



Philippine electrical code summary

You're Reading a Free Preview Pages 6 to 15 are not shown in this preview. You're Reading a Free Preview Page 19 is not shown in this preview. PHILIPPINE ELECTRICAL CODE (P E C) PEC I - Electrical installation inside buildings. * PEC consists of rules which are intended to make use of electricity. safe for person and property. * Two (2) categories of PEC rules * 1. Mandatory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. Advisory Rules - characterized by the use of the word "SHALL".2. 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P.D. 1096 - National Building Code 2. P.D. 1185 - Fire Code of the Philippines 3. Structural Code R.A. 7920 - is an act providing for a more responsive and comprehensive regulation for the practice, licensing, and registration of electricians. * Government Authorities who implement PEC * 1. Office of the Building Official 2. Office of the B Electrical Supervising Engineer) The Philippine Electricity as a source of electricity as a source of electricity as a source of fires and explosions. Philippine Electrical Code Part I 2017 Edition The Energy Regulatory Commission adopts the PEC Part 1 and Part 2 set by the Professional Regulation Companies, Transmission Providers, Distribution Utilities and Suppliers in the Philippine Grid Code (PGC) and Philippine Distribution Code (PDC). Also adopted in the Occupational Safety and Health Standards by the BWC-DOLE as a "Electrical Safety Standard" (Rule 1210-Electrical Safety must be adopted to safeguard any person employed in any workplace? The Philippine Electrical Safety adopted & the standards contained therein shall be considered safety standards. Philippine Electrical Code Part I 2017 Edition Based on NEC 2005 The Fire Code for the Safe Use of Electrical Safety Standard The National Electrical Code The first documented case of a Code as a requirement of rules was published on 16th Nov. 1881 entitled "The Dangers of Electric Lighting". The first NEC was developed in 1897, eighteen after the invention of incandescent light bulb by Thomas A. Edison. Since 1911, the NFPA of Quincy, Massachussets, has been responsible for the maintenance and publication of the NEC. Regularly revised (every three years) to reflect the evolution of products, materials, and installation techniques. 21 Separate Committee, each consisting of 15-20 persons. Members of each committee meet several times, discuss proposed changes, accepting some and rejecting others, and rewrite (as required) the sections of the Code that were assigned to their committee. Philippine Electrical Code Part I 2017 Edition Based on NEC 2005 Regularly revised (every three years) to reflect the evolution of products, materials, and installation techniques. NEC 2008, NEC 2011, NEC 2014 & NEC 2017 NEXT NEC 2020, 2023, 2026, 2029 PURPOSE OF Philippine Electrical works standards for the safe use of electricity for light, heat, power, communications, signaling and for other purposes. "Practical safeguarding of persons and property from hazards arising from the use of electricity". COMPLIANCE TO THE PEC WILL ENSURE SAFETY AND PREVENT ELECTRICAL FIRES. Philippine Electrical Code Part I 2017 Edition This Code is intended as a design specification or an instruction manual for qualified persons. Electrical designs must comply with the requirements of Code to ensure safety. Energy management, maintenance, and power quality issues aren't within the scope of the Code. Consideration should be given for future expansion of electrical systems but this is not a Code requirement. No more Part Ia and Part Ib; In A4 size of paper! Large font size! PRBEE Res. No. 18 Series of 2017 Adoption of the Revised Philippine Electrical code in accordance with the National Building Code. The resolution was signed by the Chairman FVM and Member JVM on 10 Nov. 2017. Approved by the Professional Regulatory Commissioner Yolanda D. Reves and Commissioner Yolanda D. Reves and Commissioner Jose Y. Cueto, Jr. The resolution in the Official Gazette: Nov. 17, 2017. Date of Effectivity: December 2, 2017. Chapter 1. General Article 1.0- Introduction 1.0.1.1 (C) This Code is intended as a design specification nor an instruction manual for a nonlicensed electrical practitioners. This Code is intended as a design specification nor an instruction manual for a nonlicensed electrical practitioners. practitioner. 1.0.1.1 (C) This Code is intended as a design specification or an instruction manual for qualified persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. 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Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 (C) The Code are now not for exclusive used of licensed electrical persons. Impacts of Art. 1.0.1.1 has qualifications, skills and knowledge related to the construction of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. (a) This Code is intended for mandatory application by government bodies exercising legal jurisdiction over electrical installations. (b) These government bodies, only through a licensed electrical practitioner, shall have the responsibility of implementing of this Code provision in deciding on the approval of equipment and for granting the special permission contemplated in this Code. safety. (d) This Code may require new products, constructions, or materials that may not yet be available at the time this Code is adopted by the National Building Code. (A) This Code is intended for mandatory application by the Office of the Building Official/EE shall have the responsibility of implementing the provisions of this Code. (C) This Code may require new products, constructions, or materials that may not yet be available at the time this Code is adopted. In such event, the Office of the Building Official/EE may permit the use of the products, constructions, or materials that comply with the most recent previous Edition of this Code adopted by the National Building Code. Deleted provision on PEC 2009 Part 1 (c) The authority having jurisdiction may waive specific requirements in this Code or permit alternate methods where it is assured that equivalent objectives can be achieved by establishing and maintaining safety. The Office of the Building official are given the clear authority to implement all the provisions of the Code. Needs for capacity building of the OBO. BOSH and COSH mandatory to all OBO personnel. Competency Training on the PEC Part I IIEE will provide free training for the OBO as part of its corporate social responsibility and in concerns for public safety. Others industry stakeholders like MERALCO, VECO, CEPALCO, and Davao Light can assists in the capacity building of the OBO. JVM - ISR. Upon the recommendation of the Code Committee, the Board of Electrical Engineering shall render the final decision in the interpretation of any portion of the PEC Part 1, in case of conflicting interpretations, these may be referred to the PEC Part 1 Committee for interpretation. Should disagreement remain, thereafter, the Committee's interpretation A. Licensed Electrical Engineering who shall render the final decision. Three-Level of Interpretation/s B. PEC Part I Committee For Final Interpretation/s C. Board of Electrical Engineering New Provisions on PEC 2017 Edition 1.0.1.10 Apprenticeship (A) RA 7920 or the national electrical engineering law requires apprenticeship as one of the qualifications to the registration and licensure examinations for Registered Master Electrician (RME), in order to practice electrical engineering in the Philippines. Knowledge and understanding of the PEC1, and PEC2 form part of the examination given. 1.0.1.10 Apprenticeship (B) An apprentice of electrical engineering under RA 7920 or the national electrical engineering law. 1.0.1.11 Services of Licensed Electrical Practitioners For decisions and actions involving a knowledge of electrical engineering and/or training in electrical engineering and/or training electrical engineering electrical electrical engineering electrical electrica sheets of standard size, and shall show: (1) Branch circuits, subfeeders, feeders, busways, and service entrance; (F) Design Analysis (2) Types, rating, and trip setting of overcurrent devices; (3) Calculation of short circuit current for determining the interrupting capacity of overcurrent devices; (3) Calculation of short circuit current for determining the interrupting capacity of overcurrent devices; (3) Calculation of short circuit current for determining the interrupting capacity of overcurrent devices for residential, commercial, and industrial establishment; (4) Calculation of voltage drops. (F) Design Analysis None!!! (F) Design Analysis shall be included on the drawings or shall be included on the drawings or shall be submitted on separate sheets of standard size, and shall show: (1) Branch circuits, subfeeders, feeders, busways, and service entrance; (F) Design Analysis (2) Types, rating, and trip setting of overload protective devices; (3) Calculation of voltage drops; (4) Calculation of short circuit current for determining the interrupting capacity of overcurrent devices; (5) Protection coordination of overcurrent devices; (6) Arc-Flash Hazard Analysis to determine the required personal protective equipment in other than dwelling place. Impact of Art. 1.3- Electrical Plans and Specifications OBO will NOT accept electrical plans. All Electrical plans without Technical Analysis. Reference: iiee.org.ph, Philippine Electrical Plans. Code Part 1 2017 Ed. - Highlights and Impacts by Jaime V. Mendoza, FIIEE, PEE, ACPE & APEC Member Board of Electrical Engineering. 43rd Annual IIEE National Convention. Philippine Electrical Code (PEC) covers almost every electrical installation in the Philippine Electrical Code The Philippine Electrical Engineering. the PEC 2009 Part 1 Volume 1 by Ramon Cristobal, President of ACMEEE, to quote The Philippine Electrical Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that may arise from the use of electricity. Also in Clause 1.0.1.1 (a), Practical Safeguarding states that "The purpose of this Code is the basis for safeguarding states that may arise from the use of electricity. Also in Clause 1.0.1.1 (a), Practical Safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of this Code is the basis for safeguarding states that "The purpose of the basis for safeguarding states that "The purpose of the basis for safeguarding states that "The purpose of the basis for safeguarding states that "The purpose of the basis for safeguarding states that t practical safeguarding of persons and property from hazards arsing from the use of electricity". Members of the ACMEEE are the people responsible for issuing the Electrical Permits which is a requirement for construction and occupancy. The PEC 2009 has started its standard harmonization with the IEC as initiated by the 2005 edition of NFPA 70. This is a global trend happening not only in the Philippines. The US and Australia are the countries I particularly want to congratulate the members of the PEC committee for their work. I will be discussing standards harmonization in my succeeding articles. Note: Please visit us at Philippine Electrical Code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code contains provisions that are considered minimum requirements necessary for safety. This code is intended a design specification or an instruction manual to qualified persons. - PEC 2017 Revisions: New definitions have been included, notably Office of the Building Official/EE (OBO/EE), National Electrical Engineering Law and Service Protective Device. The OBO/EE refers to the licensed electrical practitioner employed with the Office of the Building Official. He/she replace the Authority Having Jurisdiction (AHJ) in the Code's various provisions. The second new definition expounds references to Republic Act 7920 (RA 7920) which is the current national engineering law. This way, the nation engineering law remains relevant should Republic Act 7920 be superseded. Service Protective Device defines the new equipment. Also, three important new sections have been added: (1) Section 1.0.1.10 Apprenticeship(2) Section 1.10.1.24 Available Fault Current (which require markings of such on the service equipment and would necessarily need short-circuit calculations complimenting Section 1.3.2.1(F)(4),(3) Section 1.3.2.1(F)(5). Chapter 2 Wiring and Protection Important revisions include: (1) Deletion of requirement for arc-fault circuit-interrupter due to non-availability for Philippine specifications,(2) In addition to Site developments -where group(s) of single detached buildings are constructed - have been included,(3) Clarified and expanded provisions on Service Protective Device when installed ahead of Service Equipment, and(4) clarified provisions on grouping of Disconnecting Means Chapter 3 Wiring Methods and Materials Revisions: Rationalized ampacity tables of conductors - copper and aluminum - for three conductors in raceway and in free air up to 2000 volts, Tables 3.10.2.6(B)(16) and 3.10.2.6(B)(17), respectively. Ampacities are based on current densities of the cross-sectional areas of the conductors. Article 3.10 has been added: (1) Reinforced Thermosetting Resin Conduit: Type RTRC, (2) Cablebus, (3) Low-voltage Suspended Ceiling Power Distribution System, (4) Outdoor Overhead Conductors over 1,000 V. Chapter 4 Equipment for General use Revisions: Previous editions of PEC1, at one time or another, permitted a specific number of overcurrent protective devices in a panel board enclosure. This limitation has been removed from PEC1 2017 and is required only (maximum of 48) if the panel board is protected on its supply side by two sets of circuit breakers or two sets of fuses. Fixed Electric Space-heating Equipment has also been added. Chapter 5 Special Occupancies Revisions: Spray Application, Dipping, Coating and Printing Processes using Flammable or Combustible Materials has been expanded while adding Control Systems for Permanent Amusement Attractions. Chapter 6 Special Equipment Revisions: Electric Vehicle Charging System has been expanded with new sections on Electric Vehicle Charging System has been expanded with new sections. Power Production Facility, and Wind Electric Systems, Chapter 7 Special Conditions Revisions: Interconnected Electric Power Production Sources and Optical Fiber Cables have been added: Energy Storage Systems, Critical Operations Power Systems, Direct Current Microgrids, and Fire Resistive Cable Systems. Chapter 8 Communications: A new Table 10.1.1.10 has been added. Appendices Appendix A Electrical Symbols DISCLAIMER: This is not an official copy of the Philippine Electrical Code 2017. While the authors have used good faith and efforts to ensure that the information and instructions, including without limitation responsibility for damages resulting from the use of or reliance on this work. Use of the information and instructions contained in this work is at your own risk.

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