2011

PUERTO RICO BUILDING CODE

Regulation #7965 - December 27, 2010, as amended

DEPARTAMENTO DE ESTADO
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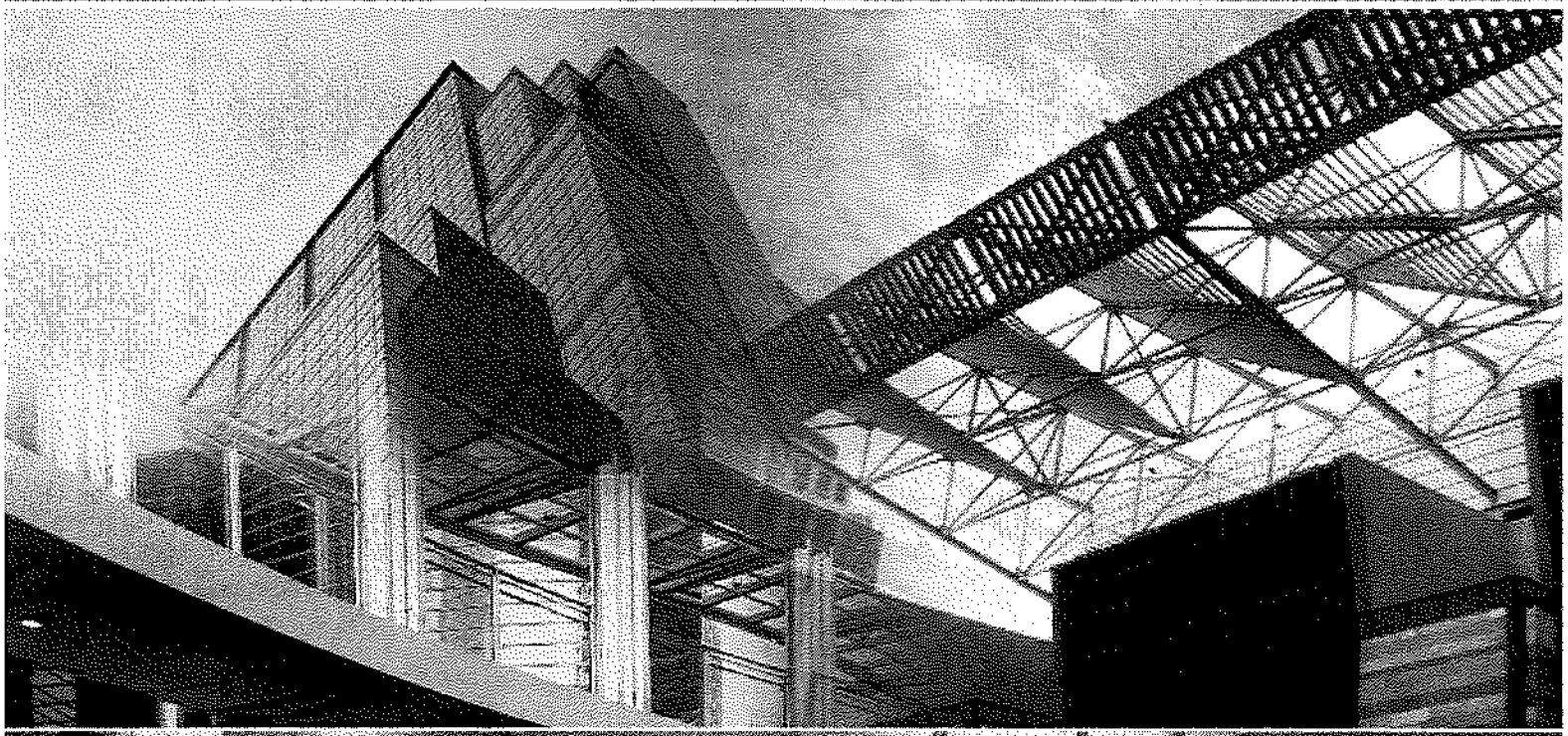
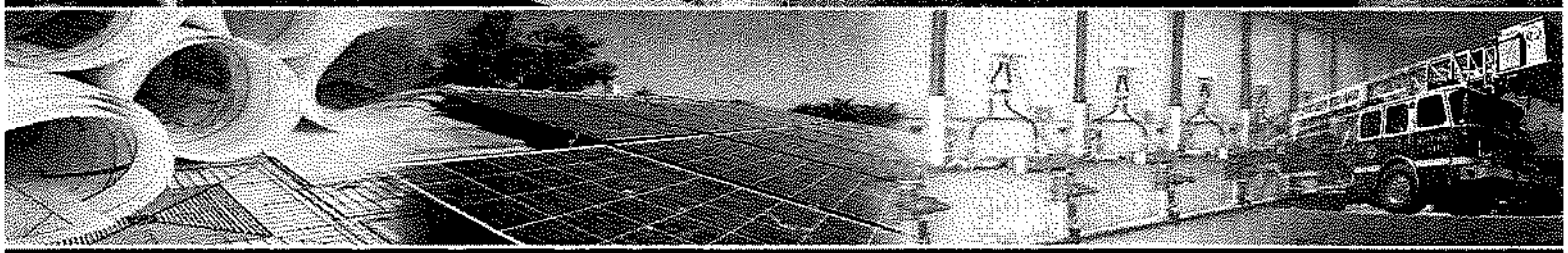
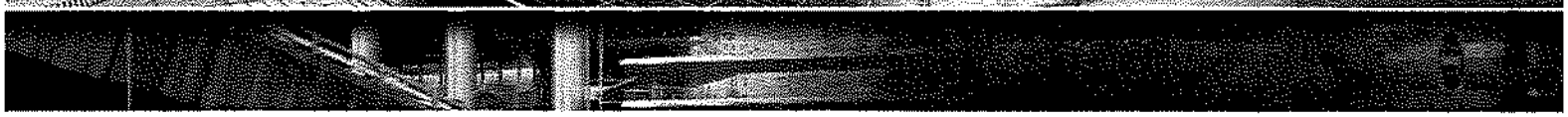
Aprobado: Hon. Kenneth D. McClintock
Secretario de Estado

Por: Eduardo Arosemena Muñoz
Secretario Auxiliar de Servicios







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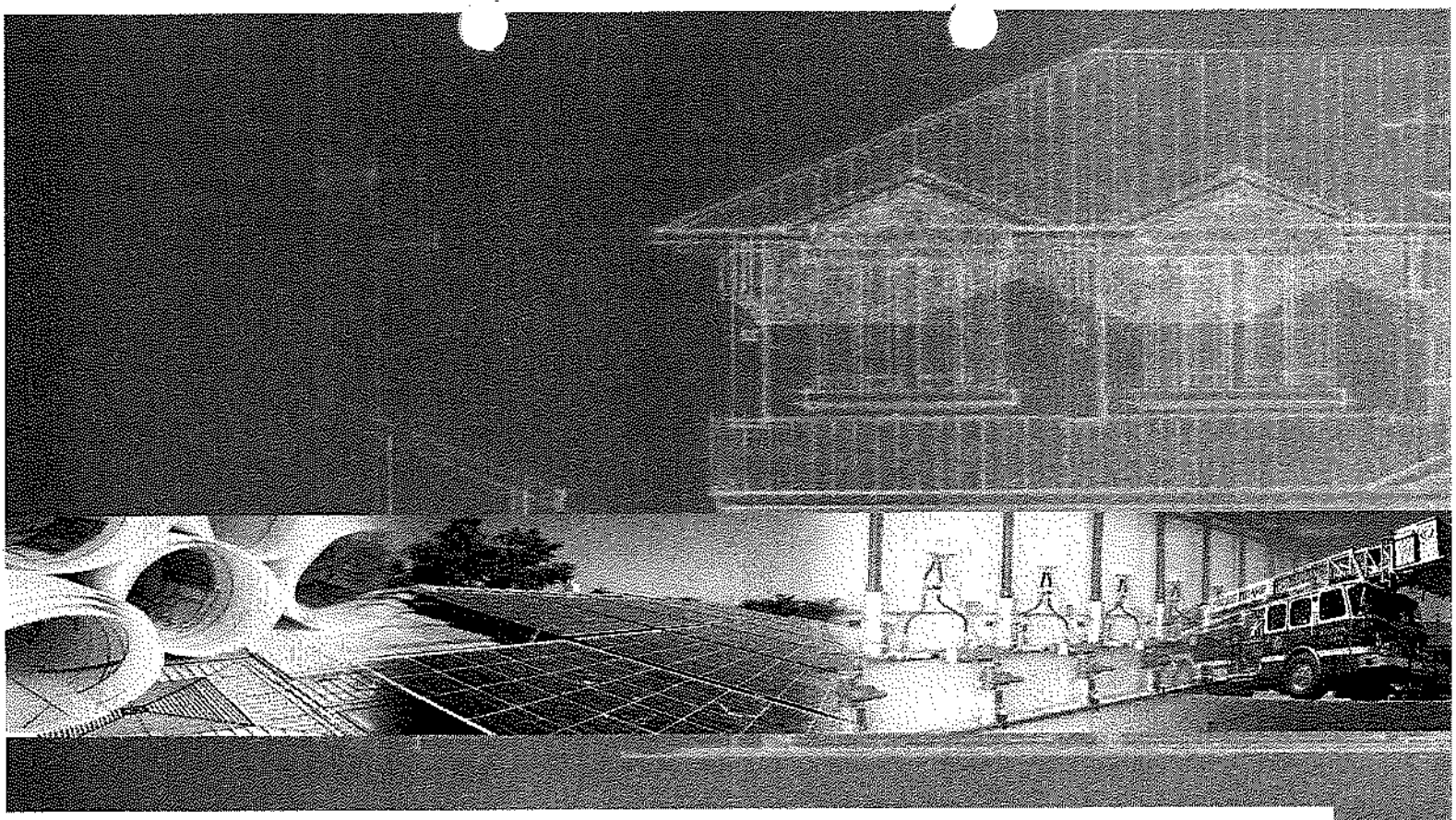

2011
PUERTO RICO BUILDING CODE

AMENDMENTS
to the

2009 International Building Code
2009 International Residential Code
2009 International Mechanical Code
2009 International Plumbing Code
2009 International Fire Code
2009 International Fuel and Gas Code
2009 International Energy Conservation Code
2009 International Existing Building Code
2009 International Private Sewage Disposal Code

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Revision - June 2012

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INTRODUCTION

Puerto Rico's Code Official recognizes the need for a modern, up-to-date building code addressing the design and installation of building systems through requirements emphasizing performance. The Puerto Rico Building Code in this 2011 edition, together with the 2009 model codes of the International Code Council, are designed to meet these needs through regulations that safeguard the public health and safety in all communities, large and small.

This comprehensive building code establishes minimum regulations for building systems using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new building designs. This 2011 edition of the Puerto Rico Building Code is a compilation of amendments, fully compatible with all the 2009 International Codes® (I-Codes®) published by the International Code Council (ICC)®, including the International Building Code®, the International Residential Code®, the International Mechanical Code®, the International Plumbing Code®, the International Fire Code®, the International Fuel Gas Code®, the International Energy Conservation Code®, the International Existing Building Code®, and the International Private Sewage Disposal Code®.

The Puerto Rico Building Code, composed of a compilation of amendments and the 2009 International Codes® (I-Codes®) provisions, provide many benefits, among which is the code development process that offers a forum for building professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This code process also encourages consistency in the application of provisions.

USE AND FORMAT OF THIS CODE

The Puerto Rico Building Code® and the International Codes® (I-Codes®) provide minimum requirements to safeguard the public health, safety and general welfare of the occupants of new and existing buildings and structures. Alternative materials, designs and methods not specifically addressed in the codes can be approved by the code official where the proposed materials, designs or methods comply with the intent of the provisions of the code. The PRBC is a compilation of amendments, arranged in divisions, for each of the pertaining International Codes to be applied in Puerto Rico. All chapters, sections, sub-sections, appendices, and referenced standards added, deleted, or amended in this document shall be used together with the unaltered sections of the I-Codes® to regulate planning, design, construction, inspection and maintenance of all types of buildings and structures unless exempted.

Appendices are provided in the ICC Codes to offer optional or supplemental criteria to the provisions in the main chapters of the codes Appendices provide additional information as well as standards not typically administered by all building departments.

Appendices have the same force and effect as the chapters of the ICC Codes only when explicitly adopted by the jurisdiction.

The following shall apply for using the PRBC properly:

1. Where written on the PRBC, "no Amendments", "adopted", it signifies that the Chapter, section, sub-section, or Appendix of the particular 2009 ICC Code is unaltered and shall apply to the Puerto Rico Jurisdiction.

2. Where written in a chapter, section, sub-section, or appendix in the PRBC, "delete", "replace", "not applicable to Puerto Rico", "not adopted", it shall mean that the original corresponding chapter, section, sub-section, or appendix of the 2009 ICC Code does not apply to the Puerto Rico Jurisdiction.

3. Where written on the PRBC, an amendment to a specific chapter section, sub-section, or appendix of the 2009 ICC Code said amendment shall replace the specific chapter, section, sub-section or appendix of the 2009 ICC Code. The remaining portions of the chapter, section, sub-section, or appendix of the pertaining 2009 ICC Code shall be enforced in the Puerto Rico Jurisdiction, unless specifically written otherwise.

4. Where incorporated in the PRBC new chapters, sections, sub-sections or appendices to the pertaining 2009 ICC Codes, chapter, section, sub-section or appendix of the original 2009 ICC Code shall be enforced in Puerto Rico Jurisdiction unless specifically amended, delete, replaced, not adopted or otherwise written in the PRBC.

The codes are promulgated on a 3-year cycle to allow for new construction methods and technologies to be incorporated into the codes.

Arrangement and Format of the Puerto Rico Building Code®

Before applying the requirements of the Puerto Rico Building Code, it is beneficial to understand its arrangement and format. The PRBC, like the other codes published by ICC, is arranged and organized to follow sequential steps that generally occur during a plan review or inspection. The PRBC is arranged in a manner to be used together with the family of the I-Codes®. It contains Divisions with amendments to each respective International Code.

Divisions	Description
I	Scope and Administration
II	Amendments to the International Building Code®
III	Amendments to the International Residential Code®
IV	Amendments to the International Mechanical Code®
V	Amendments to the International Plumbing Code®
VI	Amendments to the International Fire Code®
VII	Amendments to the International Fuel and Gas Code®
VIII	Amendments to the International Energy Conservation Code®
IX	Amendments to the International Existing Building Code®
X	Amendments to the International Private Sewage Disposal Code®
Appendices	Forms

The following is a division by division synopsis of the scope and intent of the provisions of the Puerto Rico Building Code.

Division I

This Division establishes the limits of applicability of the codes; defines the enforcement agencies, the duties and powers of the Building Official, the process for construction permits, submittal of documents, inspections and certificate of occupancy and describes how the code is to be applied and enforced. Standards and codes are scoped to the extent referenced. This Division is specifically defined to be properly enforced by the "Oficina de Gerencia de Permisos" (OGPE), and The Office of the General Inspector,"Oficina del Inspector General de Permisos" (OIGPe).

Division II

This Division and the related International Building Code® addresses structural strength, means of egress, sanitation, adequate lighting and ventilation, accessibility, energy conservation and life safety in regards to new and existing buildings, facilities and systems. Together with the IBC it also establishes requirements for high hazard, fire-resistance-rated construction, interior finish, fire protection systems, means of egress, emergency and standby power, and temporary structures are directly correlated with the requirements of the IFC. Requirements for smoke control systems, and smoke and fire dampers are directly correlated to the requirements of the IMC. IBC Chapter 28 is a reference to the IMC and the IFGC for chimney, fireplaces and barbeques, and all aspects of mechanical systems. In addition requirements for plumbing fixtures and toilet rooms are directly correlated to the requirements of the IPC.

This Division and the IBC applies to all occupancies, including one- and two-family dwellings and townhouses that are not within the scope of the IRC. The IRC is referenced for coverage of detached one- and two-family dwellings and townhouses. It applies to all types of buildings and structures unless exempted.

Division III

This Division and the related International Residential Code® contains coverage for all components of a house or townhouse, including structural components, fireplaces and chimneys, energy conservation requirements, thermal insulation, mechanical systems, fuel gas systems, plumbing systems and electrical systems. It is a prescriptive-oriented (specification) code with some examples of performance code language. It is meant to be all inclusive for typical residential construction and it relies on other codes only where alternatives are desired or where the code lacks coverage for the uncommon aspect of residential construction.

This Division and the IRC are divided into eight main parts, specifically, Part I (chapters 1) -Administration, Part II (chapter 2) - Definitions, Part III (chapter 3 to 10) - Building Planning and Construction, Part IV (chapter 11) - Energy Conservation, Part V (chapter 12 to 23) - Mechanical, Part VI (chapter 24) - Fuel Gas, Part VII (chapter 25 to 33) - Plumbing, Part VIII (chapter 34 to 43) - Electrical, and Referenced Standards (chapter 44).

Division IV

This Division and the related International Mechanical Code® regulates the design and installation of mechanical systems, appliances, appliance venting, duct and ventilation systems, combustion air provisions, hydronic systems and solar systems. The purpose of the code is to establish the minimum acceptable level of safety and to protect life and property from the potential dangers associated with the installation and operation of mechanical systems. The code also protects the personnel that install, maintain, service and replace the systems and appliances addressed by this code.

The IMC is primarily a prescriptive code with some performance text. The code relies heavily on product specifications and listings to provide much of the appliance and equipment installation requirements.

Division V

This Division and the related International Plumbing Code® regulates the design and installation of plumbing systems including the plumbing fixtures in all types of buildings except for detached one- and two-family dwellings and townhouses that are not more than three stories above grade in height. The regulations for plumbing systems in one- and two-family dwellings and townhouses are covered by Division III and the related International Residential Code (IRC). It addresses general plumbing regulations, fixture requirements, water heater installations and systems for water distribution, sanitary drainage, special wastes, venting, storm drainage and medical gases.

This Division and the related IPC does not address fuel gas piping systems as those systems are covered by Division VII and the related International Fuel Gas Code

(IFGC). It also does not regulate swimming pool piping systems, process piping systems, or utility-owned piping and systems. The purpose of this Division and the related IPC is to establish the minimum acceptable level of safety to protect life and property from the potential dangers associated with supplying potable water to plumbing fixtures and outlets and the conveyance of bacteria-laden waste water from fixtures are carried away from a building.

The IPC is primarily a specification-oriented (prescriptive) code with some performance-oriented text.

Division VI

This Division and the related International Fire Code® regulates minimum fire safety requirements for new and existing buildings, facilities, storage and processes. It addresses fire prevention, fire protection, life safety and safe storage and use of hazardous materials in new and existing buildings, facilities and processes. It also provides a total approach of controlling hazards in all buildings and sites, regardless of the hazard being indoors or outdoors.

This Division and the related IFC are a design document. For example, before one constructs a building, the site must be provided with an adequate water supply for fire-fighting operations and a means of building access for emergency responders in the event of a medical emergency, fire or natural or technological disaster. Depending on the building's occupancy and uses, the IFC regulates the various hazards that may be housed within the building, including refrigeration systems, application of flammable finishes, fueling of motor vehicles, high-piled combustible storage and the storage and use of hazardous materials. This Division and the related IFC sets forth minimum requirements for these and other hazards and contains requirements for maintaining the life safety of building occupants, the protection of emergency responders, and to limit the damage to a building and its contents as the result of a fire, explosion or unauthorized hazardous material discharge.

Division VII

This Division and the related International Fuel and Gas Code® regulates the design and installation of fuel gas distribution piping and systems, appliances, appliance venting systems, combustion air provisions, gaseous hydrogen systems and motor vehicle gaseous-fuel-dispensing stations. The definition of fuel gas includes natural, liquefied petroleum and manufactured gases and mixtures of these gases. The purpose of this Division and related code is to establish the minimum acceptable level of safety and to protect life and property from the potential dangers associated with the storage, distribution and usage of fuel gases and the byproducts of combustion of such fuels. The code also protects the personnel that install, maintain, service and replace the systems and appliances addressed by this code.
This Division and the related IFGC are primarily a specification-oriented (prescriptive) code with some performance-oriented text. It also applies to all occupancies including

one- and two-family dwellings and townhouses. The IRC is referenced for coverage of one- and two-family dwellings and townhouses; however, in effect, the IFGC provisions are still applicable because the fuel gas chapter in the IRC (Chapter 24) is composed entirely of text extracted from the IFGC. Therefore, whether using the IFGC or the IRC, the fuel gas provisions will be identical. The IFGC does not apply to piping systems that operate at pressures in excess of 125 psig for natural gas and 20 psig for LP-gas (note exception in Section 402.6).

Division VIII

This Division and the related International Energy Conservation Code® regulates minimum energy conservation requirements for new buildings. The IECC addresses energy conservation requirements for all aspects of energy uses in both commercial and residential construction, including heating and ventilating, lighting, water heating, and power usage for appliances and building systems.

This Division and the IECC are a design document. For example, before one constructs a building, the designer must determine the minimum insulation R -values and fenestration U -factors for the building exterior envelope. Depending on whether the building is for residential use or for commercial use, the IECC sets forth minimum requirements for exterior envelope insulation, window and door U -factors and SHGC ratings, duct insulation, lighting and power efficiency, and water distribution insulation.

Division IX

This Division and the related International Existing Code® are intended to provide alternative approaches to remodeling, repair or alteration of existing buildings. A large number of existing buildings and structures do not comply with the current building code requirements for new construction. Although many of these buildings are potentially salvageable, rehabilitation is often cost-prohibitive because compliance with all the requirements for new construction could require extensive changes that go well beyond the value of the building or the original scope of the rehabilitation. At the same time, it is necessary to regulate construction in existing buildings that undergo additions, alterations, renovations, extensive repairs or change of occupancy. Such activity represents an opportunity to ensure that new construction complies with the current building codes and that existing conditions are maintained, at a minimum, to their current level of compliance or are improved as required to meet basic safety levels. To accomplish this objective, and to make the rehabilitation process easier, this Division and the IEBC allow for options for controlled departure from full compliance with the International Codes dealing with new construction, while maintaining basic levels for fire prevention, structural and life safety features of the rehabilitated building.

The IEBC provides three main options for a designer in dealing with rehabilitation of existing buildings. These are laid out in Section 101.5 of this code:

OPTION 1: Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the Prescriptive Compliance Method given in Chapter 3. It should be noted that this same method is provided in Chapter 34 of the International Building Code.

OPTION 2: Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the Work Area Compliance Method given in Chapters 4 through 12.

OPTION 3: Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the Performance Compliance Method given in Chapter 13. It should be noted that this option is also provided in Chapter 34 of the International Building Code.

Under limited circumstances, a building alteration can be made to comply with the laws under which the building was originally built, as long as there has been no substantial structural damage and there will be limited structural alteration.

Division X

This Division and the related International Private Sewage Disposal Code® regulates minimum requirements for the installation of new or the alteration of existing private sewage disposal systems. Where a building cannot be served by a public sewer system, the building site must be provided with a system for treating the waste water generated from the use of plumbing fixtures in the building. The IPSDC addresses site evaluations, materials, various soil absorption systems, holding tanks, cesspools and onsite waste water treatment systems. The IPSDC provides a total approach for the onsite, safe disposal of the waste flow discharged to the plumbing fixtures in a building.

This Division and IPSDC is a specification oriented code with very few occurrences of performance-oriented text. The site soil must be evaluated in a prescribed manner to determine its ability to accept the waste flow. The chosen waste treatment method must be designed in a prescribed manner for the soil conditions at the building site, constructed using prescribed materials and installed according to prescribed dimensions. The IPSDC sets forth the minimum acceptable requirements for private sewage disposal systems in order to protect humans and the environment from insanitary conditions that would develop if waste flows were not rendered harmless.

DEVELOPMENT

In Puerto Rico, development of the process to update the building construction codes commenced in 2007 with no results due to a lack of the proper structure. This first edition of the Puerto Rico Building Code was started in 2009 when the Permit Office formally established a Construction Codes Committee, composed of representatives from the Construction Industry, Architects, Engineers, and Regulatory Government Agencies, to review and implement a transition from the existing 1997 Uniform Building Code to the family of the International Codes® of the ICC (I-Codes®). Several seminars were offered with the help of the ICC to familiarize all stake holders with the 2009 I-Codes®. Three days were used for Technical Hearings where proposed amendments were evaluated in order to produce a Building Code for Puerto Rico which took into consideration it unique geographical, climatic, social, and economic characteristics. These series of amendments to the family of codes of the ICC (I-Codes®), together with the original 2009 code composed the Puerto Rico Building Code. A new edition such as this will be promulgated every 3 years.

These codes are founded on principles intended to establish provisions consistent with the scope of building codes that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

ADOPTION

The Puerto Rico Building Code is available for adoption and use by jurisdictions in The Commonwealth of Puerto Rico on March 1, 2011, except for Division VIII (International Energy Conservation Code) & Energy requirements of Division II (International Residential Code) that will be adopted according to the Building Occupancy Group Table set forth below. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's laws.

A "Grandfather Clause" is established for all projects for a period of twelve (12) months, in which case proponents can submit construction documents complying with ARPE's Administrative Order 99-12 dated November 23, 1999, or with this Code.

After said "Grandfather clause" of one (1) year, those projects in process of construction documents with a Building Preliminary Approval ("Anteproyecto") or "Consulta de Ubicacion" from the Puerto Rico Permit Office (OGPE), the Puerto Rico Permits Office (ARPE), or Autonomous Municipality, shall be entitled to a transitional period. No extension of time will be awarded to a Building Preliminary Approval approved prior to March 1, 2012. All new projects submitted to the Permit Office after March 1, 2012, for any permit process prior to, and including Building Preliminary Approval, shall conform

to all the requirements of this Puerto Rico Building Code composed of these Amendments and the corresponding International Building Codes (I-Codes®)).

Construction Projects of first priority facilities, those that can, or will be used as *Shelter* with life and safety priority will have to comply from March 1, 2011 with all the Divisions of the Puerto Rico Building Code except Division VIII (International Energy Conservation Code) that will be adopted according to the Building Occupancy Group Table set forth below. . The Grandfather Clause will not apply for these projects.

For Division VIII (International Energy Conservation Code) & Energy requirements and Division II (International Residential Code), 90% compliance on all new construction and renovations shall be attained by March of 2017 as per the American Recovery and Reinvestment Act ("ARRA") of 2009, except for the Solar Water Heater requirement on Section 403.10 which will be mandatory on March 2012. The transition compliance with energy conservation requirements of this Code shall be as follows:

Item		Building Occupancy Group	Date Effective
1	Groups	A-1, A-2, A-3, A-4, A-5, E, F-1, F-2, H-1, H-2 H-3, H-4, H-5, S-1, S-2	March1, 2013.
2	Groups	F, I-1, I-2, I-3, I-4, I-5, R-1,R-2	March1, 2014.
3	Groups	M, U	March1, 2015
4	Groups	B,R-3,R-4. One and Two Dwelling Units – IRC	March1, 2016

MAINTENANCE

The Puerto Rico Building Code is kept up to date through the review of proposed changes submitted by code enforcing officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate.

The contents of this work are subject to change both through the Code Development Cycles and the governmental body that enacts the code into law. A new edition such as this will be promulgated every 3 years.

While the development procedure of the Puerto Rico Construction Code Committee assures the highest degree of care, its members and those participating in the development of this code do not accept any liability resulting from compliance or

noncompliance with the provisions. Only the governmental body that enacts the code into law has such authority.

LETTER DESIGNATION IN FRONT OF SECTION NUMBERS:

In each code development cycle, proposed changes to the code are considered at the Technical Hearings by the applicable Code Development Sub-Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change.

The content of proposed changes to sections in this code shall begin with a letter designation in accordance with the following:

[B] = International Building Code Development Committee;

[R] = International Residential Code Development Committee;

[E] = International Energy Conservation Code Development Committee;

[EB] = International Existing Building Code Development Committee;

[F] = International Fire Code Development Committee;

[FG] = International Fuel Gas Code Development Committee;

[PSD] = International Private Sewage Disposal Code Development Committee;

[M] = International Mechanical Code Development Committee; and

[P] = International Plumbing Code Development Committee.

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DIVISION I

SCOPE AND ADMINISTRATION

DIVISION I

CHAPTER 1 - SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 GENERAL

101.1 Scope

The provisions of this Division shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or a structure which requires a permit according to the Puerto Rico Building Code (the "Code") and the "Reglamento Conjunto".

101.2 Intent.

The purpose of this Division is to establish the applicability of the codes, defines the enforcement agencies, the duties and powers of the Building Official, the process for construction permits, submittal of documents, inspections, certificate of occupancy and describes how the code is to be applied and enforced by the Puerto Rico Building Code and all the ICC Codes as amended here-in.

SECTION: 102 APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of the Puerto Rico Building Code specify different submittals processes, inspections, procedures, materials, methods of construction or other requirements, the most restrictive shall govern. All provisions of this Division shall apply to all ICC Codes as amended in the Puerto Rico Building Code.

102.1.2 Conflict with "Reglamento Conjunto de Permisos para Obras de Construcción y Usos de Terenos" or "Reglamento Conjunto"

Where there is a conflict between the provisions of this Division or any requirement of the ICC Codes with the "Reglamento Conjunto de Permisos para Obras de Construcción y Usos de Terrenos", the latter shall be applicable.

102.2 Other laws.
The provisions of this Division shall not be deemed to nullify any provisions of local, state or federal law.

102.3 Override Clause
The provisions of this Division shall override any similar requirements, but not limited to, scope, administration, enforcement agencies, and permit process specified in the ICC Codes **as amended by the Puerto Rico Building Code**.

102.4 Partial invalidity.
In the event that any part or provision of this Division is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

102.5 Appendices
Provisions in the Appendices for the Puerto Rico Building Code 2011(PRBC) and all the ICC Codes as amended here-in shall not apply unless specifically referenced in the codes as adopted.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION: 103 ENFORCEMENT AGENCIES

103.1 General
The Permit Authorities created by Act 161 of December 1, 2009 as ammended, OGPe, "Oficina de Gerencia de Permisos OIGPe, "Oficina del Inspector General de Permisos", and "Municipios Autónomos con Jerarquía de la I a la V" are the officials in charge and shall be known as the building official.

103.2 Appointment.
The building official shall be appointed by the chief appointing authority of the jurisdiction as established in Act 161 of December 1, 2009 as ammended

103.3 Deputies.
In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the building official shall have the authority to appoint a deputy building official, the related technical officers, inspectors, plan examiners and other employees. Such employees shall have powers as delegated by the building official.

SECTION: 104 DUTIES AND POWERS OF BUILDING OFFICIAL

104.1 General.
The building official is hereby authorized and directed to enforce the provisions of this code. The building official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions.

Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

104.2 Applications and permits.
The building official shall receive applications, review construction documents and issue permits for the demolition, moving of buildings, construction, alteration, repair or change in the occupancy of a building or structure. and shall inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

104.3 Notices and orders.
The building official shall issue all necessary notices or orders to ensure compliance with this code.

104.4 Inspections.
The building official will receive reports of inspectors made by the dully Designated Inspector. The Building Official has the authority to make all of the required inspections, and require and review reports of inspections for acceptance made by Code Officials of Government Agencies having jurisdiction, where required. Reports of such inspections shall be in a digital file and be certified by a responsible officer of such approved agency or by the responsible individual. The building official is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

104.5 Identification.
The building official, Authorized Inspector, Code Official from any Government Agency with jurisdiction, shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

104.6 Right of entry.
Where it is necessary to make an inspection to enforce the provisions of this code, or where the building official has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of this code which makes the structure or premises unsafe, dangerous or hazardous, the building official, or Government Agencies with Jurisdiction, is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entry. If entry is refused, the building official shall have recourse to the remedies provided by law to secure entry.

When the building official or Code Official from any Government Agencies with Jurisdiction, have obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner or occupant or person having charge, care or control of any

building or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

Exemption.
No entry warrant is required if the Building Official or dully authorized Code Official from a Government Agency with jurisdiction have sufficient evidence that the building or structure or any building system in whole or in part constitute a clear and inimical threat to human life, safety or health.

104.7 Department records.
The building official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for retention of public records.

104.8 Liability.
The building official, Code Officials of government agencies with jurisdiction, members of the *"Junta Revisora"*, or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties. Any suit instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The building official, Code Official or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

104.9 Approved materials and equipment.
Materials, equipment and devices approved by the building official as established in the construction documents shall be constructed and installed in accordance with such approval.

104.9.1 Used materials and equipment.
The use of used materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless they meet this code' requirements, approved by the *Registered Design Professional* ,and accepted by the Owner

104.10 Modifications.
Wherever there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, upon application of the owner with the approval of the Registered Design Professional, if applicable according to the "Reglamento Conjunto", provided the

building official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements.

The details of action granting modifications shall be recorded and entered in the files of the General Permit Office (OGPe).

104.11 Alternative materials, designs construction systems and equipment.
The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or construction systems not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

104.11.1 Research reports.
Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

104.11.2 Tests.
Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a **material, equipment or construction system does** not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

104.12 Required Submittals.

104.12.1 Submittals during construction process.
Submittals for alternative materials and equipment to those specified in the construction drawings, that meet the code requirements, must be submitted for evaluation to the Registered Design Professional and, if approved, included in the final project's revised drawings.

104.12.2 Revised drawings after construction process.
If alternative materials, designs, construction systems and equipment that meet the code requirements and approved by the Registered Design Professional, the revised drawings must be submitted to the Building Official.

SECTION: 105 PERMITS

105.1 Required.
Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

105.1.1 Annual permit.
No annual permits shall be granted in Puerto Rico. In lieu of an individual permit for each alteration to an already approved electrical, gas, mechanical or plumbing installation, the building official is not authorized to issue an annual permit upon application there for to any person, firm or corporation regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

105.1.2 Annual permits records.
No annual permits shall be granted in Puerto Rico.

105.2 Work exempt from permit.
Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for works detailed in Section 9.3.3 of *"Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico, (Reglamento Conjunto)".*

105.2.1 Emergency repairs.
Where equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day to the building official.

105.2.2 Repairs.
Application for a permit to the building official is not required for ordinary repairs to structures, replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress , or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement or

relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

105.2.3 Public service agencies.
A permit shall not be required for the installation, alteration or repair of generation, transmission, distribution or metering or other related equipment that is under the ownership and control of public service agencies by established right.

105.3 Application for permit.
To obtain a permit, the applicant shall first file an application according to the requirements established in the *"Reglamento Conjunto de Puerto Rico"*. Such application shall:

1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by construction documents and other information as required in Section 107.
5. State the valuation of the proposed work.
6. Be signed by the applicant, or the applicant's authorized agent.
7. Give such other data and information as required by the *"Reglamento Conjunto de Puerto Rico"*.

105.3.1 Action on application.
The building official and the Authorized Professional shall examine or cause to be examined applications for permits and amendments thereto within a reasonable time after filing according to the procedures established in the *"Reglamento Conjunto de Puerto Rico"*. If the application or the submittal documents do not conform to the requirements of pertinent laws, the building official or the Authorized Professional shall reject such application in writing stating the reasons therefor. If theyare satisfied that the proposed work and the certified documents conform to the requirements of this Code, Acts and Ordinances applicable thereto, heyshall issue a permit therefor as soon as practicable.

105.3.2 Time limitation of application.
An application for a permit, accepted by the building official for any proposed work shall not be deemed to have been abandoned, unless so required by the applicant.

105.4 Validity of permit.
The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions

of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the building official from requiring **additional information and** the correction of errors in the construction documents and other data. The building official is also authorized to prevent occupancy or use of a structure where in violation of this code or of any other ordinances of this jurisdiction.

105.5 Expiration.
Every permit issued shall become invalid unless the work on the site authorized by such permit is commenced, or if the work authorized on the site by such permit is suspended or abandoned as established in the *"Reglamento Conjunto de Puerto Rico"*. The building official is authorized to grant, in writing, one or two extensions of time, for periods not more than a year each. The extension shall be requested in writing through a digital filling and with its associated fees.

105.6 Suspension or revocation.
The building official is authorized to suspend or revoke a permit issued under the provisions of this code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of this code.

105.7 Placement of permit.
The building permit or copy shall be kept on the site of the work until the completion of the project.

SECTION: 106 FLOOR AND ROOF DESIGN LOADS

106.1 Live loads posted.
Where the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 50 psf (2.40 kN/m2), such design live loads shall be conspicuously posted by the owner in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.

106.2 Issuance of certificate of occupancy.
For the issuance of a certificate of occupancy the floor load signs, required by Section 106.1, should have been installed.

106.3 Restrictions on loading.
It shall be unlawful to place, or cause or permit to be placed, on any floor or roof of a building, structure or portion thereof, a load greater than is permitted by this code.

SECTION: 107 SUBMITTAL DOCUMENTS

107.1 General.
Submittal documents consisting of construction documents, statement of special inspections, geotechnical report and other data shall be submitted in a digital form with

each permit application. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

Exception: The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code, unless specifically required in the *"Reglamento Conjunto de Puerto Rico".*

107.2 Construction documents.
Construction documents shall be in accordance with Sections 107.2.1 through 107.2.5.

107.2.1 Information on construction documents.
Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents shall be submitted. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the building official in the *"Reglamento Conjunto de Puerto Rico".*

107.2.2 Fire protection system shop drawings.
Shop drawings for the fire protection system(s) shall be submitted to indicate conformance to this code and the construction documents and shall be approved prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9 of the IBC. This requirement shall not apply to one and two dwelling units.

107.2.3 Means of egress.
The construction documents shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

107.2.4 Exterior wall envelope.
Construction documents for all buildings shall describe the exterior wall envelope in sufficient detail to determine compliance with this code. The construction documents shall provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings.

The construction documents shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the construction documents maintain the weather resistance of the exterior wall envelope . The supporting documentation shall fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.

107.2.5 Site plan.
The construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot as required by the "Reglamento Conjunto".

107.2.5.1 Design flood elevations.
Where design flood elevations are not specified, they shall be established in accordance with Section 1612.3.1, FEMA latest flood maps or as established by a Hydrology and Hydraulic Study(H & H Study).

107.3 Examination of documents.
The building official shall examine or cause to be examined the accompanying submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances .

107.3.1 Approval of construction documents.
When the building official or *"Profesional Autorizado"* issues a permit, the construction documents shall be accepted as "Approved." Construction documents in digital format reviewed shall be retained by the building official, and a copy returned to the applicant. A printed copy shall be kept at the site of work and shall be open to inspection by the building official or a duly authorized representative.

107.3.2 Previous approvals.
This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith, in accordance with the Grandfather Clause, this code and the "Reglamento Conjunto".

107.3.3 Phased approval.
The building official is authorized to issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole

building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

107.3.4 Registered Design Professional in responsible charge and Designated Inspector.
Registered Design Professionals and Designated Inspectors shall comply with all applicable laws in Puerto Rico, including Act 135 of June 15, 1967 with amendments and Act 7 of July 19, 1985 with amendments in the certification process and the "Reglamento Conjunto".

107.3.4.1 General.
When it is required that documents be prepared by a registered design professional , the building official shall be authorized to require the owner to engage and designate on the building permit application a registered design professional who shall act as the registered design professional in responsible charge . If the circumstances require, the owner shall designate a substitute registered design professional in responsible charge who shall perform the duties required of the original registered design professional in responsible charge. The building official shall be notified in writing by the owner if the registered design professional in responsible charge is changed or is unable to continue to perform the duties, and the owner and the new registered design professionals shall comply with the requirements established in the *"Reglamento Conjunto de Puerto Rico".*

The registered design professional in responsible charge shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased submittal items, for compatibility with the design of the building.

107.3.4.2 Deferred submittals.
Deferred submittals are not allowed in Puerto Rico. All portions of the design shall be submitted at the time of application. (Deferred submittal, in other jurisdictions, refers to those portions of the design that are not submitted at the time of the application and that are to be submitted to the building official within a specified period).

107.4 Amended construction documents.
Work shall be installed in accordance with the approved construction documents , and any changes made during construction that are not in compliance with the approved construction documents shall be submitted by the registered design professional for approval as a certified amended set of construction documents.

107.5 Retention of construction documents.
One set of approved construction documents shall be retained by the building official for a period of time as required by the Reglamento Conjunto or by any state or local law.

SECTION: 108 TEMPORARY STRUCTURES AND USES

108.1 General.
The building official is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service as established in the "Reglamento Conjunto". The building official is authorized to grant extensions for demonstrated cause.

108.2 Conformance.
Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

108.3 Temporary power.
The building official is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70 and with the Puerto Rico Electric Power Authority "Reglamento Complementario al Código Eléctrico Nacional".

108.4 Termination of approval.
The building official is authorized to terminate such permit for a temporary structure or use and to order the temporary structure or use to be discontinued.

108.5 Temporary facilities
Where temporary facilities, temporary offices, trailer offices, personnel temporary structures and/or temporary warehouses are needed or required for the construction, or remodeling or modernization, of projects to be located within the premises or near the localities of the projects, the requirements of the permits as per sections 108.1, 108.2, 108.3 and 108.4 will not apply.

SECTION: 109 FEES

109.1 Payment of fees.
A permit shall not be valid until the fees prescribed by law or regulations have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

109.2 Schedule of permit fees.
On buildings, structures, electrical, gas, mechanical and plumbing systems or alterations requiring a permit, a fee for each permit shall be paid as required, in accordance with the requirements established by the OGPe.

109.3 Building permits valuations.
The applicant for a permit shall provide an estimated permit value at time of application in compliance with the requirements set in the *"Reglamento Conjunto de Puerto Rico"*. Permit valuations shall include total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. Final building permit valuation shall be set by the building official.

109.4 Work commencing before permit issuance.
Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary permits shall be in violation subject to penalties and a fee established by the building official that shall be in addition to the required permit fees.

109.5 Related fees.
The payment of the fee for the construction, alteration, removal or demolition for work done in connection to or concurrently with the work authorized by a building permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

109.6 Refunds.
The building official is authorized to establish a refund policy.

SECTION: 110 INSPECTIONS

110.1 General.
Construction or work for which a permit is required shall be subject to inspection by the Designated Inspector according to the Puerto Rico Building Code 2011, the "Reglamento Conjunto" and all applicable laws and regulations. The construction or work, for which a permit was granted, could be subject to inspection by the building official or Code Official of the government agencies with jurisdiction according to the Puerto Rico Building Code 2011, the"Reglamento Conjunto" and all applicable laws and regulations. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible for inspection purposes.

110.2 Preliminary inspection.
Before issuing a permit, the building official is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

110.3 Required inspections.
The building official, the Designated Inspector, Authorized Inspectors and government agencies having jurisdiction upon notification, can make inspections.

The Designated Inspector shall make the inspections set forth in Sections 110.3.1 through 110.3.10 and any other required in accordance to all applicable laws and regulations including the "Reglamento Conjunto".

110.3.1 Footing and foundation inspection.
Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms, shall be in place prior to inspection before pouring concrete. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94, the concrete need not be on the job.

110.3.2 Concrete slab and concrete components
Concrete slab,under-floor inspections and other concrete components shall be made after reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

110.3.3 Lowest floor elevation.
In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in Section 1612.5 shall be submitted to the building official.

110.3.4 Frame inspection.
Framing inspections shall be made after the roof deck or sheathing, all framing, fire-blocking and bracing are in place and pipes, chimneys and vents to be concealed are complete and the rough electrical, plumbing, heating wires, pipes and ducts are approved.

110.3.5 Lath and gypsum board inspection.
Lath and gypsum board inspections shall be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

Exception: Gypsum board that is not part of a fire-resistance-rated assembly or a shear assembly.

110.3.6 Fire- and smoke-resistant penetrations.
Protection of joints and penetrations in fire-resistance-rated assemblies, smoke barriers and smoke partitions shall not be concealed from view until inspected and approved.

110.3.7 Energy efficiency inspections.
Inspections shall be made to determine compliance with Chapter 13 of the IBC and shall include, but not be limited to, inspections for: envelope insulation R- and U- values, fenestration U- value, duct system R -value, and HVAC and water-heating equipment efficiency.

110.3.8 Masonry wall inspections.
Inspections shall be made after masonry wall is in place with required reinforcements, conduit piping accessories and other ancillary equipment items are in place, but before any plastering or architectural specified coverings are placed.

110.3.9 Rough In inspections.
Rough-in inspection shall be made after the roof, framing systems, fire blocking, fire stopping draft stopping and bracing is in place and all sanitary, storm and water distribution piping is roughed-in and prior to the installation of wall or ceiling membranes.

110.3.10 Underground Utilities
Underground utilities inspections shall be made after trenches or ditches are excavated and bedded piping installed and before any backfill is put in place.

110.3.11 Other inspections.
In addition to the inspections specified above, the building official or government agencies are authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws.

110.3.12 Special inspections.
For special inspections, see Section 1704 of the IBC, and as required by other ICC codes and standards referred by the Codes.

110.3.13 Final inspection.
The final inspection shall be made after all work required by the building permit is completed and all systems are tested.

110.4 Inspection agencies.
The building official is authorized to accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability **as** established in the "Reglamento Conjunto".

110.5 Inspection requests.
It shall be the duty of the holder of the building permit or their duly authorized agent to notify the building official, the Designated Inspector, or the code officials of government agencies with jurisdiction when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

110.6 Approval required.
The building official, Code Official of the government agencies having jurisdiction or the Designated Inspector upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with the code compliant construction documents. Any portions that do not comply shall be corrected

and such portion shall not be covered or concealed until authorized by the Designated Inspector, building official, Authorized Inspector or Code Official of government agency having jurisdiction.

110.7 Inspection records.
Official records shall be kept of all inspections and any special inspections made by the Building Official, Code Official, Designated Inspector's periodic inspections as required by law and dully authorized inspector agency or individual. Such records shall be retained in the official records for the period required by applicable Acts or regulations.

SECTION: 111 CERTIFICATE OF OCCUPANCY

111.1 Use and occupancy.
No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until the building official has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

Exception: Certificates of occupancy are not required for work exempt from permits under section 105.2 and the "*Reglamento Conjunto de Puerto Rico*".

111.2 Certificate issued.
The building official shall issue a certificate of occupancy after all required inspections are performed by the Authorized Inspectors or Code Officials of government agencies having jurisdiction inspects the building or structure and finds no violations of the provisions of this code,and the Designated Inspector finds no discrepancies from the construction documents and permit, and all systems are tested..

111.3 Temporary occupancy.
The building official is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the permit , provided that such portion or portions shall be occupied safely. The building official shall set a time period during which the temporary certificate of occupancy is valid.

111.4 Revocation.
The building official is authorized to, in writing, suspend or revoke a certificate of occupancy or completion issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code and the "Reglamento Conjunto".

SECTION: 112 SERVICE UTILITIES

112.1 Connection of service utilities.
No person shall make connections from a utility, source of energy, fuel or power to any building or system that is regulated by this code for which a permit is required, until released by the building official.

112.2 Temporary connection.
The government agencies with jurisdiction shall have the authority to authorize the temporary connection of the building or system to the utility source of energy, fuel or power.

112.3 Authority to disconnect service utilities.
The building official or government agencies with jurisdiction shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by this code and the referenced codes and standards set forth in Section 101.4 in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without the approval required by Section 112.1 or 112.2. The building official shall notify the government agencies with jurisdiction, and the owner and occupant of the building, structure or service system of the decision to disconnect prior to taking such action. If not notified prior to disconnecting, the owner or occupant of the building, structure or service system shall be notified in writing, as soon as practical thereafter.

SECTION: 113 CODES BOARD OF APPEALS

113.1 General.

Decisions or determinations made by the building official relative to the application and interpretation of this code are conclusive. The "Junta Revisora" can revise final determinations made by the OGPe, Autonomous Municipalities (Municipios Autónomos) and the "Profesional Autorizado".

113.3 Qualifications - Deleted

SECTION: 114 VIOLATIONS

114.1 Unlawful acts.
It shall be unlawful for any person, firm or corporation to erect, construct, alter, extend, repair, move, remove, demolish or occupy any building, structure or equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

114.2 Notice of violation.
The building official is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, moving, removal, demolition or occupancy of a building or structure in violation of the provisions of this code, or in violation of a permit or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

114.3 Prosecution of violation.
If the notice of violation is not complied with promptly, the building official is authorized to initiate the appropriate proceeding at law to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

114.4 Violation penalties.
Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law or regulations.

SECTION: 115 STOP WORK ORDER

115.1 Authority.
Whenever the building official finds any work regulated by this code being performed in a manner contrary to the provisions of this code shall initiate a legal procedure as stated in the Act 161 of December 1, 2009. Whenever the building official or the government agencies with jurisdiction find any work dangerous or unsafe, they are authorized to issue a temporary stop work order.

115.2 Issuance.
The temporary stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a temporary stop work order, the cited work shall immediately cease. The temporary stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

115.3 Unlawful continuance.
Any person who shall continue any work after having been served with a temporary stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law or regulations.

SECTION: 116 UNSAFE STRUCTURES AND EQUIPMENT

116.1 Conditions.
Structures or existing equipment that are or hereafter become unsafe, insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the building official or the government agencies with jurisdiction deem necessary and as provided for in this section. A vacant structure that is not secured against entry shall be deemed unsafe.

116.2 Record.
The building official or the government agencies with jurisdiction shall cause a report to be filed on an unsafe condition. The report shall state the occupancy of the structure and the nature of the unsafe condition.

116.3 Notice.
If an unsafe condition is found, the building official or the government agencies with jurisdiction shall serve on the owner, agent or person in control of the structure, a written notice that describes the condition deemed unsafe and specifies the required repairs or improvements to be made to abate the unsafe condition, or that requires the unsafe structure to be demolished within a stipulated time. Such notice shall require the person thus notified to declare immediately to the building official or the government agencies with jurisdiction acceptance or rejection of the terms of the order.

116.4 Method of service.
Such notice shall be deemed properly served if a copy thereof is (a) delivered to the owner personally; (b) sent by certified or registered mail addressed to the owner at the last known address with the return receipt requested; or (c) delivered in any other manner as prescribed by local law. If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner upon the owner's agent or upon the person responsible for the structure shall constitute service of notice upon the owner.

116.5 Restoration.
The structure or equipment determined to be unsafe by the building official is permitted to be restored to a safe condition. To the extent that repairs, alterations or additions are made or a change of occupancy occurs during the restoration of the structure, such repairs, alterations, additions or change of occupancy shall comply with the requirements of Section 105.2.2 and Chapter 34.

CHAPTER 2 – DEFINITIONS

SECTION: 201 GENERAL

201.1 Scope.
Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

201.2 Applicability
The definitions shown in this chapter shall apply to the Puerto Rico Building Code and all the International Council Codes to be used with that Building Code, where such terms shall have the same meanings as described in this chapter.

201.3 Interchangeability.
Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.4 Terms defined in other codes.
Where terms are not defined in this Division and are defined in the International Council Codes that form part of the Puerto Rico Building Code, such terms shall have the meanings ascribed to them as in those codes.

201.5 Terms not defined.
Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

SECTION: 202 DEFINITIONS (THESE DEFINITIONS APPLY TO ALL NINE (9) CODES BEING ADOPTED.

AUTHORIZED INSPECTOR, "INSPECTOR AUTORIZADO".
As define by the "Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico", or "Reglamento Conjunto" and must hold a certificate from the Office of the "Oficina del Inspector General de Permisos" (OIGPe).

BUILDING OFFICIAL. The Executive Director of the "Oficina de Gerencia de Permisos (OGPe), the General Inspector of the "Oficina del Inspector General de Permisos" (OIGPE) and the "Municipios Autónomos con Jerarquía de la I a la V", as established by Act 161 of December 1, 2009 as amended , responsible for the administration and enforcement of these building codes,.

CODE OFFICIAL. The officer or other designated authority of the government agency having jurisdiction responsible for the enforcement of the pertaining code, or a duly authorized representative.

DESIGNATED INSPECTOR. An individual who is licensed to practice the profession of Architecture or Engineering as defined by the provisions of the Act No. 173 of August12,1988, as amended, and according to with the provisions of Act No. 135 of June 15, 1967, as amended, (Certification Law); appointed by the owner to make periodic inspections of the construction work for which a permit was issued by the building official to ascertain compliance with the approved construction documents and permit issued. The professional shall certify the required inspections before the building official issue the certificate of occupancy.

FIRE CHIEF. The chief officer of the Puerto Rico Fire Department, or s duly authorized representative.

FIRE CODE OFFICIAL. The fire chief or a duly appointed representative designated by him (her) charged with the administration and enforcement of the code.

GOVERMENT AGENCIES WITH JURISDICTION. Defined as "Entidad Gubernamental Concernida" in the "Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico".

JUNTA REVISORA. As defined by Act No. 161 of December 1, 2009, known as "Ley para la Reforma del Proceso de Permisos de Puerto Rico".

OGPe. "OFICINA DE GERENCIA DE PERMISOS": As defined in the "Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico, (Reglamento Conjunto)".

OIGPe. "OFICINA DEL INSPECTOR GENERAL DE PERMISOS". As defined in the "Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico, (Reglamento Conjunto)".

PROFESIONAL AUTORIZADO. As defined in the "Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico, (Reglamento Conjunto)".

PUERTO RICO FIRE DEPARTMENT. Governmental organization with the responsibility , among others, to prevent and fight fires and save lives, to guarantee an adequate life safety and fire protection to the citizens, as established by the Law 43, of June 21, 1988.

REGISTERED DESIGN PROFESSIONAL. An individual who is licensed to practice the profession of architect or engineer as defined by the provisions of the Act No. 173 of August 12, 1988, as amended, and according to with the provisions of Act No. 135 of June 15, 1967, as amended, (Certification Law); engaged by the owner to prepare the construction documents, make application to the building official and obtain the required permit.

REGISTERED PROFESSIONAL IN CHARGE. A registered design professional engaged by the owner to review and coordinate certain aspects of the project, as determined by the building official, for compatibility with the design of the building or structure, including submittal documents prepared by others, deferred submittal documents and phased submittal documents.

REGLAMENTO CONJUNTO. As defined in the "Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico, (Reglamento Conjunto)" **as established by the Act No. 161 of December 1, 2009, "Ley para la Reforma del Proceso de Permisos de Puerto Rico".**

Shelter. Any building designated by a government agency or state municipality to serve as a refuge during and after a major natural disaster.

DIVISION II

AMENDMENTS
to the
2009 INTERNATIONAL BUILDING CODE

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DIVISION II

AMENDMENTS
to the
2009 INTERNATIONAL BUILDING CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION 101: GENERAL

101.1 Title.
These regulations shall be known as the International Puerto Rico Building Code, hereinafter referred to as "this code."

101.2 Scope.
The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

> **Exception**: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the International Residential Code.

101.2.1 Appendices.
Provisions in the appendices shall not apply unless specifically adopted.

101.3 Intent.
The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations. This chapter replaces CHAPTER I of the International Building Code.

101.4 Referenced codes.
The other codes listed in Sections 101.4.1 through 101.4.6 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

101.4.1 Gas.
The provisions of the International Fuel Gas Code shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 Mechanical.
The provisions of the International Mechanical Code shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.4.3 Plumbing.
The provisions of the International Plumbing Code shall apply to the installation, alteration , repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system. The provisions of the International Private Sewage Disposal Code shall apply to private sewage disposal systems.

101.4.4 Property maintenance.
The provisions of the International Property Maintenance Code are not adopted.

101.4.5 Fire prevention.
The provisions of the International Fire Code shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

101.4.6 Energy.
The provisions of the International Energy Conservation Code shall apply to all matters governing the design and construction of buildings for energy efficiency.

SECTION 102: APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.3 Application of references.
References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

102.4 Referenced codes and standards.
The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

102.5 Partial invalidity.
In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

102.6 Existing structures.
The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, or the International Fire Code, or as is deemed necessary by the building official or the Government Agency having jurisdiction for the general safety and welfare of the occupants and the public.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION 103: GENERAL
The administrative provisions of this Code will be those established by theDivision I of the Puerto Rico Building Code the "Oficina de Gerencia de Permisos", (OGPe), and shall be applicable wherever it is mentioned in the pertaining ICC Codes as the term Building Official or Code Official.

SECTION 104: DUTIES AND POWERS OF THE BUILDING OFFICIAL
104.1 General
The building official is hereby authorized and directed to enforce the provisions of this code as established in Division I,Section 104 of the Puerto Rico Building Code, the " Reglamento Conjunto" , and the pertaining ICC Codes as amended here-in.

CHAPTER 2 – DEFINITIONS

Full Cutoff: A luminaire light distribution where zero candela intensity occurs at or above an angle of 90° above nadir. Additionally, the candela per 1000 lamp lumens does not numerically exceed 100 (10%) at or above a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire.

CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION

No Amendments.

CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

[F] 403.3.2 Water supply to required fire pumps.
Required fire pumps shall be supplied by connections to a minimum of two water mains located in different streets as approved by Puerto Rico Aqueducts and Sewer Authority (PRASA) or (AAA) or delegated utility entity. Connections to mains must be made in compliance with the REGLAMENTO DE NORMAS DE DISEÑO of the PRASA. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate as approved by PRASA or the delegated utility entity.

Exception: Two connections to the same main shall be permitted provided the main is valves such that an interruption can be isolated so that the water supply will continue without interruption through at least one of the connections.

CHAPTER 5 – GENERAL BUILDINGS HEIGHTS AND AREAS

SECTION: 505.1

505.1 General.
A mezzanine or mezzanines in compliance with Section 505 shall be considered a portion of the story in which it is contained. Such mezzanines shall not contribute to either the building area or number of stories as regulated by Section 503.1. The area of the mezzanine shall be included in determining the fire area defined in Section 902. The clear ceiling height above and below the mezzanine floor construction shall not be less than the minimum ceiling heights of Sub-Section 1208.2.

CHAPTER 6 – TYPES OF CONSTRUCTION

No Amendments.

CHAPTER 7 – FIRE & SMOKE PROTECTION FEATURES

No Amendments.

CHAPTER 8 – INTERIOR FINISHES

No Amendments.

CHAPTER 9 – FIRE PROTECTION SYSTEMS

[F] 903.2.8 Group R. An *automatic sprinkler system* installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R *fire area*.

Exceptions:

1. **Residential occupancy group R-2, when the floor level having an *occupant load* of 30 or less that is located 45 feet (16.76 m) or less above the lowest level of fire department vehicle access.**
2. **Residential occupancy group R-3.**

[F] 903.2.12 During construction. (Deleted)

[F] 903.3.5 Water supplies.
Water supplies for automatic sprinkler systems shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the International Plumbing Code. Connections to mains must be made in compliance with the REGLAMENTO DE NORMAS DE DISEÑO of the Puerto Rico Aqueducts and Sewer Authority or the delegated utility entity.

[F] 903.3.5.2 Secondary water supply. (Deleted)

CHAPTER 10 – MEANS OF EGRESS

SECTION: 1018.1

1004.8 Outdoor areas.
Yards, patios, courts and similar outdoor areas accessible to and usable by the building occupants shall be provided with means of egress as required by this chapter. The occupant load of such outdoor areas shall be assigned by *the registered* ***design professional*** **and the *fire code official*** in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

1018.1 Construction.

Corridors shall be fire-resistance rated in accordance with Table 1018.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 709 for *fire partitions*.

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a dwelling or sleeping unit in an occupancy in Group R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B which is a space requiring only a single *means of egress* complying with Section 1015.1.

TABLE 1018.1 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	Not Permitted	1
I-2[a], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.
b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

TABLE 1021.2 STORIES WITH ONE EXIT

STORY	OCCUPANCY	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
First story or basement	A, B[d], E[e], F[d], M, U, S[d]	49 occupants and 75 feet travel distance
	H-2, H-3	3 occupants and 25 feet travel distance
	H-4, H-5, I, R	10 occupants and 75 feet travel distance
	S[a]	29 occupants and 100 feet travel distance
Second story	B[b], F, M, S[a]	29 occupants and 75 feet travel distance
	R-2	4 dwelling units and 50 feet travel distance
Third **to Fifth Story (Having an Occupant Load of 30 or less that is located 45'-0" above the lowest level of fire department vehicle access.**	R-2[c]	4 dwelling units and 50 feet travel distance

For SI: 1 foot = 304.8 mm.
a. For the required number of exits for parking structures, see Section 1021.1.2.
b. For the required number of exits for air traffic control towers, see Section 412.3.
c. Deleted
d. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.
e. Day care occupancies shall have a maximum occupant load of 10.

CHAPTER 11 – ACCESSIBILITY

SECTION: 1104 ACCESSIBLE ROUTE

1104.1 Site arrival points.
Accessible routes within the site shall be provided from public transportation stops; accessible parking; accessible passenger loading zones; and public streets or sidewalks to the accessible building entrance served.

> **Exception**: Other than in buildings or facilities containing or serving Type B units, an accessible route shall not be required between site arrival points and the building or facility entrance if the only means of access between them is a vehicular way not providing for pedestrian access, or when the unique

characteristics of the terrain, as significantly steep sites, makes constructively impractical the incorporation of such accessibility feature. If full compliance is established as constructively impractical, in accordance with this exception, all accessibility requirements under this code not constructively impractical shall be provided.

1104.2 Within a site.
At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements spaces that are on the same site.

Exception: An accessible route is not required between accessible buildings, accessible facilities, accessible elements and accessible spaces that have, as the only means of access between them, a vehicular way not providing for pedestrian access, or when the unique characteristics of the terrain, makes constructively impractical the incorporation of such accessibility feature, in circumstances of functionally unrelated buildings or facilities.

CHAPTER 12 - INTERIOR ENVIRONMENT

SECTION: 1206 YARDS OR COURTS

1206.1 General.
This section shall apply to *yards* and *courts* adjacent to exterior openings that provide natural light or ventilation. Such *yards* and *courts* shall be on the same property as the building and shall comply with the P.R. Civil Code (Article 518) and the P.R. Zoning Code.

1206.2 Yards.
Yards shall not be less than 5 feet (1524 mm) in width for building two stories or less above grade plane. For buildings more than two stories above grade plane, the minimum width of the yard shall be increased to the highest of 6 feet 6 inches (2000 mm) or 1/5 of the height of the building above grade plane.

1206.3 Courts.
Courts shall not be less than the larger of 9 feet 10 inches (3,000 mm) in width or 1/5 of the vertical distance between the lowest level of the court and the maximum level of any wall, balcony or terrace that bounded upon. The area of any court shall be no less, in any level, than 107.60 square feet (10000 square millimeter) for each floor of the building above the court.

SECTION: 1208 INTERIOR SPACE DIMENSIONS

1208.2 Minimum ceiling heights.

Occupied spaces, habitable spaces and corridors shall have a ceiling height of no less than 8 feet (2625 mm). Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall be permitted to have a ceiling of no less than 7 feet 6 inches (2461 mm).

Exceptions:

1. In one – family and two – family dwellings, beams or girders projecting not more than 6 inches (152 mm) below the required ceiling height.
2. If any room in a building has a slope ceiling, the prescribed ceiling height for the room is required at the lower level of the ceiling. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.

CHAPTER 16 - STRUCTURAL DESIGN

SECTION: 1604: GENERAL DESIGN REQUIREMENTS

1604.3 Serviceability.

Structural systems and members thereof shall be designed to have adequate stiffness to limit deflections and lateral drift. See Section 12.12.1 of ASCE 7 for drift limits applicable to earthquake loading.

TABLE 1604.3 DEFLECTION LIMITS [a, b, c, h, i]

CONSTRUCTION	*L*	*S* or *W*[f]	*D* + *L*[d, g]
Roof members:[e]			
Supporting plaster ceiling	//360	//360	//240
Supporting nonplaster ceiling	//240	//240	//180
Not supporting ceiling	//180	//180	//120
Floor members	//360	—	//240
Exterior walls and interior partitions:			
With brittle finishes	—	//240	—
With flexible finishes	—	//120	—
Farm buildings	—	—	//180
Greenhouses	—	—	//120

For SI: 1 foot = 304.8 mm.

a. For structural roofing and siding made of formed metal sheets, the total load deflection shall not exceed //60. For secondary roof structural members supporting formed metal roofing, the live load deflection shall not exceed //150. For secondary wall members supporting formed metal siding, the design wind load deflection shall not exceed //90. For roofs, this exception only applies when the metal sheets have no roof covering.

b. Interior partitions not exceeding 6 feet in height and flexible, folding and portable partitions are not governed by the provisions of this section. The deflection criterion for interior partitions is based on the horizontal load defined in Section 1607.13.

c. See Section 2403 for glass supports.

d. For wood structural members having a moisture content of less than 16 percent at time of installation and used under dry conditions, the deflection resulting from $L + 0.5D$ is permitted to be substituted for the deflection resulting from $L + D$.

e. The above deflections do not ensure against ponding. Roofs that do not have sufficient slope or camber to assure adequate drainage shall be investigated for ponding. See Section 1611 for rain and ponding requirements and Section 1503.4 for roof drainage requirements.

f. The wind load is permitted to be taken as 0.7 times the "component and cladding" loads for the purpose of determining deflection limits herein.

g. For steel structural members, the dead load shall be taken as zero.

h. For aluminum structural members or aluminum panels used in skylights and sloped glazing framing, roofs or walls of sunroom additions or patio covers, not supporting edge of glass or aluminum sandwich panels, the total load deflection shall not exceed *l*/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed/175 for each glass lite or *l*/60 for the entire length of the member, whichever is more stringent. For aluminum sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed *l*/120.

i. For cantilever members, *l* shall be taken as twice the length of the cantilever. For Essential Facilities, with Importance Factor I greater than 1.0 as required by this code, a wall index of at least 0.005 shall be applied to both main directions and in each story of RC buildings. The wall index is the ratio of the effective wall area at the base of the story being considered to the total floor area above the same story, and the effective wall area is the sum of the multiplication of the length by the thickness of the RC walls in the direction being considered. Wall shall be continuous in elevation from the foundation to the story in consideration. Area of wall below openings does not count for the effective wall area.

1604.4 Analysis.
Load effects on structural members and their connections shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short-and long-term material properties.

Members that tend to accumulate residual deformations under repeated service loads shall have included in their analysis the added eccentricities expected to occur during their service life.

Any system or method of construction to be used shall be based on a rational analysis in accordance with well-established principles of mechanics. Such analysis shall result in a system that provides a complete load path capable of transferring loads from their point of origin to the load-resisting elements.

The total lateral force shall be distributed to the various vertical elements of the lateral-force-resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements assumed not to be a part of the lateral-force-resisting system are permitted to be incorporated into buildings provided their effect on the action of the system is considered and provided for in the design. Except where diaphragms are flexible, or are permitted to be analyzed as flexible, provisions shall be made for the increased forces induced on resisting elements of the structural system resulting from torsion due to eccentricity between the center of application of the lateral forces and the center of rigidity of the lateral-force-resisting system.

Every structure shall be designed to resist the overturning effects caused by the lateral forces specified in this chapter. See Section 1609 for wind loads, Section 1610 for lateral soil loads and Section 1613 for earthquake loads. The use of reinforced concrete walls with slabs acting as frames, in their weak (out-of-plane) direction, to withstand lateral forces as part of lateral force resisting system, is not permitted.

SECTION: 1607 LIVE LOADS

1607.1 GENERAL

Add new text, as a first line, as follows:

TABLE 1607.1—continued—MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS [g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs)
29. Roofs Flat roofs with rise less 1 unit vertical in 24 units horizontal (slope less than 4.2%)	**40**	

1608.2 Ground snow loads.
The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with ASCE 7 or Figure 1608.2 for the contiguous United States and Table 1608.2 for Alaska. Site-specific case studies shall be made in areas designated "CS" in Figure 1608.2. Ground snow loads for sites at elevations above the limits indicated in Figure 1608.2 and for all sites within the CS areas shall be approved . Ground snow load determination for such sites shall be based on an extreme value statistical analysis of data available in the vicinity of the site using a value with a 2-percent annual probability of being exceeded (50-year mean recurrence interval). Snow loads are zero for Hawaii and Puerto Rico.

SECTION: 1613 EARTHQUAKE LOADS

1613.1 Scope

Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A. The *seismic design category* for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7. The height limits in ASCE 7/SEI 7-05, Table 12.2-1 and in the increased building height limits stated above are permitted to be exempted for structures assigned to Seismic Design Category D or E that have steel braced frames or special cast-in-place shear walls and that meet both of the following requirements:

1. The structure shall not have torsional irregularities Type 1a or 1b as defined in Table 12.3-1.
2. The roof deflection δ_n determined at the center of mass and calculated in accordance with equation 12.8-15, divided by the average roof height with respect to the base, h_n, shall not exceed 0.005.

In addition, the first requirement of Section 12.2.5.4 of ASCE/SEI 7-05 shall make reference to Table 12.3-1 for extreme torsional irregularities instead of Table 12.2-1. Furthermore, Section 12.2.5.5 of ASCE/SEI 7-05 shall make reference to Table 12.2-1 instead of Table 12.1-1.

1613.5 Seismic Ground Motions Values

Delete Figure **1613.5 (13)** and substitute by the following: Figure 1, 2 and Table 1613.5 (13).

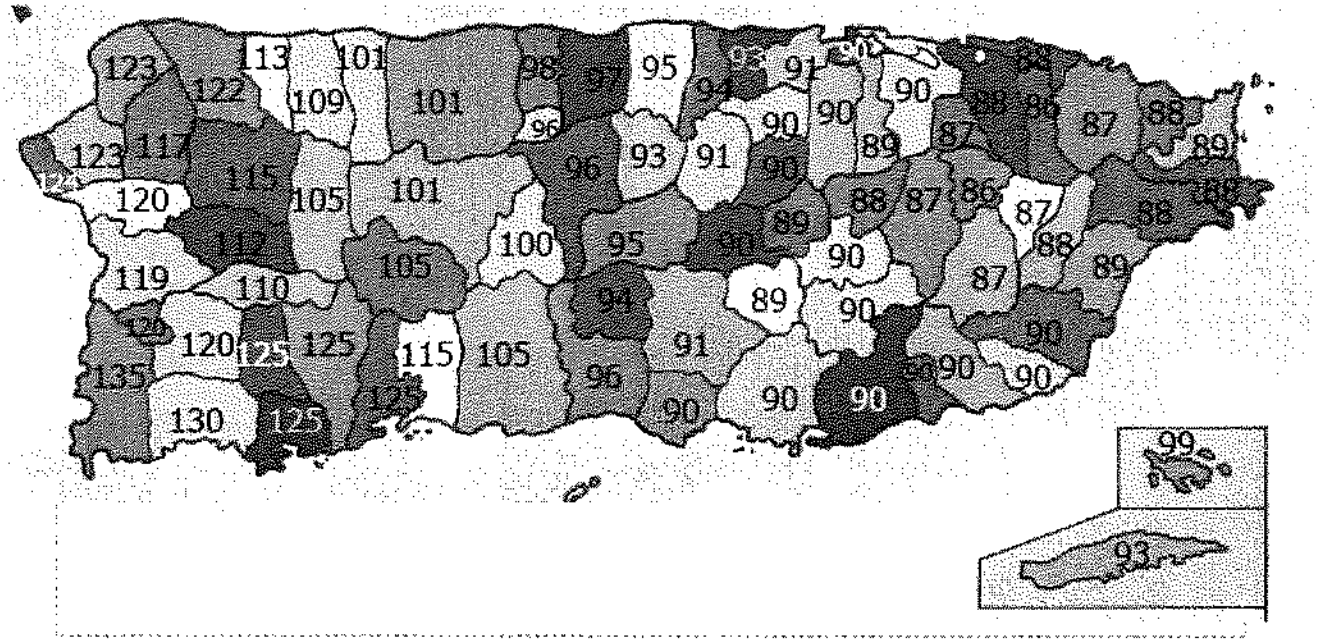

Figure 1 - Spectral Response Acceleration at period of 0.2 seconds, 5% of critical damping, recurrence of 2,475 years (probability of exceedance of 2% in 50 years)

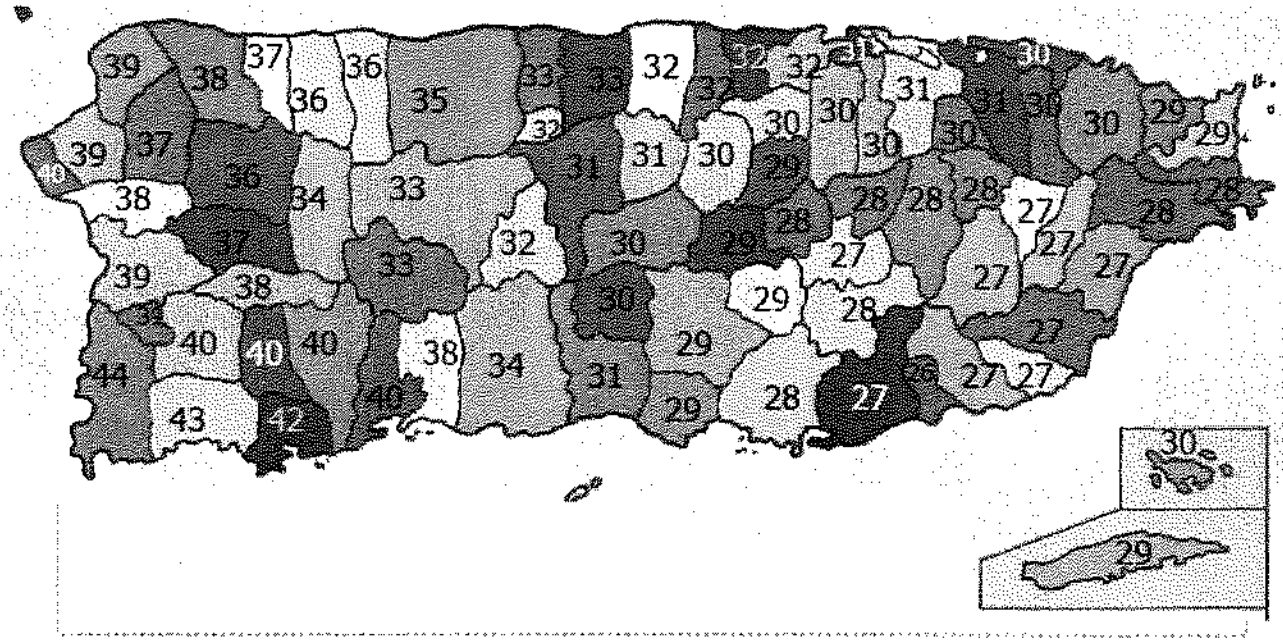

Figure 2 - Spectral Response Acceleration at period of 1.0 seconds, 5% of critical damping, recurrence of 2,475 years (probability of exceedance of 2% in 50 years)

Table 1613.5 (13)
Spectral Response Accelerations for Municipalities of Puerto Rico, % of g.

Municipalities	*0.2 Sec*	*1.0 Sec*	Municipalities	*0.2 Sec*	*1.0 Sec*	Municipalities	*0.2 Sec*	*1.0 Sec*
Adjuntas	105	33	Fajardo	89	29	Naguabo	88	28
Aguada	123	39	Florida	96	32	Naranjito	90	29
Aguadilla	123	39	Guánica	125	42	Orocovis	95	30
Aguas Buenas	88	28	Guayama	90	27	Patillas	90	27
Aibonito	90	29	Guayanilla	125	40	Peñuelas	115	38
Añasco	120	38	Guaynabo	89	30	Ponce	105	34
Arecibo	101	35	Gurabo	86	28	Quebradillas	113	37
Arroyo	90	26	Hatillo	101	36	Rincón	124	40
Barceloneta	98	33	Hormigueros	120	39	Río Grande	87	30
Barranquitas	90	29	Humacao	89	27	Sabana Grande	125	40
Bayamón	90	30	Isabela	122	38	Salinas	90	28
Cabo Rojo	135	44	Jayuya	100	32	San Germán	120	40
Caguas	87	28	Juana Díaz	96	31	San Juan	90	31
Camuy	109	36	Juncos	87	27	San Lorenzo	87	27
Canóvanas	86	30	Lajas	130	43	San Sebastián	115	36
Carolina	88	31	Lares	105	34	Santa Isabel	90	29
Cataño	90	31	Las Marías	112	37	Toa Alta	90	30
Cayey	90	28	Las Piedras	88	27	Toa Baja	91	32
Ceiba	88	28	Loíza	88	30	Trujillo Alto	87	30
Ciales	96	31	Luquillo	88	29	Utuado	101	33
Cidra	90	27	Manatí	97	32	Vega Alta	94	33
Coamo	91	29	Maricao	110	38	Vega Baja	95	32
Comerio	89	28	Maunabo	90	27	Vieques	93	29
Corozal	91	30	Mayagüez	119	39	Villalba	94	30
Culebra	99	30	Moca	117	37	Yabucoa	90	27
Dorado	93	32	Morovis	93	31	Yauco	125	40

CHAPTER 17 - STRUCTURAL TEST AND SPECIAL INSPECTIONS

1703.6 Evaluation and follow-up inspection services.
Where structural components or other items regulated by this code are not visible for inspection after completion of a prefabricated assembly, the applicant shall submit a report of each prefabricated assembly. The report shall indicate the complete details of the assembly, including a description of the assembly and its components, the basis upon which the assembly is being evaluated, test results and similar information and other data as necessary for the Registered Design Professional and the Designated Inspector to determine conformance to the construction drawings. Such a report shall be submitted to the building official.

SECTION 1704: SPECIAL INSPECTIONS

1704.1 General.
Where application is made for construction as described in this section, the owner or the registered design professional in responsible charge acting as the owner's agent shall employ one or more approved agencies to perform inspections during construction on the types of work listed under Section 1704. These inspections are in addition to the inspections identified in Section 110.

The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the *Registered Design Professional*, for the inspection of the particular type of construction or operation requiring special inspection. The registered design professional in responsible charge and engineers of record involved in the design of the project are permitted to act as the approved agency and their personnel are permitted to act as the special inspector for the work designed by them, provided those personnel meet the qualification requirements of this section . The special inspector shall provide written documentation to the building official demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant when the documented experience or training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

Exceptions:

1. Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.

2. Special inspections are not required for building components unless the design involves the practice of professional engineering or architecture as defined by applicable state statutes and regulations governing the professional registration and certification of engineers or architects.

3. Unless otherwise required by the building official , special inspections are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.

SECTION 1708: STRUCTURAL TESTING FOR SEISMIC RESISTANCE

1708.4 Seismic certification of nonstructural components.
The registered design professional shall state the applicable seismic certification requirements for nonstructural components and designated seismic systems on the construction documents.

1. The manufacturer of each designated seismic system components subject to the provisions of ASCE 7 Section 13.2.2 shall test or analyze the component and its mounting system or anchorage and submit a certificate of compliance for review and acceptance by the registered design professional responsible for the design of the designated seismic system. Certification shall be based on an actual test on a shake table, by three-dimensional shock tests, by an analytical method using dynamic characteristics and forces, by the use of experience data (i.e., historical data demonstrating acceptable seismic performance) or by more rigorous analysis providing for equivalent safety.

SECTION: 1709 CONTRACTOR RESPONSIBILITY

1709.1 Contractor responsibility

Any Contractor responsible for the construction of a main wind-or seismic-force-resisting system, designated seismic system or a wind-or seismic-resisting component listed in the statement of special inspections shall submit a written statement to the Designated inspector, or design professional in charge, or the owner, prior to the commencement of work on the system, or the component, that he acknowledges that the system will be subject to the listed special inspection, which will be performed by the registered design professional as per sections 1705, 1706, 1707 and 1708.

CHAPTER 18 – SOILS AND FOUNDATIONS

SECTION: 1810 DEEP FOUNDATIONS

1810.3 Design and detailing

1810.3.8 Precast concrete piles

1810.3.8.2 Precast non-prestressed piles

Precast nonprestressed concrete piles shall comply with the requirements of Sections 1810.3.8.2.1 through 1810.3.8.2.3.

1810.3.8.2.1 Minimum reinforcement.

Longitudinal reinforcement shall consist of at least four bars with a minimum longitudinal reinforcement ratio of 0.008.

1810.3.8.2.2 Seismic reinforcement in Seismic Design Categories C through F.

For structures assigned to Seismic Design Category C, D, E or F in accordance with Section 1613, precast nonprestressed piles shall be reinforced as specified in this section. The minimum longitudinal reinforcement ratio shall be 0.01 throughout the length. Transverse reinforcement shall consist of closed ties or spirals with a minimum 3/8 inch (9.5 mm) diameter. The spiral ratio made with wire 6.0 mm or bigger in diameter is accepted for spiral reinforcement in prefabricated concrete piles of 12 inches or less in diameter. Spacing of transverse reinforcement shall not exceed the smaller of eight times the diameter of the smallest longitudinal bar or 6 inches (152 mm) within a distance of three times the least pile dimension from the bottom of the pile cap. Spacing of transverse reinforcement shall not exceed 6 inches (152 mm) throughout the remainder of the pile.

1810.3.8.2.3 Additional seismic reinforcement in Seismic Design Categories D through F. For structures assigned to Seismic Design Category D, E or F in accordance with Section 1613, transverse reinforcement shall be in accordance with Section 1810.3.9.4.2.

CHAPTER 19 - CONCRETE

SECTION: 1901 GENERAL

1901.2 Plain and reinforced concrete.

Structural concrete shall be designed and constructed in accordance with the requirements of this chapter and ACI 318 as amended in Section 1908 of this code. Except for the provisions of Sections 1904 and 1910, the design and construction of slabs on grade shall not be governed by this chapter unless they transmit vertical loads or lateral forces from other parts of the structure to the soil.

1901.2.1 Mandatory Construction Plan Code Identification

The designer can use either the provisions of the IBC-2009 Chapter 19 or the provisions of the ACI 318-08 Building Code Requirement for Structural Concrete. The designer shall state in the plans which code was selected.

1901.2.2 Mandatory Additional Requirements to ACI 318-08, Section 21.9.6.4 (c)
The boundary element transverse reinforcement shall satisfy the requirements of ACI 318-08 /21.9.6.4.2 through 21.6.4.4, except Eq. (21-4) need not be satisfied and the transverse reinforcement spacing limit of 21.9.6.4.3(a) shall be one-third of the least dimension of the boundary element, but need not be less than 4 in.

SECTION 1913: SHOTCRETE

1913.5 Preconstruction tests.
When required by the construction documents and specifications, a test panel shall be shot, cured, cored or sawn, examined and tested prior to commencement of the project. The sample panel shall be representative of the project and simulate job conditions as closely as possible. The panel thickness and reinforcing shall reproduce the thickest and most congested area specified in the structural design. It shall be shot at the same angle, using the same nozzleman and with the same concrete mix design that will be used on the project. The equipment used in preconstruction testing shall be the same equipment used in the work requiring such testing, unless substitute equipment is approved by the building official.

1913.9 Curing.
During the curing periods specified herein, shotcrete shall be maintained above 40°F (4°C) and in moist condition.

> **1913.9.3 Natural curing.**
> Natural curing shall not be used in lieu of that specified in this section unless the relative humidity remains at or above 85 percent, and is authorized by the *registered design professional.*

SECTION 1915: CONCRETE-FILLED PIPE COLUMNS

1915.6 Approvals.
Details of column connections and splices shall be shop fabricated by approved methods and shall be approved only after tests in accordance with the approved rules. Shop-fabricated concrete-filled pipe columns shall be inspected by **the Designated Inspector** or by an approved representative of the manufacturer at the plant.

CHAPTER 20 -ALUMINUM

No Amendments.

CHAPTER 21 - MASONRY

SECTION: 2101 GENERAL

2101.2 Design methods.
Masonry shall comply with the provisions of one of the following design methods in this chapter as well as the requirements of Sections 2101 through 2104. Masonry designed by the *allowable stress design* provisions of Section 2101.2.1, the strength design provisions of Section 2101.2.2 or the prestressed masonry provisions of Section 2101.2.3 shall comply with Section 2105.
All masonry walls, including structural and nonstructural, shall be provided with the minimum reinforcement for masonry walls in ACI 530-08. Reinforcement shall consist of horizontal and vertical bars properly anchored to the structural system.

CHAPTER 22 - STEEL

No Amendments

CHAPTER 23 - WOOD

No Amendments.

SECTION 2303: MINIMUM STANDARDS AND QUALITY

2303.4 Trusses.

2303.4.1 Design.
Wood trusses shall be designed in accordance with the provisions of this code and accepted engineering practice. Members are permitted to be joined by nails, glue, bolts, timber connectors, metal connector plates or other approved framing devices.

2303.4.1.1 Truss design drawings.
The written, graphic and pictorial depiction of each individual truss shall be provided to the *Registered Design Professional* for approval prior to installation. Truss design drawings shall also be provided with the shipment of trusses delivered to the job site. Truss design drawings shall include, at a minimum, the information specified below:

1. Slope or depth, span and spacing;
2. Location of all joints and support locations;
3. Number of plies if greater than one;
4. Required bearing widths;
5. Design loads as applicable, including;

    5.1. Top chord live load;
    5.2. Top chord dead load;
    5.3. Bottom chord live load;
    5.4. Bottom chord dead load;
    5.5. Additional loads and locations; and

5.6. Environmental design criteria and loads (wind, rain, snow, seismic, etc.).

6. Other lateral loads, including drag strut loads;
7. Adjustments to wood member and metal connector plate design value for conditions of use;
8. Maximum reaction force and direction, including maximum uplift reaction forces where applicable;

9. Metal-connector-plate type, size and thickness or gage, and the dimensioned location of each metal connector plate except where symmetrically located relative to the joint interface;
10. Size, species and grade for each wood member;
11. Truss-to-truss connections and truss field assembly requirements;
12. Calculated span-to-deflection ratio and maximum vertical and horizontal deflection for live and total load as applicable;
13. Maximum axial tension and compression forces in the truss members; and
14. Required permanent individual truss member restraint location and the method and details of restraint/bracing to be used in accordance with Section 2303.4.1.2.

CHAPTER 24 - GLASS AND GLAZING

No Amendments.

CHAPTER 25 - GYPSUM BOARD AND PLASTER

No Amendments.

CHAPTER 26 - PLASTIC

No Amendments.

CHAPTER 27 - ELECTRICAL

SECTION: 2701 General

2701.1 Scope.

This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of NFPA 70 and with the "Puerto Rico Electric Power Authority's Reglamento Complementario al

Código Eléctrico Nacional" (Complementary Code). In case of a conflict between the Complementary Code and the NFPA 70, the Complementary Code will prevail.

2701.2 Devices and Luminaires

Exterior Building Grounds Lighting and Exterior Structure Lighting. All exterior building grounds luminaires and exterior structure lighting that operate at greater than 100 W shall contain lamps having a minimum efficacy of 60 lm/W should be "*full cutoff*" unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under ANSI/ASHRAE/IESNA Standard 90.1-2007 Section 9.1.1 or 9.4.5

CHAPTER 28 - MECHANICAL SYSTEMS

No Amendments.

CHAPTER 29 - PLUMBING SYSTEMS

No Amendments.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS

No Amendments.

CHAPTER 31 - SPECIAL CONSTRUCTION

3107.2 Sign Illumination
Any sign on buildings, exterior building grounds sings and exterior structure sings, with illumination should be illuminated with *full cutoff* lamps.

CHAPTER 32 - ENCROACHMENTS INTO THE PUBLIC RIGHT - OF - WAY

No Amendments.

CHAPTER 33 - SAFEGUARDS DURING CONSTRUCTION

No Amendments.

CHAPTER 34 - EXISTING STRUCTURES

No Amendments.

CHAPTER 35 - Referenced Standards

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

Add new reference.

Standard reference number : 3149
Title: "Reglamento de Normas de Diseño de la Autoridad de Acueductos y Alcantarillados de Puerto Rico"

Referenced in code section number: 403.3.2; 903.3.5

Institution: ASTM
Standard reference number: ASTM A615-09
Title: Standard Specifications for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
Referenced in code section number: Apendix L

Institution: Puerto Rico Electric Power Authority (PREPA)
Standard reference number: 5676 – 1997
Title: Reglamento Complementario al Código Eléctrico Nacional (Complementary Code)
Referenced in code section number: Chapter 27, Section 2701

Appendix A – EMPLOYER QUALIFICATIONS

Not applicable to Puerto Rico.

Appendix B - BOARD OF APPEALS

Not applicable to Puerto Rico.

Appendix C - GROUP U - AGRICULTURAL BUILDINGS

Not applicable to Puerto Rico.

Appendix D - FIRE DISTRICTS

Not applicable to Puerto Rico.

Appendix E - SUPLEMENTARY ACCESIBILITY REQUIREMENTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

Appendix F – RODENT PROOFING

Mandatory.

Appendix G – FLOOD-RESISTANT CONSTRUCTION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

Appendix H - SIGNS

Mandatory and as established by the "Reglamento Conjunto".

Appendix I – PATIO COVERS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

Appendix J - GRADING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

Appendix K – ADMINISTRATIVE PROVISIONS

Not applicable to Puerto Rico.

Appendix L – ALTERNATE STRUCTURAL PROVISIONS FOR ONE AND TWO STORY BUILDINGS

A. One and Two Stories Building Construction

A.1. Applicability and Scope

1. General – The structural design and construction of new qualified one and two story reinforced concrete buildings can be performed in accordance with these alternate provisions, as an alternate to those included in the 2009 International Building Code (IBC 2009) and the International Residential Code 2009. For additions or modifications of existing structures, follow the International Existing Building Code 2009. A qualified building shall meet the requirements set forth in this section as follows:

    a. The building consists of a reinforced concrete structure with or without concrete block infill walls. The floor area of each story shall not exceed five thousand (5,000) square feet and any story level shall not exceed 12 feet in height.

    b. The building shall have a nearly symmetrical plan configuration in both principal directions. The distance between the center of mass and the center of rigidity of the building shall not exceed five (5) percent of the plan dimension measured normal to the direction of the load.

c. All reinforced concrete structural elements supporting vertical and lateral loads shall be cast- in-place.

d. A lateral force resisting system (LFRS), consisting of moment frames or shear walls or a combination of both, shall be provided in both principal directions of the building. The out-of-plane stiffness of the walls shall not be considered as part of the LFRS.

e. All vertical structural elements shall be continuous down to the foundation, with no horizontal offset and no reduction in sectional area. Rigid structural systems on the second level, like reinforced concrete or concrete block shear walls that are supported by frame systems on the first level, shall be identified as a soft story at the first level and shall not be allowed.

f. The maximum difference in base elevation between adjacent footings shall not exceed twelve (12) inches. Additionally, the final grading elevation around the building shall not exceed three (3) feet above the ground slab elevation.

g. The second floor slab area shall not exceed that of the ground floor, except that for balconies or overhangs the second floor slabs are permitted up to six (6) feet from the faces of the four façades of the building, but not larger than 1/3 of the adjacent interior span.

h. The resulting design seismic base shear, calculated as per these alternate provisions, shall not be reduced due to ductility considerations.

i. These provisions shall apply only to buildings with Occupancy Category I and II as defined in Table 1-1 of ASCE/SEI-7-05 (Minimum Design Loads for Buildings and Other Structures). The qualified buildings shall not have an Importance Factor greater than 1.0.

A.2 Design Loads

1. Permanent Loads:

a. Dead, fixed and permanent loads used for the design shall be as per the IBC 2009 provisions.

2. Live Loads:

a. Design live loads shall be as per the IBC 2009 provisions.

3. Lateral Forces:

The general provisions for the calculation of the design lateral loads shall be as per this section.

a. Hurricane Wind Loads:

1. General – All buildings and their components, and accessories and their attachments subject to wind loads, shall be designed to withstand the pressures and meet the requirements of this section. Building components, such as windows, panels, doors, roof equipment, antennas and the architectural features exposed to the wind shall be designed for the wind loads specified. The wind shall be assumed as approaching the structure from any horizontal direction. Reductions on the design wind pressures shall not be permitted. Reductions in load associated with protection or shielding provided by adjacent structures shall not be permitted. However, the calculated capacity of the components may be increased by a factor of 1.3 to account for the short duration of the wind loads.

2. Basic wind speed – Wind pressures listed in this section are based on a wind speed of one hundred and forty five miles per hour (145 mph), based on the three (3) seconds gust criteria, as defined by the ASCE 7-05 design standard. Design wind pressures as per this section are unfactored-service loads.

3. Design wind pressure – The net wind pressure, at service load condition, acting on the main wind force resisting system shall not be less than 54 psf, acting normal to both the windward (positive pressure) and leeward (negative pressure) façades of the building, concurrently with a roof vertical pressure of 54 psf acting on the roof upward or 42 psf acting on the roof downward. The two load cases specified above shall be considered separately and the structural element shall be designed for the larger load combination. The total shear force induced by wind shall be calculated based on these criteria.

4. Components and Cladding – The wind pressures acting on any structural or non-structural component or cladding element shall not be less than those listed on Table I. Designer shall refer to ASCE 7-05 standard, to obtain the design wind pressures for those components not listed in this section. Wall edge zones shall be defined as the portion of the wall located within a distance of ten (10) feet measured horizontally from the corners of the building.

Table I: Design Wind Pressures For Components and Cladding

TYPE OF COMPONENT AND CLADDING	DESIGN PRESSURE NORMAL TO SURFACE (IN PSF)
Wall components and their connections to LFRS, including, but not limited to, structural members, concrete block walls, exterior wall panels, doors, windows, permanent terrace covers and non-retractable shade curtains and all exterior architectural components, All Roof structure components.	90 (inward or outward) at edge zone and 65(inward or outward) elsewhere
All equipment and components supported by the roof including, but not limited to, solar water heaters, solar panels, water cisterns, A/C units, equipment, and associated conduit and ductwork and all attachments. Also skylights, ventilation and extraction fans and all their attachments.	90 (acting in any direction) 54 (acting upward and downward)
All parapets or extension of wall elements above roof elevation.	90 (acting inward, outward or upward
Roof membranes installed for impermeabilization and climate control purposes.	110 (acting inward or outward) 90 (acting upward) at edge zones and flashings and 65 (acting upward) elsewhere

b. Earthquake Loads:

1. General - All qualified buildings and all their components shall be designed to meet the seismic requirements of this section.

2. The design horizontal seismic force shall be applied at the level of each story and located at a distance of plus or minus five (5) percent of the maximum plan dimension normal to the direction of the load from the center of rigidity of each story. This distance shall be considered the accidental eccentricity. The seismic load need not be applied concurrently along both principal directions of the building. For all non-structural components, the design seismic force shall be applied at their center of mass. The seismic forces calculated as per these alternate provisions are

factored loads based on the elastic structural behavior and shall not be reduced to account for any ductility considerations.

3. Minimum design seismic force. The design seismic load shall not be less than that calculated by the following formula:

$V_u = 0.50W$ A.2.1

where;

W = Total weight of the structure including all structural and non-structural components, equipment and any other permanent attachment to the structure that modifies the inertial properties of the structure.

V_u = Total horizontal base shear force at factored level.

For one story structures, the total base shear, Vu, shall be applied to the roof level. For two story structures, Vu shall be applied in equal proportions to the first and roof levels.

4. Horizontal Distribution of Seismic Force. The total shear force applied at each level shall be distributed among all components of the LFRS in proportion to their relative stiffness. The floor and roof slabs shall be used as horizontal rigid diaphragms. Slabs thickness shall not be less than four (4) inches and shall be cast-in-place without horizontal construction joints.

5. Minimum horizontal design seismic forces on nonstructural components: All non-structural components and their attachments to the principal structure shall be designed to withstand as a minimum, the lateral loads calculated in accordance with the following formula:

$F_p = 0.60W_p$ A.2.2

where,

W_p = Total weight of the non-structural components or equipment.

F_p = Total design horizontal seismic force at factored level.

4. Load Combinations:

The required strength of the structure and all its components shall be determined from the Load and Resistance Factor Design load combinations and load factors provided in Section 1605 of the IBC 2009.

A.3. Foundations

1. General- The foundation design of qualified buildings shall meet the requirements of this section. Structures designed as per these alternate provisions may be supported by isolated or combined footings or by a mat foundation. Minimum concrete compressive strength is 3,000 psi at 28 days and 60,000 ksi for steel reinforcement conforming to ASTM A615-09. Welding of reinforcement bars shall not be permitted.

2. Minimum foundation thickness – The foundation thickness shall not be less than the following:

   a. For spread footings under load bearing walls twelve (12) inches.

   b. For spread footings under columns twelve (12) inches.

   c. For mat foundations, twelve (12) inches under concrete walls, twelve (12) inches under columns and six (6) inches elsewhere. Changes in thickness shall be done gradually in a 1:1 slope down towards the thickened portion.

3. Minimum foundation width – The foundation width shall not be less than the following:

   a. For combined footings and mat foundations under interior load bearing walls, twelve (12) inches measured from each face of the wall. For the case of combined footings and mat foundations under exterior load bearing walls, fifteen (15) inches measured from each face of the wall.

   b. For spread footings and combined footings under interior and exterior columns, eighteen (18) inches measured from each face of the column. For the case of mat foundations under interior columns, twelve (12) inches measured from each face of the column. For the case of mat foundations under exterior columns, fifteen (15) inches measured from each face of the column.

4. Minimum steel reinforcement – Foundation reinforcement shall not be less than 0.002 of the gross sectional area.

5. Minimum concrete cover – The concrete clear cover of steel reinforcement cast against earth or permanently exposed to earth, shall not be less than three (3) inches or two (2) inches if the complete foundation is cast against an unperforated bituminous or plastic vapor barrier membrane conforming to ASTM E-1993 and ASTM 1745 of at least six thousandths of an inch (6 mils) thick. Membrane installation shall be as per ASTM 1643.

6. Type L Footings – Type "L" footings shall not be used except at those instances required to avoid conflicts with property lines. In such cases, their design shall consider soil bearing pressure variations caused by the eccentricity of the applied load. The full footprint of the foundation shall remain in bearing contact with the soil when subjected to service level loads combinations as per IBC 2009.

A.4. Reinforced Concrete Frames

1. General – The design of reinforced concrete frames designated to be part of the LFRS shall meet the provisions of this section.

2. Materials – The specified materials shall satisfy or exceed the following minimum requirements:

   a. Concrete – The specified 28 days concrete compressive strength for all components of the frame components shall not be less than three thousand pounds per square inches (3,000 psi).

   b. Steel – All steel reinforcement shall consist of deformed bars with a minimum yield stress, Fy, of sixty thousand pounds per square inches (60,000 psi) conforming to ASTM A615-09. Welding of steel reinforcement bars shall not be permitted.

3. Minimum element dimensions – The depth of frame elements in the plane of the lateral load under consideration, shall not be less than twelve (12) inches in columns and eighteen (18) inches in beams, including the slab thickness when cast monolithically. In no case any frame element shall have a dimension of less than eight (8) inches. In addition, the minimum column cross sectional area shall not be less than one hundred forty four (144) square inches.

4. Minimum reinforcement – The beams of the frame shall be provided with at least two (2) #5 longitudinal reinforcing bars at bottom and top. In no case shall the minimum reinforcement provided in beams be less than the provisions of Section 10.5 of ACI 318-08. Transverse reinforcement shall consist of at least #3 closed stirrups spaced no farther apart than six (6) inches on center. The center of the splice for the positive (bottom) reinforcement shall be located at a distance of one-fourth (1/4) the clear span from the face of the support and shall have a splice length of thirty six (36) times the bar diameter or eighteen (18) inches, whichever is greater. The negative (top) reinforcement shall be continuous throughout the supports, and the center of the splice shall be located at mid-span with an overlapping length of thirty (30) times the bar diameter or twelve (12) inches, whichever is greater. The longitudinal top and bottom reinforcement of beams shall terminate on exterior columns anchored with 90 degree standard hooks.

The longitudinal reinforcement in columns shall not be less than eight (8) #5 bars. The longitudinal reinforcement of columns shall terminate anchored with 90 degree standard hooks. The footing dowels shall be spliced with the column longitudinal reinforcement at column mid-height with an overlapping of thirty six (36) times the diameter of the longitudinal bars. Column transverse reinforcement shall consist of at least #3 closed ties spaced no farther than six (6) inches on center. Beam stirrups and column ties shall consist of closed hoops in accordance with ACI standards. In all columns, ties shall be extended through the column-beam joints.

5. Minimum Area of Concrete Columns: The sum of the gross area of all concrete columns, in square inches and on the base floor must be at least 0.00325 times the total horizontal base shear Vu, in pounds.

6. Required analysis of moment frames

   a. The structural analysis of moment frames shall be performed by means of a rational analytical method accepted by the engineering community. The stiffness contribution and effects of moment frames with Concrete Masonry Units (CMU) infill shall be considered as per these provisions.

A.5 Reinforced Concrete Walls:

1. General – The design of reinforced concrete walls designated to be part of the LFRS shall meet the provisions of this section.

2. Materials – The specified materials shall satisfy or exceed the following minimum requirements:

   a. Concrete – The specified 28 days concrete compressive strength for all walls shall not be less than three thousand pounds per square inches (3,000 psi).

   b. Steel – All steel reinforcement shall consist of deformed bars with a minimum yield stress, Fy, of sixty thousand pounds per square inches (60,000 psi) conforming to ASTM A615-09. Welding of steel reinforcement bars shall not be permitted.

3. Minimum element dimensions – The length of the wall in the direction of the lateral load under consideration, shall not be less than forty eight (48) inches. The perpendicular dimension of the wall shall not be less than eight (8) inches.
4. Minimum reinforcement – The walls shall be provided with at least two (2) #5 longitudinal reinforcing bars at each end of the wall cross section, confined with #3 ties or hairpins spaced at six (6) inches along the wall height. In no case shall the minimum horizontal and vertical reinforcement

provided in walls be less than 0.0025 times the gross area of the wall. The vertical and horizontal reinforcements shall not be spaced further apart than eighteen (18) inches. The longitudinal reinforcement of walls shall be anchored with 90 degree standard hooks. The footing dowels shall be spliced with the wall longitudinal reinforcement with an overlapping length of thirty six (36) times the diameter of the longitudinal bars.

5. Minimum Area of Concrete Walls: The sum of the gross area of all concrete walls at the base floor must be at least 0.005 times the total gross area of the ground level.

A.6. Concrete Masonry Walls

1. General – The design of concrete masonry (CMU) walls shall meet the provisions of this section. .The out-of-plane stiffness and strength of all CMU walls shall not be considered in the LFRS.

   The design lateral forces shall be resisted by the designated structural walls comprising the LFRS. The seismic loads shall be distributed among all wall components in proportion to their relative in-plane stiffness. Only walls properly connected to a horizontal rigid diaphragm shall be considered to be part of the LFRS.

   CMU walls designated to be part of the LFRS, shall not have their horizontal sectional area reduced by more than fifty (50) percent at any location. Larger reductions may be permitted, when caused by the presence of embedded components such as vertical conduits, drainage pipes or any other required accessories to be installed within the wall, if the discontinuity in the horizontal sectional area is considered in the structural analysis and design. The affected wall shall not be considered to act as a whole unit. Instead they shall be modeled and designed as independent wall segments delimited by each vertical disruption. The structural designer shall coordinate with other disciplines in order to determine and consider all the instances in which such condition would occur.

2. Materials – The materials to be used in the construction of the load bearing and transverse CMU walls shall satisfy the minimum quality requirements specified below:

   a. Concrete Masonry Units (CMU) – All CMU must meet all minimum requirements specified in Chapter 21, Section 2103 of IBC 2009

   b. Mortar – must meet all minimum requirements specified in Chapter 21, Section 2103 of IBC 2009

c. Cement Grout - must meet all the minimum requirements specified in Chapter 21, Section 2103 of IBC 2009

d. Concrete – The concrete used in the structural confining elements shall have a minimum compressive strength of three thousand psi (3,000 psi) at twenty eight (28) days.

e. Steel Reinforcement – The reinforcement shall have a minimum yield strength of sixty thousand psi (60,000 psi) and shall comply with ASTM A615-09.

3. Dimensions – All load bearing and transverse CMU walls shall meet the following requirements related to their dimensions. The free distance, horizontal or vertical between supports or confining elements, shall not exceed twenty five (25) times the thickness of the wall. For this limitation, the vertical distance from top of foundation to bottom of confining beam, or the distance from top of slab to bottom of confining beam shall be considered. The horizontal distance to be considered shall be the distance between confining columns or transverse walls. No structural CMU walls shall be constructed using a thickness less than six inches (6"). No finishes or plaster shall be considered to determine wall thicknesses.

4. Wall Confinements – The CMU wall and its confining frame, acting as a structural unit, shall be designed to withstand the vertical and lateral loads. The minimum dimensions for the beams and columns shall be as established in section A.4.3 of this regulation.

   To guarantee that individual and group behavior will be adequate, the confined CMU walls shall be located symmetrically and must provide the highest possible torsional stiffness of the building. This could be achieved by locating confined walls as close as possible to the perimeter of the structure.

   The openings located on load bearing and transverse CMU walls that form part of the LFRS shall meet the following:

   a. The total area of the openings shall not exceed thirty five percent (35%) of the total CMU wall area enclosed by the horizontal and vertical confinement elements.

   b. The aggregate of the horizontal length of the openings, within the CMU wall, shall not exceed half (1/2) the distance between confinement column elements.

   c. The horizontal distance between an opening edge and the CMU wall edge shall not be less than one fourth (1/4) the opening height.

d. The clear horizontal distance between openings shall not be less than one half (1/2) the smaller height of the openings, nor less than twenty inches (20").

e. The clear vertical distance between openings shall not be less than one half (1/2) the width of the widest opening, nor less than twenty inches (20").

When any CMU wall does not comply with one or more of the requirements of subsection A.6.4.a to A.6.4.e, the wall shall not be considered part of the LFRS. Nevertheless, this wall shall be designed to withstand all applicable local horizontal and vertical forces.

When all openings are surrounded by interior confinement columns and beams as defined below on these provisions, the edge distance requirements in Subsections A.6.4.a through A.6.4.e are no longer required. The confinement columns that surround the openings shall extend from the foundations or inferior diaphragm to the next superior diaphragm, and shall be properly anchored on both sides.

5. Interior Confinement Beams – The minimum width for the interior confinement beams shall be eight (8) inches. Interior confinement beams shall not have a total depth smaller than twelve (12) inches and shall comply with the requirements of Section A.4.3.

   The confinement beams shall have a minimum reinforcement as required on this section. Minimum reinforcement shall consist of four (4) longitudinal #4 bars (2 bars top and two bars bottom) with #3 stirrups spaced at eight inches (8") on the beams located at intermediate floor levels and roof.
   The interior confinement beams for load bearing and transverse CMU walls must fit inside the intermediate floor system to guarantee the diaphragm effect. The superior level of the interior confinement beam will correspond to the superior level of the intermediate floor level.

   The beams shall be cast on top of the CMU wall to anchor the vertical reinforcement of the walls. As an alternate, the CMU wall shall be constructed so that the wall reinforcement is effectively anchored to the beam and columns through splices and the wall is provided with a mechanism to transfer the shear forces acting in all directions.

6. Interior Confinement Columns – The interior confinement columns are interior vertical reinforced elements that confine the walls. These Confinement columns will be used wherever the required CMU walls are part of the LFRS or at the intersection between two load bearing or transverse walls, or at intermediate locations of the load bearing and transverse walls with a separation not to exceed the limits established in these provisions.

The minimum width of the confinement columns shall be the eight (8) inches, and the cross sectional area shall not be less than ninety six square inches (96 in^2). The confinement columns shall extend from the inferior beam up to the superior beam properly anchored to these elements. The reinforcement of the columns shall be anchored with standard 90 degree hooks to the foundation.

The confinement columns minimum reinforcement shall be six (6) #4 longitudinal bars with #3 ties spaced at six (6) inches.

The columns shall be cast against the CMU walls, and the forms shall be placed only to the sides with no walls. As an alternate, the CMU wall shall be constructed so that the wall reinforcement is effectively anchored to the beam and columns through splices and the wall is provided with a mechanism to transfer the shear forces acting in all directions.

7. CMU walls subjected to Lateral Loads Design – The wall elements shall be designed according to the following criteria:

   a. Lateral Loads – The lateral loads specified in this regulation shall be used.

   b. Analysis – Each CMU wall will be modeled as a frame of articulated joints comprised of confinement beams and columns and diagonal elements formed by masonry equivalent elements. Those diagonal elements shall have an equivalent width no greater than twenty five percent (25%) of the clear diagonal length within joints and a depth equal to the thickness of the wall. The elasticity modulus of the equivalent element shall be equal to the masonry modulus of elasticity to be taken as $E_m = 900f'm$.

   c. Design – For the loads specified in section A.2 and the mathematical model described in section A.6.7.b the internal forces in tension or compression of the different columns will be determined, and each will be designed for the predominant forces.

      The diagonal equivalent elements forces shall not exceed the diagonal strength of the wall, estimated as,

      $R_c = (2/3)\, a\, t\, f'_m \sec \theta$ A.6.1

      Where,

      R_c = Ultimate strength of the equivalent diagonal element.

      t = Equivalent element depth, in other words, the thickness of the wall, in inches.

a = contact length between the wall and column. A length of eighteen inches 18" shall be used.

f'_m = masonry ultimate strength to be taken as 800 psi or as determined by laboratory testing.

θ = equivalent diagonal element angle with the horizontal.

The following equation must also be satisfied,

$$V_u < (4/h) \sum_{i=1}^{n} M_u \qquad \text{A.6.2}$$

Where,

V_u = total lateral force to be used in the design of confined masonry.

h = story height

n = number of columns of a confined masonry wall

M_u = ultimate moment strength of each column of the wall with no axial load consideration.

DIVISION III

AMENDMENTS
to the
2009 INTERNATIONAL RESIDENTIAL CODE

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DIVISION III

AMENDMENTS
to the
2009 INTERNATIONAL RESIDENTIAL CODE

CHAPTER 1 – SCOPE AND APPLICATION

PART I – SCOPE AND APPLICATION

SECTION: R101 GENERAL

R101.1 Title.
These provisions shall be known as the Residential Code for One- and Two-family Dwellings of Puerto Rico, and shall be cited as such and will be referred to herein as "this code."

R101.2 Scope.
The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures .

> **Exception**: Live/work units complying with the requirements of Section 419 of the International Building Code shall be permitted to be built as one- and two-family dwellings or townhouses. Fire suppression required by Section 419.5 of the International Building Code when constructed under the International Residential Code for One- and Two-family Dwellings shall conform to Section 903.3.1.3 of the International Building Code.

R101.3 Intent.
The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations. This chapter replaces CHAPTER I of the International Residential Code.

SECTION R102 APPLICABILITY

R102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

R102.2 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

R102.3 Application of references.
References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

R102.4 Referenced codes and standards.
The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

Exception: Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and manufacturer's instructions shall apply.

R102.5 Appendices.
Provisions in the appendices shall not apply unless specifically adopted.

R102.6 Partial invalidity.
In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

R102.7 Existing structures.
The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Fire Code, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

R102.7.1 Additions, alterations or repairs.
Additions, alterations or repairs to any structure shall conform to the requirements for a new structure without requiring the existing structure to comply with all of the requirements of this code, unless otherwise stated. Additions, alterations or repairs shall not cause an existing structure to become unsafe or adversely affect the performance of the building.

PART II – ADMINISTRATION AND ENFORCEMENT

103.1 General
The administrative provisions of this Code will be those established by the Puerto Rico Building Code (Division I); Chapter I of the International Residential Code as amended here-in;and , , the "Oficina General de Permisos" (OGPe)..

CHAPTER 2 – DEFINITIONS

SECTION R202 - DEFINITIONS

MANUFACTURED HOME. Manufactured home means a structure, transportable in one or more sections, which in the traveling mode is approved by the pertaining transportation authority or, when erected on site, is 320 square feet (30 m2) or more, and which is built on a permanent chassis and designed to be used as a dwelling with a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning and electrical systems contained therein with the required permits from the pertaining Utility Provider; except that such term shall include any structure that meets all the requirements of this paragraph except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the secretary of Puerto Rico Department of Housing, OGPE, Department of Consumer Affair, or any other pertaining Puerto Rico or Federal Government Agency and complies with the standards established under this title. For mobile homes built prior to June 15, 1976, a label certifying compliance to the Standard for Mobile Homes, NFPA 501, in effect at the time of manufacture is required. For the purpose of these provisions, a mobile home shall be considered a manufactured home.

CHAPTER 3 – BUILDING PLANNING

SECTION R301 – DESIGN CRITERIA

R301.2 – CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

R301.2.1 – Wind limitations

R301.2.1.2 - Protection of openings
Windows in buildings located in windborne debris regions shall have glazed openings protected from windborne debris. Glazed opening protection for windborne debris shall meet the requirements of the Large Missile Test of ASTM E 1996 and ASTM E 1886 referenced therein. Garage door glazed opening protection for windborne debris shall meet the requirements of an *approved* impact resisting standard or ANSI/DASMA 115.

Exception: Tested and certified Storm shutter systems or wood structural panels with a minimum thickness of $^{7}/_{16}$ inch (11 mm) and a maximum span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be precut and attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method and shall be secured with the attachment hardware provided. Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2 (2) or ASCE 7, with the permanent corrosion-resistant attachment hardware provided and anchors permanently installed on the building. Attachment in accordance with Table R301.2.1.2 is permitted for buildings with a mean roof height of 33 feet (10 058 mm) or less where wind speeds do not exceed 145 miles per hour.

SECTION R313 – AUTOMATIC FIRESPRINKLERS SYSTEMS

R313.1– Townhouses automatic fire sprinklers systems
An automatic residential fire sprinkler system shall not be installed in townhouses, except in the following cases:

1. Spaces with walls, ceiling and floor with less than I hour fire rating.
2. Places where mixed occupancy would cause the fire load to increase.

Exception: An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

R313.1.1 Design and installation. Automatic residential fire sprinkler systems for *townhouses* shall be designed and installed in accordance with Section P2904 and NFPA 13D.

R313.2 One-and two-family dwellings automatic fire systems.
An Automatic residential fire sprinkler system shall not be installed in One-and two-family dwellings unless it meets one of the following criteria.

1. Spaces with walls, ceiling and floor with less than I hour fire rating.
2. Places where mixed occupancy would cause the fire load to increase.

Exception: An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with an automatic residential sprinkler system.

R313.2.1 Design and installation.
Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.

CHAPTER 4 – FOUNDATIONS
No Amendments.

CHAPTER 5 – FLOORS
No Amendments.

CHAPTER 6 – WALL CONSTRUCTION
No Amendments.

CHAPTER 7 – WALL COVERINGS
No Amendments.

CHAPTER 8 – ROOF-CELING CONSTRUCTION
No Amendments.

CHAPTER 9 – ROOF ASSEMBLIES
No Amendments.

CHAPTER 10 – CHIMNEYS AND FIREPLACES
No Amendments.

CHAPTER 11 – ENERGY EFFICIENCY
This chapter is replaced with the following:

SECTION 1101 - GENERAL

1101.1 Scope.
This chapter governs the design and construction of One and Two Family Dwelling Units for energy efficiency.

1101.1.1 Criteria.
Buildings shall be designed and constructed in accordance with Chapter 4 of the International Energy Conservation Code .

CHAPTER 12 – MECHANICAL ADMINISTRATION
No Amendments.

CHAPTER 13 – GENERAL MECHANICAL SYSTEM REQUIREMENTS

No Amendments.

CHAPTER 14 – HEATING AND COOLOING EQUIPMENT

SECTION M1411 - COOLING EQUIPMENT

CHAPTER 15 – EXHAUST SYSTEMS

No Amendments.

CHAPTER 16 – DUCT SYSTEMS

SECTION M1601 – DUCT CONSTRUCTION

M1601.1 Duct design.
Duct systems serving cooling and ventilation equipment shall be fabricated in accordance with the provisions of this section and ACCA Manual D or Chapter 21 of the ASHRAE 2009 Fundamentals Handbook or other approved methods.

CHAPTER 17 – COMBUSTION AIR

No Amendments.

CHAPTER 18 – CHIMNEYS AND VENTS

No Amendments.

CHAPTER 19 – SPECIAL FUEL-BURNING EQUIPMENT

No Amendments.

CHAPTER 20 – BOILERS AND WATER HEATERS

SECTION M2005 WATER HEATERS

M2005.1 General.(EC403.10)
All new one and two dwelling units, and townhouses shall be provided to only use solar water heaters. These shall be certified by the Puerto Rico Energy Affairs Administration. All other types of water heaters are prohibited.

SECTION M2006 POOL HEATERS

M2006.1 General.(EC403.9.1)
All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters are allowed only with renewable or alternate energy sources.

M2006.2 Clearances.
In no case shall the clearances interfere with combustion air , draft hood or flue terminal relief, or accessibility for servicing.

M2006.3 Temperature-limiting devices.
Pool heaters shall have temperature-relief valves.

M2006.4 Bypass valves.
Where an integral bypass system is not provided as a part of the pool heater, a bypass line and valve shall be installed between the inlet and outlet piping for use in adjusting the flow of water through the heater.

CHAPTER 21 – HYDRONIC PIPING
No Amendments.

CHAPTER 22 – SPECIAL PIPING AND STORAGE
No Amendments.

CHAPTER 23 – SOLAR SYSTEMS

SECTION M2301 – SOLAR ENERGY SYSTEMS

M2301.2 – Installation (deleted)

CHAPTER 24 – FUEL GAS
No Amendments.

CHAPTER 25 – PLUMBING ADMINISTRATION
No Amendments.

CHAPTER 26 - GENERAL PLUMBING REQUIREMENTS

SECTION P2601 - GENERAL

P2601.1 Scope.

The provisions of this chapter shall govern the installation of plumbing not specifically covered in other chapters applicable to plumbing systems. The installation of plumbing, *appliances, equipment* and systems not addressed by this code shall comply with the applicable provisions of the *International Plumbing Code*.

> Exemption: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to the discharge the sanitary discharge system where such fixtures discharge to grey water system for flushing of water closets and urinals or for subsurface landscape irrigation that follows Appendix O of this code. This does not exclude the requirement under the PR Environmental Quality Board jurisdiction.

CHAPTER 27 – PLUMBING FIXTURES

No Amendments.

CHAPTER 28 – WATER HEATERS

SECTION P2801 GENERAL

P2801.1 Required.
Each dwelling shall be prepared to only use solar water heater system sufficient to supply hot water to plumbing fixtures and appliances intended for bathing, washing or culinary purposes. Storage tanks shall be constructed of noncorrosive metal or shall be lined with noncorrosive material.

P2801.2 Installation.
Water heaters shall be installed in accordance with this chapter and Chapters 20 and 24.

P2801.3 Location.
Water heaters and storage tanks shall be installed in accordance with Section M1305 and shall be located and connected to provide access for observation, maintenance, servicing and replacement.

P2801. 4 Required pan.
Where water heaters or hot water storage tanks are installed in locations where leakage of the tanks or connections will cause damage, the tank or water heater shall be installed in a galvanized steel pan having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans approved for such use. Listed pans shall comply with CSA LC3.

P2801. 4.1 Pan size and drain.
The pan shall be not less than 11/2 inches (38 mm) deep and shall be of sufficient size and shape to receive all dripping or condensate from the tank or water heater. The pan shall be drained by an indirect waste pipe having a minimum diameter of 3/4 inch (19 mm). Piping for safety pan drains shall be of those materials listed in Table P2905.5.

P2801.4.2 Pan drain termination.
The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or shall extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface.

P2801. 5 Water heater seismic bracing.
In Seismic Design Categories D0, D1 and D2 and townhouses in Seismic Design Category C, water heaters shall be anchored or strapped in the upper one-third and in the lower one-third of the appliance to resist a horizontal force equal to one-third of the operating weight of the water heater, acting in any horizontal direction, or in accordance with the appliance manufacturer's recommendations.

SECTION P2802 WATER HEATERS USED FOR SPACE HEATING

P2802.1 Protection of potable water.
Piping and components connected to a water heater for space heating applications shall be suitable for use with potable water in accordance with Chapter 29. Water heaters that will be used to supply potable water shall not be connected to a heating system or components previously used with nonpotable-water heating appliances . Chemicals for boiler treatment shall not be introduced into the water heater.

P2802.2 Temperature control.
Where a combination water heater-space heating system requires water for space heating at temperatures exceeding 140°F (60°C), a master thermostatic mixing valve complying with ASSE 1017 shall be installed to temper the water to a temperature of 140°F (60°C) or less for domestic uses.

SECTION P2803 RELIEF VALVES

P2803.1 Relief valves required.
Appliances and equipment used for heating water or storing hot water shall be protected by:
1. A separate pressure-relief valve and a separate temperature-relief valve; or
2. A combination pressure- and temperature-relief valve.

P2803.2 Rating.
Relief valves shall have a minimum rated capacity for the equipment served and shall conform to ANSI Z21.22.

P2803.3 Pressure relief valves.
Pressure-relief valves shall have a relief rating adequate to meet the pressure conditions for the appliances or equipment protected. In tanks, they shall be installed directly into a tank tapping or in a water line close to the tank. They shall be set to open at least 25 psi (172 kPa) above the system pressure but not over 150 psi (1034 kPa). The relief-valve setting shall not exceed the tanks rated working pressure.

P2803.4 Temperature relief valves.
Temperature-relief valves shall have a relief rating compatible with the temperature conditions of the appliances or equipment protected. The valves shall be installed such that the temperature-sensing element monitors the water within the top 6 inches (152 mm) of the tank. The valve shall be set to open at a maximum temperature of 210°F (99°C).

P2803.5 Combination pressure-/temperature-relief valves.
Combination pressure-/temperature-relief valves shall comply with all the requirements for separate pressure- and temperature-relief valves.

P2803.6 Installation of relief valves.
A check or shutoff valve shall not be installed in the following locations:
1. Between a relief valve and the termination point of the relief valve discharge pipe;
2. Between a relief valve and a tank; or
3. Between a relief valve and heating appliances or equipment.

P2803.6.1 Requirements for discharge pipe.
The discharge piping serving a pressure-relief valve, temperature relief valve or combination valve shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed to flow by gravity.
10. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.
11. Not have a threaded connection at the end of the piping.
12. Not have valves or tee fittings.

13. Be constructed of those materials listed in Section P2904.5 or materials tested, rated and approved for such use in accordance with ASME A112.4.1.

CHAPTER 29 – WATER SUPPLY AND DISTRIBUTION

SECTION P2901

GENERAL

P2901.1 Potable water required. *Dwelling units* shall be supplied with potable water in the amounts and pressures specified in this chapter and must be made in compliance with the "Reglamento de Normas de Diseño" of the Puerto Rico Aqueducts and Sewer Authority. In a building where a nonpotable water-distribution system is installed, the nonpotable system shall be identified by color marking, metal tags or other appropriate method. Where color is used for marking, purple shall be used to identify municipally reclaimed water, rain water and gray water distribution systems. Any nonpotable outlet that could inadvertently be used for drinking or domestic purposes shall be posted.

SECTION P2902 – PROTECTION OF POTABLE WATER SUPPLY

P2902.5 Protection of potable water supply connections

P2902.5.4 Connections to automatic fire sprinkler systems

P2902.5.4.1
Where systems contain chemical additives, or where systems are connected to a nonpotable secondary water supply, the potable water supply shall be protected against backflow by a reduced pressure principle backflow preventer. Where chemical additives is added to only a portion of an automatic fire sprinkler or standpipe system, the reduced pressure principle backflow preventer shall be permitted to be located so as to isolate that portion of the system.

P2902.6 Location of back flow preventers (deleted)

SECTION P2903 – WATER SUPPLY SYSTEM

P2903.1 Water supply system design criteria.
The water service and water distribution systems shall be designed and pipe sizes shall be selected such that under conditions of peak demand, the capacities at the point of outlet discharge shall not be less than shown in Table P2903.1 and as per Appendix P requirements or approved engineering practice. All water meters shall be in accordance to the Puerto Rico Aqueduct and Sewer Authority's requirements and standards.

P2903.3 Minimum pressure.
Minimum static pressure (as determined by the local water authority) at the building entrance for either public or private water service shall be ~~40~~ 30 psi (207 kPa) in compliance with the "Reglamento de Normas de Diseño" of the Puerto Rico Aqueducts and Sewer Authority.

P2903.3.1 Maximum pressure.
Maximum static pressure shall be 80 psi (551 kPa). When main pressure exceeds 80 psi (551 kPa) , an *approved* pressure-reducing valve conforming to ASSE 1003 shall be installed on the domestic water branch main or riser at the connection to the water-service pipe.

P2903.9 Valves

P2903.9.5 Valves and outlets prohibited below grade.
Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade.

P2903.10 Hose bibb. (deleted)

Eliminate figure P2903.10

SECTION P2904 – DWELLING UNIT FIRE SPRINKLER SYSTEMS

P2904.1 General

Where installed, residential fire sprinkler systems, or portions thereof, shall be in accordance with NFPA 13D or Section P2904, which shall be considered equivalent to NFPA 13D. Section P2904 shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall supply domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the water distribution system. A backflow flow preventer shall not be required to separate a stand-alone sprinkler system from the water distribution system

P2904.1.1 Required sprinkler locations.
Sprinklers required by section R 313 - Automated Fire Sprinkler Systems shall be installed to protect all areas of a dwelling unit.

Exceptions:

1. Attics, crawl spaces and normally unoccupied concealed spaces that do not contain fuel-fired appliances do not require sprinklers. In attics, crawl spaces and normally unoccupied concealed spaces that contain fuel-fired equipment, a sprinkler shall be installed above the equipment; however, sprinklers shall not be required in the remainder of the space.

2. Clothes closets, linen closets and pantries, with the smallest dimension not greater than 3 feet (915 mm) and having wall and ceiling surfaces of gypsum board.

3. Bathrooms.

4. Garages; carports; exterior porches; unheated entry areas, such as mud rooms, that are adjacent to an exterior door; and similar areas.

SECTION P2904.2 Sprinklers (deleted)

CHAPTER 30 – SANITARY DRAINAGE

SECTION P3001 – GENERAL (deleted)

CHAPTER 31 - VENTS

SECTION P3101 – VENT SYSTEMS (deleted)

SECTION P3103 – VENT TERMINALS

P3103.1 Roof Extension
Open vent pipes that extend through a roof shall be terminated at least 6 inches (152mm) above the roof except that where a roof is used for any purpose other than weather protection, the vent extension shall be run at least 7 feet (2134 mm) above the roof.

P3103.2 Frost closure. (deleted)

CHAPTER 32 - TRAPS

SECTION P3201 FIXTURE TRAPS

P3201.3 Trap setting and protection
Traps shall be set level with respect to their water seals. Trap seals shall be protected from siphonage, aspiration or back pressure by an approved system of venting (see Section P3101).

CHAPTER 33 – STORM DRAINAGE

No Amendments.

CHAPTER 34 – GENERAL REQUIREMENTS

E3401.1 Applicability.
The provisions of Chapters 34 through 43 shall establish the general scope of the electrical system and equipment requirements of this code. Chapters 34 through 43 cover those wiring methods and materials most commonly encountered in the construction of one- and two-family dwellings and structures regulated by this code. Other wiring methods, materials and subject matter covered in the NFPA 70 are also allowed by this code. The wiring methods and materials shall comply with the Puerto Rico Power Authority's "Reglamento Complementario al Codigo Electrico Nacional (Complimentary Code)". In case of a conflict between the Complimentary Code and the NFPA 70 the Complimentary Code will prevail.

E3401.2 Scope.
Chapters 34 through 43 shall cover the installation of electrical systems, equipment and components indoors and outdoors that are within the scope of this code, including services, power distribution systems, fixtures, appliances, devices and appurtenances. Services within the scope of this code shall be limited to 120/240-volt, 0- to 400-ampere, single-phase systems. These chapters specifically cover the equipment, fixtures, appliances, wiring methods and materials that are most commonly used in the construction or alteration of one- and two-family dwellings and accessory structures regulated by this code. The omission from these chapters of any material or method of construction provided for in the referenced standard NFPA 70 shall not be construed as prohibiting the use of such material or method of construction. Electrical systems, equipment or components not specifically covered in these chapters shall comply with the applicable provisions of the NFPA 70. Electrical systems, equipment or components shall comply with the Complimentary Code. In case of a conflict between the Complimentary Code and the NFPA 70, the Complimentary Code will prevail.

SECTION E3404 – GENERAL EQUIPMENT REQUIREMENTS

E3404.4 Enclosure types
Enclosures, other than surrounding fences or walls, of panelboards, meter sockets, and motor controllers, rated not over 600 volts nominal and intended for such locations, shall be marked with an enclosure-type number as shown in Table E3404.4.

Table E3404.4 shall be used for selecting these enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that might occur within the enclosure or enter through the conduit or unsealed openings.

TABLE E3404.4
ENCLOSURE SELECTION

Eliminate this portion of table

~~Rain, snow and sleet~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~
~~Sleet[a]~~	~~-~~	~~-~~	~~X~~	~~-~~	~~-~~	~~X~~	~~-~~	~~-~~	~~-~~	~~-~~

~~**a. Mechanism shall be operable when ice covered.**~~

CHAPTER 35 – ELECTRICAL DEFINITIONS

SECTION E3501 – GENERAL

SERVICE - ENTRANCE CONDUCTORS, UNDERGROUND SYSTEM. The service conductors between the terminals of the service equipment and the point of connection to the facilities of the serving utility.

SERVICE LATERAL. The underground service conductors between the street main, including any risers at a pole or other structure or from transformers, and the first point of connection to the service-entrance conductors in a terminal box or meter or other enclosure, inside or outside the building wall. Where there is no terminal box, meter or other enclosure with adequate space, the point of connection shall be considered to be the point of entrance of the service conductors into the building.

CHAPTER 36 - SERVICES

SECTION E3601 – GENERAL SERVICES

E3601.1 Scope. This chapter covers service conductors and equipment for the control and protection of services and their installation requirements. The provisions covered in this chapter shall comply with the Puerto Rico Electric Power Authority's *Reglamento Complementario al Código Eléctrico Nacional* (Complementary Code).

CHAPTER 37 – BRANCH CIRCUITS AND FEEDER REQUIREMENTS

SECTION E3703 – REQUIRED BRANCH CIRCUITS

E3703.1 Branch circuits for heating. (deleted)

CHAPTER 38 – WIRING METHODS

SECTION E3803 – UNDERGROUND INSTALLATION REQUIREMENTS

E3803.9 Ground movement.
Where direct buried conductors, raceways or cables are subject to movement by settlement, direct buried conductors, raceways or cables shall be arranged to prevent damage to the enclosed conductors or to equipment connected to raceways.

CHAPTER 39 – POWER AND LIGHTING DISTRIBUTION

SECTION E3901 – RECEPTACLES OUTLETS

E3901.1 General. Outlets for receptacles rated at 125 volts, 15- and 20-amperes shall be provided in accordance with Sections E3901.2 through E3901.11. Receptacle outlets required by this section shall be in addition to any receptacle that is:

1. Part of a luminaire or appliance;

2. Located within cabinets or cupboards;

3. Controlled by a wall switch in accordance with Section E3903.2, Exception 1; or

4. Located over 5.5 feet (1676 mm) above the floor.

CHAPTER 40 – DEVICES AND LUMINARES

No Amendments.

CHAPTER 41 – APPLIANCE INSTALLATION

SECTION E4101 - GENERAL

E4101.7 Snow-melting and deicing equipment protection. (deleted)

CHAPTER 42 – SWIMMING POOLS

No Amendments.

CHAPTER 43 – CLASS 2 REMOTE CONTROL, SIGNALING AND POWER-LIMITED CIRCUITS

No Amendments.

CHAPTER 44 – REFERENCED STANDARDS

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

Standard Reference Number: 3149
"Reglamento de Normas de Diseño de la Autoridad de Acueductos y Alcantarillados de Puerto Rico".

Institution: ASTM
Standard reference number: ASTM A615-09
Title: Standard Specifications for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
Referenced in code section number: Apendix R

Institution: Puerto Rico Electrical Power Authority
Standard Reference Number: 5676-1997
Title: Reglamento Complementario al Código Eléctrico Nacional (Complementary Code)
Referenced in code section number: E3401.1, E3401.2, E3406.3, E3406.10.1, E3407.1, E3601.6.2, E3603.1, Table 3603.1, E3604.2.1, Figure 3604.2.1, E3604.2.2, E3604.3, E3604.3, E3604.5, E3604.6, E3605, E3605.1, E3605.3, E3605.4, E3605.5, E3704, Table 3705.1, Table 3705.2, Table 3801.2, E3803.1, Table 3803.1

APPENDIX A – SIZING AND CAPACITIES OF GAS PIPING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX B – SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX C – EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SISTEMS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX D – RECOMMENDED PROCEDURE FOR SAFETY INSPECTION OF AN EXISTING APPLIANCE INSTALLATION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX E – MANUFACTURED HOUSING USED AS DWELLINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX F – RADON CONTROL METHODS

Not Applicable to Puerto Rico.

APPENDIX G – SWIMMING POOLS, SPAS AND HOT TUBS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX H – PATIO COVERS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX I – PRIVATE SEWAGE DISPOSAL

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX J – EXISTING BUILDING STRUCTURES

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX K – SOUND TRANSMISSION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX L – PERMIT FEES

Not Applicable to Puerto Rico.

APPENDIX M – HOME DAY CARE-R-3 OCCUPANCY

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX N – VENTING METHODS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX O – GRAY WATER RECYCLING SYSTEMS

Adopted.

APPENDIX P – SIZING OF WATER PIPING SYSTEM

Adopted.

APPENDIX Q – ICC INTERNATIONAL RESIDENTIAL CODE ELECTRICAL PROVISIONS/NATIONAL ELECTRICAL CODE CROSS-REFERENCE

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX R – ALTERNATE STRUCTURAL PROVISIONS FOR ONE AND TWO STORY BUILDINGS

A. One and Two Stories Building Construction

A.1. Applicability and Scope

2. General – The structural design and construction of new qualified one and two story reinforced concrete buildings can be performed in accordance with these alternate provisions, as an alternate to those included in the 2009 International Building Code (IBC 2009) and the International Residential Code 2009. For additions or modifications of existing structures, follow the International Existing Building Code 2009. A qualified building shall meet the requirements set forth in this section as follows:

    a. The building consists of a reinforced concrete structure with or without concrete block infill walls. The floor area of each story shall not exceed five thousand (5,000) square feet and any story level shall not exceed 12 feet in height.

    b. The building shall have a nearly symmetrical plan configuration in both principal directions. The distance between the center of mass and the center of rigidity of the building shall not exceed five (5) percent of the plan dimension measured normal to the direction of the load.

    c. All reinforced concrete structural elements supporting vertical and lateral loads shall be cast- in-place.

d. A lateral force resisting system (LFRS), consisting of moment frames or shear walls or a combination of both, shall be provided in both principal directions of the building. The out-of-plane stiffness of the walls shall not be considered as part of the LFRS.

e. All vertical structural elements shall be continuous down to the foundation, with no horizontal offset and no reduction in sectional area. Rigid structural systems on the second level, like reinforced concrete or concrete block shear walls that are supported by frame systems on the first level, shall be identified as a soft story at the first level and shall not be allowed.

f. The maximum difference in base elevation between adjacent footings shall not exceed twelve (12) inches. Additionally, the final grading elevation around the building shall not exceed three (3) feet above the ground slab elevation.

g. The second floor slab area shall not exceed that of the ground floor, except that for balconies or overhangs the second floor slabs are permitted up to six (6) feet from the faces of the four façades of the building, but not larger than 1/3 of the adjacent interior span.

h. The resulting design seismic base shear, calculated as per these alternate provisions, shall not be reduced due to ductility considerations.

i. These provisions shall apply only to buildings with Occupancy Category I and II as defined in Table 1-1 of ASCE/SEI-7-05 (Minimum Design Loads for Buildings and Other Structures). The qualified buildings shall not have an Importance Factor greater than 1.0.

A.2 Design Loads

4. Permanent Loads:

a. Dead, fixed and permanent loads used for the design shall be as per the IBC 2009 provisions.

5. Live Loads:

a. Design live loads shall be as per the IBC 2009 provisions.

6. Lateral Forces:

The general provisions for the calculation of the design lateral loads shall be as per this section.

c. Hurricane Wind Loads:

5. General – All buildings and their components, and accessories and their attachments subject to wind loads, shall be designed to withstand the pressures and meet the requirements of this section. Building components, such as windows, panels, doors, roof equipment, antennas and the architectural features exposed to the wind shall be designed for the wind loads specified. The wind shall be assumed as approaching the structure from any horizontal direction. Reductions on the design wind pressures shall not be permitted. Reductions in load associated with protection or shielding provided by adjacent structures shall not be permitted. However, the calculated capacity of the components may be increased by a factor of 1.3 to account for the short duration of the wind loads.

6. Basic wind speed – Wind pressures listed in this section are based on a wind speed of one hundred and forty five miles per hour (145 mph), based on the three (3) seconds gust criteria, as defined by the ASCE 7-05 design standard. Design wind pressures as per this section are unfactored-service loads.

7. Design wind pressure – The net wind pressure, at service load condition, acting on the main wind force resisting system shall not be less than 54 psf, acting normal to both the windward (positive pressure) and leeward (negative pressure) façades of the building, concurrently with a roof vertical pressure of 54 psf acting on the roof upward or 42 psf acting on the roof downward. The two load cases specified above shall be considered separately and the structural element shall be designed for the larger load combination. The total shear force induced by wind shall be calculated based on these criteria.

8. Components and Cladding – The wind pressures acting on any structural or non-structural component or cladding element shall not be less than those listed on Table I. Designer shall refer to ASCE 7-05 standard, to obtain the design wind pressures for those components not listed in this section. Wall edge zones shall be defined as the portion of the wall located within a distance of ten (10) feet measured horizontally from the corners of the building.

Table I: Design Wind Pressures For Components and Cladding

TYPE OF COMPONENT AND CLADDING	DESIGN PRESSURE NORMAL TO SURFACE (IN PSF)
Wall components and their connections to LFRS, including, but not limited to, structural members, concrete block walls, exterior wall panels, doors, windows, permanent terrace covers and non-retractable shade curtains and all exterior architectural components, All Roof structure components.	90 (inward or outward) at edge zone and 65(inward or outward) elsewhere
All equipment and components supported by the roof including, but not limited to, solar water heaters, solar panels, water cisterns, A/C units, equipment, and associated conduit and ductwork and all attachments. Also skylights, ventilation and extraction fans and all their attachments.	90 (acting in any direction) 54 (acting upward and downward)
All parapets or extension of wall elements above roof elevation.	90 (acting inward, outward or upward
Roof membranes installed for impermeabilization and climate control purposes.	110 (acting inward or outward) 90 (acting upward) at edge zones and flashings and 65 (acting upward) elsewhere

d. Earthquake Loads:

6. General - All qualified buildings and all their components shall be designed to meet the seismic requirements of this section.

7. The design horizontal seismic force shall be applied at the level of each story and located at a distance of plus or minus five (5) percent of the maximum plan dimension normal to the direction of the load from the center of rigidity of each story. This distance shall be considered the accidental eccentricity. The seismic load need not be applied concurrently along both principal directions of the building. For all non-structural components, the design seismic force shall be applied at their center of mass. The seismic forces calculated as per these alternate provisions are

factored loads based on the elastic structural behavior and shall not be reduced to account for any ductility considerations.

8. Minimum design seismic force. The design seismic load shall not be less than that calculated by the following formula:

$$V_u = 0.50W \qquad \text{A.2.1}$$

where;

W = Total weight of the structure including all structural and non-structural components, equipment and any other permanent attachment to the structure that modifies the inertial properties of the structure.

V_u = Total horizontal base shear force at factored level.

For one story structures, the total base shear, Vu, shall be applied to the roof level. For two story structures, Vu shall be applied in equal proportions to the first and roof levels.

9. Horizontal Distribution of Seismic Force. The total shear force applied at each level shall be distributed among all components of the LFRS in proportion to their relative stiffness. The floor and roof slabs shall be used as horizontal rigid diaphragms. Slabs thickness shall not be less than four (4) inches and shall be cast-in-place without horizontal construction joints.

10. Minimum horizontal design seismic forces on nonstructural components: All non-structural components and their attachments to the principal structure shall be designed to withstand as a minimum, the lateral loads calculated in accordance with the following formula:

$$F_p = 0.60W_p \qquad \text{A.2.2}$$

where,

W_p = Total weight of the non-structural components or equipment.

F_p = Total design horizontal seismic force at factored level.

4. Load Combinations:

The required strength of the structure and all its components shall be determined from the Load and Resistance Factor Design load combinations and load factors provided in Section 1605 of the IBC 2009.

A.3. Foundations

7. General- The foundation design of qualified buildings shall meet the requirements of this section. Structures designed as per these alternate provisions may be supported by isolated or combined footings or by a mat foundation. Minimum concrete compressive strength is 3,000 psi at 28 days and 60,000 ksi for steel reinforcement conforming to ASTM A615-09. Welding of reinforcement bars shall not be permitted.

8. Minimum foundation thickness – The foundation thickness shall not be less than the following:

   a. For spread footings under load bearing walls twelve (12) inches.

   b. For spread footings under columns twelve (12) inches.

   c. For mat foundations, twelve (12) inches under concrete walls, twelve (12) inches under columns and six (6) inches elsewhere. Changes in thickness shall be done gradually in a 1:1 slope down towards the thickened portion.

9. Minimum foundation width – The foundation width shall not be less than the following:

   a. For combined footings and mat foundations under interior load bearing walls, twelve (12) inches measured from each face of the wall. For the case of combined footings and mat foundations under exterior load bearing walls, fifteen (15) inches measured from each face of the wall.

   b. For spread footings and combined footings under interior and exterior columns, eighteen (18) inches measured from each face of the column. For the case of mat foundations under interior columns, twelve (12) inches measured from each face of the column. For the case of mat foundations under exterior columns, fifteen (15) inches measured from each face of the column.

10. Minimum steel reinforcement – Foundation reinforcement shall not be less than 0.002 of the gross sectional area.

11. Minimum concrete cover – The concrete clear cover of steel reinforcement cast against earth or permanently exposed to earth, shall not be less than three (3) inches or two (2) inches if the complete foundation is cast against an unperforated bituminous or plastic vapor barrier membrane conforming to ASTM E-1993 and ASTM 1745 of at least six thousandths of an inch (6 mils) thick. Membrane installation shall be as per ASTM 1643.

12. Type L Footings – Type "L" footings shall not be used except at those instances required to avoid conflicts with property lines. In such cases, their design shall consider soil bearing pressure variations caused by the eccentricity of the applied load. The full footprint of the foundation shall remain in bearing contact with the soil when subjected to service level loads combinations as per IBC 2009.

A.4. Reinforced Concrete Frames

7. General – The design of reinforced concrete frames designated to be part of the LFRS shall meet the provisions of this section.

8. Materials – The specified materials shall satisfy or exceed the following minimum requirements:

   a. Concrete – The specified 28 days concrete compressive strength for all components of the frame components shall not be less than three thousand pounds per square inches (3,000 psi).

   b. Steel – All steel reinforcement shall consist of deformed bars with a minimum yield stress, Fy, of sixty thousand pounds per square inches (60,000 psi) conforming to ASTM A615-09. Welding of steel reinforcement bars shall not be permitted.

9. Minimum element dimensions – The depth of frame elements in the plane of the lateral load under consideration, shall not be less than twelve (12) inches in columns and eighteen (18) inches in beams, including the slab thickness when cast monolithically. In no case any frame element shall have a dimension of less than eight (8) inches. In addition, the minimum column cross sectional area shall not be less than one hundred forty four (144) square inches.

10. Minimum reinforcement – The beams of the frame shall be provided with at least two (2) #5 longitudinal reinforcing bars at bottom and top. In no case shall the minimum reinforcement provided in beams be less than the provisions of Section 10.5 of ACI 318-08. Transverse reinforcement shall consist of at least #3 closed stirrups spaced no farther apart than six (6) inches on center. The center of the splice for the positive (bottom) reinforcement shall be located at a distance of one-fourth (1/4) the clear span from the face of the support and shall have a splice length of thirty six (36) times the bar diameter or eighteen (18) inches, whichever is greater. The negative (top) reinforcement shall be continuous throughout the supports, and the center of the splice shall be located at mid-span with an overlapping length of thirty (30) times the bar diameter or twelve (12) inches, whichever is greater. The longitudinal top and bottom reinforcement of beams shall terminate on exterior columns anchored with 90 degree standard hooks.

The longitudinal reinforcement in columns shall not be less than eight (8) #5 bars. The longitudinal reinforcement of columns shall terminate anchored with 90 degree standard hooks. The footing dowels shall be spliced with the column longitudinal reinforcement at column mid-height with an overlapping of thirty six (36) times the diameter of the longitudinal bars. Column transverse reinforcement shall consist of at least #3 closed ties spaced no farther than six (6) inches on center. Beam stirrups and column ties shall consist of closed hoops in accordance with ACI standards. In all columns, ties shall be extended through the column-beam joints.

11. Minimum Area of Concrete Columns: The sum of the gross area of all concrete columns, in square inches and on the base floor must be at least 0.00325 times the total horizontal base shear Vu, in pounds.

12. Required analysis of moment frames

    b. The structural analysis of moment frames shall be performed by means of a rational analytical method accepted by the engineering community. The stiffness contribution and effects of moment frames with Concrete Masonry Units (CMU) infill shall be considered as per these provisions.

A.5 Reinforced Concrete Walls:

4. General – The design of reinforced concrete walls designated to be part of the LFRS shall meet the provisions of this section.

5. Materials – The specified materials shall satisfy or exceed the following minimum requirements:

    a. Concrete – The specified 28 days concrete compressive strength for all walls shall not be less than three thousand pounds per square inches (3,000 psi).

    b. Steel – All steel reinforcement shall consist of deformed bars with a minimum yield stress, Fy, of sixty thousand pounds per square inches (60,000 psi) conforming to ASTM A615-09. Welding of steel reinforcement bars shall not be permitted.

6. Minimum element dimensions – The length of the wall in the direction of the lateral load under consideration, shall not be less than forty eight (48) inches. The perpendicular dimension of the wall shall not be less than eight (8) inches.

6. Minimum reinforcement – The walls shall be provided with at least two (2) #5 longitudinal reinforcing bars at each end of the wall cross section, confined with #3 ties or hairpins spaced at six (6) inches along the wall

height. In no case shall the minimum horizontal and vertical reinforcement provided in walls be less than 0.0025 times the gross area of the wall. The vertical and horizontal reinforcements shall not be spaced further apart than eighteen (18) inches. The longitudinal reinforcement of walls shall be anchored with 90 degree standard hooks. The footing dowels shall be spliced with the wall longitudinal reinforcement with an overlapping length of thirty six (36) times the diameter of the longitudinal bars.

7. Minimum Area of Concrete Walls: The sum of the gross area of all concrete walls at the base floor must be at least 0.005 times the total gross area of the ground level.

A.6. Concrete Masonry Walls

8. General – The design of concrete masonry (CMU) walls shall meet the provisions of this section. .The out-of-plane stiffness and strength of all CMU walls shall not be considered in the LFRS.

   The design lateral forces shall be resisted by the designated structural walls comprising the LFRS. The seismic loads shall be distributed among all wall components in proportion to their relative in-plane stiffness. Only walls properly connected to a horizontal rigid diaphragm shall be considered to be part of the LFRS.

   CMU walls designated to be part of the LFRS, shall not have their horizontal sectional area reduced by more than fifty (50) percent at any location. Larger reductions may be permitted, when caused by the presence of embedded components such as vertical conduits, drainage pipes or any other required accessories to be installed within the wall, if the discontinuity in the horizontal sectional area is considered in the structural analysis and design. The affected wall shall not be considered to act as a whole unit. Instead they shall be modeled and designed as independent wall segments delimited by each vertical disruption. The structural designer shall coordinate with other disciplines in order to determine and consider all the instances in which such condition would occur.

9. Materials – The materials to be used in the construction of the load bearing and transverse CMU walls shall satisfy the minimum quality requirements specified below:

   a. Concrete Masonry Units (CMU) – All CMU must meet all minimum requirements specified in Chapter 21, Section 2103 of IBC 2009

   b. Mortar – must meet all minimum requirements specified in Chapter 21, Section 2103 of IBC 2009

c. Cement Grout - must meet all the minimum requirements specified in Chapter 21, Section 2103 of IBC 2009

d. Concrete – The concrete used in the structural confining elements shall have a minimum compressive strength of three thousand psi (3,000 psi) at twenty eight (28) days.

e. Steel Reinforcement – The reinforcement shall have a minimum yield strength of sixty thousand psi (60,000 psi) and shall comply with ASTM A615-09.

10. Dimensions – All load bearing and transverse CMU walls shall meet the following requirements related to their dimensions. The free distance, horizontal or vertical between supports or confining elements, shall not exceed twenty five (25) times the thickness of the wall. For this limitation, the vertical distance from top of foundation to bottom of confining beam, or the distance from top of slab to bottom of confining beam shall be considered. The horizontal distance to be considered shall be the distance between confining columns or transverse walls. No structural CMU walls shall be constructed using a thickness less than six inches (6"). No finishes or plaster shall be considered to determine wall thicknesses.

11. Wall Confinements – The CMU wall and its confining frame, acting as a structural unit, shall be designed to withstand the vertical and lateral loads. The minimum dimensions for the beams and columns shall be as established in section A.4.3 of this regulation.

    To guarantee that individual and group behavior will be adequate, the confined CMU walls shall be located symmetrically and must provide the highest possible torsional stiffness of the building. This could be achieved by locating confined walls as close as possible to the perimeter of the structure.

    The openings located on load bearing and transverse CMU walls that form part of the LFRS shall meet the following:

    f. The total area of the openings shall not exceed thirty five percent (35%) of the total CMU wall area enclosed by the horizontal and vertical confinement elements.

    g. The aggregate of the horizontal length of the openings, within the CMU wall, shall not exceed half (1/2) the distance between confinement column elements.

    h. The horizontal distance between an opening edge and the CMU wall edge shall not be less than one fourth (1/4) the opening height.

i. The clear horizontal distance between openings shall not be less-than one half (1/2) the smaller height of the openings, nor-less than twenty inches (20").
j. The clear vertical distance between openings shall not be less-than one half (1/2) the width of the widest opening, nor-less than twenty inches (20").

When any CMU wall does not comply with one or more of the requirements of subsection A.6.4.a to A.6.4.e, the wall shall not be considered part of the LFRS. Nevertheless, this wall shall be designed to withstand all applicable local horizontal and vertical forces.

When all openings are surrounded by interior confinement columns and beams as defined below on these provisions, the edge distance requirements in Subsections A.6.4.a through A.6.4.e are no longer required. The confinement columns that surround the openings shall extend from the foundations or inferior diaphragm to the next superior diaphragm, and shall be properly anchored on both sides.

12. Interior Confinement Beams – The minimum width for the interior confinement beams shall be eight (8) inches. Interior confinement beams shall not have a total depth smaller than twelve (12) inches and shall comply with the requirements of Section A.4.3.

The confinement beams shall have a minimum reinforcement as required on this section. Minimum reinforcement shall consist of four (4) longitudinal #4 bars (2 bars top and two bars bottom) with #3 stirrups spaced at eight inches (8") on the beams located at intermediate floor levels and roof.
The interior confinement beams for load bearing and transverse CMU walls must fit inside the intermediate floor system to guarantee the diaphragm effect. The superior level of the interior confinement beam will correspond to the superior level of the intermediate floor level.

The beams shall be cast on top of the CMU wall to anchor the vertical reinforcement of the walls. As an alternate, the CMU wall shall be constructed so that the wall reinforcement is effectively anchored to the beam and columns through splices and the wall is provided with a mechanism to transfer the shear forces acting in all directions.

13. Interior Confinement Columns – The interior confinement columns are interior vertical reinforced elements that confine the walls. These Confinement columns will be used wherever the required CMU walls are part of the LFRS or at the intersection between two load bearing or transverse walls, or at intermediate locations of the load bearing and transverse walls with a separation not to exceed the limits established in these provisions.

The minimum width of the confinement columns shall be the eight (8) inches, and the cross sectional area shall not be less than ninety six square inches (96 in^2). The confinement columns shall extend from the inferior beam up to the superior beam properly anchored to these elements. The reinforcement of the columns shall be anchored with standard 90 degree hooks to the foundation.

The confinement columns minimum reinforcement shall be six (6) #4 longitudinal bars with #3 ties spaced at six (6) inches.

The columns shall be cast against the CMU walls, and the forms shall be placed only to the sides with no walls. As an alternate, the CMU wall shall be constructed so that the wall reinforcement is effectively anchored to the beam and columns through splices and the wall is provided with a mechanism to transfer the shear forces acting in all directions.

14. CMU walls subjected to Lateral Loads Design – The wall elements shall be designed according to the following criteria:

    a. Lateral Loads – The lateral loads specified in this regulation shall be used.

    b. Analysis – Each CMU wall will be modeled as a frame of articulated joints comprised of confinement beams and columns and diagonal elements formed by masonry equivalent elements. Those diagonal elements shall have an equivalent width no greater than twenty five percent (25%) of the clear diagonal length within joints and a depth equal to the thickness of the wall. The elasticity modulus of the equivalent element shall be equal to the masonry modulus of elasticity to be taken as $E_m = 900f'm$.

    c. Design – For the loads specified in section A.2 and the mathematical model described in section A.6.7.b the internal forces in tension or compression of the different columns will be determined, and each will be designed for the predominant forces.

       The diagonal equivalent elements forces shall not exceed the diagonal strength of the wall, estimated as,

       $R_c = (2/3)\, a\, t\, f'_m \sec \theta$ A.6.1

       Where,

       R_c = Ultimate strength of the equivalent diagonal element.

       t = Equivalent element depth, in other words, the thickness of the wall, in inches.

a = contact length between the wall and column. A length of eighteen inches 18" shall be used.

f'_m = masonry ultimate strength to be taken as 800 psi or as determined by laboratory testing.

θ = equivalent diagonal element angle with the horizontal.

The following equation must also be satisfied,

$$V_u < (4/h) \sum_{i=1}^{n} M_u \qquad \text{A.6.2}$$

Where,

V_u = total lateral force to be used in the design of confined masonry.

h = story height

n = number of columns of a confined masonry wall

M_u = ultimate moment strength of each column of the wall with no axial load consideration.

DIVISION IV

AMENDMENTS
to the
2009 INTERNATIONAL MECHANICAL CODE

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DIVISION IV

AMENDMENTS
to the
2009 INTERNATIONAL MECHANICAL CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 GENERAL

101.1 Title.
These regulations shall be known as the Mechanical Code of Puerto Rico, hereinafter referred to as "this code."

101.2 Scope.
This code shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This code shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed herein. The installation of fuel gas distribution piping and equipment, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall be regulated by the International Fuel Gas Code.

> **Exception:** Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the International Residential Code.

101.2.1 Appendices.
Provisions in the appendices shall not apply unless specifically adopted.

101.3 Intent.
The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of mechanical systems. This chapter replaces CHAPTER I of the International Mechanical Code.

101.4 Severability.
If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION: 102 APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Existing installations.
Except as otherwise provided for in this chapter, a provision in this code shall not require the removal, alteration or abandonment of, nor prevent the continued utilization and maintenance of, a mechanical system lawfully in existence at the time of the adoption of this code.

102.3 Maintenance.
Mechanical systems, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's designated agent shall be responsible for maintenance of mechanical systems. To determine compliance with this provision, the building official shall have the authority to require a mechanical system to be reinspected.

102.4 Additions, alterations or repairs.
Additions, alterations, renovations or repairs to a mechanical system shall conform to that required for a new mechanical system without requiring the existing mechanical system to comply with all of the requirements of this code. Additions, alterations or repairs shall not cause an existing mechanical system to become unsafe, hazardous or overloaded.

Minor additions, alterations, renovations and repairs to existing mechanical systems shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is approved by OGPe.

102.5 Change in occupancy.
It shall be unlawful to make a change in the occupancy of any structure which will subject the structure to any special provision of this code applicable to the new occupancy without approval. The building official shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new

occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

102.6 Historic buildings.
Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, shall comply with the provisions of this code.

The provisions of this code relating to the construction, alteration , repair, enlargement, restoration, relocation or moving of buildings or structures shall be mandatory for existing buildings or structures identified and classified by the federal, state or local jurisdiction (including Instituto de Cultura Puertoriqueña, OGPe and State Historic Preservation Office) as historic buildings.

Whenever there are practical difficulties involved in carrying out the provisions of this code, the OGPe shall have the authority to grant modifications for individual cases, provided the code official shall first find that the special individual reason makes certain provisions of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the OGPe.

102.7 Moved buildings.
Except as determined by Section 102.2, mechanical systems that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

102.8 Referenced codes and standards.
The codes and standards referenced herein shall be those that are listed in Chapter 15 and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

> **Exception:** Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and the manufacturer's installation instructions shall apply.

102.9 Requirements not covered by this code.
Requirements necessary for the strength, stability or proper operation of an existing or proposed mechanical system, or for the public safety, health and general welfare, not specifically covered by this code, shall be determined by the building official.

102.10 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.11 Application of references.
Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

PART II – ADMINISTRATION AND ENFORCEMENT

103.1 General
The administrative provisions of this Code will be those established by the Puerto Rico Building Code (Division I); Chapter I of the International Mechanical Code as amended here-in;and , , the "Oficina General de Permisos" (OGPe)'; and shall be applicable wherever it is mentioned in this Mechanical Code the term Code Official.

103.2 Appointment.
The code official shall be appointed by the chief appointing authority of the Government Agency Having Jurisdiction

SECTION 104: DUTIES AND POWERS OF THE CODE OFFICIAL

104.1 General
The Code Official is hereby authorized and directed to enforce the provisions of this code as amended here-in; as established in Division !. Section 104 of the Puerto Rico Building Code; and the "Reglamento Conjunto" of the OGPe,.

104.3 Inspections.
The code official shall make all of the required inspections, or shall accept reports of inspection by approved agencies or individuals. All reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the Designated Inspector. The code official is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

CHAPTER 2 – DEFINITIONS
No Amendments.

CHAPTER 3 – GENERAL REGULATIONS
No Amendments.

CHAPTER 4 – VENTILATION
No Amendments.

CHAPTER 5 – EXHAUST SYSTEMS
No Amendments.

CHAPTER 6 – DUCT SYSTEMS
No Amendments.

CHAPTER 7 – COMBUSTION AIR
No Amendments.

CHAPTER 8 – CHIMNEYS AND VENTS
No Amendments.

CHAPTER 9 – SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENTS
No Amendments.

CHAPTER 10 – BOILERS, WATER HEATERS AND PREASSURE VESSELS
No Amendments.

CHAPTER 11 – REFRIGERATION
No Amendments.

CHAPTER 12 – HYDRONIC PIPING
No Amendments.

CHAPTER 13 – FUEL OIL PIPING AND STORAGE
No Amendments.

CHAPTER 14 – SOLAR SYSTEMS
No Amendments.

CHAPTER 15 – REFERENCED STANDARDS

ADD:

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

APPENDIX A – COMBUSTION AIR OPENINGS AND CHIMNEY CONNECTOR PASS-THROUGHS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX B – RECOMMENDED PERMIT FEE SCHEDULE

Not Applicable to Puerto Rico.

DIVISION V

AMENDMENTS
to the
2009 INTERNATIONAL PLUMBING CODE

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DIVISION V

AMENDMENTS
to the
2009 INTERNATIONAL PLUMBING CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 GENERAL

101.1 Title.
These regulations shall be known as the International Plumbing Code of Puerto Rico hereinafter referred to as "this code."

101.2 Scope.
The provisions of this code shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. This code shall also regulate nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel-gas-fired water heaters and water heater venting systems shall be regulated by the International Fuel Gas Code. Provisions in the appendices shall not apply unless specifically adopted.

> **Exception**: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the International Residential Code.

101.3 Intent.
The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems. This chapter replaces CHAPTER I of the International Plumbing Code.

101.4 Severability.
If any section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION: 102 APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Existing installations.
Plumbing systems lawfully in existence at the time of the adoption of this code shall be permitted to have their use and maintenance continued if the use, maintenance or repair is in accordance with the original design and no hazard to life, health, property and environment is created by such plumbing system.

102.3 Maintenance.
All plumbing systems, materials and appurtenances, both existing and new, and all parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. All devices or safeguards required by this code shall be maintained in compliance with the code edition under which they were installed.

The owner or the owner's designated agent shall be responsible for maintenance of plumbing systems. To determine compliance with this provision, the building official and code official shall have the authority to require any plumbing system to be reinspected.

102.4 Additions, alterations or repairs.
Additions, alterations, renovations or repairs to any plumbing system shall conform to that required for a new plumbing system without requiring the existing plumbing system to comply with all the requirements of this code. Additions, alterations or repairs shall not cause an existing system to become unsafe, insanitary or overloaded.

Minor additions, alterations, renovations and repairs to existing plumbing systems shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is approved by OGPe.

102.5 Change in occupancy.
It shall be unlawful to make any change in the occupancy of any structure that will subject the structure to any special provision of this code applicable to the new occupancy without approval of the building official and code official. The building official and code official shall certify that such structure meets the intent of the provisions of law

governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

102.6 Historic buildings.
Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, shall comply with the provisions of this code.

The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings when such buildings or structures are judged by the code official to be safe and in the public interest of health, safety and welfare regarding any proposed construction, alteration, repair, enlargement, restoration, relocation or moving of buildings.

102.7 Moved buildings.
Except as determined by Section 102.2, plumbing systems that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

102.8 Referenced codes and standards.
The codes and standards referenced in this code shall be those that are listed in Chapter 13 and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall be the minimum requirements.

102.9 Requirements not covered by code.
Any requirements necessary for the strength, stability or proper operation of an existing or proposed plumbing system, or for the public safety, health and general welfare, not specifically covered by this code shall be determined by the code official.

102.10 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.11 Application of references.
Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

PART II – ADMINISTRATION AND ENFORCEMENT

103.1 General
The administrative provisions of this Code will be those established by the Puerto Rico Building Code (Division I); Chapter I of the International Plumbing Code as amended here-in;and , , the "Oficina General de Permisos" (OGPe)' and shall be applicable wherever it is mentioned in this Plumbing Code the term Code Official.

103.2 Appointment.
The code official shall be appointed by the chief appointing authority of the Government Agency Having Jurisdiction

SECTION 104: DUTIES AND POWERS OF THE CODE OFFICIAL

104.1 General
The Code Official is hereby authorized and directed to enforce the provisions of this code as amended here-in; as established in Division !. Section 104 of the Puerto Rico Building Code; and the "Reglamento Conjunto" of the OGPe.

104.3 Inspections.
The code official shall make all of the required inspections, or shall accept reports of inspection by approved agencies or individuals. All reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the Designated Inspector. The code official is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

CHAPTER 2 – DEFINITIONS
No Amendments.

CHAPTER 3 – GENERAL REGULATIONS

SECTION 301 - GENERAL

301.3 Connections to the sanitary drainage system.
All plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent the indirect waste systems required by Chapter 8.

> **Exemption:** Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge the sanitary discharge system where such fixtures discharge to grey water system for flushing of water closets and urinals or for subsurface landscape irrigation that follows Appendix C of this code.

CHAPTER 4 – FIXTURES, FAUCETS AND FIXTURES FITTINGS
No Amendments.

CHAPTER 5 – WATER HEATERS

SECTION 505 – INSULATION

505.2 Exposed Insulation Installation.
Insulating materials, where exposed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and smoke developed index of not more than 50.

CHAPTER 6 – WATER SUPPLY AND DISTRIBUTION

SECTION 601 - GENERAL

601.1 Scope.
This chapter shall govern the materials, design and installation of water supply systems, both hot and cold, for utilization in connection with human occupancy and habitation and shall govern the installation of individual water supply systems. All requirements in this chapter must be made in compliance with the "Reglamento de Normas de Diseño" of the Puerto Rico Aqueducts and Sewer Authority.

SECTION 604 – DESIGN OF BUILDING WATER DISTRIBUTION SYSTEM

604.1 General.
The design of the water distribution system shall conform to accepted engineering practice. Methods utilized to determine pipe sizes shall be according to APPENDIX E of this Code.

CHAPTER 7 – SANITARY DRAINAGE
SECTION 716 - VACUUM DRAINAGE SYSTEM

716.1 General.
Vacuum drainage systems shall follow requirements of Appendix G of this code.

CHAPTER 8 – INDIRECT/SPECIAL WASTE
No Amendments.

CHAPTER 9 – VENTS
No Amendments.

CHAPTER 10 – TRAPS, INTERCEPTORS AND SEPARATORS
No Amendments.

CHAPTER 11 – STORM DRAINAGE

SECTION 1106 – SIZE OF CONDUCTORS, LEADERS AND STORM DRAINS

Delete FIGURE 1106.1

Add new FIGURE 1106.1 according to NOAA Atlas 14, Volume 3, Version 3: Puerto Rico and U.S. Virgin Islands, Isopluvials of 60 minute precipitation (inches) with Average Recurrence Interval of 100 years map.

SECTION 1114 - SIPHONIC ROOF DRAINAGE SYSTEMS

1114.1 General.
A siphonic roof drainage system shall be designed in accordance with ASPE 45.

CHAPTER 12 – SPECIAL PIPING AND STORAGE

No Amendments

CHAPTER 13 – REFERENCED STANDARDS

Add new referenced Standards

ASPE 45-2007/ Siphonic Roof Drainage Systems. Applies to Section 1114.

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

Standard Reference Number: 3149
"Reglamento de Normas de Diseño de la Autoridad de Acueductos y Alcantarillados de Puerto Rico".

NOAA Atlas 14, Volume 3, Version 3 – Puerto Rico and U. S. Virgin Islands

APPENDIX A – PLUMBING PERMIT FEE SCHEDULE

Not Applicable to Puerto Rico.

APPENDIX B – RATES OF RAINFALL FOR VARIOUS CITIES

Not Applicable to Puerto Rico.

APPENDIX C – GRAY WATER RECYCLING SYSTEMS

Adopted.

APPENDIX D – DEGREE DAY AND DESIGN TEMPERATURES

Not Applicable to Puerto Rico.

APPENDIX E – SIZING OF WATER PIPING SYSTEM

Adopted.

APPENDIX F – STRUCTURAL SAFETY

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX G – VACUUM DRAINAGE SYSTEM

Adopted.

DIVISION VI

AMENDMENTS
to the
2009 INTERNATIONAL FIRE CODE

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DIVISION VI

AMENDMENTS
to the
2009 INTERNATIONAL FIRE CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 SCOPE AND GENERAL REQUIREMENTS

101.1 Title.
These regulations shall be known as the Fire Code of Puerto Rico, hereinafter referred to as "this code."

101.2 Scope.
This code establishes regulations affecting or relating to structures, processes, premises and safeguards regarding:

1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices;

2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises;

3. Fire hazards in the structure or on the premises from occupancy or operation;

4. Matters related to the construction, extension, repair, alteration or removal of fire suppression or alarm systems; and

5. Conditions affecting the safety of fire fighters and emergency responders during emergency operations.

101.2.1 Appendices.
Provisions in the appendices shall not apply unless specifically adopted by the Puerto Rico Fire Department for existing structures in use, and promulgated by the Puerto Fire Department and adopted by OGPe for new construction.

101.3 Intent.
The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations. This chapter replaces CHAPTER I of the International Fire Code.

101.4 Severability.
If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

101.5 Validity.
In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

SECTION 102 APPLICABILITY

102.1 Construction and design provisions.
The construction and design provisions of this code shall apply to:

1. Structures, facilities and conditions arising after the adoption of this code.

2. Existing structures, facilities and conditions not legally in existence at the time of adoption of this code.

3. Existing structures, facilities and conditions when required in Chapter 46 or by the Puerto Rico Fire Department.

4. Existing structures, facilities and conditions which, in the opinion of the fire code official, constitute a distinct hazard to life or property.

102.2 Administrative, operational and maintenance provisions.
The administrative, operational and maintenance provisions of this code shall apply to:

1. Conditions and operations arising after the adoption of this code.

2. Existing conditions and operations, as required by the Puerto Rico Fire Department

102.3 Change of use or occupancy.
No change shall be made in the use or occupancy of any structure that would place the structure in a different division of the same group or occupancy or in a different group of

occupancies, unless such structure is made to comply with the requirements of this code and the International Building Code. Subject to the approval of the OGPe the use or occupancy of an existing structure shall be allowed to be changed and the structure is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code and the International Building Code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

102.4 Application of building code.
The design and construction of new structures shall comply with the International Building Code, and any alterations, additions, changes in use or changes in structures required by this code, which are within the scope of the International Building Code, shall be made in accordance therewith.

102.5 Application of residential code.
Where structures are designed and constructed in accordance with the International Residential Code, the provisions of this code shall apply as follows:

1. Construction and design provisions: Provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. Where interior or exterior systems or devices are installed, construction permits required by OGPe shall also apply.

2. Administrative, operational and maintenance provisions: All such provisions of this code shall apply in accordance with the Puerto Rico Fire Department

102.6 Historic buildings.

Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, shall comply with the provisions of this code.

The provisions of this code relating to the construction, alteration , repair, enlargement, restoration, relocation or moving of buildings or structures shall be mandatory for existing buildings or structures identified and classified by the federal, state or local jurisdiction (including Instituto de Cultura Puertoriqueña, OGPe and State Historic Preservation Office) as historic buildings. Fire protection in designated historic buildings and structures shall be provided in accordance with an approved fire protection plan, taking in consideration special conditions, if any, required by federal, state or local jurisdiction.

102.7 Referenced codes and standards.
The codes and standards referenced in this code shall be those that are listed in Chapter 47 and such codes and standards shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between the provisions of this code and the referenced standards, the provisions of this code shall apply.

102.8 Subjects not regulated by this code.
Where no applicable standards or requirements are set forth in this code, or are contained within other laws, codes, regulations, ordinances or bylaws adopted by the Puerto Rico Fire Department, compliance with applicable standards of the National Fire Protection Association or other nationally recognized fire safety standards, as approved, shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the fire code official to determine compliance with codes or standards for those activities or installations within the fire code official's jurisdiction or responsibility.

102.9 Matters not provided for.
Requirements that are essential for the public safety of an existing or proposed activity, building or structure, or for the safety of the occupants thereof, which are not specifically provided for by this code shall be determined by the fire code official.

102.10 Conflicting provisions.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.11 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.12 Application of references.
References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION 101: GENERAL
The administrative provisions of this Code will be those established by the International Fire Code, the Puerto Rico Building Code (Division I), the OGPe, the OIGPe and the Puerto Rico Fire Department.

CHAPTER 2 – DEFINITIONS

FIRE CHIEF. The chief officer of the Puerto Rico Fire Department, or s duly authorized representative.

FIRE CODE OFFICIAL. The fire chief or a duly appointed representative designated by him (her) charged with the administration and enforcement of the Fire Code.

PUERTO RICO FIRE DEPARTMENT. Governmental organization with the responsibility , among others, to prevent and fight fires and save lives, to guarantee an adequate life safety and fire protection to the citizens, as established by the Law 43, of June 21, 1988.

CHAPTER 3 – GENERAL REQUIREMENTS

SECTION 304 – COMBUSTIBLE WASTE MATERIAL

304.1 Waste accumulation prohibited

304.1.2 Vegetation.
Weeds, grass, vines or other growth that is capable of being ignited and endangering property, shall be cut down and removed by the *owner* or occupant of the premises. Vegetation clearance requirements in urban-wildland interface areas shall be in accordance with the applicable Code and Standards as approved by Authority having jurisdiction.

310.3 "No Smoking" signs.
The *fire code official* is authorized to order the posting, on English and Spanish language, of "No Fume" / "No Smoking" signs in a conspicuous location in each structure or location in which smoking is prohibited. The content and language, lettering, size, color and location of required "No Fume" / "No Smoking" signs shall be *approved.*

310.4 Removal of signs prohibited.
A posted "No Fume" / "No Smoking" sign shall not be obscured, removed, defaced, mutilated or destroyed.

SECTION: 311 – VACANT PREMISES

311.5 Placards

311.5.5 Informational use.
The use of these symbols shall be informational only and shall not in any way limit the discretion of the on-scene incident commander. When text message is used in Placards, it shall be in both, English and Spanish, language.

CHAPTER 4 – EMERGENCY PLANNING AND PREPAREDNESS

SECTION 403 – PUBLIC ASSEMBLAGES AND EVENTS

403.3 Crowd Managers.
Trained crowd managers (*as per section 406)* shall be provided for facilities or events where more than *250* persons congregate. The minimum number of crowd managers shall be established at a ratio of one crowd manager to every 250 persons. Where approved by the fire code official, the ratio of crowd manager shall be permitted to be reduced where the facility is equipped throughout with an approved automatic sprinkler system or based upon the nature of the event.

CHAPTER 5 – FIRE SERVICE FEATURES

No Amendments.

CHAPTER 6 – BUILDING SERVICE AND SYSTEMS

No Amendments.

CHAPTER 7 – FIRE-RESISTANCE-RATED CONSTRUCTION

No Amendments.

CHAPTER 8 – INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS

No Amendments.

CHAPTER 9 – FIRE PROTECTION SYSTEMS

SECTION: 903 – AUTOMATIC SPRINKLERS SYSTEM

903.2.8 Group R. An *automatic sprinkler system* installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R *fire area*.

Exceptions:

1. **Residential occupancy group R-2, when the floor level having an *occupant load* of 30 or less that is located 45 feet (13.72 m) or less above the lowest level of fire department vehicle access and all walls and ceiling have a minimum of 1-hour fire area.**
2. **Residential occupancy group R-3.**
3. **Buildings constructed under the Residential Code.**

903.2.12 During construction. (Deleted)

903.3.5 Water supplies.
Water supplies for automatic sprinkler systems shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the International Plumbing Code. Connections to mains must be made in compliance with the REGLAMENTO DE NORMAS DE DISEÑO of the Puerto Rico Aqueducts and Sewer Authority or the delegated utility entity.

903.3.5.2 Secondary water supply. (Deleted)

CHAPTER 10 – MEANS OF EGRESS

TABLE 1021.2 STORIES WITH ONE EXIT

STORY	OCCUPANCY	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
First story or basement	A, B[d], E[e], F[d], M, U, S[d]	49 occupants and 75 feet travel distance
	H-2, H-3	3 occupants and 25 feet travel distance
	H-4, H-5, I, R	10 occupants and 75 feet travel distance
	S[a]	29 occupants and 100 feet travel distance
Second story	B[b], F, M, S[a]	29 occupants and 75 feet travel distance
	R-2	4 dwelling units and 50 feet travel distance
Third to Fifth Story (Having an Occupant Load of 30 or less that is located 45'-0" above the lowest level of fire department vehicle access.	R-2[c]	4 dwelling units and 50 feet travel distance

For SI: 1 foot = 304.8 mm.
a. For the required number of exits for parking structures, see Section 1021.1.2.
b. For the required number of exits for air traffic control towers, see Section 412.3.
c. Deleted
d. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.
e. Day care occupancies shall have a maximum occupant load of 10.

CHAPTER 11 – AVIATION FACILITIES
No Amendments.

CHAPTER 12 – DRY CLEANNING

No Amendments.

CHAPTER 13 – COMBUSTIBLE DUST-PRODUCING OPERATIONS

No Amendments.

CHAPTER 14 – FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

No Amendments.

CHAPTER 15 – FLAMMABLE FINISHES

No Amendments.

CHAPTER 16 – FRUIT AND CROP RIPENING

No Amendments.

CHAPTER 17 – FUMIGATION AND THERMAL INSECTICIDAL FOGGING

No Amendments.

CHAPTER 18 – SEMICONDUCTOR FABRICATION FACILITIES

No Amendments.

CHAPTER 19 – LUMBER YARDS AND WOODWORKING FACILITIES

No Amendments.

CHAPTER 20 – MANUFACTUR OF ORGANIC MATERIALS

No Amendments.

CHAPTER 21 – INDUSTRIAL OVENS

No Amendments.

CHAPTER 22 – MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

No Amendments.

CHAPTER 23 – HIGH-PILED COMBUSTIBLE STORAGE

No Amendments.

CHAPTER 24 – TENTS AND OTHER MEMBRANE STRUCTURES

No Amendments.

CHAPTER 25 – TIRE REBUILDING AND TIRE STORAGE

No Amendments.

CHAPTER 26 – WELDING AND OTHER HOT WORK

No Amendments.

CHAPTER 27 – HAZARDOUS MATERIALS – GENERAL PROVISIONS

No Amendments.

CHAPTER 28 – AEROSOLS

No Amendments.

CHAPTER 29 – COMBUSTIBLE FIBERS

No Amendments.

CHAPTER 30 – COMPRESSED GASES

No Amendments.

CHAPTER 31 – CORROSIVE MATERIALS

No Amendments.

CHAPTER 32– CRYOGENIC FLUIDS

No Amendments.

CHAPTER 33 – EXPLOSIVES AND FIREWORKS

No Amendments.

CHAPTER 34 – FLAMMABLE AND COMBUSTIBLE LIQUIDS

No Amendments.

CHAPTER 35 – FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS

No Amendments.

CHAPTER 36 – FLAMMABLE SOLIDS

No Amendments.

CHAPTER 37 – HIGHLY TOXIC AND TOXIC MATERIALS

No Amendments.

CHAPTER 38 – LIQUEFIED PETROLEUM GASES

No Amendments.

CHAPTER 39 – ORGANICS PEROXIDES

No Amendments.

CHAPTER 40 – OXIDIZERS, OXIDIZING GASES AND OXIDIZING GRYOGENIC FLUIDS

No Amendments.

CHAPTER 41 – PYROPHORIC MATERIALS

No Amendments.

CHAPTER 42 – PYROXYLIN (CELLULOSE NITRATE) PLASTICS

No Amendments.

CHAPTER 43 – UNSTABLE (REACTIVE) MATERIALS

No Amendments.

CHAPTER 44 – WATER-REACTIVE SOLIDS AND LIQUIDS

No Amendments.

CHAPTER 45 – MARINAS

No Amendments.

CHAPTER 46 – CONSTRUCTION REQUIREMENTS STANDARDS FOR EXISTING BUILDINGS

No Amendments.

CHAPTER 47 – REFERENCED STANDARDS

ADD:

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

APPENDIX A – BOARD OF APPEALS

Not Applicable to Puerto Rico.

APPENDIX B – FIRE-FLOW REQUIREMENTS FOR BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX C – FIRE HYDRANT LOCATION AND DISTRIBUTION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX D – FIRE APPARATUS ACCESS ROADS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX E – HAZARD CATEGORIES

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX F – HAZARD RANKING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX G – CRYOGENIC FLUIDS-WEIGHT AND VOLUME EQUIVALENTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX H – HAZARDUS MATERIALS MANAGEMENT PLAN (HMMP) AND HAZARDOUS MATERIALS INVENTORY STATEMENT (HMIS) INSTRUCTIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX I – FIRE PROTECTION SYSTEMS-NONCOMPLAINT CONDITIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX J - EMERGENCY RESPONDER RADIO COVERAGE

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

DIVISION VII

AMENDMENTS
to the
2009 INTERNATIONAL FUEL AND GAS CODE

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DIVISION VII

AMENDMENTS
to the
2009 INTERNATIONAL FUEL AND GAS CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 GENERAL

101.1 Title.
These regulations shall be known as the Fuel and Gas Code of Puerto Rico, hereinafter referred to as "this code."

101.2 Scope.
This code shall apply to the installation of fuel-gas piping systems, fuel gas appliances, gaseous hydrogen systems and related accessories in accordance with Sections 101.2.1 through 101.2.5.

> **Exception:** Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the International Residential Code.

101.2.1 Gaseous hydrogen systems.
Gaseous hydrogen systems shall be regulated by Chapter 7.

101.2.2 Piping systems.
These regulations cover piping systems for natural gas with an operating pressure of 125 pounds per square inch gauge (psig) (862 kPa gauge) or less, and for LP-gas with an operating pressure of 20 psig (140 kPa gauge) or less, except as provided in Section 402.6. Coverage shall extend from the point of delivery to the outlet of the appliance shutoff valves. Piping system requirements shall include design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance.

101.2.3 Gas appliances.
Requirements for gas appliances and related accessories shall include installation, combustion and ventilation air and venting and connections to piping systems.

101.2.4 Systems, appliances and equipment outside the scope.
This code shall not apply to the following:

1. Portable LP-gas appliances and equipment of all types that is not connected to a fixed fuel piping system.

2. Installation of farm appliances and equipment such as brooders, dehydrators, dryers and irrigation equipment.

3. Raw material (feedstock) applications except for piping to special atmosphere generators.

4. Oxygen-fuel gas cutting and welding systems.

5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen.

6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms and natural gas processing plants.

7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by, or used in, chemical reactions.

8. LP-gas installations at utility gas plants.

9. Liquefied natural gas (LNG) installations.

10. Fuel gas piping in power and atomic energy plants.

11. Proprietary items of equipment, apparatus or instruments such as gas-generating sets, compressors and calorimeters.

12. LP-gas equipment for vaporization, gas mixing and gas manufacturing.

13. Temporary LP-gas piping for buildings under construction or renovation that is not to become part of the permanent piping system.

14. Installation of LP-gas systems for railroad switch heating.

15. Installation of hydrogen gas, LP-gas and compressed natural gas (CNG) systems on vehicles.

16. Except as provided in Section 401.1.1, gas piping , meters, gas pressure regulators and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-gas.

17. Building design and construction, except as specified herein.

18. Piping systems for mixtures of gas and air within the flammable range with an operating pressure greater than 10 psig (69 kPa gauge).

19. Portable fuel cell appliances that are neither connected to a fixed piping system nor interconnected to a power grid.

101.2.5 Other fuels.
The requirements for the design, installation, maintenance, alteration and inspection of mechanical systems operating with fuels other than fuel gas shall be regulated by the International Mechanical Code.

101.3 Appendices.
Provisions in the appendices shall not apply unless specifically adopted.

101.4 Intent.
The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of fuel gas systems. This chapter replaces CHAPTER I of the International Fuel and Gas Code.

101.5 Severability.
If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION: 102 APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Existing installations.
Except as otherwise provided for in this chapter, a provision in this code shall not require the removal, alteration or abandonment of, nor prevent the continued utilization and maintenance of, existing installations lawfully in existence at the time of the adoption of this code.

[EB] 102.2.1 Existing buildings.
Additions, alterations, renovations or repairs related to building or structural issues shall be regulated by the International Building Code.

102.3 Maintenance.
Installations, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe condition. Devices or safeguards which are required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's designated agent shall be responsible for maintenance of installations. To determine compliance with this provision, the building official and the code official shall have the authority to require an installation to be reinspected.

102.4 Additions, alterations or repairs.
Additions, alterations, renovations or repairs to installations shall conform to that required for new installations without requiring the existing installation to comply with all of the requirements of this code. Additions, alterations or repairs shall not cause an existing installation to become unsafe, hazardous or overloaded.

Minor additions, alterations, renovations and repairs to existing installations shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is approved by OGPe.

102.5 Change in occupancy.
It shall be unlawful to make a change in the occupancy of a structure which will subject the structure to the special provisions of this code applicable to the new occupancy without approval. The building official and the code official shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

102.6 Historic buildings.
Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, shall comply with the provisions of this code.

The provisions of this code relating to the construction, alteration , repair, enlargement, restoration, relocation or moving of buildings or structures shall be mandatory for existing buildings or structures identified and classified by the federal, state or local jurisdiction (including Instituto de Cultura Puertoriqueña, OGPe and State Historic Preservation Office) as historic buildings.
Whenever there are practical difficulties involved in carrying out the provisions of this code, the OGPe shall have the authority to grant modifications for individual cases, provided the code official shall first find that the special individual reason makes certain provisions of this code impractical and the modification is in compliance with the intent

and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the OGPe.

102.7 Moved buildings.
Except as determined by Section 102.2, installations that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

102.8 Referenced codes and standards.
The codes and standards referenced in this code shall be those that are listed in Chapter 8 and such codes and standards shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

> **Exception:** Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and the manufacturer's installation instructions shall apply.

102.9 Requirements not covered by code.
Requirements necessary for the strength, stability or proper operation of an existing or proposed installation, or for the public safety, health and general welfare, not specifically covered by this code, shall be determined by the building official and the code official.

102.10 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.11 Application of references.
Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION 101: GENERAL
The administrative provisions of this Code will be those established by the International Fuel and Gas Code, the Puerto Rico Building Code (Division I), the OGPe, the OIGPe and the Public Service Commission.

CHAPTER 2 – DEFINITIONS
No Amendments.

CHAPTER 3 – GENERAL REGULATIONS

SECTION: 305 - INSTALLATION

305.1 General.
Equipment and appliances shall be installed as required by the terms of their approval, accordance with the conditions of listing, the manufacturer's instructions and the code. Manufacturers' installation instructions shall be available on the job site at the time of inspection. Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.

Unlisted appliances approved in accordance with Section 301.3 shall be limited to uses recommended by the manufacturer and shall be installed in accordance with the manufacturer's instructions, the provisions of this code and the requirements determined by the code official "shall conform to NFPA 70".

CHAPTER 4 – GAS PIPING INSTALLATION

SECTION: 406 – INSPECTION, TESTING AND PURGING

406.7 Purging

406.7.3 Discharge of purge gas.
The open end of piping systems being purged shall not discharge into confined spaces or areas where there are sources of ignition unless precautions are taken to perform this operation in a safe manner by ventilation of the space, control of purging rate and elimination of all hazardous conditions according to the "Reglamento Para el Control de la Contaminación Atmosférica del Estado Libre Asociado de Puerto Rico".

SECTION: 409 – SHUTOFF VALVES

409.1 General
All Piping systems shall be provided with seismic actuated shutoff valves in accordance with this section.

CHAPTER 5 – CHIMNEYS AND VENTS

SECTION: 501 – GENERAL

501.4 Minimum size of chimney or vent
Chimneys and vents shall be sized in accordance with Section 503 and 504 and the "Reglamento Para El Control De La Contaminación Atmosférica del Estado Libre Asociado de Puerto Rico".

SECTION: 503 – GENERAL

503.1 General

This section recognizes that the choice of venting materials and the methods of installation of venting systems are dependent on the operating characteristics of the appliance being vented. The operating characteristics of vented appliances can be categorized with respect to: (1) positive or negative pressure within the venting system; and (2) whether or not the appliance generates flue or vent gases that might condense in the venting system. See Section 202 for the definitions of these vented appliance categories. Entire section must comply with the "Reglamento Para El Control De La Contaminación Atmosférica del Estado Libre Asociado de Puerto Rico"

CHAPTER 6 – SPECIFIC APPLIANCES

No Amendments.

CHAPTER 7 – GASEOUS HYDROGEN EQUIPMENT

No Amendments.

CHAPTER 8 – REFERENCED STANDARDS

ADD:

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

APPENDIX A – (IFGC) SIZING CAPACITIES OF GAS PIPING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX B – (IFGS) SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFTS HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX C – EXIT TERMINAL OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEM

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX D – (IFGS) RECOMMENDED PROCEDURE FOR SAFETY INSPECTION OF AN EXISTING APPLIANCE INSTALLATION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

DIVISION VIII

AMENDMENTS
to the
2009 INTERNATIONAL ENERGY CONSERVATION CODE

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DIVISION VIII

AMENDMENTS
to the
2009 INTERNATIONAL ENERGY CONSERVATION CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 SCOPE AND GENERAL REQUIREMENTS

101.1 Title.
This code shall be known as the International Energy Conservation Code of Puerto Rico, and shall be cited as such. It is referred to herein as "this code."

101.2 Scope.
This code applies to residential and commercial buildings .

101.3 Intent.
This code shall regulate the design and construction of buildings for the effective use of energy. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances. This chapter replaces CHAPTER I of the International Energy Conservation Code.

101.4 Applicability.
Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

101.4.1 Existing buildings.
Except as specified in this chapter, this code shall not be used to require the removal, alteration or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

101.4.2 Historic buildings.
Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, shall comply with the provisions of this code.

The provisions of this code relating to the construction, alteration , repair, enlargement, restoration, relocation or moving of buildings or structures shall be mandatory for existing buildings or structures identified and classified by the federal, state or local jurisdiction (including Instituto de Cultura Puertoriqueña, OGPe and State Historic Preservation Office) as historic buildings.

Whenever there are practical difficulties involved in carrying out the provisions of this code, the OGPe shall have the authority to grant modifications for individual cases, provided the code official shall first find that the special individual reason makes certain provisions of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the Puerto Rico Energy Affairs Administration.

101.4.3 Additions, alterations, renovations or repairs.
Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. Additions, alterations, renovations or repairs shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

> **Exception:** The following need not comply provided the energy use of the building is not increased:
>
> 1. Storm windows installed over existing fenestration.
>
> 2. Glass only replacements in an existing sash and frame.
>
> 3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
>
> 4. Construction where the existing roof, wall or floor cavity is not exposed.

5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.

6. Replacement of existing doors that separate conditioned space from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a conditioned space from the exterior shall not be removed,

7. Alterations that replace less than 50 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.

8. Alterations that replace only the bulb and ballast within the existing luminaires in a space provided that the alteration does not increase the installed interior lighting power.

101.4.4 Change in occupancy or use.
Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code. Where the use in a space changes from one use in Table 9.5.1 of the ASHRAE/IESNA 90.1-2007 Standard to another use in Table 9.5.1 of the ASHRAE/IESNA 90.1-2007 Standard, the installed lighting wattage shall comply with Chapter 9 of the ASHRAE/IESNA 90.1-2007 Standard.

101.4.5 Change in space conditioning.
Any nonconditioned space that is altered to become conditioned space shall be required to be brought into full compliance with this code.

101.4.6 Mixed occupancy.
Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of Chapter 4 for residential and Chapter 5 for commercial.

101.5 Compliance.
Residential buildings shall meet the provisions of Chapter 4. Commercial buildings shall meet the provisions of Chapter 5.

101.5.1 Compliance materials.
The code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

101.5.2 Low energy buildings.
The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h • ft2 (10.7 W/m2) or 1.0 watt/ft2 (10.7 W/m2) of floor area for space conditioning purposes.
2. Those that do not contain conditioned space

SECTION: 102 ALTERNATE MATERIALS-METHOD OF CONSTRUCTION, DESIGN OR INSULATING SYSTEMS

102.1 General.
This code is not intended to prevent the use of any material, method of construction, design or insulating system not specifically prescribed herein, provided that such construction, design or insulating system has been approved by the code official as meeting the intent of this code.

102.1.1 Above code programs.
The code official shall be permitted to deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Buildings approved in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as "mandatory" in Chapters 4 and 5 of this code, as applicable, shall be met.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION 101: GENERAL
The administrative provisions of this Code will be those established by the International Energy Conservation Code, the Puerto Rico Building Code (Division I), the OGPe, the OIGPe and the Puerto Rico Energy Affairs Administration.

CHAPTER 2– DEFINITIONS

SECTION 202 – GENERAL DEFINITIONS

CONDITIONED SPACE. An area or room within a building being heated or cooled or with the provisions to be heated or cooled, with central or individual air conditioning units or containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space.

Full Cutoff: A luminaire light distribution where zero candela intensity occurs at or above an angle of 90° above nadir. Additionally, the candela per 1000 lamp lumens does not numerically exceed 100 (10%) at or above a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire.

PROJECTION FACTOR (PF): The ratio of the horizontal depth of the external shading projection divided by the sum of the height of the fenestration and the distance from the

top of the fenestration to the bottom of the farthest point of the external shading projection, in consistent units.

CHAPTER 3– CLIMATES ZONES

SECTION 301 – CLIMATE ZONES

301.1 General:
Climate Zones for Puerto Rico are defined as follows:

Residential – All Zone 1
Commercial – For ASHRAE/IESNA 90.1-2007 it shall be Zone 1A

SECTION 302 – DESIGN CONDITIONS

302.1 Interior design conditions
The Interior design temperatures used for cooling load calculations shall be a minimum of 75 deg **F** except for specialized areas such as manufacturing sites and hospitals were interior temperature AND humidity controls must be implemented for bacterial growth control. Facilities requiring lower minimum design temperatures shall document such requirement and be approved by the code official.

SECTION 303 – MATERIALS AND SYSTEMS EQUIPMENT

303.2 Installation

303.2.1 Protection of exposed foundation insulation. (deleted)

303.3 Maintenance information Maintenance Instructions shall be furnished for equipment and systems (including roofing systems) that require preventive maintenance. Required regular maintenance actions shall be clearly stated and incorporated on a readily accessible label and into a preventive maintenance document in possession of the owner. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.

CHAPTER 4 – RESIDENTIAL ENERGY EFFICIENT

SECTION 402 – BUILDING THERMAL ENVELOPE

402.1 General Prescriptive

402.1.1 Insulation and fenestration criteria
The building thermal envelope shall meet the requirements of Table 402.1.1 based on the climate zone specified in Chapter 3.

Table 402.1.1
Insulation and Fenestration Requirements by Component [a]

Climate Zone	Fenestration U-Factor	Skylight[a] U-factor	Glazed Fenestration SHGC	Ceiling Equivalent R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement[c] Wall R-Value	Slab[d] R-Value & Depth	Crawl space[c] Wall R-Value
1	1.20	0.75	0.40 See section 402.3.2	15	13	NR	NR	NR	NR	NR

For SI: 1foot = 304.8 mm.
NR: No Requirement

a. R-Values are minimums. U-Factors are maximums. R -19 shall be permitted to be compressed into a nominal 2 x 6 framing cavity.
b. The fenestration U-Factor column excludes skylights. The SHGC column applies to all glazed fenestration.

402.2 Specific Insulation Requirements

402.2.2 Ceilings without attic spaces.

Where Section 402.1.1 would require an equivalent insulation levels above R-15 and the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required equivalent insulation for such roof/ceiling assemblies shall be R-15. This reduction of insulation from the requirements of Section 402.1.1 shall be limited to 500 square feet (46 m^2) or 20 percent of the total insulated ceiling area, whichever is less. This reduction shall not apply to the *U*-factor alternative approach in Section 402.1.3 and the total UA alternative in Section 402.1.4.

402.3 Fenestration

402.3.2 Glazed fenestration SHGC

An weighted average of fenestration products more than 50 percent glazed shall be permitted to satisfy the SHGC requirements. For demonstrating compliance in vertical fenestrations shaded by opaque permanent projections that will last as long as the building itself, the equivalent SHGC of the fenestration product shall be reduced by using the multipliers in Table 402.3.2. The following formula should be used to calculate the required estimated overhang projection factor, the projection factor will be the range applicable to the respective calculated SHGC Multiplier:

$$\mathrm{SGHC}_{\mathrm{Multiplier}} = \frac{\mathrm{SGHC}_{\text{required in Table 402.1.1}}}{SHGC_{Equipment}}$$

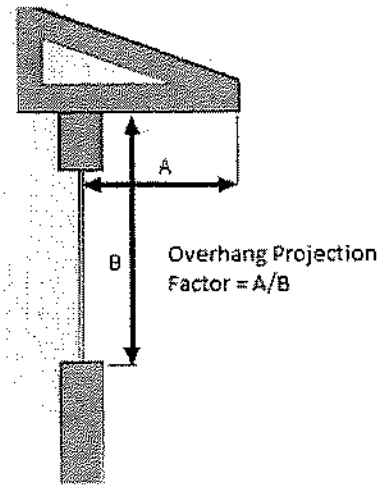

Table 402.3.2 (New)
SHGC Multipliers for Permanent Projections

Projection Factor	SHGC Multiplier (All other orientations)	SHGC Multiplier (North-Oriented)
>0-0.10	1.00	1.00
>0.10-0.20	0.91	0.95
>0.20-0.30	0.82	0.91
>0.30-0.40	0.74	0.87
>0.40-0.50	0.67	0.84
>0.50-0.60	0.61	0.81
>0.60-0.70	0.56	0.78
>0.70-0.80	0.51	0.76
>0.80-0.90	0.47	0.75
>0.90-1.00	0.44	0.73

402.4 Air leakage (Mandatory)

402.4.1 Building Thermal Envelope
The Building Thermal Envelope shall be durably sealed to limit infiltration, Applicable only to conditioned spaces. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. The following shall be caulked, gasketed, weatherstripped or otherwise sealed with an air barrier material, suitable film or solid material:

1. All joints, seams and penetrations.

2. Site-built windows, doors and skylights.

3. Openings between window and door assemblies and their respective jambs and framing.

4. Utility penetrations.
5. Dropped ceilings or chases adjacent to the thermal envelope.
6. Knee walls.

7. Walls and ceilings separating a garage from conditioned spaces.

8. Behind tubs and showers on exterior walls.

9. Common walls between dwelling units.

10. Attic access openings.

11. Rim joist junction.

12. Other sources of infiltration.

402.4.4 Fenestration air leakage
Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m^2), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m^2), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and *listed* and *labeled* by the manufacturer.

Exceptions:
1. Site-built windows, skylights and doors.
2. Jalousie windows shall not exceed 1.2 cfm per square foot (6.1 L/s/m^2).

402.6 Cool Roof
Low-slope roof membranes shall have an aged reflectance of at least 0.55 and a minimum thermal emittance of 0.75, or a minimum aged SRI of at least 64.

(a) If only the new reflectance is known, the aged reflectance shall be calculated as follows:

$$Refl_{aged} = 0.60 + 0.70 \times Refl_{initial}$$

(b) If the SRI is not known, but the reflectance and emittance are known, then the SRI may be calculated:

$$SRI = -84 + 85 \times Emit + 203 \times Ref - 75 \times Ref \times Emit$$

(c) Roof surfaces shall have a minimum slope of ¼ inch per foot of run. Also the finished roof shall not have any water accumulation area.

(d) The new reflectance, aged reflectance, emittance and the aged SRI of roofing products shall be determined by the Cool Roof Rating Council (CRRC) in accordance with CRRC-1.

SECTION 403 – SYSTEMS

403.7 Systems serving multiple dwelling units (Mandatory)

Systems serving multiple dwelling units shall comply with Chapters 6 and 7 of ANSI/ASHRAE/IESNA Standard 90.1-2007 in lieu of Section 403.

403.9 Pools (Mandatory).

Pools provided with energy-conserving measures shall be in accordance with Sections 403.9.1 through 403.9.3.

403.9.1 Pool heaters.

All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting.. Pool heaters are allowed only with renewable or alternate energy sources.

403.9.4. Pool pump motors.

Pool pump motors shall meet the following criteria:

1. Pool pump motors shall not be split-phase, shaded-pole or capacitor start-induction run types.
2. Pool pumps and pool pump motors with a total horsepower (HP) of = 1 HP shall have the capability of operating at two or more speeds. The low speed shall have a rotation rate of no more than ½ of the motor's maximum rotation rate.
3. Pool pumps motor controls shall have the capability of operating the pool pump at a minimum of two speeds. The default circulation speed shall be the residential filtration speed, with a higher speed override capability for a temporary period not to exceed one normal cycle or 120 minutes, whichever is less.

403.10 Solar Water Heaters (Mandatory)

All new one and two dwelling units, and townhouses shall be provided to only use solar water heaters. These shall be certified by the Puerto Rico Energy Affairs Administration. All other types of water heaters are prohibited.

SECTION 405 – SIMULATED PERFORMANCE ALTERNATIVE

405.6 Calculation software tools

405.6.3 Input values

When calculations require input values not specified by Sections 402, 403, 404 and 405, those input values shall be taken from an approved source. Thermal properties for high solar reflectance materials for roofs "Cool Roofs" shall be obtained from test performance in accordance with Cool Roof Rating Council Product Rating Program Manual (CRRC-1).

SECTION 406 – RENEWABLE ENERGY SYSTEMS

406.1 Provision for Renewable Energy System.
All one and two dwelling units, duplexes, and townhouses must be supplied with the following rough-in for the future installation of a renewal energy system:

1. Dwelling unit meter socket must have space for the future installation of a 2p-60A breaker for connection of the future renewable source of energy.

2. Installation of a 5"x 5"x2 ½" junction box connected to the Main meter box by a 1" PVC empty conduit. The junction box shall have a waterproof cover for a future disconnect switch. Location must be outdoor, accessible to Puerto Rico Energy Authority (AEE/PREPA) personnel.

3. Installation of a 1" PVC empty conduit from the 5"x5"x2 ½" junction box to roof level at location where renewable energy system will be located. Empty PVC pipe will be installed with pull wire for future installation of cables, properly capped and sealed 6"above roof deck.

4. (optional) Installation of a ½" PVC empty conduit from roof to ground level, properly capped and sealed for future installation of ground.

Exemptions: Low Income Housing units

CHAPTER 5 – COMMERCIAL ENERGY EFFICIENCY

SECTION: 501 GENERAL

501.1 Scope
The requirements contained in this chapter are applicable to commercial buildings, or portions of commercial buildings. These commercial buildings shall meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007, *Energy Standard for Buildings Except for Low-Rise Residential Buildings,* or the requirements contained in this chapter. All other sections of this chapter are to be rescinded from this code.

Exception: **Section 9.4.4 Exterior Building Grounds Lighting and Exterior Structure Lighting.** All exterior building grounds luminaires and exterior structure lighting that operate at greater than 100 W shall contain lamps having a minimum efficacy of 60 lm/W unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under ANSI/ASHRAE/IESNA Standard 90.1-2007 Section 9.1.1 or 9.4.5 and should be "*full cutoff*".

CHAPTER 6 – REFERENCED STANDARDS

ADD:

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

DIVISION IX

AMENDMENTS
to the
2009 INTERNATIONAL EXISTING BUILDING CODE

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DIVISION IX

AMENDMENTS
to the
2009 INTERNATIONAL EXISTING BUILDING CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 GENERAL

101.1 Title.
These regulations shall be known as the Existing Puerto Rico Building Code, hereinafter referred to as "this code."

101.2 Scope.
The provisions of the International Existing Building Code shall apply to the repair, alteration, change of occupancy, addition and relocation of existing buildings.

101.3 Intent.
The intent of this code is to provide flexibility to permit the use of alternative approaches to achieve compliance with minimum requirements to safeguard the public health, safety and welfare insofar as they are affected by the repair, alteration, change of occupancy, addition and relocation of existing buildings. This chapter replaces CHAPTER I of the International Existing Building Code.

101.4 Applicability.
This code shall apply to the repair, alteration, change of occupancy, addition and relocation of all existing buildings, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2.

101.4.1 Buildings not previously occupied.
A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the International Building Code or International Residential Code, as applicable, for new construction or with any current permit for such occupancy.

101.4.2 Buildings previously occupied.
The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code,

the International Fire Code, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

101.5 Compliance methods.
The repair, alteration, change of occupancy, addition or relocation of all existing buildings shall comply with one of the methods listed in Sections 101.5.1 through 101.5.3 as selected by the applicant. Application of a method shall be the sole basis for assessing the compliance of work performed under a single permit unless otherwise approved by the building official. Sections 101.5.1 through 101.5.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic-force-resisting system of an existing building subject to repair, alteration, change of occupancy, addition or relocation of existing buildings, the seismic evaluation and design shall be based on Section 101.5.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the building official, alterations complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural alteration as defined in Section 807.4.3. New structural members added as part of the alteration shall comply with the International Building Code. Alterations of existing buildings in flood hazard areas shall comply with Section 601.3.

101.5.1 Prescriptive compliance method.
Repairs, alterations, additions and changes of occupancy complying with Chapter 3 of this code in buildings complying with the International Fire Code shall be considered in compliance with the provisions of this code.

101.5.2 Work area compliance method.
Repairs, alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 4 through 12 of this code shall be considered in compliance with the provisions of this code.

101.5.3 Performance compliance method.
Repairs, alterations, additions, changes in occupancy and relocated buildings complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

101.5.4 Evaluation and design procedures.
The seismic evaluation and design shall be based on the procedures specified in the International Building Code, ASCE 31 or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 101.5.4.2.

101.5.4.1 Compliance with IBC level seismic forces.
Where compliance with the seismic design provisions of the International Building Code is required, the procedures shall be in accordance with one of the following:

1. The International Building Code using 100 percent of the prescribed forces. The values of R, W0 and Cd used for analysis in accordance with Chapter 16 of the International Building Code shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as "Detailed," "Intermediate" or "Special."

2. Compliance with ASCE 41 using both the BSE-1 and BSE-2 earthquake hazard levels and the corresponding performance levels shown in Table 101.5.4.1.

TABLE 101.5.4.1
PERFORMANCE CRITERIA FOR IBC LEVEL SEISMIC FORCES

OCCUPANCY CATEGORY (Based on IBC Table 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVELI
I	Life safety (LS)	Collapse prevention (CP)
II	Life safety (LS)	Collapse prevention (CP)
III	Note a	Note a
IV	Immediate occupancy (IO)	Life safety (LS)

a. Acceptable criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category IV performance levels.

101.5.4.2 Compliance with reduced IBC level seismic forces.
Where seismic evaluation and design is permitted to meet reduced International Building Code seismic force levels, the procedures used shall be in accordance with one of the following:

1. The International Building Code using 75 percent of the prescribed forces. Values of R , W0 and Cd used for analysis shall be as specified in Section 101.5.4.1 of this code.

2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.5 shall be deemed to comply with this section.

2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.

2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A2.

2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A3.

2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A4.

2.5. Seismic evaluation and design of concrete buildings and concrete with masonry infill buildings in all occupancy categories are permitted to be based on the procedures specified in Chapter A5.

3. Compliance with ASCE 31 based on the applicable performance level as shown in Table 101.5.4.2. It shall be permitted to use the BSE-1 earthquake hazard level as defined in ASCE 41 and subject to the limitations in Item 4 below.

4. Compliance with ASCE 41 using the BSE-1 Earthquake Hazard Level and the performance level shown in Table 101.5.4.2. The design spectral response acceleration parameters SXS and SX1 specified in ASCE 41 shall not be taken less than 75 percent of the respective design spectral response acceleration parameters SDS and SD1 defined by the International Building Code.

TABLE 101.5.4.2
PERFORMANCE CRITERIA FOR REDUCED IBC LEVEL SEISMIC FORCES

OCCUPANCY CATEGORY (Based on IBC Table 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL
I	Life safety (LS)	Life safety (LS)
II	Life safety (LS)	Life safety (LS)
III	Notes a, b	Note a
IV	Immediate occupancy (IO)	Immediate occupancy (IO)

a. Acceptable criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category IV performance levels.
b. For Occupancy Category III, the ASCE 31 screening phase checklists shall be based on the life safety performance level.

101.6 Safeguards during construction.
All construction work covered in this code, including any related demolition, shall comply with the requirements of Chapter 14.

101.7 Appendices.
The building official is authorized to require rehabilitation and retrofit of buildings, structures or individual structural members in accordance with the appendices of this code if such appendices have been individually adopted.

101.8 Correction of violations of other codes.
Repairs or alterations mandated by any property, housing, or fire safety maintenance code or mandated by any licensing rule or ordinance adopted pursuant to law shall conform only to the requirements of that code, rule, or ordinance and shall not be required to conform to this code unless the code requiring such repair or alteration so provides.

SECTION: 102 APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where in any specific case different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law.

102.3 Application of references.
References to chapter or section numbers or to provisions not specifically identified by number shall be construed to refer to such chapter, section, or provision of this code.

102.4 Referenced codes and standards.
The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall govern.

> **Exception:** Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing shall govern.

102.5 Partial invalidity.
In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION 101: GENERAL
The administrative provisions of this Code will be those established by the International Existing Building Code, the Puerto Rico Building Code (Division I), the OGPe and the OI GPe.

CHAPTER 2 – DEFINITION

SECTION 202 - GENERAL DEFINITIONS:

FULL CUTOFF: A luminaire light distribution where zero candela intensity occurs at or above an angle of 90° above nadir. Additionally, the candela per 1000 lamp lumens does not numerically exceed 100 (10%) at or above a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire

HISTORIC BUILDING. Any building or structure that is listed, eligible to be listed or designated in the National Register of Historic significance Places; listed, designated as a historic significance property by the Puerto Rico Planning Board's Register of Historical Places, the Commonwealth of Puerto Rico, the Board of Directors of the Institute of Puerto Rican Culture; or with an opinion or certification that the property is eligible to be listed on the *Puerto Rico Planning Board's Register of Historical Places,* National Register of Historic significance Places either individually or as a contributing

building to a historic significance district by the *Puerto Rico Planning Board's Register of Historical Places,* the Commonwealth of Puerto Rico, the Board of Directors of the Institute of Puerto Rican Culture,

HISTORIC FINISH MATERIALS. Materials that compose all physical and visual characteristics of the surfaces of historic significance buildings and properties, and historic buildings. Historical finish materials are an integral part of the historical meaning of buildings and include building techniques and craftsmanship, ornamentation, material quality, material type, and origin among others.

HISTORIC SIGNIFICANCE BUILDING. Any building meeting the requirements established in the Planning Board Regulation #5 (Reglamento para la Designación de Sitios y Zonas Históricas en Puerto Rico)

SUBSTITUTION The removal and replacement of non structural and structural elements part of the building for another with equal characteristics for the purposes of maintenance and/ or repair. This definition only applies to historic significance buildings and properties, and historic buildings.

CHAPTER 3 – PRESCRIPTIVE COMPLIANCE METHOD

SECTION 304 - REPAIRS

304.3 Substantial structural damage to gravity load-carrying components.
Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions of this code for dead and live loads. Existing gravity load-carrying structural elements shall be permitted to be designed for live loads approved prior to the damage. Non-damaged gravity load-carrying components that receive dead, live or from rehabilitated components shall also be rehabilitated or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

SECTION 308 – HISTORIC BUILDINGS

308.1 Historic buildings.
The provisions of this code relating to the construction, repair, *substitution,* alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic significance buildings and properties, historic buildings and/or not eligible buildings and properties within a Historic Zone where such buildings are judged by the building official, with the advice of the Institute of Puerto Rican Culture, to not constitute a distinct life safety hazard.

308.2 Flood hazard areas
Within flood hazard areas established in accordance with Section 1612.3 of the International Building Code, where the work proposed constitutes substantial improvement as defined in Section 1612.2 of the International Building Code, the building shall be brought into conformance with Section 1612 of the International Building Code.

Exception: Historic buildings that are:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;

2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or

3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

4. Listed or determined eligible by either the President of the Puerto Rico Planning Board, the Office of Permit Management, and the Board of Directors of the Institute of Puertorrican Culture, as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.

SECTION 310 – ACCESSIBILITY FOR EXISTING BUILDINGS

310.9 Historic buildings.
These provisions shall apply to buildings and facilities designated as historic structures that undergo alterations or a change of occupancy, unless considered infeasible by the Code Official with the advice of the Institute of Puerto Rican Culture. Where compliance with the requirements for accessible routes, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the Code Official under advisory of the Institute of Puerto Rican Culture, the alternative requirements of Sections 310.9.1 through 310.9.4 for that element shall be permitted.

310.9.1 Site arrival points.
At least one accessible route from a site arrival point to an accessible entrance shall be provided.

310.9.2 Multilevel buildings and facilities.
An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

310.9.3 Entrances.
At least one main entrance shall be accessible.

Exceptions:

1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or

2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1110 of the International Building Code shall be provided at the primary entrance and the accessible entrance.

310.9.4 Toilet and bathing facilities.
Where toilet rooms are provided, at least one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the International Building Code shall be provided.

CHAPTER 4 - CLASSIFICATION OF WORK

SECTION 401 - GENERAL

401.1 Scope.
The provisions of this chapter shall be used in conjunction with Chapters 5 through 12 and shall apply to the alteration, repair, *substitution,* addition and change of occupancy of existing structures, including historic significance buildings and properties, historic buildings and/or not eligible buildings and properties within a Historic Zone and moved structures, as referenced in Section 101.5.2. The work performed on an existing building shall be classified in accordance with this chapter.

401.1.1 Compliance with other alternatives.
Alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions of Chapters 4 through 12 or with one of the alternatives provided in Section 101.5.

CHAPTER 5 - REPAIRS

SECTION 506 - STRUCTURAL

506.2 Repairs to damage buildings

506.2.3 Substantial structural damage to gravity load-carrying components.
Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions for dead

and live loads in the *International Building Code*. Undamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the rehabilitation design.

506.2.3.1 Lateral-force-resisting elements.
Regardless of the level of damage to gravity elements of the lateral force-resisting system, if a substantial structural damage gravity load-carrying component was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 506.2.2.1 and, if noncompliant, rehabilitated in accordance with Section 506.2.2.3.

CHAPTER 5 – REPAIRS

SECTION 507: ELECTRICAL

507.1 Material.
Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material except for replacement of luminaires that shall comply with section 507.1.6

507.1.6 Any signs on buildings with illumination should be illuminated with *full cutoff* lamps

CHAPTER 6 – ALTERATIONS – LEVEL 1

No Amendments.

CHAPTER 7 – ALTERATIONS - LEVEL 2

SECTION 708 - ELECTRICAL

708.1 New installations

All newly installed electrical equipment and wiring relating to work done in any *work area* shall comply with the materials and methods requirements of Chapter 5.

Exception: Electrical equipment and wiring in newly installed partitions and ceilings shall comply with all applicable requirements of NFPA 70. Copper conductors shall be used in circuit conductors between the meter and the service panelboard and in branch circuits in residential occupancies.

CHAPTER 8 – ALTERATIONS-LEVEL 3

No Amendments

CHAPTER 9 – CHANGE OF OCCUPANCY

SECTION 907 - STRUCTURAL

Wind loads
Buildings and structures subject to a change of occupancy where such change in the nature of occupancy results in higher wind occupancy categories based on Table 1604.5 of the International Building Code shall be analyzed and shall comply with the applicable wind load provisions of the International Building Code.

SECTION 908 – ELECTRICAL

908.1 Special occupancies.

Where the occupancy of an *existing building* or part of an *existing building* is changed to one of the following special occupancies as described in NFPA 70, the electrical wiring and equipment of the building or portion thereof that contains the proposed occupancy shall comply with the applicable requirements of NFPA 70 and with the Puerto Rico Electric Power Authority's Reglamento Complementario al Código Eléctrico Nacional (Complementary Code), whether or not a *change of occupancy* group is involved. In case of a conflict between the Complementary Code and the NFPA 70, the Complementary Code will prevail.

1. Hazardous locations.
2. Commercial garages, repair, and storage.
3. Aircraft hangars.
4. Gasoline dispensing and service stations.
5. Bulk storage plants.
6. Spray application, dipping, and coating processes.
7. Health care facilities.
8. Places of assembly.
9. Theaters, audience areas of motion picture and television studios, and similar locations.
10. Motion picture and television studios and similar locations.
11. Motion picture projectors.
12. Agricultural buildings.

908.3 Service upgrade.

Where the occupancy of an *existing building* or part of an *existing building* is changed, electrical service shall be upgraded to meet the requirements of NFPA 70 and with the Complementary Code for the new occupancy. In case of a conflict between the Complementary Code and the NFPA 70, the Complementary Code will prevail.

CHAPTER 10 - ADDITIONS

SECTION 1003 - STRUCTURAL

1003.4 Snow drift loads. (deleted)

CHAPTER 11 – HISTORIC BUILDINGS

SECTION 1104 - ALTERATIONS

1104.1 Accessibility requirements

1104.1.5. Access through adjacent buildings.
When the owners of adjacent buildings share the same or have compatible uses, and an accessible entrance and route is required for one of them, an alternate access through the adjacent building may be accepted subject to the submittal of a written agreement between the owners of the properties. The access can be provided by an existing accessible entrance and route or the construction of a new one. The Code Official, with the advice of the Institute of Puerto Rican Culture shall review this proposal in order to verify that this alternative does not present any adverse effects to the properties.

CHAPTER 12 – RELOCATED OR MOVED BUILDINGS

SECTION 1201 - GENERAL

1201.2 Conformance.
The building shall be safe for human occupancy as determined by the International Fire Code. Any repair, alteration, or change of occupancy undertaken

within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the International Building Code or the International Residential Code as applicable.

SECTION 1202 - REQUIREMENTS

1202.5 Snow loads. (deleted)

CHAPTER 13 – PERFORMANCE COMPLIANCE METHODS

No Amendments.

CHAPTER 14 – CONSTRUCTION SAFEGUARDS

SECTION: 1401.7

1401.7 Demolitions.
Any work related to demolitions shall comply with Section 3303, Chapter 33 of *The International Building Code.*

CHAPTER 15 –REFERENCED STANDARDS

Add new standards to CHAPTER 15.

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

Institution: Puerto Rico Electric Power Authority (PREPA)
Standard reference number: 5676 – 1997
Title: Reglamento Complementario al Código Eléctrico Nacional (Complementary Code)
Referenced in code section number: 708, 908

Institution: Puerto Rico Planning Board (JP)
Standard reference number: Regulation #5
Title: Reglamento para la Designación de Sitios y Zonas Históricas en Puerto Rico
Referenced in code section number: 202

APPENDIX A - GUIDELINES FOR THE SEISMIC RETROFIT OF EXISTING BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX B - SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS FOR EXISTING BUILDINGS AND FACILITIES

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

RESOURCE A - GUIDELINES ON FIRE RATINGS OF ARCHAIC MATERIALS AND ASSEMBLIES

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

DIVISION X

AMENDMENTS
to the
2009 INTERNATIONAL PRIVATE SEWAGE DISPOSAL CODE

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DIVISION X

AMENDMENTS
to the
2009 INTERNATIONAL PRIVATE SEWAGE DISPOSAL CODE

CHAPTER 1 – SCOPE AND ADMINISTRATION

PART I – SCOPE AND APPLICATION

SECTION: 101 GENERAL

101.1 Title.
These regulations shall be known as the Private Sewage Disposal Code of Puerto Rico hereinafter referred to as "this code."

101.2 Scope.
Septic tank and effluent absorption systems or other treatment tank and effluent disposal systems shall be permitted where a public sewer is not available to the property served. Unless specifically approved, the private sewage disposal system of each building shall be entirely separate from and independent of any other building. The use of a common system, a system that serves more than one single family dwelling unit, a system that serves a building or a system on a parcel other than the parcel where the structure is located that serves a building or more than one single family dwelling unit shall be subject to the full requirements of this code as for systems serving public buildings and any other applicable state or federal regulation.

101.2.1 Appendices.
Provisions in the appendices shall not apply unless specifically adopted.

101.3 Public sewer connection.
Where public sewers become available to the premises served, the use of the private sewage disposal system shall be discontinued within that period of time required by law, but such period shall not exceed 1 year. The building sewer shall be disconnected from the private sewage disposal system and connected to the public sewer complying with applicable laws and regulations.

101.4 Abandoned systems.
Abandoned private sewage disposal systems shall be plugged or capped as established in the *"Reglamento Conjunto de Permisos para Obras de Construcción y Uso de Terrenos de Puerto Rico, (Reglamento Conjunto)"*, the Underground Injection Control Regulation or any other applicable state or federal law or regulation.

101.5 Failing system.
When a private sewage disposal system fails or malfunctions, the system shall be corrected or use of the system shall be discontinued within that period of time required by the building official, or the government agency with jurisdiction but such period shall not exceed 1 year.

101.5.1 Failure.
A failing private sewage disposal system shall be one causing or resulting in any of the following conditions:

1. The failure to accept sewage discharges and backup of sewage into the structure served by the private sewage disposal system.

2. The discharge of sewage to the surface of the ground or to a drain tile.

3. The discharge of sewage to any surface or ground waters.

4. The introduction of sewage into saturation zones adversely affecting the operation of a private sewage disposal system.

5. Any other condition as established in the "Reglamento Conjunto" and any other applicable law or regulation.

101.6 Intent.
The purpose of this code is to provide minimum standards to safeguard life or limb, health, property, public welfare and prevent the pollution of surface and ground waters, by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of private sewage disposal systems. This chapter replaces CHAPTER I of the International Private Sewage Disposal Code.

101.7 Severability.
If any section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

SECTION: 102 APPLICABILITY

102.1 General.
Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in any specific case, different sections of this

code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Other laws.
The provisions of this code shall not be deemed to nullify any provisions of local, state or federal laws or regulations.

102.3 Application of references.
Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

102.4 Existing installations.
Private sewage disposal systems lawfully in existence at the time of the adoption of this code shall be permitted to have their use and maintenance continued if the use, maintenance or repair is in accordance with the original design and no hazard to life, health, property, surface or ground water uses is created by the system.

102.5 Maintenance.
Private sewage disposal systems, materials and appurtenances, both existing and new, and all parts thereof shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. Devices or safeguards that are required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's designated agent shall be responsible for maintenance of private sewage disposal systems. To determine compliance with this provision, the building official and the government agencies with jurisdiction shall have the authority to require reinspection of any private sewage disposal system.

102.6 Additions, alterations or repairs.
Additions, alterations, renovations or repairs to any private sewage disposal system shall conform to that required for a new system without requiring the existing system to comply with all the requirements of this code. Additions, alterations or repairs shall not cause an existing system to become unsafe, insanitary or overloaded.

Minor additions, alterations, renovations and repairs to existing systems shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is approved by the building official or by the Environmental Quality Board if the system is regulated by the Underground Injection Control Regulation.

102.7 Change in occupancy.
It shall be unlawful to make any change in the occupancy of any structure that will subject the structure to any special provision of this code applicable to the new occupancy without approval of the building official or the Environmental Quality Board if the system is regulated by the Underground Injection Control Regulation. The Designated Inspector shall certify that such structure meets the intent of the provisions

of law governing building construction for the proposed new occupancy and that such change of occupancy does not result in any hazard to the public health, safety or welfare.

102.8 Historic buildings.
Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, shall comply with the provisions of this code.

The provisions of this code relating to the construction, alteration , repair, enlargement, restoration, relocation or moving of buildings or structures shall be mandatory for existing buildings or structures identified and classified by the federal, state or local jurisdiction (including Instituto de Cultura Puertoriqueña, OGPe and State Historic Preservation Office) as historic buildings.

Whenever there are practical difficulties involved in carrying out the provisions of this code, the OGPe shall have the authority to grant modifications for individual cases, provided the code official shall first find that the special individual reason makes certain provisions of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the Environmental Quality Board.

102.9 Moved buildings.
Except as determined by Section 102.4, Private sewage disposal systems that are a part of buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new installations.

102.10 Referenced codes and standards.
The codes and standards referenced in this code shall be those that are listed in Chapter 14, Underground Injection Control Regulation and such codes and standards shall be considered to be

part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

> **Exception:** Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and the manufacturer's installation instructions shall apply.

102.11 Requirements not covered by code.
Any requirements necessary for the proper operation of an existing or proposed private sewage disposal system, or for the public safety, health, general welfare, and the protection of designated uses of surface and ground waters not specifically covered by this code, shall be determined by the building official or by the Environmental Quality Board if the system is regulated by the Underground Injection Control Regulation.

PART II – ADMINISTRATION AND ENFORCEMENT

SECTION 101: GENERAL

The administrative provisions of this Code will be those established by the International Private Sewage Disposal Code, the Puerto Rico Building Code (Division I), the OGPe, the OIGPe and the Environmental Quality Board.

CHAPTER 2 – DEFINITIONS

No Amendments.

CHAPTER 3 – GENERAL REGULATIONS

Section 302 – Specific Limitations

302.1 Cesspools and privies
Privies and Cesspools shall be prohibited

CHAPTER 4 – SITE EVALUATION AND REQUIREMENTS

SECTION 406 – SITE REQUIREMENTS

406.1 Soil absorption site location
The surface grade of all soil absorption systems shall be located at a point lower than the surface grade of any nearby water well or reservoir on the same or adjoining property. Where this is not possible, the site shall be located so surface water drainage from the site is not directed toward a well or reservoir. The soil absorption system shall be located with a minimum horizontal distance between various elements as indicated in Table 406.1. Private sewage disposal systems in compacted areas, such as parking lots and driveways, are prohibited. Surface water shall be diverted away from any soil absorption site on the same or neighboring lots

TABLE 406.1

MINIMUM HORIZONTAL SEPARATION DISTANCES FOR SOIL ABSORPTION SYSTEMS

ELEMENT	DISTANCE (feet)
Cistern	50
Habitable building, below-grade foundation	25
Habitable building, slab-on-grade	15
Lake, high-water mark	50
Lot line	10
Reservoir	50
Roadway ditches	10
Spring	100
Streams or watercourse	100
Swimming pool	15
Uninhabited building	10
Water main	50
Water service	10
Water well	100

406.2 Ground water, bedrock or slowly permeable soils.
There shall be a minimum of 4 feet (1219.2 mm) of soil between the bottom of the soil absorption system and high ground water or bedrock. Soil with a percolation rate of 60 minutes per 1 inch (25 mm) or faster shall exist for the depth of the proposed soil absorption system and at least 3 feet (914 mm) below the proposed bottom of the soil absorption system. There shall be 56 inches (1422 mm) of suitable soil from original grade for a conventional soil absorption system.

CHAPTER 5 – MATERIALS

No Amendments.

CHAPTER 6 – SOIL ABSORPTION SYSTEMS

SECTION 605 – INSTALLATION OF CONVENTIONAL SOIL ABSORPTION SYSTEMS

605.8 Winter installation. (deleted)

CHAPTER 7 – PRESSURE DISTRIBUTION SYSTEM

No Amendments.

CHAPTER 8 – TANKS

No Amendments.

CHAPTER 9 – MOUND SYSTEMS

SECTION 904 – CONSTRUCTION TECHNIQUES

904.1 General

Construction shall not commence where the soil is so wet a soil wire forms when the soil s rolled between the hands.

CHAPTER 10 – CESSPOOLS (deleted)

CHAPTER 11 – RESIDENTIAL WASTE WATER SYSTEMS

No Amendments.

CHAPTER 12

SECTION 1202 - INSPECTIONS

1202.1 Initial inspections procedures

All private sewage disposal systems shall be inspected once during excavation, and before once before backfilling.

CHAPTER 13 – NONLIQUID SATURATED TREATMENT SYSTEMS

No Amendments.

CHAPTER 14 – REFERENCED STANDARDS

ADD:

Institution: NFPA
Standard reference number: 70 - 11
Title: National Electrical Code

APPENDIX A – SYSTEM LAYOUT ILLUSTRATIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

APPENDIX B – TABLE FOR PRESSURE DISTRIBUTION SYSTEM

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

Article – Approval and Adoption

Adopted in San Juan, Puerto Rico by, Edwin A. Irizarry Lugo, Esq., P.E., acting as Executive Director of the Puerto Rico Office of Permits Management, on this date of June 8, 2012.

This Regulation shall go into force thirty (30) days after its presentation before the Puerto Rico Department of State, pursuant to Article 2.8 of Act 170-1988, as amended, known as *Standardized Administrative Procedures Law.*

Edwin A. Irizarry Lugo, Esq., P.E.
Executive Director
Office of Permits Management