect encountered or there are multiple service disconnects there shall be a directional 75mm (3inch) wide painted yellow stripe on the floor from the entry door(s) to each service disconnect. Other durable means of identification may be used with prior approval by The Authority Having Jurisdiction.

Exception: One and two family dwelling units and their associated accessory structures.

(C) Suitable for Use. Each service disconnecting means shall be suitable for the prevailing conditions. Service equipment installed in hazardous (classified) locations shall comply with the requirements of Articles 500 through 517.

240.6 Standard Ampere Ratings.

Delete "not meeting the requirements of 240.6(C)," from Subsection (B) of Article 240.6.

Delete Subsection (C) from Article 240.6.

250.32 Building or Structures Supplied by Feeder(s) or Branch Circuit(s).

Add a new statement at the end of Article 250.32 to read as follows:

For the purposes of this section all residential buildings or structures not joined by a continuous concrete foundation or footing and roof shall be considered as separate buildings or structures.

250.50 Grounding Electrode System.

Add a new sentence at the end the first paragraph of Article 250.50 to read as follows:

The concrete-encased electrode described in Article 250.52(A)(3) shall be required for new buildings and structures that are supplied with electrical power and have concrete foundations or footings.

250.52 Grounding Electrodes.

Delete Subsections (A)(5) and (A)(6) of Article 250.52 and add a new Subsection (A)(5) to read as follows:

(5) **Rod Electrodes.** Rod electrodes shall not be less than 2.44 m (8 ft) in length and shall consist of the following materials and shall be installed according to Article 250.53 (G). Electrodes shall be copper clad or their equivalent and shall not be less than 15.875 mm (5/8 inch) in diameter, or listed non-ferrous rods or their equivalent and not less than 12.7 mm (inch) in diameter.

250.53 Grounding Electrode System Installation.

Delete ", Pipe and Plate" from the title and both sentences in Subsection (A) of Article 250.53 and from Subsection (D)(2).

Delete "or (A)(6)" from the first sentence in Subsection (B) of Article 250.53.

Delete "and Pipe" from the title of Subsection (G) of Article 250.53.

Delete Subsection (H) of 250.53

250.56 Resistance of Rod, Pipe, and Plate Electrodes

Delete "Pipe, and Plate" from the title and in both sentences in Article 250.56.

250.118 Types of Equipment Grounding Conductors.

Delete Subsection (5), (6) and (8) of Article 250.118.

250.120 Equipment Grounding Conductor Installation.

Add a new Subsection (D) to Article 250.120 to read as follows:

(D) Equipment Grounding Conductor. All raceways installed on roofs with a slope less than 102 mm per 306 mm (4 inches per 12 inches) shall contain an equipment grounding conductor sized per Table 250.122 installed with the circuit conductors.

Exception No. 1: Low voltage, communication and similar type systems unless required elsewhere in the Code.

Exception No. 2: As permitted by Article 250.86 for short sections of metal enclosures or raceways.

Chapter 3 Wiring Methods and Materials

300.1 Scope.

Add a new Subsection (D) to Article 300.1 to read as follows:

(D) Wiring of Buildings.

(1) Wiring installed in the construction of buildings and structures shall be contained in a raceway or cable tray system.

Exception No. 1: AC cable, MC cable and MI cable. Articles 320, 330, and 332 respectively.

Exception No. 2: Special alarm sensing cable.

Exception No. 3: Where NM, NMC or NMS cable is permitted by this code. Article 334.

Exception No. 4: Low voltage wiring when installed exposed on walls and ceilings. Limited to Articles 725, 760, 770, 800, 810, 820 and 830.

Exception No. 5: Any listed under-carpet system. Article 324.

Exception No. 6: Per Article 645.

Exception No. 7: Listed Neon Cable Assemblies providing the equivalent mechanical protection of Liquid Tight Flexible Conduit.

(2) Raceway systems for buildings and structures of Type I or Type II A construction as defined in the Building Code shall be of metallic non-combustible materials and cable trays shall be of the fully enclosed type.

Exception No. 1: Non-metallic raceways encased in concrete, or masonry, or underground or solid grouted building components that are in compliance with the Building Code.

Exception No. 2: Liquid-tight flexible conduit in lengths of 1.8 m (6 ft) or less which comply with NEC Articles 350 and 356.

310.5 Minimum Size of Conductors.

Add a new sentence to Article 310.5 to read as follows:

Aluminum and copper clad aluminum conductors smaller than No. 6 AWG shall not be used.

314.24 Depth of Outlet Boxes.

Add the following to the end of Article 314.24 to read as follows:

All outlet, switch or junction boxes less than 200 mm (8 inches) in any dimension, shall have no more than any combination of two extension boxes and/or plaster rings.

Exception: Listed unit(s) or assembly(s).

334.10 Uses Permitted.

Delete Subsection (3) of Article 334.10 and add a new Subsection (3) to read as follows:

(3) Group R-1, R-2, R-3 and R-4 occupancies permitted to be Types III, IV, and V construction as defined in the Building Code and in buildings with accessory uses, such as: pool houses, recreation buildings, guard houses, garages, laundry rooms and offices except as prohibited in Article 334.12.

Conversions from R-3 to B occupancy as defined by the Building Code, Type NM and NMC cables may remain, provided the equipment grounding conductors are sized in accordance with Table 250.122 and are installed in accordance with this Code, or meet the requirements of Article 406.3(D).

334.12 Uses Not Permitted.

Add a new Subsection (11) to Article 334.12(A) to read as follows:

(11) In Type I or Type II construction as defined in the Building Code.

352.10 Uses Permitted.

Add a new Subsection (I) to Article 352.10 to read as follows:

(I) **Exposed to Direct Sunlight.** Rigid non-metallic conduit shall be a minimum Schedule 80 and identified for such use.

358.12 Uses Not Permitted.

Add new Subsections (7), (8) and (9) to Article 358.12, before the exception, to read as follows:

(7) In concrete or masonry in contact with earth.

(8) Underground.

(9) In earth fills.

Chapter 4 Equipment for General Use

408.35 Number of Overcurrent Devices on One Panelboard.

Add the following paragraph to the end of Article 408.35 to read as follows:

Each panelboard or load center installed in a new one or two-family dwelling shall have a capacity for a minimum of two (2) additional full-size single pole overcurrent devices on adjacent opposite poles for expansion. All available overcurrent device spaces shall comply with Article 404.8(A).

410.4 Fixtures in Specific Locations.

Add the following sentence to the end of Subsection (D) of Article 410.4 to read as follows:

All luminaires (lighting fixtures) permitted to be installed in this zone shall be ground-fault circuit-interrupter protected.

Chapter 5 Special Occupancies

514.11 Circuit Disconnects.

Add the following to the end of Subsection (A) of Article 514.11 to read as follows:

The switch shall be a momentary contact type. The disconnect station sign shall be 0.093 sq. m (1 ft square), colored yellow and have black, 25.4 mm (1 inch) high, 6.35 mm (¼ inch) stroke permanent lettering describing it as "Emergency Pump Shutoff."

Delete Subsection (B) in its entirety.

Delete the words "Unattended Self-Service" from the title of Subsection (C).

550.30 Distribution System.

Add the following to the end of Article 550.30 to read as follows:

Electrical service to all mobile home parks and to all lots (sites, spaces, etc.) in mobile home parks, shall be provided by the franchised serving utility unless approved otherwise by the Building Official or designated representative.

590.2 All Wiring Installations.

Add the following to the end of Subsection (A) of Article 590.2 to read as follows:

Temporary power receptacle outlets installed in wet locations shall be permitted to have an enclosure that is weatherproof when the attachment plug is removed.

Chapter 6 Special Equipment

600.9 Location.

Add a new sentence to the end of (B) to read as follows:

(B) All electrical wiring and neon tubing shall be completely enclosed within an approved material or barrier to prevent physical contact up to a height of 2.44 m (8 ft) above finished grade or floor level.

680.26 Equipotential Bonding.

Delete Section 680.26(C) and add a new Section 680.26(C) to read as follows:

(C) Equipotential Bonding Grid. The parts specified in 680.26(B) shall be connected to an equipotential bonding grid with a solid copper conductor, insulated, covered, or bare, not smaller than 8 AWG or rigid metal conduit of brass or other identified corrosion-resistant metal conduit. Connection shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and are of stainless steel, brass, copper, or copper alloy. The following shall be bonded as part of the equipotential bonding grid:

(1) If Structural Reinforcing Steel is present in the deck or coping within 1m (3 ft) of waters edge it shall be bonded to the structural reinforcing steel of a concrete pool where the reinforcing rods are bonded together by the usual steel tie wires or the equivalent.

(2) Bolted or Welded Metal Pools. The wall of a bolted or welded metal pool.

(3) Alternate Means shall be required for non-metallic reinforced pools. This system shall be permitted to be constructed as specified in (a) through (c):

a. Materials and Connections. A grid shall be constructed of minimum 8 AWG bare solid copper conductors. Conductors shall be bonded to each other at all points of crossing. Connections shall be made as required by 680.26(D).

b. Grid Structure. The equipotential bonding grid shall be installed under or in the pool deck extending 1 m (3 ft) horizontally from the inside walls of the pool. The equipotential bonding grid shall be arranged in a 300 mm (12 in.) by 300 mm (12 in.) network of conductors in a uniformly spaced perpendicular grid pattern with tolerance of 100 mm (4 in.).

c. Securing. The below-grade grid shall be secured within or under the pool and deck media.

682 Natural and Artificially Made Bodies of Water.

Delete Article 682 in its Entirety.

Chapter 7 Special Conditions

700.1 Scope

Add a third paragraph to the beginning of 700.1 to read as follows:

For the purposes of this section items considered as meeting the requirements for high rise applications (i.e. buildings over 17m (55 feet) to be placed on the emergency distribution system may include: Emergency illumination, exit signage, electric fire pumps, fire jockey or makeup pumps, fire alarm equipment, smoke control equipment, one elevator per bank of elevators, cooling and heating equipment for emergency electrical rooms and elevator machine rooms, FAA required obstruction lighting, battery chargers for emergency generating equipment, heating equipment for freeze protection of fire sprinkler systems, telecommunications equipment (i.e. for 911 applications) fire command center loads such as monitoring and display equipment and other equipment approved by the Authority Having Jurisdiction that will enhance the survivability of life safety systems.

700.9 Wiring, Emergency System.

Change Subsection (D) of Article 700.9 (the portion before Paragraph (1)) to read as follows:

(D) Fire Protection. Emergency systems shall meet the following additional requirements in 700.9(D)(1) and (D)(2) in any occupancy(s) of 300 or more persons or in buildings above 17 m (55 ft) in height.

Add a new Sentence to the end of Article 700.9 (D)(2) to read as follows:

This equipment shall be located in room(s) dedicated to this equipment.

Exception: System components described in Article 701 may occupy the same dedicated room(s) as emergency systems.

700.12 General Requirements.

Change the fourth paragraph of 700.12 to read as follows:

Equipment for sources of power as described in 700.12(A) through 700.12(E) shall meet the following additional requirements in any occupancy(s) of 300 or more persons or in buildings above 17 m (55 ft) in height. This equipment shall be installed in spaces fully protected by approved automatic fire suppression systems (sprinklers, carbon dioxide systems and so forth) or in spaces protected by a fire-rated assembly listed to achieve a minimum fire rating of one-hour.

Add a new Subsection (B)(7) to Article 700.12 to read as follows:

(7) The emergency generator shall not be located more than 17 m (55 ft) above the lowest level of fire department vehicle access. When the generator set is located inside a building it shall be located in a room dedicated to the Emergency Power Supply System. This room shall be separate from the interior of the building by a minimum of two-hour resistive construction or shall be in room(s) fully protected by approved automatic fire suppression systems. Unless otherwise required by Building Codes openings for generator cooling and exhaust shall not be required to be fire-resistive construction.

When a generator set is located within 1.5 m (5 ft) of a building it shall be separated from the building with a rated barrier wall equal to the highest fire rating within the building that has no openings. It shall be isolated within an enclosure and protected from physical damage.

When a generator set is located more than 1.5 m (5 ft) of a building it shall be isolated within an enclosure and protected from physical damage.

700.16 Emergency Illumination.

Add the following to the end of the first sentence of Article 700.16 to read as follows:

Electrical rooms, fire control rooms, fire pump rooms, PBX rooms, public restrooms and generator rooms shall require emergency illumination.

Exception: A single user restroom shall not require emergency illumination.

Notes