

DEPARTMENT OF MUNICIPAL AFFAIRS



دائرة الشؤون البلدية

بلدية المنطقة الغربية
WESTERN REGION MUNICIPALITY

بلدية مدينة العين
AL AIN CITY MUNICIPALITY

بلدية مدينة أبوظبي
ABU DHABI CITY MUNICIPALITY

User Guide
for the :

International Building Codes in the Emirate of Abu Dhabi



U.A.E
ABU DHABI

International Building Code

International Residential Code

International Fire Code

International Energy
Conservation Code

International Plumbing Code

International Private
Sewage Disposal Code

International Mechanical Code

International Fuel
Gas Code

International Wildland-Urban
Interface Code

International Existing
Building Code

ICC Performance Code

International Property
Maintenance Code

International Zoning Code



Abu Dhabi Guide to the use of: the International Building Codes

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by

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and

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The Higher Building Code Committee:

Department of Municipal Affairs
Abu Dhabi Municipality
Al Ain Municipality
Western Region Municipality
Environment Agency, Abu Dhabi
Abu Dhabi Urban Planning Council
Abu Dhabi Tourism Authority
Abu Dhabi Water & Electricity Authority
Abu Dhabi Future Energy Company (MASDAR)
Abu Dhabi Police/ Directorate General of Civil Defence
Zones Corps
Abu Dhabi Quality and Conformity Council

Preface

Abu Dhabi Guide to the use of the International Building Codes

Introduction

This Abu Dhabi Building Codes Guide, is designed to meet the needs of the community through code regulations that safeguard the public health and safety in all communities, large and small.

This locally developed Code Guide, used in conjunction with the adopted building codes, establishes minimum regulations for prescriptive and performance-related provisions as they apply to the Emirate of Abu Dhabi. It is founded on broad-based principles that make possible the use of new materials, building designs and methods of construction. This Code Guide is fully compatible with all the adopted model *International Codes*[®] (I-Codes[®]) as published by the International Code Council (ICC)[®].

The provisions within this Code Guide, have been reviewed and customized for local conditions through the efforts of work groups composed of fire safety, structural, architectural, civil and mechanical/plumbing professionals and other stakeholders that reviewed the performance and prescriptive code requirements found in the adopted codes.

Development of the Abu Dhabi Building Codes Guide

This first edition of the *Abu Dhabi Building Codes Guide* is the culmination of an effort initiated by the Emirate of Abu Dhabi's Department of Municipal Affairs (DMA). The DMA formed the work groups referenced above which also included representation from the three municipalities of the Emirate, governmental and semi-governmental agency personnel and representative of associated industries. The intent was to develop a comprehensive guide to the adopted model codes which can assist designers, builders and regulators in the proper application of the codes. Future editions of the adopted codes will be similarly reviewed and customized for adoption within the Emirate.

Adoption of the Codes for the Emirate of Abu Dhabi

The use of these codes within the Abu Dhabi Emirate, along with this Building Codes Guide, is accomplished through adoption by reference in accordance with proceedings established by the Emirate's jurisdictional laws. Through the adoption of the International Codes and the Building Codes Guide, the Abu Dhabi Emirate has established the provisions and laws necessary for the application and enforcement of these provisions across the Emirate as well as the appropriate judicial proceedings for correcting any violations of the adopted codes.

Code Adoption Phasing

The code development and adoption process will be accomplished in three phases.

Phase I

The adoption of the International Codes and this Code Guide, with the minimum of required amendments to be effective.

Phase II

In order to produce customized codes for Abu Dhabi Emirate that will address all local conditions, the International Codes will be thoroughly studied by local technical committees which will then develop any additional amendments needed to fully customize the model codes as appropriate for the Emirate of Abu Dhabi. This amendment process is expected to take 12 – 18 months.

Phase III

The amendments from phase II will then be integrated into the model International Codes and published to form the first edition of the Emirate of Abu Dhabi Building Codes.

Technical Committees

The amendment process in Phase II will be accomplished via technical committees whose members will consist of local government personnel, as well as those from academia, consulting firms, oil industry, major developers and

stakeholders within the Abu Dhabi Emirate. The responsibilities of the technical committees are to identify and draft the required amendments to the International Codes to achieve construction codes that are customized specifically for Abu Dhabi Emirate.

Proposed technical committees will include but may not be limited to:

- Administrative Code
- Building - Architectural Life Safety
- Building - Structural, IBC Chapters 16-26
- Accessibility
- Energy Conservation/Sustainability
- Fire Code
- Plumbing/Private Sewage Disposal Code
- Fuel Gas Code
- Mechanical Code
- Property Maintenance Code
- Green Construction Code
- Residential Code
- Electrical Code

Maintenance of the Abu Dhabi Building Codes Guide

The Abu Dhabi Building Codes will be kept up to date through the review of proposed changes submitted by code professionals, industry representatives, design professionals and other interested parties. Proposed changes will be carefully considered through an open code development process in which all interested and affected parties may participate.

The content of this work is subject to change both through the code development process or by the Emirate of Abu Dhabi as it may deem appropriate. The code development process in the Abu Dhabi Emirate will include an open public discussion followed by approval, modification or rejection of code changes which may be proposed.

Identification of Amended Language

Where language appears in this Code Guide as underlined, it represents language that is ADDED to the applicable code section. Where language appears with a ~~striketrough~~, it represents language that is DELETED from the applicable code section.

In the adopted model International Codes, solid vertical lines in the margins within the body of the codes indicate a technical change from the requirements of the previous edition. Deletion indicators in the form of an arrow (▸) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or in a table has been deleted.

Coordination between the International Codes

The model codes are adopted here as a family of complementary codes. When adopted together, as they are by the Abu Dhabi Emirate, there should be no conflict of any of the technical provisions. As multiple model codes are adopted by the Abu Dhabi Emirate, should a question of enforcement authority occur, the Department of Municipal Affairs will evaluate the issue in order to establish the appropriate enforcement agency.

Italicized Terms

Selected terms set forth in the definitions chapters of the adopted codes, are italicized where they appear in code text. Such terms are not italicized where the definition set forth in the definitions chapter does not impart the intended meaning in the use of the term. The terms selected have definitions which the user should read carefully to facilitate better understanding of the codes. Definition added to the adopted codes are identified in this Code Guide listed under the code or codes effected by those definitions.

Effective Use of the Abu Dhabi Building Codes Guide

This Code Guide, provides the user with the tools necessary to research and identify code requirements that safeguard the public health, safety and general welfare of the occupants of new and existing buildings and structures. Each of the adopted model codes, in the preface or introduction, contains information as to how to use them effectively. These sections should be thoroughly researched and studied to insure the codes are being applied properly.

Arrangement and Format of the 2009 Editions of the International Codes

Before applying the requirements of the Code Guide and the adopted International Codes, it is beneficial to understand the arrangement and formatting of the individual codes. The International Codes are arranged and organized to follow sequential steps that generally occur during a design, plan review or inspection procedure. Users should gain a better

understanding of the requirements outlined in each document by researching the contents of all applicable code sections.

Training

The Department of Municipal Affairs in collaboration with the International Code Council (ICC) and local colleges and universities has been, and will continue to provide the necessary training programs for all affected professionals, public and private, in order to assure a smooth transition to these adopted codes. Available training has been provided with interactive classroom instruction by highly qualified ICC instructors as well as through online courses and webinars. A structured training and “professional certification” program is also being offered for municipal employees and construction professionals in order to insure a high level of professional competence is achieved throughout the Emirate.

Instructions

Abu Dhabi Guide for the use of the International Building Codes

Introduction

These instructions are intended to assist the reader of the Abu Dhabi Guide in establishing the most effective method of researching and resolving code questions, understanding code definitions or reviewing and accepting materials or systems considered for use in the construction of buildings. The reader should use a research method that best suits their needs and produces a solution consistent with the spirit and intent of the adopted codes. The reader should keep in mind that the codes are arranged, formatted and organized to follow the sequential steps typical to a plan review or inspection procedure. The reader is also encouraged to identify, within the individual code books, the location of the amended language contained in this Code Guide in order to make the code research process more efficient. By doing so the reader can then be directed to this Guide for the current adopted language.

Complete administrative provisions for all the adopted codes are contained in their entirety within this Code Guide. The administrative chapters printed in the adopted ICC model codes are not adopted and have been replaced by the administrative sections in this Code Guide.

Definition of Terms

All terms that are defined in the code are listed alphabetically in the definitions chapter of the individual codes. Definitions

added to the Code Guide are listed in the amendment section of each of the adopted codes contained in this guide.

Where understanding of a term's definition is especially key to or necessary for understanding of a particular code provision, the term is shown in *italics* wherever it appears in the code. This is true only for those terms that have a meaning that is unique to the code. In other words, the generally understood meaning of a term or phrase might not be sufficient or consistent with the meaning prescribed by the code; therefore, it is essential that the code-defined meaning be known.

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

Where terms are not defined in this guide or within a particular adopted code yet are defined in another adopted code, such terms shall have the meanings ascribed to them as shown in those codes. Where terms are not defined in the codes, such terms shall have ordinarily accepted meanings such as the context implies.

Use of the International System of Units (SI or Metric System) in the Adopted Codes

Code users will find the International System of Units or “metric” equivalent of the decimal units where measurements appear throughout the codes. While these notations are intended to assist the user of the codes in computations, the reader is cautioned to insure their computations are correct equivalents. Mixing of the different accounting systems can and does lead to errors which can lead to incorrect code interpretations or application. Which ever system is used in computations, it should be used throughout the process to determine the correct computation and thus the correct code solution.

The user of these codes and this guide is cautioned to recognize the availability of construction materials or products which may be limited when sizes are being converted from Imperial units to the metric equivalent. As such, the user should use the appropriate computation system which is based upon the availability of materials or products so as to assure design accuracy.

The full conversion of the adopted codes to the International Systems of Units (SI) is forthcoming in 2011.

Design Standards

Each of the codes adopted by the Emirate of Abu Dhabi recognizes specific design or material standards which are acceptable for construction materials, methods or products for compliance with these codes. These acceptable standards are published as part of the code and are referenced within each.

The Emirate of Abu Dhabi also recognizes other International standards currently referenced within the Emirate. It is the intent of the DMA to assure the quality of products or construction methods used within the Emirate to be equal in strength, safety and performance as those products or methods produced to those standards listed within the adopted model codes. The International standards which may also be considered are listed by subject matter on the Emirates Authority for Standardization and Metrology (ESMA) web site at www.esma.ae . ESMA is a Federal UAE Authority established by Federal Law 28, 2001.

Evaluation of Products, Construction Materials or Methods Not Listed in the Recognized or Accepted Standards

In order to allow for new, innovative or alternate methods of construction, products, materials or building systems or components, the building code official and or the fire code official may approve such items not specifically listed in the accepted standards provided the items, in the opinion of the code official, meets or exceeds the quality or performance prescribed in the accepted standard as determined from results of testing and evaluation. The process for the evaluation of products, materials or construction methods will depend on the individual items being evaluated however this process should include, but is not limited to, engineering reports from approved agencies, comparative studies of similar materials from an approved agency, test reports from an *approved* testing laboratories or other official documentation or testing as may be required by the code official. Refer to sections 104.11 thru 104.12.7.2 of the Building Code Administrative provisions and

sections 104.7 thru 104.9.2 of the Fire Code Administrative provisions to insure compliance.

Acceptable testing agencies and laboratories are recognized by the Emirates Authority for Standardization and Metrology. ESMA established a national accreditation system in accordance with the latest standards in 2004. The authority activated and operates the Emirates National Accreditation System (ENAS) in accordance with the Executive regulation of ENAS (ref. the decision of Council of Ministers NO.: 351/5/2004, dated 24/5/2004). The Emirates National Accreditation system functions as the formal body recognized by ESMA which certifies that all testing or assessment agencies are competent to carry out the specific assessment tasks.

When submitting products or materials for evaluation, code officials and consultants should use the services of the International Code Council-Evaluation Service (ICC-ES), a service available to the code official or consultants which evaluates and lists construction products or systems which are deemed code compliant. An ICC-ES listing report for a product or system is a no cost yet valuable tool for designers and regulators in assuring the use code compliant materials or systems. The cost of an ICC-ES listing is borne by the manufacturer, are periodically updated when codes or manufacturing methods change, yet assure an efficient approval process by the code official when such materials or systems are specified for a construction project.

The newly established Abu Dhabi governments Quality and Conformity Council (QCC) will regulate testing laboratories and building material products in the Emirate of Abu Dhabi.

Summary

Every effort has been made to produce a code guide that the reader will find easy to understand and apply to the particular code issue. It is very important that users of this guide identify the amended code language in the model code documents to ensure the correct language is being reviewed and applied to a code issue. It is also important to ensure that complete and thorough research of all code issues take place in order to provide a correct solution to code issues.

Definitions/Acronyms

ACES- Arab Center for Engineering Studies, Abu Dhabi (IAS Accredited)

ECAS- Emirates Conformity Assessment Scheme (part of ESMA)

ENAS - Emirates National Accreditation System (part of ESMA)

ESMA- Emirates Standardization and Metrology Authority

IAS- International Accreditation Service (part of the ICC family)

ICC- International Code Council

ICC-ES- International Code Council Evaluation Service

ILAC - International Laboratory Accreditation Corporation

ISO – International Organization of Standards (ESMA is a member)

Abu Dhabi Building Codes Guide

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Administrative Provisions

Abu Dhabi Administrative Provisions
for the:

International Building Code
International Energy Conservation Code
International Mechanical Code
International Plumbing Code
International Fuel Gas Code
International Private Sewage Disposal Code

EMIRATE OF ABU DHABI ADMINISTRATIVE CODE

Edition 2011, Version 1
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A. SCOPE AND ADMINISTRATION

NOTE: This section provides the administrative standards which are applicable to the Building, Energy Conservation, Mechanical, Plumbing, Private Sewage Disposal and Fuel Gas Codes which are typically enforced by the Department of Building Safety. See Section 1, Part B for administrative provisions that apply to the Fire Code and which are typically enforced by the Department of Fire Prevention. See Section 1, Part C for administrative provisions applicable to the Property Maintenance Code which is typically enforced by the Department of Building Safety.

PART 1—SCOPE AND APPLICATION

SECTION 101 GENERAL

101.1 Title. These regulations shall be known as the *Building Codes* of the Emirate of Abu Dhabi, 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.

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

101.2.2 Private Sewage Disposal Systems - Scope. Septic tank and effluent absorption systems or other treatment tank/holding 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 or a system on a parcel other than the parcel where the structure is located shall be subject to the full requirements of the Private Sewage Disposal Code for systems serving public buildings.

101.2.2.1 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.

101.2.2.2 Abandoned systems. Abandoned *private sewage disposal systems* shall be plugged or capped in an approved manner. Abandoned treatment tanks, holding tanks and *seepage pits* shall have the contents pumped and discarded in an approved manner. The top or entire tank shall be removed

and the remaining portion of the tank or excavation shall be filled immediately.

101.2.2.3 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 as required by the code official, but such period shall not exceed 1 year.

101.2.2.4 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*.

101.2.3 Fuel Gas Systems. These regulations cover *pipng* systems for natural gas with an operating pressure of 2bars (29 psi) or less, and for LPG/SNG (Substitute Natural Gas) at vapor phase with an operating pressure of 20 psig (137.9 kPa gauge) or less, except as provided in Section 402.6 of the Fuel Gas Code. 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.

The scope includes the design, construction, testing, and purging of installation pipe-work for odorized gas (NG/LPG/SNG) at vapor phase with a maximum operating pressure not exceeding:

1. For residential and/or commercial multi-occupancy buildings the maximum pressure within the system shall not exceed 75 mbar (1 psi). Pressure to appliance shall be reduced to 21 mbar (0.3 psi) for natural gas and SNG and to 37 mbar (0.5 psi) for LPG.
2. When approved by the Administrative Authority, gas lines within the envelope of a high rise, multi-family or multi-occupancy structure may not exceed 350 mbar (5 psi) provided steel piping is used and all joints are welded. In addition to required pressure testing in accordance with section 406 for the Fuel Gas Code, all joints shall undergo special inspection and non-destructive testing (NDT) by an approved third party testing laboratory.
3. Operating pressure for industrial buildings shall not exceed 2 bar (29 psi).

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.

The Energy Code regulates the design and construction of buildings for the effective use of energy and is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy. It is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

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.

Where approved by the building official, provisions from other model International Codes published by the International Code Council may be used to comply with the intent of this code, provided such approval does not lessen health, accessibility, life and fire safety, or structural requirements.

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.

101.4.1.1 Systems, appliances and equipment outside the scope. The Fuel Gas 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 *pipng* for buildings under construction or renovation that is not to become part of the permanent *pipng* 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 IPC Section 401.1.1, gas *pipng*, 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. *Pipng* systems for mixtures of gas and air within the flammable range with an operating pressure greater than 20 psig (138 kPa gauge).
19. Portable fuel cell appliances that are neither connected to a fixed *pipng* system nor interconnected to a power grid.
20. SNG plant.

101.4.1.2 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*.

101.4.2 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 Uniform *Plumbing Code – Abu Dhabi (UPC-AD)* as published by the Abu Dhabi Environmental Agency and/or the Water Supply Regulations, January, 2009 (WSR) as published by the Regulation and Supervision Bureau, 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.

The International Plumbing Code (IPC) may be used as a complimentary to the codes referenced in this section.

101.4.4 Property Maintenance. The provisions of the *International Property Maintenance Code* and section 3401.2 of the building code, shall apply to existing structures and premises; equipment and facilities; light, ventilation, space heating, sanitation, life and fire safety hazards; responsibilities of owners, operators and occupants; and occupancy of existing premises and structures.

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.

101.4.6.1 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 the Energy Code. Where the use in a space changes from one to another as shown in Table 505.5.2 of the Energy code, the installed lighting wattage shall comply with section 505.5 of the Energy code.

101.4.6.2 Change in space conditioning. Any unconditioned space that is altered to become *conditioned space* shall be required to be brought into full compliance with the Energy code.

101.4.6.3 Mixed Occupancy. Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of the Energy Code Chapter 4 for residential occupancies and Chapter 5 for commercial occupancies.

101.4.6.4 Compliance. *Residential buildings* shall meet the provisions of the Energy Code Chapter 4 and *Commercial buildings* shall meet the provisions of Chapter 5.

101.4.6.4.1 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.

101.4.6.4.2 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*.

101.5 Required Signage. Signage required by these codes shall utilize approved internationally recognized pictographic symbols and/or be printed in Arabic and English. Unless otherwise specified, characters shall be not less than 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide and utilize an approved contrasting background.

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, Emirate of Abu Dhabi or United Arab Emirate law.

The contents of this document shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

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 these codes and referenced codes and standards, the provisions of these codes shall apply.

The Building Official may approve products, materials and building systems or components that are manufactured to the latest editions of international standards other than those referenced within these codes when, in his opinion, such products meet or exceed the referenced standards. In the event another standard is used, the designer shall be limited to the provisions within that standard and shall not intermingle provisions from any other similar standard.

Exception: Where enforcement of a Mechanical 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.

102.5 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 and its electrical, mechanical, plumbing, fuel gas or private sewage disposal systems which were existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in these adopted codes, *the International Property Maintenance Code* or 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.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 103 DEPARTMENT OF BUILDING SAFETY

103.1 Creation of enforcement agency. The Department of Building Safety is hereby created and the official in charge thereof shall be known as the *building official*.

103.2 Appointment. The *building official* shall be appointed by the chief appointing authority of the jurisdiction.

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*. For the maintenance of existing properties, see the *International Property Maintenance Code* and Chapter 34 of the Building Code.

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 erection, and *alteration*, demolition and moving of buildings and structures, 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* shall make all of the required inspections, or the *building official* shall have the authority to accept reports of inspection by *approved agencies* or individuals. Reports of such inspections shall be in writing 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* 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* 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 code official shall have first 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.

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*, 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 laws or ordinances, 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 initiated 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* 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* 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 *approved* by the *building official*.

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 or owner's representative, provided the *building official* shall first find that special individual reasons 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 department of building safety.

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction 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 assemblies, plumbing or mechanical fixtures, appliances or devices not specifically

provided for in this code, shall consist of valid research reports from *approved* sources.

104.11.1.1 Evaluation and follow-up inspection services.

Prior to the approval of a fixture, appliance, service equipment, device or accessory, a prefabricated plumbing or mechanical system or construction assembly and the issuance of a permit, the code official shall require the submittal of an evaluation report on each system or device indicating the complete details of the system, including a description of its components, the basis upon which the system is being evaluated, test results and similar information, and other data as necessary for the code official to determine conformance to these codes.

104.11.1.2 Evaluation service. The code official shall designate the evaluation service of an *approved* agency as the evaluation agency, and review such agency's evaluation report for adequacy and conformance to these codes.

104.11.1.3 Follow-up inspection. Except where ready *access* is provided to installations, appliances, service equipment and accessories, plumbing or mechanical systems for complete inspection at the site without disassembly or dismantling, the code official shall conduct the frequency of in-plant inspections necessary to ensure conformance to the *approved* evaluation report or shall designate an independent, *approved* inspection agency to conduct such inspections. The inspection agency shall furnish the code

official with the follow-up inspection manual and a report of inspections upon request, and the appliance, equipment or system shall have an identifying label permanently affixed to it indicating that factory inspections have been performed.

104.11.1.4 Test and inspection records. Required test and inspection records shall be available to the code official at all times during the fabrication of the installation and the erection of the building; or such records as the code official designates shall be filed.

104.11.2 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method 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 Alternative Engineered Design – Plumbing Systems. The design, documentation, inspection, testing and approval of an *alternative engineered design* plumbing system shall comply with Sections 104.12.1 through 104.12.7.

104.12.1 Design criteria. An *alternative engineered design* shall conform to the intent of the provisions of this code and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability and safety. Material, equipment or components shall be designed and installed in accordance with the manufacturer's installation instructions.

104.12.2 Submittal. The registered design professional shall indicate on the permit application that the plumbing system is an *alternative engineered design*. The permit and permanent permit records shall indicate that an *alternative engineered design* was part of the *approved* installation.

104.12.3 Technical data. The registered design professional shall submit sufficient technical data to substantiate the proposed *alternative engineered design* and to prove that the performance meets the intent of this code.

104.12.4 Construction documents. The registered design professional shall submit to the code official two or more complete sets of signed and sealed construction documents for the *alternative engineered design*. The construction documents shall include floor plans and a riser diagram of the work. Where appropriate, the construction documents shall indicate the direction of flow, all pipe sizes, grade of horizontal piping, loading, and location of fixtures and appliances.

104.12.5 Design approval. Where the code official determines that the *alternative engineered design* conforms to the intent of

this code, the plumbing system shall be *approved*. If the *alternative engineered design* is not *approved*, the code official shall notify the registered design professional in writing, stating the reasons thereof.

104.12.6 Inspection and testing. The *alternative engineered design* shall be tested and inspected in accordance with the requirements of Section 110 and of Section 312 of the Plumbing Code.

104.12.7 Special inspections. Special inspections of *alternative engineered design* plumbing systems shall be conducted in accordance with Sections 104.12.7.1 and 104.12.7.2.

104.12.7.1 Periodic inspection. The registered design professional or designated inspector shall periodically inspect and observe the *alternative engineered design* to determine that the installation is in accordance with the *approved* construction documents. All discrepancies shall be brought to the immediate attention of the plumbing contractor for correction. Records shall be kept of all inspections.

104.12.7.2 Written report. The registered design professional shall submit a final report in writing to the code official upon completion of the installation, certifying that the *alternative engineered design* conforms to the *approved* construction documents. A notice of approval for the

plumbing system shall not be issued until a written certification has been submitted.

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(s)*.

105.1.1 Annual permit. In lieu of an individual *permit* for each *alteration* to an already *approved* electrical, gas, mechanical or plumbing installation, the *building official* is authorized to issue an annual *permit* upon application therefore 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 permit records. The person to whom an annual *permit* is issued shall keep a detailed record of *alterations* made under such annual *permit*. The *building official* shall have access to such records at all times or such records shall be filed with the *building official* as designated.

105.1.3 Private sewage disposal system. Prior to construction or installation of a private sewerage disposal system, a permit shall be obtained from the Abu Dhabi Sewerage Services Company (ADSSC). The application for such permit shall include construction documents as specified in section 107.2.1.3, and a maintenance/servicing program for systems which utilize a storage tank rather than a septic tank and disposal system. Permits may be issued as provided for in sections 105.1.3.1 and 105.1.3.3

105.1.3.1 Emergency use. A permit for the temporary installation of a storage tank may be issued for a residential or commercial occupancy in order to maintain an existing sanitary system when repair or replacement sewerage systems are delayed as a result of conditions beyond the control of the contractor.

105.1.3.2 Permanent use. A permit for the permanent installation of a private sewerage disposal system may be issued in accordance with section 101.2 for the following:

- i. For controlled, part time commercial usage which may include, but not be limited to recreational vehicle parks, dump stations, campgrounds and marinas, etc.
- ii. Single family dwellings and duplexes.

105.1.3.3 Operational permit. An operational permit shall be issued in accordance with section 805.10 of the Private Sewerage Disposal Code when holding tanks are installed.

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 the following:

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet (11 m²).
2. Fences or walls not over 6 feet (1829 mm) high and not constructed of masonry or concrete materials.
3. Oil derricks.
4. Water tanks supported directly on grade if the capacity does not exceed 5,000 gallons (18 925 L) and the ratio of height to diameter or width does not exceed 2:1.
5. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or *story* below and are not part of an *accessible route*.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Temporary motion picture, television and theater stage sets and scenery.
8. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, do

- not exceed 5,000 gallons (18 925 L) and are installed entirely above ground.
9. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
 10. Swings and other playground equipment accessory to detached one- and two-family *dwelling*s.
 11. Window *awnings* supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support of Groups R-3 and U occupancies.
 12. Non-fixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

1. Listed cord-and plug-connected temporary decorative lighting.
2. Reinstallations of attachment plug receptacles, but not the outlets therefore.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Temporary wiring for experimental purposes in suitable experimental laboratories.
5. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
6. Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

7. Radio and television transmitting stations: The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.
8. Temporary testing systems: A *permit* shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation appliances and equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment or appliances regulated by this code.
5. Replacement of any minor part that does not alter ~~its~~ the approval of equipment or an appliance or make ~~it~~ such equipment or appliance unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (5 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less.
8. Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

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 or notice 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 therefore in writing, with the required fee on a form furnished by the department of building safety for that purpose. 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, physical location 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. Indicate the number of bedrooms for residential occupancies.

8. Give such other data and information as required by the *building official*.

105.3.1 Action on application. The *building official* shall examine or cause to be examined applications for *permits* and amendments thereto within a reasonable time after filing. If the application or the *construction documents* do not conform to the requirements of pertinent laws, the *building official* shall reject such application in writing, stating the reasons therefore. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and laws and ordinances applicable thereto, the *building official* shall issue a *permit* therefore as soon as practicable.

105.3.2 Time limitation of application. An application for a *permit* for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a *permit* has been issued; except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

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 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.

105.4.1 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding 180 days if there is reasonable cause. The fee for an extension shall be one-half the amount required for a new permit for such work.

105.5 Expiration. Every *permit* issued shall become invalid unless the work on the site authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized on the site by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated. Before such work recommences, a new permit shall be first obtained and the fee, therefore, shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made to the original *construction documents* for such work.

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 100 psf (4.80 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. A certificate of occupancy required by Section 111 shall not be issued until the floor load signs, required by Section 106.1, 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 two or more sets with each *permit* application or as may be required by local policy. 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.

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 to scale upon suitable material. Electronic media documents are permitted to be submitted when *approved* by the *building official*. *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*.

107.2.1.1 Penetrations. *Construction documents* shall indicate where penetrations will be made for electrical systems and shall indicate the materials and methods for maintaining required structural safety, *fire-resistance rating* and *fireblocking*.

107.2.1.2 Load calculations. Where an *addition* or *alteration* is made to an existing electrical system, an electrical load calculation shall be prepared to determine if the existing electrical service has the capacity to serve the added load.

107.2.1.3 Specifications. For private sewage disposal systems, specifications shall include, as applicable, pumps and controls, dose volume, elevation differences (vertical lift), pipe friction loss, pump performance curve, pump model, and pump manufacturer.

Construction documents for a private sewerage disposal system which employs holding tanks shall also include the following:

- i. Service contract, as may be required by the Abu Dhabi Sewerage Services Company. The service

contract shall include the frequency of pumping; either as scheduled or a call-for-service.

- ii. Maintenance program as required by section 107.2.1.5.
- iii. As may be required by the Abu Dhabi Sewage Services Company (ADSSC) a financial guarantee in the form of a bond or assignment of funds. Such guarantee shall be not less than an amount equal to the service costs for a one (1) year period of time.

107.2.1.4 Energy Code Documentation. For purposes of compliance with the Energy code, details on submittal documents shall include, but are not limited to, as applicable, insulation materials and their *R*-values; fenestration *U*-factors and SHGCs; area-weighted *U*-factor and SHGC calculations; mechanical system design criteria; mechanical and service water heating system and equipment types, sizes and efficiencies; economizer description; equipment and systems controls; fan motor horsepower (hp) and controls; duct sealing, duct and pipe insulation and location; lighting fixture schedule with wattage and control narrative; and air sealing details.

107.2.1.5 Maintenance Program. A maintenance program as required by section 3401.2.1 of the Building Code shall be submitted when required by the Building Official.

For private sewage disposal systems, a maintenance program as required by the Private Sewage Disposal Code section

805.9 shall be submitted when required by the Building Official.

107.2.1.6 Fuel Gas Systems. In addition to construction documents typical of a fuel gas installation, the applicant shall submit a piping and instrumentation diagram (P&ID) in accordance with section 401.9 of the Fuel Gas Code to the Building Official as part of the permit application.

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 Building Code.

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; for private sewage disposal systems, septic tanks, holding tanks or other treatment tanks, building sewers, wells, water mains, water service, streams and lakes, dosing or pumping chambers, distribution boxes, effluent systems, dual disposal systems, and replacement system areas; 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. The *building official* is authorized to waive or modify the

requirement for a site plan when the application for *permit* is for *alteration* or repair or when otherwise warranted.

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_of the Building Code.

107.2.5.2 Soil data. For private sewage disposal systems, soil test reports shall be submitted indicating *soil boring* and percolation test data related to the undisturbed and finished grade elevations, vertical elevation reference point and horizontal reference point. Surface elevations shall be given for all *soil borings*. Soil reports shall bear the signature of a soil tester.

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* issues a *permit*, the *construction documents* shall be *approved*, in writing or by stamp, as "Reviewed for Code Compliance." One set of *construction documents* so reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the *building official* or a duly authorized representative. Such *approved construction*

documents shall not be changed, modified or altered without authorization from the building official. Work shall be performed in accordance with the *approved construction documents*.

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 within 180 days after the effective date of this code and has not been abandoned.

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, or any system or element thereto, 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, or system or element thereto 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 Design professional in responsible charge.

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.

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

107.3.4.2 Deferred submittals. For the purposes of this section, deferred submittals are defined as 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.

Deferral of any submittal items shall have the prior approval of the *building official*. The *registered design professional in responsible charge* shall list the deferred submittals on the *construction documents* for review by the *building official*.

Documents for deferred submittal items shall be submitted to the *registered design professional in responsible charge* who shall review them and forward them to the *building official* with a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been *approved* by the *building official*.

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 resubmitted for approval as an 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 not less than 180 days from date of completion of the permitted work, or as required by Emirate laws.

107.6 Alternative Engineered Design – Electrical Systems

107.6.1 General. The design, documentation, inspection, testing and approval of an alternative engineered design electrical system shall comply with this section.

107.6.2 Design criteria. An alternative engineered design shall conform to the intent of the provisions of this code and shall

provide an equivalent level of quality, strength, effectiveness, *fire-resistance*, durability and safety. Materials, equipment or components shall be designed and installed in accordance with the manufacturer's installation instructions.

107.6.3 Submittal. The *registered design professional* shall indicate on the *permit* application that the electrical system is an alternative engineered design. The *permit* and permanent *permit* records shall indicate that an alternative engineered design was part of the *approved* installation.

107.6.4 Technical data. The *registered design professional* shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this code.

107.6.5 Construction documents. The *registered design professional* shall submit to the *building official*, or to the *Abu Dhabi Distribution Company (ADDC)* as designated by the Building Official, not less than two complete sets of signed and sealed *construction documents* for the alternative engineered design. The *construction documents* shall include floor plans and a diagram of the work.

107.6.6 Design approval. Where the *building official* or ADDC determines that the alternative engineered design conforms to the intent of this code, the electrical system shall be *approved*. If the alternative engineered design is not *approved*, the *building*

official, or ADDC shall notify the *registered design professional* in writing, stating the reasons there for.

107.6.7 Inspection and testing. The alternative engineered design shall be tested and inspected in accordance with the requirements of this code.

SECTION 108 TEMPORARY STRUCTURES AND USES

108.1 General. The *building official* is authorized to issue a *permit* for temporary structures, equipment, systems and uses. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause. See also Section 3103 of the Building Code.

108.2 Conformance. Temporary structures, equipment, systems 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 utilities. The *building official* is authorized to give permission to temporarily allow installation of one or more utility before such installation has been fully completed and the final certificate of completion has been issued. The utility covered by the temporary certificate shall be clearly specified and acknowledged that the system shall be maintained in a safe and sanitary condition.

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

SECTION 109 FEES

109.1 Payment of fees. A *permit* shall not be valid until the fees prescribed by law 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, plumbing, energy and private sewage disposal systems or *alterations* requiring a *permit*, a fee for each *permit* shall be paid as required, in accordance with the schedule as established by the applicable governing authority.

109.3 Building permit valuations. The applicant for a *permit* shall provide an estimated *permit* value at time of application as may be required by the municipality. *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. If, in the opinion of the *building official*, the valuation is underestimated on the application, the *permit* may be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*. 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, plumbing, energy or private sewage disposal system before obtaining the necessary *permits* shall be subject to 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. The *building official* shall not authorize the refunding of any fee paid, except upon written application filed by the original permittee not later than 180 days after the date of fee payment.

SECTION 110 INSPECTIONS

110.1 General. Construction or work for which a *permit* is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. 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 and exposed for inspection purposes. Neither the *building official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

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

110.3 Required inspections. The *building official*, upon notification, shall make the inspections set forth in Sections 110.3.1 through 110.3.12 as applicable to the scope of work designated on the issued permit.

110.3.1 Underground. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping and conductors installed and before backfill is put in place. Where excavated soil contains rocks, broken concrete, frozen chunks and other rubble that would damage or break the raceway, cable or conductors, or where corrosive action will occur, protection shall be provided in the form of granular or selected material, *approved* running boards, sleeves or other means.

Exception: Ground-source heat pump loop systems tested in accordance with Mechanical Code Section 1208.1.1 shall be permitted to be backfilled prior to inspection.

110.3.2 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. 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.

110.3.3 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor 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.

110.3.4 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 of the Building Code shall be submitted to the *building official*.

110.3.5 Rough-in. Rough-in inspection shall be made after the roof, framing, fireblocking and bracing are in place and all wiring, water, waste and storm water piping, ducting and other components to be concealed are complete, and prior to the installation of wall or ceiling membranes.

110.3.6 Frame inspection. Framing inspections shall be made after the roof deck or sheathing, all framing, *fireblocking* 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*.

110.3.7 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.

110.3.8 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*.

110.3.9 Energy efficiency inspections. Inspections shall be made to determine compliance with Chapter 13 of the Building Code 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.

110.3.10 Other inspections. In addition to the inspections specified above, the *building official* is authorized to make or require other inspections of any construction work to ascertain

compliance with the provisions of this code and other laws that are enforced by the department of building safety.

110.3.11 Special inspections. For *special inspections*, see Section 1704 of the Building Code.

Special inspections of alternative engineered design *private sewage disposal systems* shall be conducted in accordance with Sections 110.3.11.1 and 110.3.11.2.

110.3.11.1 Periodic inspection. The registered design professional or designated inspector shall periodically inspect and observe the alternative engineered design to determine that the installation is in accordance with the approved plans. All discrepancies shall be brought to the immediate attention of the *private sewage disposal system* contractor for correction. Records shall be kept of all inspections.

110.3.11.2 Written report. The registered design professional shall submit a final report in writing to the code official upon completion of the installation, certifying that the alternative engineered design conforms to the approved construction documents. A notice of approval for the *private sewage disposal system* shall not be issued until a written certification has been submitted.

110.3.12 Final inspection. The final inspection shall be made after all work required by the issued *permit* is completed.

The requirements of this section shall not be considered to prohibit the operation of any heating equipment or *appliance* installed to replace existing heating equipment or *appliances* serving an occupied portion of a structure provided that a request for inspection of such heating equipment or *appliances* has been filed with the department not more than 48 hours after such replacement work is completed, and before any portion of such equipment or *appliances* is concealed by any permanent portion of the structure.

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.

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* 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. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. The *building official*, 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 this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *building official*. A building shall be reinspected when determined necessary by the *code official*.

110.7 Contractor's responsibilities. It shall be the responsibility of every contractor who enters into contracts for the construction, installation or repair of buildings, structures or any system, appliance or equipment installed within a building or structure for which a *permit* is required to comply with all Emirate of Abu Dhabi rules and regulations concerning licensing.

110.8 Testing. Plumbing, fuel gas, mechanical and energy systems shall be tested as required in this code and in accordance with Sections 110.8.1 through 110.8.3. Tests shall be made by the permit holder and observed by the code official.

110.8.1 New, altered, extended or repaired installations. New installations and parts of existing installations, which have been altered, extended, renovated or repaired, shall be tested as prescribed herein to disclose leaks and defects.

110.8.2 Apparatus, instruments, material and labor for tests. Apparatus, instruments, material and labor required for testing an installation or part thereof shall be furnished by the permit holder.

110.8.3 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.

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 single family dwellings and duplexes or for work exempt from *permits* under Section 105.2.

111.2 Certificate issued. After the *building official* inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy that contains the following:

1. The building *permit* number.
2. The location of the structure.
3. The name and mailing address of the owner.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this

code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.

6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3 of the Building Code.
9. The type of construction as defined in Chapter 6 of the Building Code.
10. The design *occupant load*.
11. If an *automatic sprinkler system* is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building *permit*.

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.

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 *building official* 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* 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 serving utility, and wherever possible 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.

112.4 Authority to condemn installations. Whenever the code official determines that any system installation, or portion thereof, regulated by this code has become hazardous to life, health or

property, he or she shall order in writing that such installation either be removed or restored to a safe condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain a defective installation after receiving such notice.

When such installation is to be disconnected, written notice as prescribed in Section 114.2 shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

112.5 Connection after order to disconnect. A person shall not make utility service or energy source connections to systems regulated by this code, which have been disconnected or ordered to be disconnected by the *building official*, or the use of which has been ordered to be discontinued by the *building official* until the *building official* authorizes the reconnection and use of such systems.

When any system is maintained in violation of this code, and in violation of a notice issued pursuant to the provisions of this section, the code official shall institute appropriate action to prevent, restrain, correct or abate the violation.

SECTION 113 APPEALS

113.1 General. The General Manager of the municipality shall hear and decide appeals of orders, decisions or determinations made by

the *building official* relative to the application and interpretation of this code. The municipality shall adopt rules of procedure for conducting the business of hearing an appeal.

113.2 Limitations on authority. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The General Manager shall have no authority to waive requirements of this code.

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 or systems within 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 request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity 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.

The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; to prevent illegal occupancy of a building, structure or premises or to stop an illegal act, conduct, business or use of system or element on or about any premises.

SECTION 115 STOP WORK ORDER

115.1 Authority. Whenever the *building official* finds any work regulated by this code being performed in a manner either contrary

to the provisions of this code or dangerous or unsafe, the *building official* is authorized to issue a stop work order.

115.2 Issuance. The 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 stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume. Where an emergency exists, the building official shall not be required to give a written notice prior to stopping the work.

115.3 Unlawful continuance. Any person who shall continue any work after having been served with a 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.

SECTION 116 UNSAFE STRUCTURES AND EQUIPMENT

116.1 Conditions. Buildings, structures or any equipment or system installed within 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 unsafe. Unsafe structures shall be taken down and removed or made safe. Unsafe equipment or systems shall be repaired or replaced as the *building official* deems 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* 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* 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* 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 of the Building Code.

Abu Dhabi Administrative Provisions
for the:
International Fire Code

B. SCOPE AND ADMINISTRATION

NOTE: This section provides the administrative standards which are applicable to the Fire Code and which are typically enforced by the Department of Fire Prevention. See Section 1, Part A for administrative provisions applicable to the Building, Energy, Mechanical, Plumbing, Private Sewage Disposal and Fuel Gas Codes which are typically enforced by the Department of Building Safety. See Section 1, Part C for administrative provisions applicable to the Property Maintenance Code which is typically enforced by the Department of Building Safety.

PART 1—GENERAL PROVISIONS

SECTION 101 SCOPE AND GENERAL REQUIREMENTS

101.1 Title. These regulations shall be known as the *Fire Code* of the Emirate of Abu Dhabi, 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.

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.

101.4 Severability. If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be illegal, 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.

101.6 Required signage. Signage required by these codes shall utilize approved internationally recognized pictographic symbols and/or be printed in Arabic and English. Unless otherwise specified, characters shall be not less than 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide and utilize an approved contrasting background.

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 of the Fire Code.
4. Existing structures, facilities and conditions which, in the opinion of the Directorate General of Civil Defence, 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.

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 Building Codes of the Emirate of Abu Dhabi. Subject to the approval of the Directorate General of Civil Defence, 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 Building Codes of the Emirate of Abu Dhabi 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 Building Codes of the Emirate of Abu Dhabi, and any *alterations*, additions, changes in use or changes in structures required by this code, which are within the scope of the Building Codes of the Emirate of Abu Dhabi, shall be made in accordance therewith.

102.5 Application of residential code. Where structures are designed and constructed in accordance with the Building Codes of

the Emirate of Abu Dhabi 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 Section 105.7 of this code shall also apply.
2. Administrative, operational and maintenance provisions: All such provisions of this code shall apply.

102.6 Historic buildings. The provisions of this code relating to the construction, *alteration*, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the Emirate of Abu Dhabi or the Federal Government as historic buildings when such buildings or structures do not constitute a distinct hazard to life or property. Fire protection in designated historic buildings and structures shall be provided in accordance with an *approved* fire protection plan.

102.7 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in Fire Code 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.

The Fire Official may approve products, materials, system components and construction methods that are in compliance with the latest editions of international standards other than those referenced within when, in his opinion, such products or methods meet or exceed the referenced standards. In the event another approved standard is used, the provisions within that standard shall apply with no intermingling of provisions from any other similar standard.

Where approved by the Fire Official, provisions from other model International Codes published by the International Code Council may be used to comply with the intent of this code, provided such approval does not lessen life or fire safety.

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 jurisdiction, 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 Directorate General of Civil Defence to determine compliance with codes or standards for those activities or installations within the Directorate General of Civil Defence'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 Directorate General of Civil Defence.

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, Emirate of Abu Dhabi or federal law.

The contents of this document shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

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 2—ADMINISTRATIVE PROVISIONS

SECTION 103 DEPARTMENT OF FIRE PREVENTION

103.1 General. The Department of Fire Prevention is established within the jurisdiction under the direction of the Directorate General of Civil Defence. The function of the department shall be the implementation, administration and enforcement of the provisions of this code.

103.2 Appointment. The Directorate General of Civil Defence shall be appointed by the chief appointing authority of the jurisdiction; and the Directorate General of Civil Defence shall not be removed from office except for cause and after full opportunity to be heard on specific and relevant charges by and before the appointing authority.

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the Directorate General of Civil Defence shall have the authority to appoint a deputy *fire code official*, other related technical officers, inspectors and other employees.

103.4 Liability. The Directorate General of Civil Defence, officer 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 all personal liability for any damage accruing

to *persons* or property as a result of an act or by reason of an act or omission in the discharge of official duties.

103.4.1 Legal Defence. Any suit instituted against any 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 the legal representative of the jurisdiction until the final termination of the proceedings. The Directorate General of Civil Defence or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code; and any officer of the department of fire prevention, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith.

SECTION 104 GENERAL AUTHORITY AND RESPONSIBILITIES

104.1 General. The Directorate General of Civil Defence is hereby authorized to enforce the provisions of this code and shall have the authority to render interpretations of this code, and to adopt policies, procedures, rules and regulations in order to clarify the application of its provisions.

The Directorate General of Civil Defence is the Authority Having Jurisdiction over Fire Code requirements and is the fire code official as defined in this code.

104.2 Applications and permits. The Directorate General of Civil Defence is authorized to receive applications, review *construction documents* and issue permits for construction regulated by this code, issue permits for operations regulated by this code, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

104.3 Right of entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the Directorate General of Civil Defence has reasonable cause to believe that there exists in a building or upon any premises any conditions or violations of this code which make the building or premises unsafe, dangerous or hazardous, the Directorate General of Civil Defence shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the Directorate General of Civil Defence by this code. If such building or premises is occupied, the Directorate General of Civil Defence shall present credentials to the occupant and request entry. If such building or premises is unoccupied, the Directorate General of Civil Defence shall first make a reasonable effort to locate the *owner* or other *person* having charge or control of the building or premises and request entry. If entry is refused, the Directorate General of Civil Defence has recourse to every remedy provided by law to secure entry.

104.3.1 Warrant. When the Directorate General of Civil Defence has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner* or occupant or *person* having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as

herein provided, to permit entry therein by the Directorate General of Civil Defence for the purpose of inspection and examination pursuant to this code.

104.4 Identification. The Directorate General of Civil Defence shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

104.5 Notices and orders. The Directorate General of Civil Defence is authorized to issue such notices or orders as are required to affect compliance with this code in accordance with Sections 109.1 and 109.2.

104.6 Official records. The Directorate General of Civil Defence shall keep official records as required by Sections 104.6.1 through 104.6.4. Such official records shall be retained for not less than five years or for as long as the structure or activity to which such records relate remains in existence, unless otherwise provided by other regulations.

104.6.1 Approvals. A record of approvals shall be maintained by the Directorate General of Civil Defence and shall be available for public inspection during business hours in accordance with applicable laws.

104.6.2 Inspections. The Directorate General of Civil Defence shall keep a record of each inspection made, including notices and orders issued, showing the findings and disposition of each.

104.6.3 Fire records. The fire department shall keep a record of fires occurring within its jurisdiction and of facts concerning the same, including statistics as to the extent of such fires and the damage caused thereby, together with other information as required by the Directorate General of Civil Defence.

104.6.4 Administrative. Application for modification, alternative methods or materials and the final decision of the Directorate General of Civil Defence shall be in writing and shall be officially recorded in the permanent records of the Directorate General of Civil Defence.

104.7 Approved materials and equipment. All materials, equipment and devices *approved* by the Directorate General of Civil Defence shall be constructed and installed in accordance with such approval.

104.7.1 Material and equipment reuse. Materials, equipment and devices shall not be reused or reinstalled unless such elements have been reconditioned, tested and placed in good and proper working condition and *approved*.

104.7.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to inspection by the Directorate General of Civil Defence, the Directorate General of Civil Defence is authorized to require the *owner* or agent to provide, without charge to the jurisdiction, a technical opinion and report. The opinion and report shall be prepared by a qualified engineer, specialist,

laboratory or fire safety specialty organization acceptable to the Directorate General of Civil Defence and shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, to recommend necessary changes. The Directorate General of Civil Defence is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

104.8 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the Directorate General of Civil Defence shall have the authority to grant modifications for individual cases, provided the Directorate General of Civil Defence 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, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the department of fire prevention.

104.9 Alternative materials and methods. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. The Directorate General of Civil Defence is authorized to approve an alternative material or method of construction where the Directorate General of Civil Defence 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.

104.9.1 Research reports. Supporting data, when 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.

104.9.2 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the Directorate General of Civil Defence 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 Directorate General of Civil Defence shall approve the testing procedures. Tests shall be performed by an *approved* agency. Reports of such tests shall be retained by the Directorate General of Civil Defence for the period required for retention of public records.

104.10 Fire investigations. The Directorate General of Civil Defence, the fire department or other responsible authority shall have the authority to investigate the cause, origin and circumstances of any fire, explosion or other hazardous condition. Information that could be related to trade secrets or processes shall not be made part of the public record except as directed by a court of law.

104.10.1 Assistance from other agencies. Police and other enforcement agencies shall have authority to render necessary assistance in the investigation of fires when requested to do so.

104.11 Authority at fires and other emergencies. The fire chief or officer of the fire department in charge at the scene of a fire or other emergency involving the protection of life or property or any part thereof, shall have the authority to direct such operation as necessary to extinguish or control any fire, perform any rescue operation, investigate the existence of suspected or reported fires, gas leaks or other hazardous conditions or situations, or take any other action necessary in the reasonable performance of duty. In the exercise of such power, the fire chief is authorized to prohibit any person, vehicle, vessel or thing from approaching the scene and is authorized to remove, or cause to be removed or kept away from the scene, any vehicle, vessel or thing which could impede or interfere with the operations of the fire department and, in the judgment of the fire chief, any person not actually and usefully employed in the extinguishing of such fire or in the preservation of property in the vicinity thereof.

104.11.1 Barricades. The fire chief or officer of the fire department in charge at the scene of an emergency is authorized to place ropes, guards, barricades or other obstructions across any street, alley, place or private property in the vicinity of such operation so as to prevent accidents or interference with the lawful efforts of the fire department to manage and control the situation and to handle fire apparatus.

104.11.2 Obstructing operations. No *person* shall obstruct the operations of the fire department in connection with extinguishment or control of any fire, or actions relative to other emergencies, or disobey any lawful command of the fire chief or officer of the fire department in charge of the emergency, or any part thereof, or any lawful order of a police officer assisting the fire department.

104.11.3 Systems and devices. No *person* shall render a system or device inoperative during an emergency unless by direction of the fire chief or fire department official in charge of the incident.

SECTION 105 PERMITS

105.1 General. Permits shall be in accordance with Sections 105.1.1 through 105.7.14.

105.1.1 Permits required. Permits required by this code shall be obtained from the Directorate General of Civil Defence. Permit fees, if any, shall be paid prior to issuance of the permit. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the Directorate General of Civil Defence.

105.1.2 Types of permits. There shall be two types of permits as follows:

1. Operational permit. An operational permit allows the applicant to conduct an operation or a business for which a permit is required by Section 105.6 for either:
 - 1.1. A prescribed period.
 - 1.2. Until renewed or revoked.
2. Construction permit. A construction permit allows the applicant to install or modify systems and equipment for which a permit is required by Section 105.7.

105.1.3 Permits for the same location. When more than one permit is required for the same location, the Directorate General of Civil Defence is authorized to consolidate such permits into a single permit provided that each provision is listed in the permit.

105.2 Application. Application for a permit required by this code shall be made to the Directorate General of Civil Defence in such form and detail as prescribed by the Directorate General of Civil Defence. Applications for permits shall be accompanied by such plans as prescribed by the Directorate General of Civil Defence.

105.2.1 Refusal to issue permit. If the application for a permit describes a use that does not conform to the requirements of this code and other pertinent laws and ordinances, the Directorate General of Civil Defence shall not issue a permit, but shall return the application to the applicant with the refusal to issue such permit. Such refusal shall, when requested, be in writing and shall contain the reasons for refusal.

105.2.2 Inspection authorized. Before a new operational permit is *approved*, the Directorate General of Civil Defence is authorized to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces or areas to be used to determine compliance with this code or any operational constraints required.

105.2.3 Time limitation of application. An application for a permit for any proposed work or operation shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been diligently prosecuted or a permit shall have been issued; except that the Directorate General of Civil Defence is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated.

105.2.4 Action on application. The Directorate General of Civil Defence shall examine or cause to be examined applications for permits and amendments thereto within a reasonable time after filing. If the application or the *construction documents* do not conform to the requirements of pertinent laws, the Directorate General of Civil Defence shall reject such application in writing, stating the reasons therefore. If the Directorate General of Civil Defence is satisfied that the proposed work or operation conforms to the requirements of this code and laws and ordinances applicable thereto, the Directorate General of Civil Defence shall issue a permit therefore as soon as practicable.

105.3 Conditions of a permit. A permit shall constitute permission to maintain, store or handle materials; or to conduct processes which

produce conditions hazardous to life or property; or to install equipment utilized in connection with such activities; or to install or modify any *fire protection system* or equipment or any other construction, equipment installation or modification in accordance with the provisions of this code where a permit is required by Section 105.6 or 105.7. Such permission shall not be construed as authority to violate, cancel or set aside any of the provisions of this code or other applicable regulations or laws of the jurisdiction.

105.3.1 Expiration. An operational permit shall remain in effect until reissued, renewed, or revoked or for such a period of time as specified in the permit. Construction permits shall automatically become invalid unless the work authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. Before such work recommences, a new permit shall be first obtained and the fee to recommence work, if any, shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded one year. Permits are not transferable and any change in occupancy, operation, tenancy or ownership shall require that a new permit be issued.

105.3.2 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required

by this section for good and satisfactory reasons. The Directorate General of Civil Defence is authorized to grant, in writing, one or more extensions of the time period of a permit for periods of not more than 180 days each. Such extensions shall be requested by the permit holder in writing and justifiable cause demonstrated.

105.3.3 Occupancy prohibited before approval. The building or structure shall not be occupied prior to the Directorate General of Civil Defence issuing a permit and conducting associated inspections indicating the applicable provisions of this code have been met.

105.3.4 Conditional permits. Where permits are required and upon the request of a permit applicant, the Directorate General of Civil Defence is authorized to issue a conditional permit to occupy the premises or portion thereof before the entire work or operations on the premises is completed, provided that such portion or portions will be occupied safely prior to full completion or installation of equipment and operations without endangering life or public welfare. The Directorate General of Civil Defence shall notify the permit applicant in writing of any limitations or restrictions necessary to keep the permit area safe. The holder of a conditional permit shall proceed only to the point for which approval has been given, at the permit holder's own risk and without assurance that approval for the occupancy or the utilization of the entire premises, equipment or operations will be granted.

105.3.5 Posting the permit. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the Directorate General of Civil Defence.

105.3.6 Compliance with code. 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 Directorate General of Civil Defence from requiring the correction of errors in the *construction documents* and other data. Any addition to or alteration of *approved construction documents* shall be *approved* in advance by the Directorate General of Civil Defence, as evidenced by the issuance of a new or amended permit.

105.3.7 Information on the permit. The Directorate General of Civil Defence shall issue all permits required by this code on an *approved* form furnished for that purpose. The permit shall contain a general description of the operation or occupancy and its location and any other information required by the Directorate General of Civil Defence. Issued permits shall bear the signature of the Directorate General of Civil Defence or other *approved* legal authorization.

105.3.8 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 ordinances 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*, operational documents and other data shall not prevent the Directorate General of Civil Defence from requiring correction of errors in the documents or other data.

105.4 Construction documents. *Construction documents* shall be in accordance with this section.

105.4.1 Submittals. *Construction documents* and supporting data shall be submitted in two or more sets with each application for a permit and in such form and detail as required by the Directorate General of Civil Defence. 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.

Exception: The Directorate General of Civil Defence is authorized to waive the submission of *construction documents* and supporting 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.

105.4.1.1 Examination of documents. The Directorate General of Civil Defence shall examine or cause to be

examined the accompanying *construction documents* and shall ascertain by such examinations whether the work indicated and described is in accordance with the requirements of this code.

105.4.2 Information on construction documents. *Construction documents* shall be drawn to scale upon suitable material. Electronic media documents are allowed to be submitted when *approved* by the Directorate General of Civil Defence. *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 Directorate General of Civil Defence.

105.4.2.1 Fire protection system shop drawings. Shop drawings for the fire protection system(s) shall be submitted to indicate compliance with this code and the *construction documents* and shall be *approved* prior to the start of installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9 of the Fire Code.

105.4.3 Applicant responsibility. It shall be the responsibility of the applicant to ensure that the *construction documents* include all of the fire protection requirements and the shop drawings are complete and in compliance with the applicable codes and standards.

105.4.4 Approved documents. *Construction documents approved* by the Directorate General of Civil Defence are *approved* with the intent that such *construction documents* comply in all respects with this code. Review and approval by the Directorate General of Civil Defence shall not relieve the applicant of the responsibility of compliance with this code.

105.4.4.1 Phased approval. The Directorate General of Civil Defence is authorized to issue a permit for the construction of part of a structure, system or operation before the *construction documents* for the whole structure, system or operation 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 parts of a structure, system or operation shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure, system or operation will be granted.

105.4.5 Corrected documents. Where field conditions necessitate any substantial change from the *approved construction documents*, the Directorate General of Civil Defence shall have the authority to require the corrected *construction documents* to be submitted for approval.

105.4.6 Retention of construction documents. One set of *construction documents* shall be retained by the Directorate General of Civil Defence for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws. One set of *approved construction documents*

shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

105.5 Revocation. The Directorate General of Civil Defence is authorized to revoke a permit issued under the provisions of this code when it is found by inspection or otherwise that there has been a false statement or misrepresentation as to the material facts in the application or *construction documents* on which the permit or approval was based including, but not limited to, any one of the following:

1. The permit is used for a location or establishment other than that for which it was issued.
2. The permit is used for a condition or activity other than that listed in the permit.
3. Conditions and limitations set forth in the permit have been violated.
4. There have been any false statements or misrepresentations as to the material fact in the application for permit or plans submitted or a condition of the permit.
5. The permit is used by a different *person* or firm than the name for which it was issued.
6. The permittee failed, refused or neglected to comply with orders or notices duly served in accordance with the provisions of this code within the time provided therein.
7. The permit was issued in error or in violation of an ordinance, regulation or this code.

105.6 Required operational permits. The Directorate General of Civil Defence is authorized to issue operational permits for the operations set forth in Sections 105.6.1 through 105.6.46.

105.6.1 Aerosol products. An operational permit is required to manufacture, store or handle an aggregate quantity of Level 2 or Level 3 aerosol products in excess of 500 pounds (227 kg) net weight.

105.6.2 Amusement buildings. An operational permit is required to operate a special amusement building.

105.6.3 Aviation facilities. An operational permit is required to use a Group H or Group S occupancy for aircraft servicing or repair and aircraft fuel-servicing vehicles. Additional permits required by other sections of this code include, but are not limited to, hot work, hazardous materials and flammable or combustible finishes.

105.6.4 Carnivals and fairs. An operational permit is required to conduct a carnival or fair.

105.6.5 Cellulose nitrate film. An operational permit is required to store, handle or use cellulose nitrate film in a Group A occupancy.

105.6.6 Combustible dust-producing operations. An operational permit is required to operate a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugar, or other operations

producing *combustible dusts* as defined in Chapter 2 of the Fire Code.

105.6.7 Combustible fibers. An operational permit is required for the storage and handling of *combustible fibers* in quantities greater than 100 cubic feet (2.8 m³).

Exception: A permit is not required for agricultural storage.

105.6.8 Compressed gases. An operational permit is required for the storage, use or handling at *normal temperature and pressure* (NTP) of *compressed gases* in excess of the amounts listed in Table 105.6.8.

Exception: Vehicles equipped for and using *compressed gas* as a fuel for propelling the vehicle.

**TABLE 105.6.8
PERMIT AMOUNTS FOR COMPRESSED GASES**

TYPE OF GAS	AMOUNT (cubic feet at NTP)
Corrosive	200
Flammable (except cryogenic fluids and liquefied petroleum gases)	200
Highly toxic	Any Amount
Inert and simple asphyxiant	6,000
Oxidizing (including oxygen)	504
Pyrophoric	Any Amount
Toxic	Any Amount

For SI: 1 cubic foot = 0.02832 m³

105.6.9 Covered mall buildings. An operational permit is required for:

1. The placement of retail fixtures and displays, concession equipment, displays of highly combustible goods and similar items in the mall.
2. The display of liquid- or gas-fired equipment in the mall.
3. The use of open-flame or flame-producing equipment in the mall.

105.6.10 Cryogenic fluids. An operational permit is required to produce, store, transport on site, use, handle or dispense *cryogenic fluids* in excess of the amounts listed in Table 105.6.10.

Exception: Permits are not required for vehicles equipped for and using *cryogenic fluids* as a fuel for propelling the vehicle or for refrigerating the lading.

**TABLE 105.6.10
PERMIT AMOUNTS FOR CRYOGENIC FLUIDS**

TYPE OF CRYOGENIC FLUID	INSIDE BUILDING (gallons)	OUTSIDE BUILDING (gallons)
Flammable	More than 1	60
Inert	60	500
Oxidizing (includes oxygen)	10	50
Physical or health hazard not indicated above	Any Amount	Any Amount

For SI: 1 gallon = 3.785 L

105.6.11 Cutting and welding. An operational permit is required to conduct cutting or welding operations within the jurisdiction.

105.6.12 Dry cleaning plants. An operational permit is required to engage in the business of dry cleaning or to change to a more hazardous cleaning solvent used in existing dry cleaning equipment.

105.6.13 Exhibits and trade shows. An operational permit is required to operate exhibits and trade shows.

105.6.14 Explosives. An operational permit is required for the manufacture, storage, handling, sale or use of any quantity of *explosives, explosive materials*, fireworks or pyrotechnic special effects within the scope of Chapter 33 of the Fire Code.

Exception: Storage in Group R-3 occupancies of smokeless propellant, black powder and small arms primers for personal use, not for resale and in accordance with Section 3306 of the Fire Code.

105.6.15 Fire hydrants and valves. An operational permit is required to use or operate fire hydrants or valves intended for fire suppression purposes which are installed on water systems and accessible to a fire apparatus access road that is open to or generally used by the public.

Exception: A permit is not required for authorized employees of the water company that supplies the system or the fire department to use or operate fire hydrants or valves.

105.6.16 Flammable and combustible liquids. An operational permit is required:

1. To use or operate a pipeline for the transportation within facilities of flammable or *combustible liquids*. This requirement shall not apply to the off-site transportation in pipelines as well as the integral pipelines as regulated by the Authority having jurisdiction.
2. To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following:
 - 2.1. The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the code official, would cause an unsafe condition.
 - 2.2. The storage or use of paints, oils, varnishes or similar flammable mixtures when such liquids are stored for maintenance, painting or similar purposes for a period of not more than 30 days.
3. To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of

60 gallons (227 L) outside a building, except for fuel oil used in connection with oil-burning equipment.

4. To store, handle or use Class IIIB liquids in tanks or portable tanks for fueling motor vehicles at motor fuel-dispensing facilities or where connected to fuel-burning equipment.

Exception: Fuel oil and used motor oil used for space heating or water heating.

5. To remove Class I or II liquids from an underground storage tank used for fueling motor vehicles by any means other than the *approved*, stationary on-site pumps normally used for dispensing purposes.
6. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and *combustible liquids* are produced, processed, transported, stored, dispensed or used.
7. To place temporarily out of service (for more than 90 days) an underground, protected above-ground or above-ground flammable or *combustible liquid* tank.
8. To change the type of contents stored in a flammable or *combustible liquid* tank to a material that poses a greater hazard than that for which the tank was designed and constructed.
9. To manufacture, process, blend or refine flammable or *combustible liquids*.

10. To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments.
11. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles, marine craft and other special equipment at commercial, industrial, governmental or manufacturing establishments.

105.6.17 Floor finishing. An operational permit is required for floor finishing or surfacing operations exceeding 350 square feet (33 m²) using Class I or Class II liquids.

105.6.18 Fruit and crop ripening. An operational permit is required to operate a fruit- or crop-ripening facility or conduct a fruit-ripening process using ethylene gas.

105.6.19 Fumigation and thermal insecticidal fogging. An operational permit is required to operate a business of fumigation or thermal insecticidal fogging and to maintain a room, vault or chamber

105.6.20 Hazardous materials. An operational permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the amounts listed in Table 105.6.20.

105.6.21 HPM facilities. An operational permit is required to store, handle or use hazardous production materials.

105.6.22 High-piled storage. An operational permit is required to use a building or portion thereof as a *high-piled storage area* exceeding 500 square feet (46 m²).

**TABLE 105.6.20
PERMIT AMOUNTS FOR HAZARDOUS
MATERIALS**

TYPE OF MATERIAL	AMOUNT
Combustible liquids	See Section 105.6.16
Corrosive materials	
Gases	See Section 105.6.8
Liquids	55 gallons
Solids	1000 pounds
Explosive materials	See Section 105.6.14
Flammable materials	
Gases	See Section 105.6.8
Liquids	See Section 105.6.16
Solids	100 pounds
Highly toxic materials	
Gases	See Section 105.6.8
Liquids	Any Amount
Solids	Any Amount
Oxidizing materials	
Gases	See Section 105.6.8
Liquids	
Class 4	Any Amount
Class 3	1 gallon ^a
Class 2	10 gallons
Class 1	55 gallons
Solids	
Class 4	Any Amount
Class 3	10 pounds ^b
Class 2	100 pounds
Class 1	500 pounds
Organic peroxides	
Liquids	
Class I	Any Amount
Class II	Any Amount
Class III	1 gallon
Class IV	2 gallons

**TABLE 105.6.20
PERMIT AMOUNTS FOR HAZARDOUS
MATERIALS**

TYPE OF MATERIAL	AMOUNT
Class V Solids	No Permit Required
Class I	Any Amount
Class II	Any Amount
Class III	10 pounds
Class IV	20 pounds
Class V	No Permit Required
Pyrophoric materials	
Gases	Any Amount
Liquids	Any Amount
Solids	Any Amount
Toxic materials	
Gases	See Section 105.6.8
Liquids	10 gallons
Solids	100 pounds
Unstable (reactive) materials	
Liquids	
Class 4	Any Amount
Class 3	Any Amount
Class 2	5 gallons
Class 1	10 gallons
Solids	
Class 4	Any Amount
Class 3	Any Amount
Class 2	50 pounds
Class 1	100 pounds
Water-reactive materials	
Liquids	
Class 3	Any Amount
Class 2	5 gallons
Class 1	55 gallons
Solids	
Class 3	Any Amount
Class 2	50 pounds
Class 1	500 pounds

For SI: 1 gallon = 3.785 L, 1 pound = 0.454 kg.

- a. 20 gallons when Table 2703.1.1(1) Note k of the Fire Code applies and hazard identification signs in accordance with Section 2703.5 of the Fire Code are provided for quantities of 20 gallons or less.
- b. 200 pounds when Table 2703.1.1(1) Note k of the Fire Code applies and hazard identification signs in accordance with Section 2703.5 of the Fire Code are provided for quantities of 200 pounds or less.

105.6.23 Hot work operations. An operational permit is required for hot work including, but not limited to:

1. Public exhibitions and demonstrations where hot work is conducted.
2. Use of portable hot work equipment inside a structure.

Exception: Work that is conducted under a construction permit.

3. Fixed-site hot work equipment such as welding booths.
4. Hot work conducted within a wildfire risk area.
5. Application of roof coverings with the use of an open-flame device.
6. When *approved*, the Directorate General of Civil Defence shall issue a permit to carry out a hot work program. This program allows *approved* personnel to regulate their facility's hot work operations. The *approved* personnel shall be trained in the fire safety aspects denoted in this chapter and shall be responsible for issuing permits requiring compliance with the requirements found in Chapter 26 of the Fire Code. These permits shall be issued only to their employees or hot work operations under their supervision.

105.6.24 Industrial ovens. An operational permit is required for operation of industrial ovens regulated by Chapter 21 of the Fire Code.

105.6.25 Lumber yards and woodworking plants. An operational permit is required for the storage or processing of lumber exceeding 100,000 board feet (8,333 ft³) (236 m³).

105.6.26 Liquid or gas-fueled vehicles or equipment in assembly buildings. An operational permit is required to display, operate or demonstrate liquid- or gas-fueled vehicles or equipment in assembly buildings.

105.6.27 LP-gas. An operational permit is required for:

1. Storage and use of LP-gas.

Exception: A permit is not required for individual containers with a 500-gallon (1893 L) water capacity or less serving occupancies in Group R-3.

2. Operation of cargo tankers that transport LP-gas.

105.6.28 Magnesium. An operational permit is required to melt, cast, heat treat or grind more than 10 pounds (4.54 kg) of magnesium.

105.6.29 Miscellaneous combustible storage. An operational permit is required to store in any building or upon any premises in excess of 2,500 cubic feet (71 m³) gross volume of combustible empty packing cases, boxes, barrels or similar

containers, rubber tires, rubber, cork or similar combustible material.

105.6.30 Open burning. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. Instructions and stipulations of the permit shall be adhered to.

Exception: *Recreational fires at approved locations.*

105.6.31 Open flames and torches. An operational permit is required to remove paint with a torch; or to use a torch or open-flame device in a wildfire risk area.

105.6.32 Open flames and candles. An operational permit is required to use open flames or candles in connection with assembly areas, dining areas of restaurants or drinking establishments.

105.6.33 Organic coatings. An operational permit is required for any organic-coating manufacturing operation producing more than 1 gallon (4 L) of an organic coating in one day.

105.6.34 Places of assembly. An operational permit is required to operate a place of assembly.

105.6.35 Private fire hydrants. An operational permit is required for the removal from service, use or operation of private fire hydrants.

Exception: A permit is not required for private industry with trained maintenance personnel, a private fire brigade or fire departments to maintain, test and use private hydrants.

105.6.36 Pyrotechnic special effects material. An operational permit is required for use and handling of pyrotechnic special effects material.

105.6.37 Pyroxylin plastics. An operational permit is required for storage or handling of more than 25 pounds (11 kg) of cellulose nitrate (pyroxylin) plastics and for the assembly or manufacture of articles involving pyroxylin plastics.

105.6.38 Refrigeration equipment. An operational permit is required to operate a mechanical refrigeration unit or system regulated by Chapter 6 of the Fire Code.

105.6.39 Repair garages and motor fuel-dispensing facilities. An operational permit is required for operation of repair garages and automotive, marine and fleet motor fuel-dispensing facilities.

105.6.40 Rooftop heliports. An operational permit is required for the operation of a rooftop heliport.

105.6.41 Spraying or dipping. An operational permit is required to conduct a spraying or dipping operation utilizing flammable or *combustible liquids* or the application of combustible powders regulated by Chapter 15 of the Fire Code.

105.6.42 Storage of scrap tires and tire byproducts. An operational permit is required to establish, conduct or maintain storage of scrap tires and tire byproducts that exceed 2,500 cubic feet (71 m³) of total volume of scrap tires and for indoor storage of tires and tire byproducts.

105.6.43 Temporary membrane structures and tents. An operational permit is required to operate an air-supported temporary membrane structure or a tent having an area in excess of 400 square feet (37 m²).

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Tents open on all sides, which comply with all of the following:
 - 2.1. Individual tents having a maximum size of 700 square feet (65 m²).
 - 2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12 feet (3658 mm) shall not exceed 700 square feet (65 m²) total.
 - 2.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be provided.

105.6.44 Tire-rebuilding plants. An operational permit is required for the operation and maintenance of a tire-rebuilding plant.

105.6.45 Waste handling. An operational permit is required for the operation of wrecking yards, junk yards and waste material-handling facilities.

105.6.46 Wood products. An operational permit is required to store chips, hogged material, lumber or plywood in excess of 200 cubic feet (6 m³).

105.7 Required construction permits. The Directorate General of Civil Defence is authorized to issue construction permits for work as set forth in Sections 105.7.1 through 105.7.14.

105.7.1 Automatic fire-extinguishing systems. A construction permit is required for installation of or modification to an automatic fire-extinguishing system. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.2 Battery systems. A permit is required to install stationary storage battery systems having a liquid capacity of more than 50 gallons (189 L).

105.7.3 Compressed gases. When the compressed gases in use or storage exceed the amounts listed in Table 105.6.8, a construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service, close or substantially modify a *compressed gas* system.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

105.7.4 Cryogenic fluids. A construction permit is required for installation of or *alteration* to outdoor stationary *cryogenic fluid* storage systems where the system capacity exceeds the amounts listed in Table 105.6.10. Maintenance performed in accordance with this code is not considered an *alteration* and does not require a construction permit.

105.7.5 Fire alarm and detection systems and related equipment. A construction permit is required for installation of or modification to fire alarm and detection systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.6 Fire pumps and related equipment. A construction permit is required for installation of or modification to fire pumps and related fuel tanks, jockey pumps, controllers and generators. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.7 Flammable and combustible liquids. A construction permit is required:

1. To install, repair or modify a pipeline for the transportation of flammable or *combustible liquids*.

2. To install, construct or alter tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and *combustible liquids* are produced, processed, transported, stored, dispensed or used.
3. To install, alter, remove, abandon or otherwise dispose of a flammable or *combustible liquid* tank.

105.7.8 Hazardous materials. A construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service, close or substantially modify a storage facility or other area regulated by Chapter 27 of the Fire Code when the hazardous materials in use or storage exceed the amounts listed in Table 105.6.20.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

105.7.9 Industrial ovens. A construction permit is required for installation of industrial ovens covered by Chapter 21 of the Fire Code.

Exceptions:

1. Routine maintenance.
2. For repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

105.7.10 LP-gas. A construction permit is required for installation of or modification to an LP-gas system.

105.7.11 Private fire hydrants. A construction permit is required for the installation or modification of private fire hydrants.

105.7.12 Spraying or dipping. A construction permit is required to install or modify a spray room, dip tank or booth.

105.7.13 Standpipe systems. A construction permit is required for the installation, modification or removal from service of a standpipe system. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.14 Temporary membrane structures and tents. A construction permit is required to erect an air-supported temporary membrane structure or a tent having an area in excess of 400 square feet (37 m²).

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Funeral tents and curtains or extensions attached thereto, when used for funeral services.
3. Tents and awnings open on all sides which comply with all of the following:
 - 3.1. Individual tents shall have a maximum size of 700 square feet (65 m²).

- 3.2. The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12 feet (3658 mm) shall not exceed 700 square feet (65 m²) total.
- 3.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be maintained.

SECTION 106 INSPECTIONS

106.1 Inspection authority. The Directorate General of Civil Defence is authorized to enter and examine any building, structure, marine vessel, vehicle or premises in accordance with Section 104.3 for the purpose of enforcing this code.

106.2 Inspections. The Directorate General of Civil Defence is authorized to conduct such inspections as are deemed necessary to determine the extent of compliance with the provisions of this code and to approve reports of inspection by *approved* agencies or individuals. All reports of such inspections shall be prepared and submitted in writing for review and approval. Inspection reports shall be certified by a responsible officer of such *approved* agency or by the responsible individual. The Directorate General of Civil Defence is authorized to engage such expert opinion as deemed necessary to report upon unusual, detailed or complex technical issues subject to the approval of the governing body.

106.2.1 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the Directorate General of Civil Defence 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.

106.2.2 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the Directorate General of Civil Defence. The Directorate General of Civil Defence, 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 this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the Directorate General of Civil Defence.

106.3 Concealed work. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Whenever any installation subject to inspection prior to use is covered or concealed without having first been inspected, the Directorate General of Civil Defence shall have the authority to require that such work be exposed for inspection. Neither the Directorate General of Civil Defence nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

106.4 Approvals. Approval as the 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 provisions of this code or of other ordinances of the jurisdiction shall not be valid.

SECTION 107 MAINTENANCE

107.1 Maintenance of safeguards. Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the provisions of this code, or otherwise installed, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be continuously maintained in accordance with this code and applicable referenced standards.

107.2 Testing and operation. Equipment requiring periodic testing or operation to ensure maintenance shall be tested or operated as specified in this code.

107.2.1 Test and inspection records. Required test and inspection records shall be available to the Directorate General of Civil Defence at all times or such records as designated shall be filed with the Directorate General of Civil Defence.

107.2.2 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the Directorate General of Civil Defence for inspection and testing.

107.3 Supervision. Maintenance and testing shall be under the supervision of a responsible *person* who shall ensure that such maintenance and testing is conducted at specified intervals in accordance with this code.

107.4 Rendering equipment inoperable. Portable or fixed fire-extinguishing systems or devices and fire-warning systems shall not be rendered inoperative or inaccessible except as necessary during emergencies, maintenance, repairs, *alterations*, drills or prescribed testing.

107.5 Owner/occupant responsibility. Correction and abatement of violations of this code shall be the responsibility of the *owner*. If an occupant creates, or allows to be created, hazardous conditions in violation of this code, the occupant shall be held responsible for the abatement of such hazardous conditions.

107.6 Overcrowding. Overcrowding or admittance of any *person* beyond the *approved* capacity of a building or a portion thereof shall not be allowed. The Directorate General of Civil Defence, upon finding any overcrowding conditions or obstructions in *aisles*, passageways or other *means of egress*, or upon finding any condition which constitutes a life safety hazard, shall be authorized to cause the event to be stopped until such condition or obstruction is corrected.

SECTION 108 APPEALS

108.1 General. The Directorate General of Civil Defence shall hear and decide appeals of orders, decisions or determinations made by acting *fire code officials* relative to the application and interpretation of this code. Civil Defence shall adopt rules of procedure for conducting the business of hearing an appeal, and all decisions and findings shall be rendered in writing to the appellant with a duplicate copy to the acting *fire code official*.

108.2 Limitations on authority. An application for appeal shall be based on a claim that the intent of this code or the rules legally adopted hereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The Directorate General of Civil Defence shall have no authority to waive requirements of this code.

SECTION 109 VIOLATIONS

109.1 Unlawful acts. It shall be unlawful for a *person*, firm or corporation to erect, construct, alter, repair, remove, demolish or utilize a building, occupancy, premises or system regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

109.2 Notice of violation. When the Directorate General of Civil Defence finds a building, premises, vehicle, storage facility or

outdoor area that is in violation of this code, the Directorate General of Civil Defence is authorized to prepare a written notice of violation describing the conditions deemed unsafe and, when compliance is not immediate, specifying a time for reinspection.

109.2.1 Service. A notice of violation issued pursuant to this code shall be served upon the *owner*, operator, occupant or other *person* responsible for the condition or violation, either by personal service, mail or by delivering the same to, and leaving it with, some *person* of responsibility upon the premises. For unattended or abandoned locations, a copy of such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises and the notice of violation shall be mailed by certified mail with return receipt requested or a certificate of mailing, to the last known address of the *owner*, occupant or both.

109.2.2 Compliance with orders and notices. A notice of violation issued or served as provided by this code shall be complied with by the *owner*, operator, occupant or other *person* responsible for the condition or violation to which the notice of violation pertains.

109.2.3 Prosecution of violations. If the notice of violation is not complied with promptly, the Directorate General of Civil Defence is authorized to request the legal counsel of the jurisdiction to institute the appropriate legal proceedings at law or in equity to restrain, correct or abate such violation or to require removal or termination of the unlawful occupancy of the

structure in violation of the provisions of this code or of the order or direction made pursuant hereto.

109.2.4 Unauthorized tampering. Signs, tags or seals posted or affixed by the Directorate General of Civil Defence shall not be mutilated, destroyed or tampered with or removed without authorization from the *fire code official*.

109.3 Violation penalties. *Persons* who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the *approved construction documents* or directive of the Directorate General of Civil Defence, or of a permit or certificate used under provisions of this code, shall be guilty of an offence as determined by the municipality. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

109.3.1 Abatement of violation. In addition to the imposition of the penalties herein described, the Directorate General of Civil Defence is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.

SECTION 110 UNSAFE BUILDINGS

110.1 General. If during the inspection of a premises, a building or structure or any building system, in whole or in part, constitutes a

clear and inimical threat to human life, safety or health, the Directorate General of Civil Defence shall issue such notice or orders to remove or remedy the conditions as shall be deemed necessary in accordance with this section and shall refer the building to the building department for any repairs, *alterations*, remodeling, removing or demolition required.

110.1.1 Unsafe conditions. Structures or existing equipment that are or hereafter become unsafe or deficient because of inadequate *means of egress* or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or which involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. A vacant structure which is not secured against unauthorized entry as required by Section 311 of the Fire Code shall be deemed unsafe.

110.1.2 Structural hazards. When an apparent structural hazard is caused by the faulty installation, operation or malfunction of any of the items or devices governed by this code, the Directorate General of Civil Defence shall immediately notify the building code official in accordance with Section 110.1.

110.2 Evacuation. The Directorate General of Civil Defence or the fire department official in charge of an incident shall be authorized to order the immediate evacuation of any occupied building deemed unsafe when such building has hazardous conditions that present imminent danger to building occupants. *Persons* so notified shall immediately leave the structure or premises and shall not enter or re-

enter until authorized to do so by the Directorate General of Civil Defence or the fire department official in charge of the incident.

110.3 Summary abatement. Where conditions exist that are deemed hazardous to life and property, the Directorate General of Civil Defence or fire department official in charge of the incident is authorized to abate summarily such hazardous conditions that are in violation of this code.

110.4 Abatement. The *owner*, operator or occupant of a building or premises deemed unsafe by the Directorate General of Civil Defence shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action.

SECTION 111 STOP WORK ORDER

111.1 Order. Whenever the Directorate General of Civil Defence finds any work regulated by this code being performed in a manner contrary to the provisions of this code or in a dangerous or unsafe manner, the Directorate General of Civil Defence is authorized to issue a stop work order.

111.2 Issuance. A stop work order shall be in writing and shall be given to the *owner* of the property, or to the *owner's* agent, or to the *person* doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work is authorized to resume.

111.3 Emergencies. Where an emergency exists, the Directorate General of Civil Defence shall not be required to give a written notice prior to stopping the work.

111.4 Failure to comply. Any *person* who shall continue any work after having been served with a stop work order, except such work as that *person* is directed to perform to remove a violation or unsafe condition, shall be liable to punishment as determined by the municipality.

SECTION 112 SERVICE UTILITIES

112.1 Authority to disconnect service utilities. The Directorate General of Civil Defence shall have the authority to authorize disconnection of utility service to the building, structure or system in order to safely execute emergency operations or to eliminate an immediate hazard. The Directorate General of Civil Defence shall notify the serving utility and, whenever possible, 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 disconnection. The *owner* or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

SECTION 113 FEES

113.1 Fees. A permit shall not be issued until the fees have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

113.2 Schedule of permit fees. A fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.

113.3 Work commencing before permit issuance. Any *person* who commences any work, activity or operation regulated by this code before obtaining the necessary permits shall be subject to an additional fee established by the applicable governing authority, which shall be in addition to the required permit fees.

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

113.5 Refunds. The applicable governing authority is authorized to establish a refund policy.

A - 58 (Fire)

Edition 2011, Version 1
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Abu Dhabi Administrative Provisions
for the:
International Property Maintenance Code

C. SCOPE AND ADMINISTRATION

NOTE: This part provides the administrative standards which are applicable to the Property Maintenance Code which is typically enforced by the Department of Building Safety. See Section 1, Part A for administrative standards for the Building, Energy Conservation, Mechanical, Plumbing, Private Sewage Disposal and Fuel Gas Codes. See Section 1, part B for administrative provisions that apply to the Fire Code and which are typically enforced by the Department of Fire Prevention.

PART 1 – SCOPE AND APPLICATION

SECTION 101 GENERAL

101.1 Title. These regulations shall be known as the *Property Maintenance Code* of the Emirate of Abu Dhabi, hereinafter referred to as "this code."

101.2 Scope. The provisions of this code shall apply to all existing residential and nonresidential structures and all existing *premises* and constitute minimum requirements and standards for *premises*, structures, equipment and facilities for light, *ventilation*, space, heating, sanitation, protection from the elements, life safety, safety from fire and other hazards, and for safe and sanitary maintenance; the responsibility of *owners*, *operators* and *occupants*; the *occupancy* of existing structures and *premises*, and for administration, enforcement and penalties.

101.3 Intent. This code shall be construed to secure its expressed intent, which is to ensure public health, safety and welfare insofar as they are affected by the continued *occupancy* and maintenance of

structures and *premises*. Existing structures and *premises* that do not comply with these provisions shall be altered or repaired to provide a minimum level of health and safety as required herein.

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 differences occur between provisions of this code and the referenced standards, the provisions of this code shall apply. Where, in a specific case, different sections of this code specify different requirements, the most restrictive shall govern.

102.2 Maintenance. Equipment, systems, devices and safeguards required by this code or a previous regulation or code under which the structure or *premises* was constructed, altered or repaired shall

be maintained in good working order. No *owner, operator* or *occupant* shall cause any service, facility, equipment or utility which is required under this section to be removed from or shut off from or discontinued for any occupied dwelling, except for such temporary interruption as necessary while repairs or alterations are in progress. The requirements of this code are not intended to provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures. Except as otherwise specified herein, the *owner* or the *owner's* designated agent shall be responsible for the maintenance of buildings, structures and *premises*.

102.3 Application of other codes. Repairs, additions or alterations to a structure, or changes of *occupancy*, shall be done in accordance with the procedures and provisions of the *Building Code, Fuel Gas Code, Mechanical Code* and the *Electricity Wiring Regulations 2007, Revision 1, dated January, 2009*, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi. Nothing in this code shall be construed to cancel, modify or set aside any provision of the *adopted zoning* regulations.

102.4 Existing remedies. The provisions in this code shall not be construed to abolish or impair existing remedies of the jurisdiction or its officers or agencies relating to the removal or demolition of any structure which is dangerous, unsafe and insanitary.

102.5 Workmanship. Repairs, maintenance work, alterations or installations which are caused directly or indirectly by the enforcement of this code shall be executed and installed in a *workmanlike* manner and installed in accordance with the manufacturer's installation instructions.

102.6 Historic buildings. The provisions of this code shall not be mandatory for existing buildings or structures designated 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.

102.7 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in Chapter 8 and 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 shall apply.

The Building Official may approve products, materials and building systems or components that are manufactured to the latest editions of international standards other than those referenced within these codes when, in his opinion, such products meet or exceed the referenced standards. In the event another standard is used, the designer shall be limited to the provisions within that standard and shall not intermingle provisions from any other similar standard.

Where approved by the Building Official, provisions from other model International Codes published by the International Code Council may be used to comply with the intent of this code, provided such approval does not lessen health, accessibility, life and fire safety, or structural requirements.

102.8 Requirements not covered by code. Requirements necessary for the strength, stability or proper operation of an existing fixture, structure or equipment, or for the public safety, health and general welfare, not specifically covered by this code, shall be determined by the *code official*.

102.9 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.

102.10 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, Emirate of Abu Dhabi or United Arab Emirate law.

PART 2 — ADMINISTRATION AND ENFORCEMENT

SECTION 103 DEPARTMENT OF PROPERTY MAINTENANCE INSPECTION

103.1 General. The department of property maintenance inspection is hereby created and may serve within a division of the Department of Building Safety and the executive official in charge thereof shall be known as the *Building Official*.

103.2 Appointment. The *code official* shall be appointed by the chief appointing authority of the jurisdiction.

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing

authority, the *code official* shall have the authority to appoint a deputy(s). Such employees shall have powers as delegated by the *code official*.

103.4 Liability. The *code official* 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 all personal liability for any damage accruing to persons or property as a result of an act or by reason of an act or omission in the discharge of official duties. Any suit instituted against any 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 the legal representative of the jurisdiction until the final termination of the proceedings. The *code official* or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.

103.5 Fees. The fees for activities and services performed by the department in carrying out its responsibilities under this code shall be as indicated in accordance with the schedule as established by the applicable governing authority.

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. The *code 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 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 responsible individual. 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.

104.3 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or whenever the *code official* has reasonable cause to believe that there exists in a *structure* or upon a *premises* a condition in violation of this code, the *code official* is authorized to enter the structure or *premises* at reasonable times to inspect or perform the duties imposed by this code, provided that if such *structure* or *premises* is occupied the *code official* shall present credentials to the *occupant* and request entry. If such structure or *premises* is unoccupied, the *code 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 *code official* shall have recourse to the remedies provided by law to secure entry.

When the code official shall have first 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.

104.4 Identification. The *code official* shall carry proper identification when inspecting *structures* or *premises* in the performance of duties under this code.

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

104.6 Department records. The *code official* shall keep official records of all business and activities of the department specified in the provisions of this code. Such records shall be retained in the official records for the period required for retention of public records.

SECTION 105 APPROVAL

105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the *code official* shall have the authority to grant modifications for individual cases upon application of the *owner* or *owner's* representative, provided the *code 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, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the department files.

105.2 Alternative materials, methods and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material or method of construction shall be *approved* where the *code 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.

105.3 Required testing. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the *code official* shall have the authority to require tests to be made as evidence of compliance at no expense to the jurisdiction.

105.3.1 Test methods. 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 *code official* shall be permitted to approve appropriate testing procedures performed by an *approved* agency.

105.3.2 Test reports. Reports of tests shall be retained by the *code official* for the period required for retention of public records.

105.4 Used material and equipment. The use of used materials which meet the requirements of this code for new materials is permitted. Materials, equipment and devices shall not be reused unless such elements are in good repair or have been reconditioned and tested when necessary, placed in good and proper working condition and *approved* by the *code official*.

105.5 Approved materials and equipment. Materials, equipment and devices *approved* by the *code official* shall be constructed and installed in accordance with such approval.

105.6 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.

SECTION 106 VIOLATIONS

106.1 Unlawful acts. It shall be unlawful for a person, firm or corporation to be in conflict with or in violation of any of the provisions of this code.

106.2 Notice of violation. The *code official* shall serve a notice of violation or order in accordance with Section 107.

106.3 Prosecution of violation. Any person failing to comply with a notice of violation or order served in accordance with Section 107 shall be deemed guilty of a misdemeanor or civil infraction as determined by the local municipality, and the violation shall be deemed a *strict liability offense*. If the notice of violation is not complied with, the *code official* shall institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful *occupancy* of the structure in violation of the provisions of this code or of the order or direction made pursuant thereto. Any action taken by the authority having jurisdiction on such *premises* shall be charged against the real estate upon which the structure is located and shall be a lien upon such real estate.

106.4 Violation penalties. Any person who shall violate a provision of this code, or fail to comply therewith, or with any of the requirements thereof, shall be prosecuted within the limits provided by local, Emirate of Abu Dhabi or United Arab Emirate laws. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

106.5 Abatement of violation. The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to restrain, correct or abate a violation, or to prevent illegal *occupancy* of a building, structure or *premises*, or to stop an illegal act, conduct, business or utilization of the building, structure or *premises*.

SECTION 107 NOTICES AND ORDERS

107.1 Notice to person responsible. Whenever the *code official* determines that there has been a violation of this code or has grounds to believe that a violation has occurred, notice shall be given in the manner prescribed in Sections 107.2 and 107.3 to the person responsible for the violation as specified in this code. Notices for condemnation procedures shall also comply with Section 108.3.

107.2 Form. Such notice prescribed in Section 107.1 shall be in accordance with all of the following:

1. Be in writing.
2. Include a description of the real estate sufficient for identification.
3. Include a statement of the violation or violations and why the notice is being issued.
4. Include a correction order allowing a reasonable time to make the repairs and improvements required to bring the *dwelling unit* or structure into compliance with the provisions of this code.
5. Inform the property *owner* of the right to appeal to the General Manager of the municipality.
6. Include a statement of the right to file a lien in accordance with Section 106.3.

107.3 Method of service. Such notice shall be deemed to be properly served if a copy thereof is:

1. Delivered personally;
2. Sent by certified or first-class mail addressed to the last known mailing address; or
3. If the notice 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.

107.4 Unauthorized tampering. Signs, tags or seals posted or affixed by the *code official* shall not be mutilated, destroyed or tampered with, or removed without authorization from the *code official*.

107.5 Penalties. Penalties for noncompliance with orders and notices shall be as set forth in Section 106.4.

107.6 Transfer of ownership. It shall be unlawful for the *owner* of any *dwelling unit* or structure who has received a compliance order or upon whom a notice of violation has been served to sell, transfer, mortgage, lease or otherwise dispose of such *dwelling unit* or structure to another until the provisions of the compliance order or notice of violation have been complied with, or until such *owner* shall first furnish the grantee, transferee, mortgagee or lessee a true copy of any compliance order or notice of violation issued by the *code official* and shall furnish to the *code official* a signed and notarized statement from the grantee, transferee, mortgagee or lessee, acknowledging the receipt of such compliance order or notice of violation and fully accepting the responsibility without condition for making the corrections or repairs required by such compliance order or notice of violation.

SECTION 108 UNSAFE STRUCTURES AND EQUIPMENT

108.1 General. When a structure or equipment is found by the *code official* to be unsafe, or when a structure is found unfit for human *occupancy*, or is found unlawful, such structure shall be *condemned* pursuant to the provisions of this code.

108.1.1 Unsafe structures. An unsafe structure is one that is found to be dangerous to the life, health, property or safety of the public or the *occupants* of the structure by not providing minimum safeguards to protect or warn *occupants* in the event of fire, or because such structure contains unsafe equipment or is so damaged, decayed, dilapidated, structurally unsafe or of such faulty construction or unstable foundation, that partial or complete collapse is possible.

108.1.2 Unsafe equipment. Unsafe equipment includes any boiler, heating equipment, elevator, moving stairway, electrical wiring or device, flammable liquid containers or other equipment on the *premises* or within the structure which is in such disrepair or condition that such equipment is a hazard to life, health, property or safety of the public or *occupants* of the *premises* or structure.

108.1.3 Structure unfit for human occupancy. A structure is unfit for human *occupancy* whenever the *code official* finds that such structure is unsafe, unlawful or, because of the degree to which the structure is in disrepair or lacks maintenance, is insanitary, vermin or rat infested, contains filth and contamination, or lacks *ventilation*, illumination, sanitary or

heating facilities or other essential equipment required by this code, or because the location of the structure constitutes a hazard to the *occupants* of the structure or to the public.

108.1.4 Unlawful structure. An unlawful structure is one found in whole or in part to be occupied by more persons than permitted under this code, or was erected, altered or occupied contrary to law.

108.1.5 Dangerous structure or premises. For the purpose of this code, any structure or *premises* that has any or all of the conditions or defects described below shall be considered dangerous:

1. Any door, aisle, passageway, stairway, exit or other means of egress that does not conform to the *approved* building or fire code of the jurisdiction as related to the requirements for existing buildings.
2. The walking surface of any aisle, passageway, stairway, exit or other means of egress is so warped, worn loose, torn or otherwise unsafe as to not provide safe and adequate means of egress.
3. Any portion of a building, structure or appurtenance that has been damaged by fire, earthquake, wind, flood, *deterioration, neglect*, abandonment, vandalism or by any other cause to such an extent that it is likely to partially or completely collapse, or to become *detached* or dislodged.
4. Any portion of a building, or any member, appurtenance or ornamentation on the exterior thereof that is not of

sufficient strength or stability, or is not so *anchored*, attached or fastened in place so as to be capable of resisting natural or artificial loads of one and one-half the original designed value.

5. The building or structure, or part of the building or structure, because of dilapidation, *deterioration*, decay, faulty construction, the removal or movement of some portion of the ground necessary for the support, or for any other reason, is likely to partially or completely collapse, or some portion of the foundation or underpinning of the building or structure is likely to fail or give way.
6. The building or structure, or any portion thereof, is clearly unsafe for its use and *occupancy*.
7. The building or structure is *neglected*, damaged, dilapidated, unsecured or abandoned so as to become an attractive nuisance to children who might play in the building or structure to their danger, becomes a harbor for vagrants, criminals or immoral persons, or enables persons to resort to the building or structure for committing a nuisance or an unlawful act.
8. Any building or structure has been constructed, exists or is maintained in violation of any specific requirement or prohibition applicable to such building or structure provided by the *approved* building or fire code of the jurisdiction, or of any law or ordinance to such an extent as to present either a substantial risk of fire, building collapse or any other threat to life and safety.
9. A building or structure, used or intended to be used for dwelling purposes, because of inadequate maintenance,

dilapidation, decay, damage, faulty construction or arrangement, inadequate light, *ventilation*, mechanical or plumbing system, or otherwise, is determined by the *code official* to be unsanitary, unfit for human habitation or in such a condition that is likely to cause sickness or disease.

10. Any building or structure, because of a lack of sufficient or proper fire-resistance-rated construction, fire protection systems, electrical system, fuel connections, mechanical system, plumbing system or other cause, is determined by the *code official* to be a threat to life or health.
11. Any portion of a building remains on a site after the demolition or destruction of the building or structure or whenever any building or structure is abandoned so as to constitute such building or portion thereof as an attractive nuisance or hazard to the public.

108.2 Closing of vacant structures. If the structure is vacant and unfit for human habitation and *occupancy*, and is not in danger of structural collapse, the *code official* is authorized to post a placard of condemnation on the *premises* and order the structure closed up so as not to be an attractive nuisance. Upon failure of the *owner* to close up the *premises* within the time specified in the order, the *code official* shall cause the *premises* to be closed and secured through any available public agency or by contract or arrangement by private persons and the cost thereof shall be charged against the real estate upon which the structure is located and shall be a lien upon such real estate and may be collected by any other legal resource.

108.2.1 Authority to disconnect service utilities. The *code official* 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 102.7 in case of emergency where necessary to eliminate an immediate hazard to life or property or when such utility connection has been made without approval. The *code official* shall notify the serving utility and, whenever possible, 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 disconnection the *owner* or *occupant* of the building structure or service system shall be notified in writing as soon as practical thereafter.

108.3 Notice. Whenever the *code official* has *condemned* a structure or equipment under the provisions of this section, notice shall be posted in a conspicuous place in or about the structure affected by such notice and served on the *owner* or the person or persons responsible for the structure or equipment in accordance with Section 107.3. If the notice pertains to equipment, it shall also be placed on the *condemned* equipment. The notice shall be in the form prescribed in Section 107.2.

108.4 Placarding. Upon failure of the *owner* or person responsible to comply with the notice provisions within the time given, the *code official* shall post on the *premises* or on defective equipment a placard bearing the word "Condemned" and a statement of the penalties provided for occupying the *premises*, operating the equipment or removing the placard.

108.4.1 Placard removal. The *code official* shall remove the condemnation placard whenever the defect or defects upon which the condemnation and placarding action were based have been eliminated. Any person who defaces or removes a condemnation placard without the approval of the *code official* shall be subject to the penalties provided by this code.

108.5 Prohibited occupancy. Any occupied structure *condemned* and placarded by the *code official* shall be vacated as ordered by the *code official*. Any person who shall occupy a placarded *premises* or shall operate placarded equipment, and any *owner* or any person responsible for the *premises* who shall let anyone occupy a placarded *premises* or operate placarded equipment shall be liable for the penalties provided by this code.

108.6 Abatement methods. The *owner, operator* or *occupant* of a building, *premises* or equipment deemed unsafe by the *code official* shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action.

108.7 Record. The *code official* 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.

SECTION 109 EMERGENCY MEASURES

109.1 Imminent danger. When, in the opinion of the *code official*, there is *imminent danger* of failure or collapse of a building or structure which endangers life, or when any structure or part of a

structure has fallen and life is endangered by the occupation of the structure, or when there is actual or potential danger to the building *occupants* or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials, or operation of defective or dangerous equipment, the *code official* is hereby authorized and empowered to order and require the *occupants* to vacate the *premises* forthwith. The *code official* shall cause to be posted at each entrance to such structure a notice reading as follows: "This *Structure* Is Unsafe and Its *Occupancy* Has Been Prohibited by the *Code Official*." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or of demolishing the same.

109.2 Temporary safeguards. Notwithstanding other provisions of this code, whenever, in the opinion of the *code official*, there is *imminent danger* due to an unsafe condition, the *code official* shall order the necessary work to be done, including the boarding up of openings, to render such structure temporarily safe whether or not the legal procedure herein described has been instituted; and shall cause such other action to be taken as the *code official* deems necessary to meet such emergency.

109.3 Closing streets. When necessary for public safety, the *code official* shall temporarily close structures and close, or order the authority having jurisdiction to close, sidewalks, streets, *public ways* and places adjacent to unsafe structures, and prohibit the same from being utilized.

109.4 Emergency repairs. For the purposes of this section, the *code official* shall employ the necessary labor and materials to perform the required work as expeditiously as possible.

109.5 Costs of emergency repairs. Costs incurred in the performance of emergency work shall be paid by the jurisdiction. The legal counsel of the jurisdiction shall institute appropriate action against the *owner* of the *premises* where the unsafe structure is or was located for the recovery of such costs.

109.6 Hearing. Any person ordered to take emergency measures shall comply with such order forthwith. Any affected person shall thereafter, upon petition directed to the General Manager of the municipality, be afforded a hearing as described in this code.

SECTION 110 DEMOLITION

110.1 General. The *code official* shall order the *owner* of any *premises* upon which is located any structure, which in the *code official* judgment after review is so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or where there has been a cessation of normal construction of any structure for a period of more than two years, the *code official* shall order the *owner* to demolish and remove such structure, or board up until future repair. Boarding the building up for future repair shall

not extend beyond one year, unless *approved* by the building official.

110.2 Notices and orders. All notices and orders shall comply with Section 107.

110.3 Failure to comply. If the *owner* of a *premises* fails to comply with a demolition order within the time prescribed, the *code official* shall cause the structure to be demolished and removed, either through an available public agency or by contract or arrangement with private persons, and the cost of such demolition and removal shall be charged against the real estate upon which the structure is located and shall be a lien upon such real estate.

110.4 Salvage materials. When any structure has been ordered demolished and removed, the governing body or other designated officer under said contract or arrangement aforesaid shall have the right to sell the salvage and valuable materials at the highest price obtainable. The net proceeds of such sale, after deducting the expenses of such demolition and removal, shall be promptly remitted with a report of such sale or transaction, including the items of expense and the amounts deducted, for the person who is entitled thereto, subject to any order of a court. If such a surplus does not remain to be turned over, the report shall so state.

SECTION 111 MEANS OF APPEAL

111.1 Application for appeal. Any person directly affected by a decision of the *code official* or a notice or order issued under this code shall have the right to appeal to the General Manager of the

municipality, provided that a written application for appeal is filed within 20 days after the day the decision, notice or order was served. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted there under have been incorrectly interpreted, the provisions of this code do not fully apply, or the requirements of this code are adequately satisfied by other means.

111.2 Stays of enforcement. Appeals of notice and orders (other than *Imminent Danger* notices) shall stay the enforcement of the notice and order until the appeal is heard by the General Manager of the municipality.

SECTION 112 STOP WORK ORDER

112.1 Authority. Whenever the *code official* finds any work regulated by this code being performed in a manner contrary to the provisions of this code or in a dangerous or unsafe manner, the *code official* is authorized to issue a stop work order.

112.2 Issuance. A stop work order shall be in writing and shall be given to the *owner* of the property, to the *owner's* agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work is authorized to resume.

112.3 Emergencies. Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.

112.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of an amount as prescribed by the Building Official.

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International Building Code

International Building Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Building Code (IBC), 2009 Edition as published by the International Code Council along with Appendix chapters C, E, F, G, H, I, and J. Certain additions, deletions or amendments to this code and the appendix chapters are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the building code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
202	Definitions	✓	✓	
308.5	Group I-4, Day Care Facilities.	✓		
310.1	Residential Group R.	✓		
406.2.2	Clear Height.	✓		
406.3.5.1	Single Use.	✓		
501.2	Address Identification.	✓		
Table 602	Table 602 Fire-Resistance Rating Requirements For Exterior Walls Based On Fire Separation Distance.	✓		
705.2	Projections.	✓		
705.5.1	Exterior Walls.		✓	
Table 705.5.1.1	Exterior Walls – Dwellings and Group U accessory structures without automatic residential fire sprinkler protection.		✓	
Table 705.5.1.2	Exterior Walls – Dwellings and Group U accessory structures with automatic residential fire sprinkler protection.		✓	
705.8	Openings.	✓		
709.4	Continuity.	✓		
903.2.8	Group R.	✓		
903.3.1.3	NFPA 13D sprinkler systems.	✓		
Table 1004.1.1	Table 1004.1.1 Maximum Floor Area Allowances Per Occupant.	✓		
1009.5	Stairway Landings.	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
1011.5.1	Graphics.	✓		
1014.2	Egress Through Intervening Spaces.	✓		
1204.1	Equipment and Systems.	✓		
1208.3	Room Area	✓		
Table 1505.1	Table 1505.1a, b Minimum Roof Covering Classification For Types of Construction.	✓		
1507.2.8.2	Ice barrier.			✓
1507.5.4	Ice barrier.			✓
1507.6.4	Ice barrier.			✓
1507.7.4	Ice barrier.			✓
1507.8.1.1	Solid Sheathing Required.			✓
1507.8.4	Ice Barrier.			✓
1507.9.1.1	Solid Sheathing Required.			✓
1507.9.4	Ice Barrier.			✓
1603.1	General.	✓		
1603.1.3	Roof Snow Load.			✓
1603.1.7	Flood Design Data.	✓		
Table 1604.3	Deflection Limits.	✓		
Table 1607.1	Minimum Uniformly Distributed Live Loads, L _o , and Minimum Concentrated Live Loads	✓		
1607.9	Reduction in Live Loads.	✓		
1608.1	General.			✓

Code Section	Title	Amd ¹	Add ¹	Del ¹
1608.2	Ground Snow Loads.			✓
Table 1608.2	Ground Snow Loads, p_g , For Alaskan Locations.			✓
Figure 1608.2	Ground Snow Loads, p_g , For the United States (psf)			✓
1609.3	Basic Wind Speed	✓		
1609.3.1	Wind Speed Conversion	✓		
Figure 1609	Basic Wind Speed (3-second gust)			✓
1611.1	Design Rain Loads.	✓		
Figure 1611.1	100-Year, 1-Hour Rainfall (Inches) Eastern United States.			✓
1612.2	Definitions			✓
1612.3	Establishment of Flood Hazard Areas.			✓
1612.5-1-1.1	Flood Hazard Documentation (Portion of Section)			✓
1613.5.1	Mapped Acceleration Parameters.	✓		
Figure 1613.5(1)	Maximum Considered Earthquake Ground Motion for the United Arab Emirates of 0.2 Sec Spectral Responmse Acceleration (5% of Critical Damping), Site Class B	✓		
Figure 1613.5(2)	Maximum Considered Earthquake Ground Motion for the United Arab Emirates of 1.0 SEC Spectral Response Acceleration (5% of Critical Damping), Site Class B	✓		
Figure 1613.5(3)	Long-Period Transition Period T_L (S) for the United Arab Emirates	✓		
Figure 1613.5(4)	Maximum Considered Earthquake Ground Motion for Region 1 of 1.0 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B Site Class B			✓

Code Section	Title	Amd ¹	Add ¹	Del ¹
Figure 1613.5(5)	Maximum Considered Earthquake Ground Motion for Region 2 of 0.2 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(6)	Maximum Considered Earthquake Ground Motion for Region 2 of 1.0 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(7)	Maximum Considered Earthquake Ground Motion for Region 3 of 0.2 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(8)	Maximum Considered Earthquake Ground Motion for Region 3 of 1.0 SEC Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(9)	Maximum Considered Earthquake Ground Motion for Region 4 of 0.2 and 1.0 SEC Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(10)	Maximum Considered Earthquake Ground Motion for Hawaii of 0.2 and 1.0 SEC Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(11)	Maximum Considered Earthquake Ground Motion for Alaska of 0.2 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure	Maximum Considered Earthquake			✓

Code Section	Title	Amd ¹	Add ¹	Del ¹
1613.5(12)	Ground Motion for Alaska of 1.0 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			
Figure 1613.5(13)	Maximum Considered Earthquake Ground Motion for Puerto Rico, Culebra, Vieques, St. Thomas, St. John and St. Croix of 0.2 and 1.0 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Figure 1613.5(14)	Maximum Considered Earthquake Ground Motion for Guam and Tutuilla of 0.2 and 1.0 Sec Spectral Response Acceleration (5% of Critical Damping), Site Class B			✓
Table 1613.5.6(1)	Seismic Design Category Based on Short-Period Response Accelerations	✓		
Table 1613.5.6(2)	Seismic Design Category Based on 1-Second Period Response Acceleration	✓		
1613.7	ASCE 7, Section 11.4.5	✓		
1613.8	Anchorage of Walls		✓	
1710.3	Structural observations for wind requirements.	✓		
1805.1.2.1	Flood hazard areas.	✓		
1807.1.4	Permanent wood foundation systems.			✓
1809.5	Frost protection.			✓
1904.2	Exposure categories and classes.	✓		
1904.3	Concrete properties.	✓		
Table 1904.3	Minimum Specified Compressive Strength (f'c)	✓		
Figure 1904.3	Weathering Probability Map for Concrete			✓
1904.4	Freezing and thawing exposures.			✓

Code Section	Title	Amd ¹	Add ¹	Del ¹
1904.4.1	Air entrainment.			✓
1904.4.2	Deicing chemicals.			✓
2308.1	General.	✓		
2308.11.1	Number of stories.	✓		
2603.8	Protection against termites.	✓		
Figure 2603.8	Termite Infestation Probability Map			✓
3103.1	General.	✓		
3108.2	Location and access.	✓		
3201.5	No Objection Certificate.		✓	
3202.2.3	Awnings.	✓		
3202.3.1	Awnings, canopies, marquees and signs.	✓		
3401.2.1	Maintenance Program.		✓	
3401.3	Compliance.	✓		
3401.5	Alternative Compliance.			✓
3403.1	General.	✓		
3403.5	Plumbing Fixtures.		✓	
3404.1	General.	✓		
3404.7	Plumbing Fixtures.		✓	
3405.1	General.	✓		
3405.6	Plumbing Fixtures.		✓	
3408.5	Plumbing Fixtures.		✓	
3409.2	Flood hazard areas.	✓		
3412.2	Applicability.	✓		
G102.2	Establishment of flood hazard areas.	✓		
G103.2	Other permits.	✓		
G103.5.1	Floodway revisions.			✓
G103.6	Watercourse alteration.	✓		
G105.1	General.	✓		
G105.3	Historic structures.	✓		
G105.7	Conditions for issuance.	✓		
H101.3	Required Signage.		✓	

Code Section	Title	Amd ¹	Add ¹	Del ¹
J104.5	Geophysical Study.		✓	
¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.				

CHAPTER 1 – SCOPE AND ADMINISTRATION (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART A)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 202 – Definitions (Note: Definitions printed in the IBC not referenced here remain unchanged.)		
202	BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.	BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. <u>Wherein these codes reference is made to the “Building Official,” it shall mean the Director of the Construction Permit Department of the Municipality.</u>
	New definition added	CODE OFFICIAL. <u>The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Wherein this code the term “Code Official” is used, it shall mean the “Building Official.”</u>
	New definition added	DEPARTMENT OF BUILDING SAFETY. <u>Wherein these codes reference is made to the Department of Building Safety, it shall mean the Construction Permit Department of the municipality.</u>
	New definition added	FIRE DEPARTMENT. <u>Whenever reference is made within this code to the Fire Department it shall mean the Department of Civil Defence.</u>
	New definition added	PLUMBING CODE. <u>Wherein this code reference is made to the International Plumbing Code it shall mean the Uniform Plumbing Code of Abu Dhabi Emirate as published by the Abu Dhabi Environmental Agency and or the Water Quality Regulations, January 2009, as published by the Regulation and Supervision Bureau, unless an alternative plumbing</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>design which is based upon the IPC has been approved by the Building Official in accordance with section 101.4.3.</u>
	JURISDICTION. The governmental unit that has adopted this code under due legislative authority.	JURISDICTION. The governmental unit <u>Emirate of Abu Dhabi</u> that has adopted this code under due legislative authority.
	New definition added	<u>NATIONAL ELECTRICAL CODE.</u> Wherein these codes reference is made to the <i>National Electrical Code</i> , it shall mean <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New definition added	<u>NFPA 70.</u> Wherein these codes reference is made to <i>NFPA 70</i> , it shall mean <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.

CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 308 – Institutional Group I		
308.5	Group I-4, day care facilities. This group shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. A facility such as the above with five or fewer persons shall be classified as a Group R-3 or shall comply with the <i>International Residential Code</i> in accordance with Section 101.2. Places of worship during religious functions are not included.	Group I-4, day care facilities. This group shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. A facility such as the above with five or fewer persons shall be classified as a Group R-3 or shall comply with the <i>International Residential Code</i> in accordance with Section 101.2. Places of worship during religious functions are not included.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 310 – Residential Group R		
310.1	<p>Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the <i>International Residential Code</i> in accordance with Section 101.2. Residential occupancies shall include the following:</p> <p>R-1 Residential occupancies containing <i>sleeping units</i> where the occupants are primarily transient in nature, including:</p> <p><i>Boarding houses</i> (transient) Hotels (transient) Motels (transient)</p> <p><i>Congregate living facilities</i> (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.</p> <p>R-2 Residential occupancies containing <i>sleeping units</i> or more than two <i>dwelling units</i> where the occupants are primarily permanent in nature, including:</p> <p>Apartment houses <i>Boarding houses</i> (nontransient) Convents Dormitories Fraternities and sororities Hotels (nontransient)</p>	<p>Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the <i>International Residential Code</i> in accordance with Section 101.2. Residential occupancies shall include the following:</p> <p>R-1 Residential occupancies containing <i>sleeping units</i> where the occupants are primarily transient in nature, including:</p> <p><i>Boarding houses</i> (transient) Hotels (transient) Motels (transient)</p> <p><i>Congregate living facilities</i> (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.</p> <p>R-2 Residential occupancies containing <i>sleeping units</i> or more than two <i>dwelling units</i> where the occupants are primarily permanent in nature, including:</p> <p>Apartment houses <i>Boarding houses</i> (nontransient) Convents Dormitories Fraternities and sororities Hotels (nontransient)</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>Live/work units Monasteries Motels (nontransient) Vacation timeshare properties</p> <p><i>Congregate living facilities</i> with 16 or fewer occupants are permitted to comply with the construction requirements for Group R-3.</p> <p>R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:</p> <p>Buildings that do not contain more than two <i>dwelling units</i>. Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. <i>Congregate living facilities</i> with 16 or fewer persons.</p> <p>Adult care and child care facilities that are within a single-family home are permitted to comply with the <i>International Residential Code</i>.</p> <p>R-4 Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff.</p> <p>Group R-4 occupancies shall meet the requirements for</p>	<p>Live/work units Monasteries Motels (nontransient) Vacation timeshare properties</p> <p><i>Congregate living facilities</i> with 16 or fewer occupants are permitted to comply with the construction requirements for Group R-3.</p> <p>R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:</p> <p>Buildings that do not contain more than two <i>dwelling units</i>. Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. <i>Congregate living facilities</i> with 16 or fewer persons.</p> <p>Adult care and child care facilities that are within a single-family home are permitted to comply with the <i>International Residential Code</i>.</p> <p>R-4 Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff.</p> <p>Group R-4 occupancies shall meet the requirements for</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	construction as defined for Group R-3, except as otherwise provided for in this code or shall comply with the <i>International Residential Code</i> provided the building is protected by an <i>automatic sprinkler system</i> installed in accordance with Section 903.2.8.	construction as defined for Group R-3, except as otherwise provided for in this code, or shall comply with the <i>International Residential Code</i> provided the building is protected by an <i>automatic sprinkler system</i> installed in accordance with Section 903.2.8.

CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 406 – Motor Vehicle Related Occupancies		
406.2.2	Clear height. The clear height of each floor level in vehicle and pedestrian traffic areas shall not be less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van-accessible parking required by Section 1106.5 shall conform to ICC A117.1.	Clear height. The clear height of each floor level in vehicle and pedestrian traffic areas shall not be less than 7 feet <u>10 inches</u> (2134 <u>2388</u> mm). Vehicle and pedestrian areas accommodating van-accessible parking required by Section 1106.5 shall conform to ICC A117.1.
406.3.5.1	Single use. When the <i>open parking garage</i> is used exclusively for the parking or storage of private motor vehicles, with no other uses in the building, the area and height shall be permitted to comply with Table 406.3.5, along with increases allowed by Section 406.3.6. Exception: The grade-level tier is permitted to contain an office, waiting and toilet rooms having a total combined area of not more than 1,000 square feet (93 m ²). Such area need not be separated from the <i>open parking garage</i> . In <i>open parking garages</i> having a spiral or sloping floor, the horizontal projection of the structure at any cross section shall not exceed the allowable area per parking tier. In the	Single use. When the <i>open parking garage</i> is used exclusively for the parking or storage of private motor vehicles, with no other uses in the building, the area and height shall be permitted to comply with Table 406.3.5, along with increases allowed by Section 406.3.6. Exception: The grade-level tier is permitted to contain an office, waiting and toilet rooms having a total combined area of not more than 1,000 square feet (93 m ²). Such area need not be separated from the <i>open parking garage</i> . In <i>open parking garages</i> having a spiral or sloping floor, the horizontal projection of the structure at any cross section shall not exceed the allowable area per parking tier. In the

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>case of an <i>open parking garage</i> having a continuous spiral floor, each 9 feet 6 inches (2896 mm) of height, or portion thereof, shall be considered a tier.</p> <p>The clear height of a parking tier shall not be less than 7 feet (2134 mm), except that a lower clear height is permitted in mechanical-access <i>open parking garages</i> where <i>approved</i> by the <i>building official</i>.</p>	<p>case of an <i>open parking garage</i> having a continuous spiral floor, each 9 feet 6 inches (2896 mm) of height, or portion thereof, shall be considered a tier.</p> <p>The clear height of a parking tier shall not be less than 7 feet <u>10 inches</u> (2134 <u>2388</u> mm) except that a lower clear height is permitted in mechanical-access <i>open parking garages</i> where <i>approved</i> by the <i>building official</i>.</p>

CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 501 - General		
501.2	<p>Address identification. New and existing buildings shall be provided with <i>approved</i> address numbers or letters. Each character shall be a minimum 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide. They shall be installed on a contrasting background and be plainly visible from the street or road fronting the property. Where access is by means of a private road and the building address cannot be viewed from the <i>public way</i>, a monument, pole or other <i>approved</i> sign or means shall be used to identify the structure.</p>	<p>Address <u>Location</u> identification. New and existing buildings shall be provided <u>identified</u> with approved address numbers or letters <u>as approved by the authority having jurisdiction.</u> <u>Such identification signage shall be in Arabic and English and composed of</u> Each character shall be a <u>minimum not less than</u> 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide. They shall be installed on a contrasting background and be plainly visible from the street or road fronting the property. Where access is by means of a private road and the building address cannot be viewed from the <i>public way</i>, a monument, pole or other <i>approved</i> sign or means shall be used to identify the structure.</p>

CHAPTER 6 – TYPES OF CONSTRUCTION (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language																																																																										
Section 602 – Fire Resistance Rating Requirements For Exterior Walls Based on Fire Separation Distance^{a,e}																																																																												
Table 602	<p>FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE^{a, e}</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="font-size: small;">FIRE SEPARATION DISTANCE = X (feet)</th> <th style="font-size: small;">TYPE OF CONSTRUCTION</th> <th style="font-size: small;">OCCUPANCY GROUP H^f</th> <th style="font-size: small;">OCCUPANCY GROUP F-1, M,S-1^g</th> <th style="font-size: small;">OCCUPANCY GROUP A, B, E, F-2, I, R,S-2^g, U^b</th> </tr> </thead> <tbody> <tr> <td>X < 5^c</td> <td>All</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td rowspan="2">5 ≤ X < 10</td> <td>IA</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td>Others</td> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td rowspan="3">10 ≤ X < 30</td> <td>IA, IB</td> <td>2</td> <td>1</td> <td>1^d</td> </tr> <tr> <td>IIB, VB</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Others</td> <td>1</td> <td>1</td> <td>1^d</td> </tr> <tr> <td>X ≥ 30</td> <td>All</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>For SI: 1 foot = 304.8 mm.</p> <p>a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.</p> <p>b. For special requirements for Group U occupancies, see Section 406.1.2.</p> <p>c. See Section 706.1.1 for party walls.</p> <p>d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.</p> <p>e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.</p> <p>f. For special requirements for Group H occupancies, see Section 415.3.</p> <p>g. For special requirements for Group S aircraft hangars, see Section 412.4.1.</p>	FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H ^f	OCCUPANCY GROUP F-1, M,S-1 ^g	OCCUPANCY GROUP A, B, E, F-2, I, R,S-2 ^g , U ^b	X < 5 ^c	All	3	2	1	5 ≤ X < 10	IA	3	2	1	Others	2	1	1	10 ≤ X < 30	IA, IB	2	1	1 ^d	IIB, VB	1	0	0	Others	1	1	1 ^d	X ≥ 30	All	0	0	0	<p>FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE^{a, e}</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="font-size: small;">FIRE SEPARATION DISTANCE = X (feet)</th> <th style="font-size: small;">TYPE OF CONSTRUCTION</th> <th style="font-size: small;">OCCUPANCY GROUP H^f</th> <th style="font-size: small;">OCCUPANCY GROUP F-1, M,S-1^g</th> <th style="font-size: small;">OCCUPANCY GROUP A, B, E, F-2, I, R^h,S-2^g, U^{hh}</th> </tr> </thead> <tbody> <tr> <td>X < 5^c</td> <td>All</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td rowspan="2">5 ≤ X < 10</td> <td>IA</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td>Others</td> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td rowspan="3">10 ≤ X < 30</td> <td>IA, IB</td> <td>2</td> <td>1</td> <td>1^d</td> </tr> <tr> <td>IIB, VB</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Others</td> <td>1</td> <td>1</td> <td>1^d</td> </tr> <tr> <td>X ≥ 30</td> <td>All</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>For SI: 1 foot = 304.8 mm.</p> <p>a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.</p> <p>b. For special requirements for Group U occupancies, see Section 406.1.2.</p> <p>c. See Section 706.1.1 for party walls.</p> <p>d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.</p> <p>e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.</p> <p>f. For special requirements for Group H occupancies, see Section 415.3.</p> <p>g. For special requirements for Group S aircraft hangars, see Section 412.4.1.</p> <p><u>h. For R-3 occupancies and Group U when used as accessory to an R-3 occupancy see section 705.5.1 and Tables 705.5.1.1 and 705.5.1.2.</u></p>	FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H ^f	OCCUPANCY GROUP F-1, M,S-1 ^g	OCCUPANCY GROUP A, B, E, F-2, I, R ^h ,S-2 ^g , U ^{hh}	X < 5 ^c	All	3	2	1	5 ≤ X < 10	IA	3	2	1	Others	2	1	1	10 ≤ X < 30	IA, IB	2	1	1 ^d	IIB, VB	1	0	0	Others	1	1	1 ^d	X ≥ 30	All	0	0	0
FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H ^f	OCCUPANCY GROUP F-1, M,S-1 ^g	OCCUPANCY GROUP A, B, E, F-2, I, R,S-2 ^g , U ^b																																																																								
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CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 705 – Exterior Walls		
705.2	<p>Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the <i>exterior wall</i> shall conform to the requirements of this section and Section 1406. Exterior egress balconies and <i>exterior exit stairways</i> shall also comply with Sections 1019 and 1026, respectively. Projections shall not extend beyond the distance determined by the following three methods, whichever results in the lesser projection:</p> <ol style="list-style-type: none"> 1. A point one-third the distance from the exterior face of the wall to the <i>lot line</i> where protected openings or a combination of protected and unprotected openings are required in the <i>exterior wall</i>. 2. A point one-half the distance from the exterior face of the wall to the <i>lot line</i> where all openings in the <i>exterior wall</i> are permitted to be unprotected or the building is equipped throughout with an <i>automatic sprinkler system</i> installed under the provisions of Section 705.8.2. 3. More than 12 inches (305 mm) into areas where openings are prohibited. <p>Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section.</p>	<p>Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the <i>exterior wall</i> shall conform to the requirements of this section and Section 1406. Exterior egress balconies and <i>exterior exit stairways</i> shall also comply with Sections 1019 and 1026, respectively. Projections shall not extend beyond the distance determined by the following three methods, whichever results in the lesser projection:</p> <ol style="list-style-type: none"> 1. A point one-third the distance from the exterior face of the wall to the <i>lot line</i> where protected openings or a combination of protected and unprotected openings are required in the <i>exterior wall</i>. 2. A point one-half the distance from the exterior face of the wall to the <i>lot line</i> where all openings in the <i>exterior wall</i> are permitted to be unprotected or the building is equipped throughout with an <i>automatic sprinkler system</i> installed under the provisions of Section 705.8.2. 3. More than 12 inches (305 mm) into areas where openings are prohibited. <p>Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section.</p> <p><u>For R-3 occupancies see section 705.5.1 and Tables 705.5.1.1</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language									
705.5.1	New Section Added.	<p>and 705.5.1.2.</p> <p>Exterior walls. Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table 705.5.1.1 or dwellings equipped throughout with an automatic residential fire sprinkler system installed in accordance with Section 903 shall comply with Table 705.5.1.2.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. <u>Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the fire separation distance.</u> 2. <u>Walls of dwellings and accessory structures located on the same lot.</u> 3. <u>Detached tool or storage sheds, play houses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.</u> 4. <u>Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line are permitted to have roof eave projections not exceeding 4 inches (102 mm).</u> 5. <u>Foundation vents installed in compliance with this code are permitted.</u> 									
Table 705.5.1.1	New Table Added.	<p><u>EXTERIOR WALLS – DWELLINGS AND GROUP U ACCESSORY STRUCTURES WITHOUT AUTOMATIC RESIDENTIAL FIRE SPRINKLER PROTECTION.</u></p> <table border="1"> <thead> <tr> <th><u>Exterior Wall Element</u></th> <th><u>Min. Fire Resistance Rating</u></th> <th><u>Min. Fire Separation Distance</u></th> </tr> </thead> <tbody> <tr> <td>Walls</td> <td>(Fire-Resistance Rated)</td> <td>1 hour-tested in accordance with ASTM E 119 or UL 263 with</td> </tr> <tr> <td colspan="2"></td> <td><5 feet</td> </tr> </tbody> </table>	<u>Exterior Wall Element</u>	<u>Min. Fire Resistance Rating</u>	<u>Min. Fire Separation Distance</u>	Walls	(Fire-Resistance Rated)	1 hour-tested in accordance with ASTM E 119 or UL 263 with			<5 feet
<u>Exterior Wall Element</u>	<u>Min. Fire Resistance Rating</u>	<u>Min. Fire Separation Distance</u>									
Walls	(Fire-Resistance Rated)	1 hour-tested in accordance with ASTM E 119 or UL 263 with									
		<5 feet									

Section	Original Code Language	Abu Dhabi Adopted Code Language																														
				exposure from both sides																												
		(Not Fire-Resistance Rated)	0 hours		≥5 feet																											
		<u>Projections</u>	(Fire-Resistance Rated)	1-hour on the underside	≥2 feet to 5 feet																											
		(Not Fire-Resistance Rated)	0		5 feet																											
		<u>Openings in Walls</u>	Not Allowed	N/A	<3 feet																											
		25% Maximum of Wall Area	0 hours		3 feet																											
		Unlimited	0 hours		5 feet																											
		<u>Penetrations</u>	All	Comply with section 713	<5 feet																											
				None required	5 feet																											
		For SI: 1 foot = 304.8 mm. N/A = Not Applicable																														
Table 705.5.1.2	New Table Added.	<p align="center"><u>EXTERIOR WALLS – DWELLINGS AND GROUP U ACCESSORY STRUCTURES WITH AUTOMATIC RESIDENTIAL FIRE SPRINKLER PROTECTION.</u></p> <table border="1"> <thead> <tr> <th><u>Exterior Wall Element</u></th> <th><u>Min. Fire Resistance Rating</u></th> <th><u>Min. Fire Separation Distance</u></th> </tr> </thead> <tbody> <tr> <td><u>Walls</u></td> <td>(Fire-Resistance Rated)</td> <td>1 hour-tested in accordance with ASTM E 119 or UL 263 with exposure from both sides</td> </tr> <tr> <td></td> <td>(Not Fire-Resistance Rated)</td> <td>0 hours</td> </tr> <tr> <td><u>Projections</u></td> <td>(Fire-Resistance Rated)</td> <td>1-hour on the underside</td> </tr> <tr> <td></td> <td>(Not Fire-Resistance Rated)</td> <td>0</td> </tr> <tr> <td><u>Openings in Walls</u></td> <td>Not Allowed</td> <td>N/A</td> </tr> <tr> <td></td> <td>Unlimited</td> <td>0 hours</td> </tr> <tr> <td><u>Penetrations</u></td> <td>All</td> <td>Comply with section 713</td> </tr> <tr> <td></td> <td></td> <td>None required</td> </tr> </tbody> </table> <p>For SI: 1 foot = 304.8 mm. N/A = Not Applicable</p>				<u>Exterior Wall Element</u>	<u>Min. Fire Resistance Rating</u>	<u>Min. Fire Separation Distance</u>	<u>Walls</u>	(Fire-Resistance Rated)	1 hour-tested in accordance with ASTM E 119 or UL 263 with exposure from both sides		(Not Fire-Resistance Rated)	0 hours	<u>Projections</u>	(Fire-Resistance Rated)	1-hour on the underside		(Not Fire-Resistance Rated)	0	<u>Openings in Walls</u>	Not Allowed	N/A		Unlimited	0 hours	<u>Penetrations</u>	All	Comply with section 713			None required
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705.8	<p>Openings. Openings in <i>exterior walls</i> shall comply with Sections 705.8.1 through 705.8.6.</p>	<p>Openings. Openings in <i>exterior walls</i> shall comply with Sections 705.8.1 through 705.8.6.</p> <p>For R-3 occupancies see Tables 705.5.1.1 or 705.5.1.2.</p>
Section 709 – Fire Partitions		
709.4	<p>Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. If the partitions are not continuous to the sheathing, deck or slab, and where constructed of combustible construction, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 717.2 and 717.3 at the partition line. The supporting construction shall be protected to afford the required <i>fire-resistance rating</i> of the wall supported, except for walls separating tenant spaces in <i>covered mall buildings</i>, walls separating <i>dwelling units</i>, walls separating <i>sleeping units</i> and <i>corridor</i> walls in buildings of Type IIB, IIIB and VB construction.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour <i>fire-resistance rating</i>. 2. Where the room-side fire-resistance-rated membrane of the <i>corridor</i> is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the <i>corridor</i> shall 	<p>Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. If the partitions are not continuous to the sheathing, deck or slab, and where constructed of combustible construction, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 717.2 and 717.3 at the partition line. The supporting construction shall be protected to afford the required <i>fire-resistance rating</i> of the wall supported, except for walls separating tenant spaces in <i>covered mall buildings</i>, walls separating <i>dwelling units</i>, walls separating <i>sleeping units</i> and <i>corridor</i> walls in buildings of Type IIB, IIIB and VB construction.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour <i>fire-resistance rating</i>. 2. Where the room-side fire-resistance-rated membrane of the <i>corridor</i> is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the <i>corridor</i> shall be

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	<p>be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.</p> <ol style="list-style-type: none"> 3. Where the <i>corridor</i> ceiling is constructed as required for the <i>corridor</i> walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly. 4. The fire partitions separating tenant spaces in a <i>covered mall building</i>, complying with Section 402.7.2, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in <i>attic</i> or ceiling spaces above tenant separation walls. 5. Fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four <i>stories above grade plane</i>, provided the <i>attic</i> space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m²) or above every two <i>dwelling units</i>, whichever is smaller. 6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an <i>automatic sprinkler system</i> installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces. 	<p>permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.</p> <ol style="list-style-type: none"> 3. Where the <i>corridor</i> ceiling is constructed as required for the <i>corridor</i> walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly. 4. The fire partitions separating tenant spaces in a <i>covered mall building</i>, complying with Section 402.7.2, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in <i>attic</i> or ceiling spaces above tenant separation walls. 5. Fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four <i>stories above grade plane</i>, provided the <i>attic</i> space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m²) or above every two <i>dwelling units</i>, whichever is smaller. 6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an <i>automatic sprinkler system</i> installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces. 7. <u>A fire-resistance rating of 1/2 hour shall be permitted in R-3 occupancies containing not more than two dwelling units which are equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13D.</u> 8. <u>Wall assemblies in R-3 occupancies which contain not</u>

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		<p><u>more than two dwelling units need not extend through attic spaces when the ceiling is protected by not less than $\frac{5}{8}$-inch (15.9 mm) Type X gypsum board and an attic draft stop constructed as specified in section 717.3.1 is provided above and along the wall assembly separating the dwellings. The structural framing supporting the ceiling shall also be protected by not less than $\frac{1}{2}$-inch (12.7 mm) gypsum board or equivalent.</u></p>

CHAPTER 8 – INTERIOR FINISHES (ADOPTED) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

CHAPTER 9 – FIRE PROTECTION SYSTEMS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 903 – Automatic Sprinkler Systems		
903.2.8	<p>Group R. An <i>automatic sprinkler system</i> installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R <i>fire area</i>.</p>	<p>Group R. An <i>automatic sprinkler system</i> installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R <i>fire area</i>.</p> <p><u>Exception: One and two family dwellings of Group R-3 occupancy.</u></p>
903.3.1.3	<p>NFPA 13D sprinkler systems. Where allowed, <i>automatic sprinkler systems</i> installed in one- and two-family <i>dwellings</i> and <i>townhouses</i> shall be installed throughout in accordance with NFPA 13D.</p>	<p>NFPA 13D sprinkler systems. Where allowed, a<i>Automatic sprinkler systems, when</i> installed in one and two family <i>dwellings</i> and <i>townhouses</i>, shall be installed throughout in accordance with NFPA 13D.</p>

CHAPTER 10 – MEANS OF EGRESS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

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	Inpatient treatment areas	240 gross
	Outpatient areas	100 gross
	Sleeping areas	120 gross
	Kitchens, commercial	200 gross
	Library	
	Reading rooms	50 net
	Stack area	100 gross
	Locker rooms	50 gross
	Mercantile	
	Areas on other floors	60 gross
	Basement and grade floor areas	30 gross
	Storage, stock, shipping areas	300 gross
	Parking garages	200 gross
	Residential	200 gross
	Skating rinks, swimming pools	
	Rink and pool	50 gross
	Decks	15 gross
	Stages and platforms	15 net
	Warehouses	500 gross
	For SI: 1 square foot = 0.0929 m ² .	
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Section 1009 - Stairways

1009.5 **Stairway landings.** There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings shall not be less than the width of *stairways* they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the *stairway*. Such dimension need not exceed 48 inches (1219 mm) where the *stairway* has a straight run. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1007.6.1, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing

Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings shall not be less than the width of *stairways* they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the *stairway*. Such dimension need not exceed 48 inches (1219 mm) where the *stairway* has a straight run. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1007.6.1, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>over the <i>wheelchair spaces</i>.</p> <p>Exception: <i>Aisle stairs</i> complying with Section 1028.</p>	<p>over the <i>wheelchair spaces</i>.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. <i>Aisle stairs</i> complying with Section 1028. 2. <u>For one and two family dwellings, a floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs. A flight of stairs shall not have a vertical rise larger than 12 feet (3658 mm) between floor levels or landings. The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.</u>
Section 1011 – Exit Signs		
1011.5.1	<p>Graphics. - Every <i>exit</i> sign and directional <i>exit</i> sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than $\frac{3}{4}$ inch (19.1 mm) wide. The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than $\frac{3}{8}$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.</p> <p>The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of <i>exit</i> sign illumination is or is not energized. If a chevron directional indicator is provided as part of the <i>exit</i> sign, the</p>	<p>Graphics. - Every <i>exit</i> sign and directional <i>exit</i> sign shall have plainly legible <u>pictographic symbols or letters</u> not less than 6 inches (152 mm) high. <u>Letters shall have a width with the principal strokes of the letters not less than $\frac{3}{4}$ inch (19.1 mm) wide and shall be clearly legible.</u> The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than $\frac{3}{8}$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.</p> <p><u>Pictographic symbols and/or the word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of <i>exit</i> sign illumination is or is</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	construction shall be such that the direction of the chevron directional indicator cannot be readily changed.	not energized. If a chevron directional indicator is provided as part of the <i>exit</i> sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.
Section 1014 – Exit Access		
1014.2	<p>Egress through intervening spaces. Egress through intervening spaces shall comply with this section.</p> <ol style="list-style-type: none"> 1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an <i>exit</i>. <ul style="list-style-type: none"> Exception: <i>Means of egress</i> are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group. 2. An <i>exit access</i> shall not pass through a room that can be locked to prevent egress. 3. <i>Means of egress</i> from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms. 4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes. <p>Exceptions:</p>	<p>Egress through intervening spaces. Egress through intervening spaces shall comply with this section.</p> <ol style="list-style-type: none"> 1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an <i>exit</i>. <ul style="list-style-type: none"> Exception: <i>Means of egress</i> are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group. 2. An <i>exit access</i> shall not pass through a room that can be locked to prevent egress. 3. <i>Means of egress</i> from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms. 4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes. <p>Exceptions:</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<ol style="list-style-type: none"> 1. <i>Means of egress</i> are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit. 2. <i>Means of egress</i> are not prohibited through stockrooms in Group M occupancies when all of the following are met: <ol style="list-style-type: none"> 2.1. The stock is of the same hazard classification as that found in the main retail area; 2.2. Not more than 50 percent of the <i>exit access</i> is through the stockroom; 2.3. The stockroom is not subject to locking from the egress side; and 2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) <i>aisle</i> defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the <i>exit</i> without obstructions. 	<ol style="list-style-type: none"> 1. <i>Means of egress</i> are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit. 2. <i>Means of egress</i> are not prohibited through stockrooms in Group M occupancies when all of the following are met: <ol style="list-style-type: none"> 2.1. The stock is of the same hazard classification as that found in the main retail area; 2.2. Not more than 50 percent of the <i>exit access</i> is through the stockroom; 2.3. The stockroom is not subject to locking from the egress side; and 2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) <i>aisle</i> defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the <i>exit</i> without obstructions. 5. <u>For one and two family dwellings a means of egress may pass through rooms and intervening spaces except garages.</u>

CHAPTER 11 – ACCESSIBILITY (ADOPTED, ALSO ICC/ANSI A117.1-2009 EDITION) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

CHAPTER 12 – INTERIOR ENVIRONMENT (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1204 – Temperature Control		
1204.1	Equipment and systems. Interior spaces intended for human	Equipment and systems. Interior spaces intended for human

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>occupancy shall be provided with active or passive space-heating systems capable of maintaining a minimum indoor temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.</p> <p>Exception: Interior spaces where the primary purpose is not associated with human comfort.</p>	<p>occupancy shall <u>may</u> be provided with active or passive space-heating systems capable of maintaining a minimum indoor temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day <u>as may be required by the Building Official. Cooling systems which may be installed shall maintain a temperature of not less than 75°F (24°C) at a point 3 feet (914 mm) above the floor on the design cooling day.</u></p> <p>Exception: <u>For heating systems,</u> interior spaces where the primary purpose is not associated with human comfort.</p>
Section 1208 – Interior Space Dimensions		
1208.3	<p>Room area. Every <i>dwelling unit</i> shall have at least one room that shall have not less than 120 square feet (13.9 m²) of <i>net floor area</i>. Other habitable rooms shall have a <i>net floor area</i> of not less than 70 square feet (6.5 m²).</p> <p>Exception: Every kitchen in a one- and two-family <i>dwelling</i> shall have not less than 50 square feet (4.64 m²) of <i>gross floor area</i>.</p>	<p>Room area. Every <i>dwelling unit</i> shall have at least one room that shall have not less than 120 square feet (13.9 m²) of <i>net floor area</i>. Other habitable rooms shall have a <i>net floor area</i> of not less than 70 square feet (6.5 m²).</p> <p>Exception: Every kitchen in a one- and two-<u>single-</u>family <i>dwelling</i> shall have not less than 50 square feet (4.64 m²)<u>12 m² (129.2 square feet)</u> of <i>gross floor area</i>. <u>Kitchens in multiple family dwellings shall have not less than 50 square feet (4.64 m²) of <i>gross floor area</i>.</u></p>

CHAPTER 13 – ENERGY EFFICIENCY (ADOPTED, REFER TO THE INTERNATIONAL ENERGY CONSERVATION CODE, 2009 EDITION)

CHAPTER 14 – EXTERIOR WALLS (ADOPTED, NO AMENDMENTS)

CHAPTER 15 – ROOF ASSEMBLIES AND ROOFTOP STRUCTURES (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language																																				
Section 1505 – Fire Classification																																						
Table 1505.1	<p>TABLE 1505.1^{a, b} MINIMUM ROOF COVERING CLASSIFICATION FOR TYPES OF CONSTRUCTION</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>IA</td><td>IB</td><td>IIA</td><td>IIB</td><td>IIIA</td><td>IIIB</td><td>IV</td><td>VA</td><td>VB</td> </tr> <tr> <td>B</td><td>B</td><td>B</td><td>C^c</td><td>B</td><td>C^c</td><td>B</td><td>B</td><td>C^c</td> </tr> </table> <p>For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m².</p> <p>a. Unless otherwise required in accordance with the <i>International Wildland-Urban Interface Code</i> or due to the location of the building within a fire district in accordance with Appendix D.</p> <p>b. Nonclassified roof coverings shall be permitted on buildings of Group R-3 and Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.</p> <p>c. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles.</p>	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB	B	B	B	C ^c	B	C ^c	B	B	C ^c	<p>TABLE 1505.1^{a-b} MINIMUM ROOF COVERING CLASSIFICATION FOR TYPES OF CONSTRUCTION</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>IA</td><td>IB</td><td>IIA</td><td>IIB</td><td>IIIA</td><td>IIIB</td><td>IV</td><td>VA</td><td>VB</td> </tr> <tr> <td>B</td><td>B</td><td>B</td><td>C^{eb}</td><td>B</td><td>C^{eb}</td><td>B</td><td>B</td><td>C^{eb}</td> </tr> </table> <p>For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m².</p> <p>a. Unless otherwise required in accordance with the <i>International Wildland-Urban Interface Code</i> or due to the location of the building within a fire district in accordance with Appendix D.</p> <p><u>a</u>b. Nonclassified roof coverings shall be permitted on buildings of Group R-3 and Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.</p> <p><u>b</u>e. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles.</p>	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB	B	B	B	C ^{eb}	B	C ^{eb}	B	B	C ^{eb}
IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB																														
B	B	B	C ^c	B	C ^c	B	B	C ^c																														
IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB																														
B	B	B	C ^{eb}	B	C ^{eb}	B	B	C ^{eb}																														
Section 1507 – Requirements for Roof Coverings																																						
1507.2.8.2	Ice barrier.	Section Deleted.																																				
1507.5.4	Ice barrier.	Section Deleted.																																				
1507.6.4	Ice barrier.	Section Deleted.																																				
1507.7.4	Ice barrier.	Section Deleted.																																				
1507.8.1.1	Solid sheathing required.	Section Deleted.																																				
1507.8.4	Ice barrier.	Section Deleted.																																				
1507.9.1.1	Solid sheathing required.	Section Deleted.																																				

Section	Original Code Language	Abu Dhabi Adopted Code Language
1507.9.4	Ice barrier.	Section Deleted.

CHAPTER 16 – STRUCTURAL DESIGN (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1603 – Construction Documents		
1603.1	<p>General. <i>Construction documents</i> shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9 shall be indicated on the <i>construction documents</i>.</p> <p>Exception: <i>Construction documents</i> for buildings constructed in accordance with the <i>conventional light-frame construction</i> provisions of Section 2308 shall indicate the following structural design information:</p> <ol style="list-style-type: none"> 1. Floor and roof live loads. 2. Ground snow load, P_g. 3. Basic wind speed (3-second gust), miles per hour (mph) (km/hr) and wind exposure. 4. <i>Seismic design category</i> and <i>site class</i>. 5. Flood design data, if located in <i>flood hazard areas</i> established in Section 1612.3. 6. Design load-bearing values of soils. 	<p>General. <i>Construction documents</i> shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9 shall be indicated on the <i>construction documents</i>.</p> <p>Exception: <i>Construction documents</i> for buildings constructed in accordance with the <i>conventional light-frame construction</i> provisions of Section 2308 shall indicate the following structural design information:</p> <ol style="list-style-type: none"> 1. Floor and roof live loads. 2. Ground snow load, P_g. <u>Not Used.</u> 3. Basic wind speed (3-second gust), miles per hour (mph) (km/hr) and wind exposure. 4. <i>Seismic design category</i> and <i>site class</i>. 5. Flood design data, if located in <i>flood hazard areas</i> established in Section 1612.3. 6. Design load-bearing values of soils.
1603.1.3	Roof snow load.	Section Deleted.
1603.1.7	Flood design data. For buildings located in whole or in part in <i>flood hazard areas</i> as established in Section 1612.3, the documentation pertaining to design, if required in Section	Flood design data. For buildings located in whole or in part in <i>flood hazard areas</i> as established in Section 1612.3, the documentation pertaining to design, if required in Section

Section	Original Code Language	Abu Dhabi Adopted Code Language								
	<p>1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:</p> <ol style="list-style-type: none"> 1. In <i>flood hazard areas</i> not subject to high-velocity wave action, the elevation of the proposed lowest floor, including the basement. 2. In <i>flood hazard areas</i> not subject to high-velocity wave action, the elevation to which any nonresidential building will be dry flood proofed. 3. In <i>flood hazard areas</i> subject to high-velocity wave action, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement. 	<p>1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:</p> <ol style="list-style-type: none"> 1. In <i>flood hazard areas</i> not subject to high-velocity wave action, the elevation of the proposed lowest floor, including the basement. 2. In <i>flood hazard areas</i> not subject to high-velocity wave action, the elevation to which any nonresidential building will be dry flood proofed. 3. In <i>flood hazard areas</i> subject to high-velocity wave action, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement. 								
Section 1604 – General Design Requirements										
Table 1604.3	<p>DEFLECTION LIMITS^{a, b, c, h, i}</p> <table border="1"> <tr> <td>CONSTRUCTION</td> <td><i>L</i></td> <td><i>S</i> or <i>W^f</i></td> <td><i>D + L^{d, g}</i></td> </tr> </table> <p>Balance of table, including footnotes to remain unchanged.</p>	CONSTRUCTION	<i>L</i>	<i>S</i> or <i>W^f</i>	<i>D + L^{d, g}</i>	<p>DEFLECTION LIMITS^{a, b, c, h, i}</p> <table border="1"> <tr> <td>CONSTRUCTION</td> <td><i>L</i></td> <td><i>S</i> or <i>W^f</i></td> <td><i>D + L^{d, g}</i></td> </tr> </table> <p>Balance of table, including footnotes to remain unchanged. (Editing limited to removal of reference to “S.”)</p>	CONSTRUCTION	<i>L</i>	<i>S</i> or <i>W^f</i>	<i>D + L^{d, g}</i>
CONSTRUCTION	<i>L</i>	<i>S</i> or <i>W^f</i>	<i>D + L^{d, g}</i>							
CONSTRUCTION	<i>L</i>	<i>S</i> or <i>W^f</i>	<i>D + L^{d, g}</i>							
Section 1607 – Live Loads										
Table 1607.1	<p>Minimum Uniformly Distributed Live Loads, <i>L_o</i>, and Minimum Concentrated Live Loads^g</p> <p>NOTE: Items 1-26 and 28-40 remain unchanged.</p>	<p>Minimum Uniformly Distributed Live Loads, <i>L_o</i>, and Minimum Concentrated Live Loads^g</p> <p>NOTE: Items 1-26 and 28-40 remain unchanged.</p>								

Section	Original Code Language			Abu Dhabi Adopted Code Language		
	27. Residential One- and two-family dwellings Uninhabitable attics without storage ⁱ Uninhabitable attics with limited storage ^{i,j,k} Habitable attics and sleeping areas All other areas Hotels and multifamily dwellings Private rooms and corridors serving them Public rooms and corridors serving them	 10 20 30 40 40 100	 — 	27. Residential One- and two-family dwellings Uninhabitable attics without storage ⁱ Uninhabitable attics with limited storage ^{i,j,k} Habitable attics and sleeping areas All other areas Hotels and multifamily dwellings Private rooms and corridors serving them Public rooms and corridors serving them	 10 20 30 40 40 100	 —
1607.9	<p>Reduction in live loads. Except for uniform live loads at roofs, all other minimum uniformly distributed live loads, L_o, in Table 1607.1 are permitted to be reduced in accordance with Section 1607.9.1 or 1607.9.2. Roof uniform live loads, other than special purpose roofs of Section 1607.11.2.2, are permitted to be reduced in accordance with Section 1607.11.2. Roof uniform live loads of special purpose roofs are permitted to be reduced in accordance with Section 1607.9.1 or 1607.9.2.</p>			<p>Reduction in live loads. Except for uniform live loads at roofs, all other minimum uniformly distributed live loads, L_o, in Table 1607.1 are permitted to be reduced in accordance with Section 1607.9.1 or 1607.9.2. Roof uniform live loads, other than special purpose roofs of Section 1607.11.2.2, are permitted to be reduced in accordance with Section 1607.11.2. Roof uniform live loads of special purpose roofs are permitted to be reduced in accordance with Section 1607.9.1 or 1607.9.2.</p> <p><u>Exception: Buildings not over two stories in height.</u></p>		

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1608 – Snow Loads		
1608.1	General.	Section Deleted.
1608.2	Ground snow loads.	Section Deleted.
Table 1608.2	GROUND SNOW LOADS, p_g, FOR ALASKAN LOCATIONS	Table Deleted.
Figure 1608.2	GROUND SNOW LOADS, p_g, FOR THE UNITED STATES (psf)	Figure Deleted.
Section 1609 – Wind Loads		
1609.3	<p>Basic wind speed. The basic wind speed, in mph, for the determination of the wind loads shall be determined by Figure 1609. Basic wind speed for the special wind regions indicated, near mountainous terrain and near gorges shall be in accordance with local jurisdiction requirements. Basic wind speeds determined by the local jurisdiction shall be in accordance with Section 6.5.4 of ASCE 7.</p> <p>In nonhurricane-prone regions, when the basic wind speed is estimated from regional climatic data, the basic wind speed shall be not less than the wind speed associated with an annual probability of 0.02 (50-year mean recurrence interval), and the estimate shall be adjusted for equivalence to a 3-second gust wind speed at 33 feet (10 m) above ground in Exposure Category C. The data analysis shall be performed in accordance with Section 6.5.4.2 of ASCE 7.</p>	<p>Basic wind speed. The basic wind speed, in mph, for the determination of the wind loads shall be determined by Figure 1609. Basic wind speed for the special wind regions indicated, near mountainous terrain and near gorges shall be in accordance with local jurisdiction requirements. Basic wind speeds determined by the local jurisdiction shall be in accordance with Section 6.5.4 of ASCE 7.</p> <p>In nonhurricane-prone regions, when the basic wind speed is estimated from regional climatic data, the basic wind speed shall be not less than the wind speed associated with an annual probability of 0.02 (50-year mean recurrence interval), and the estimate shall be adjusted for equivalence to a 3-second gust wind speed at 33 feet (10 m) above ground in Exposure Category C. The data analysis shall be performed in accordance with Section 6.5.4.2 of ASCE 7.</p>
1609.3.1	<p>Wind speed conversion. When required, the 3-second gust basic wind speeds of Figure 1609 shall be converted to fastest-mile wind speeds, V_{fm}, using Table 1609.3.1 or Equation 16-32.</p> $V_{fm} = \frac{(V_{3S} - 10.5)}{1.05} \quad \text{Equation 16-32}$ <p>where:</p>	<p>Wind speed conversion. When required, the 3-second gust basic wind speeds of Figure 1609 shall be converted to fastest-mile wind speeds, V_{fm}, using Table 1609.3.1 or Equation 16-32.</p> $V_{fm} = \frac{(V_{3S} - 10.5)}{1.05} \quad \text{Equation 16-32}$ <p>where:</p>

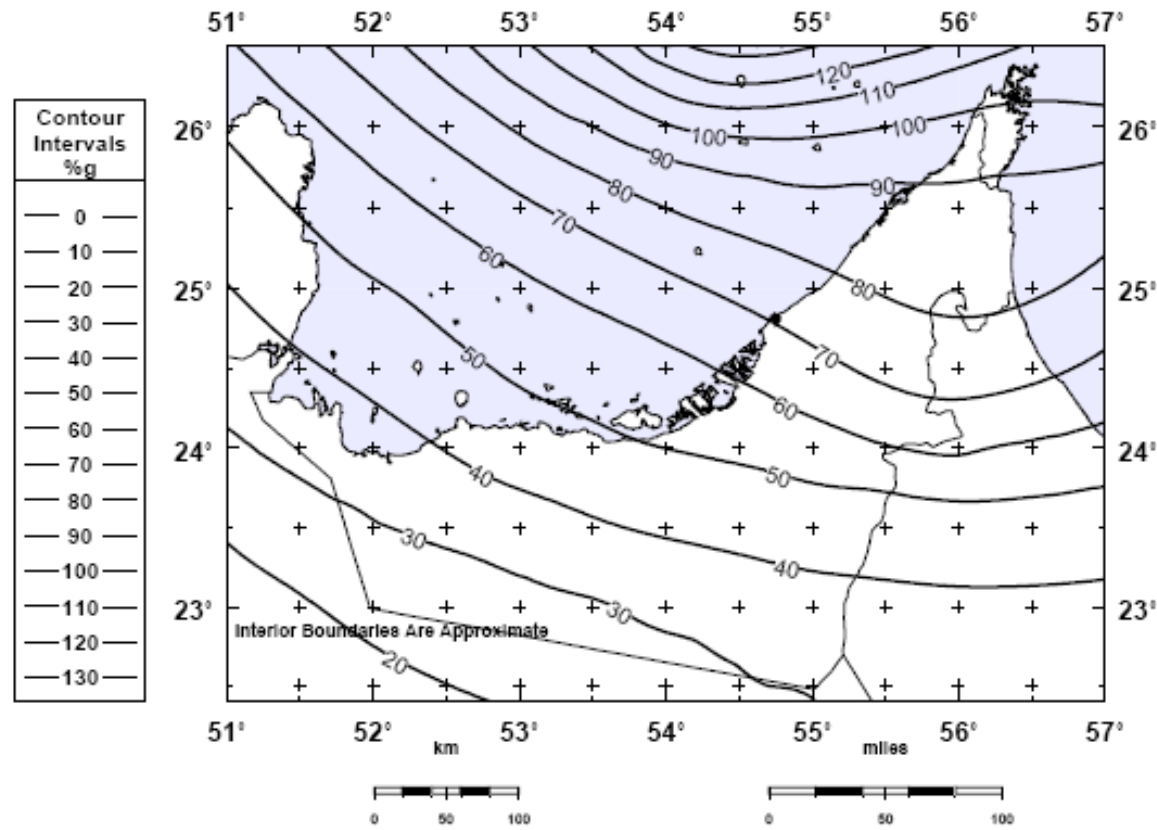
Section	Original Code Language	Abu Dhabi Adopted Code Language
	V_{3S} = 3-second gust basic wind speed from Figure 1609.	V_{3S} = 3-second gust basic wind speed from Figure 1609.
Figure 1609	BASIC WIND SPEED (3-second gust) Note: Includes several maps which depict various portions of the United States.	Figure deleted.
Section 1611 – Rain Loads		
1611.1	<p>Design rain loads. Each portion of a roof shall be designed to sustain the load of rainwater that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow. The design rainfall shall be based on the 100-year hourly rainfall rate indicated in Figure 1611.1 or on other rainfall rates determined from approved local weather data.</p> $R = 5.2(d_s + d_h) \quad \text{(Equation 16-35)}$ <p>For SI: $R = 0.0098(d_s + d_h)$</p> <p>where: d_h = Additional depth of water on the undeflected roof above the inlet of secondary drainage system at its design flow (i.e., the hydraulic head), in inches (mm). d_s = Depth of water on the undeflected roof up to the inlet of secondary drainage system when the primary drainage system is blocked (i.e., the static head), in inches (mm). R = Rain load on the undeflected roof, in psf (kN/m₂). When</p>	<p>Design rain loads. Each portion of a roof shall be designed to sustain the load of rainwater that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow. The design rainfall shall be based on the 100-year hourly rainfall rate indicated in Figure 1611.1 or on other rainfall rates determined from approved local weather data <u>as established by the local jurisdiction.</u></p> $R = 5.2(d_s + d_h) \quad \text{(Equation 16-35)}$ <p>For SI: $R = 0.0098(d_s + d_h)$</p> <p>where: d_h = Additional depth of water on the undeflected roof above the inlet of secondary drainage system at its design flow (i.e., the hydraulic head), in inches (mm). d_s = Depth of water on the undeflected roof up to the inlet of secondary drainage system when the primary drainage system is blocked (i.e., the static head), in inches (mm). R = Rain load on the undeflected roof, in psf (kN/m₂). When</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	the phrase "undeflected roof" is used, deflections from loads (including dead loads) shall not be considered when determining the amount of rain on the roof.	the phrase "undeflected roof" is used, deflections from loads (including dead loads) shall not be considered when determining the amount of rain on the roof.
Figure 1611.1	100-YEAR, 1-HOUR RAINFALL (INCHES) (EASTERN) UNITED STATES	All Figures which represent various portions of the United States are hereby deleted.
Section 1612 – Flood Loads		
1612.2	Definitions.	Section Deleted
1612.3	Establishment of flood hazard areas.	Section Deleted
1612.5-1-1.1	Flood Hazard Documentation	Section Deleted
Section 1613 – Earthquake Loads		
1613.5.1	Mapped acceleration parameters. The parameters S_s and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.5(1) through 1613.5(14). Where S_1 is less than or equal to 0.04 and S_s is less than or equal to 0.15, the structure is permitted to be assigned to <i>Seismic Design Category A</i> .	Mapped acceleration parameters. The parameters S_s and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations <u>as shown on Figures 1613.5(1) and 1613.5(2) respectively</u> through 1613.5(14) . Where S_1 is less than or equal to 0.04 and S_s is less than or equal to 0.15, the structure is permitted to be assigned to <i>Seismic Design Category A</i> .
Figure 1613.5(1)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR THE CONTERMINOUS UNITED STATES OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR THE CONTERMINOUS UNITED STATES UNITED ARAB EMIRATES OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B

Section

Original Code Language

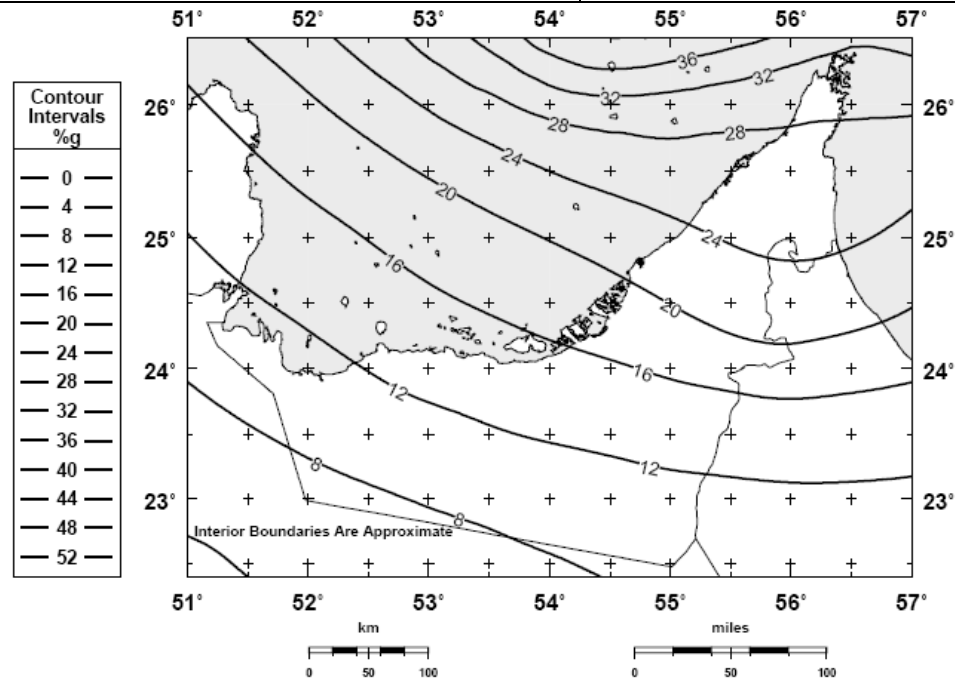
Abu Dhabi Adopted Code Language



**MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION
FOR THE UNITED ARAB EMIRATES
OF 0.2 s (S_0) SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING),
SITE CLASS B**

Figure 1613.5(1)

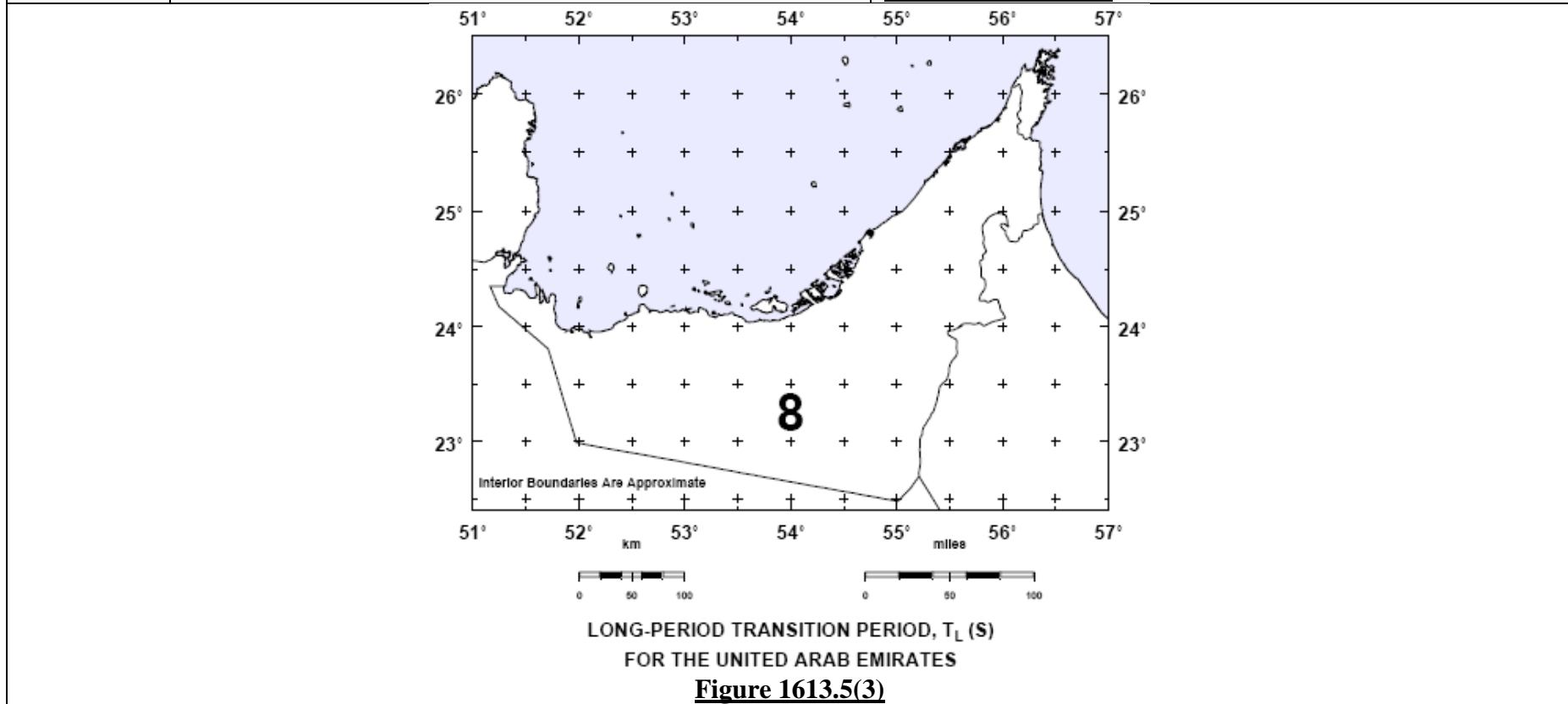
Section	Original Code Language	Abu Dhabi Adopted Code Language
Figure 1613.5(2)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR THE CONTERMINOUS UNITED STATES OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR THE CONTERMINOUS UNITED STATES <u>UNITED ARAB EMIRATES</u> OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B



**MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION
FOR THE UNITED ARAB EMIRATES
OF 1.0 s (S₁) SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING),
SITE CLASS B**

Figure 1613.5(2)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Figure 1613.5(3)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 1 OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 1 OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B <u>LONG-PERIOD TRANSITION PERIOD, T_L (S), FOR THE UNITED ARAB EMIRATES</u>



Section	Original Code Language	Abu Dhabi Adopted Code Language
Figure 1613.5(4)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 1 OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.
Figure 1613.5(5)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 2 OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.
Figure 1613.5(6)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 2 OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.
Figure 1613.5(7)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 3 OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% PERCENT OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.
Figure 1613.5(8)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 3 OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.
Figure 1613.5(9)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR REGION 4 OF 0.2 AND 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.
Figure 1613.5(10)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR HAWAII OF 0.2 AND 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.

Section	Original Code Language	Abu Dhabi Adopted Code Language																																														
Figure 1613.5(11)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR ALASKA OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.																																														
Figure 1613.5(12)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR ALASKA OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.																																														
Figure 1613.5(13)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR PUERTO RICO, CULEBRA, VIEQUES, ST. THOMAS, ST. JOHN AND ST. CROIX OF 0.2 AND 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.																																														
Figure 1613.5(14)	MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR GUAM AND TUTUILLA OF 0.2 AND 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B	Figure deleted.																																														
Table 1613.5.6(1)	TABLE 1613.5.6(1) SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD RESPONSE ACCELERATIONS <table border="1"> <thead> <tr> <th rowspan="2">VALUE OF S_{DS}</th> <th colspan="3">OCCUPANCY CATEGORY</th> </tr> <tr> <th>I or II</th> <th>III</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>$S_{DS} < 0.167g$</td> <td>A</td> <td>A</td> <td>A</td> </tr> <tr> <td>$0.167g \leq S_{DS} < 0.33g$</td> <td>B</td> <td>B</td> <td>C</td> </tr> <tr> <td>$0.33g \leq S_{DS} < 0.50g$</td> <td>C</td> <td>C</td> <td>D</td> </tr> <tr> <td>$0.50g \leq S_{DS}$</td> <td>D</td> <td>D</td> <td>D</td> </tr> </tbody> </table>	VALUE OF S_{DS}	OCCUPANCY CATEGORY			I or II	III	IV	$S_{DS} < 0.167g$	A	A	A	$0.167g \leq S_{DS} < 0.33g$	B	B	C	$0.33g \leq S_{DS} < 0.50g$	C	C	D	$0.50g \leq S_{DS}$	D	D	D	TABLE 1613.5.6(1) SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD RESPONSE ACCELERATIONS <table border="1"> <thead> <tr> <th rowspan="2">VALUE OF S_{DS}</th> <th colspan="3">OCCUPANCY CATEGORY</th> </tr> <tr> <th>I or II</th> <th>III</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>$S_{DS} < 0.167g$</td> <td>A</td> <td>A</td> <td>A</td> </tr> <tr> <td>$0.167g \leq S_{DS} < 0.33g$</td> <td>B</td> <td>B</td> <td>C</td> </tr> <tr> <td>$0.33g \leq S_{DS} < 0.50g$ $\leq 0.60g$</td> <td>C</td> <td>C</td> <td>D</td> </tr> <tr> <td>$0.50g \leq S_{DS}$ $0.60g < S_{DS}$</td> <td>D</td> <td>D</td> <td>D</td> </tr> </tbody> </table>	VALUE OF S_{DS}	OCCUPANCY CATEGORY			I or II	III	IV	$S_{DS} < 0.167g$	A	A	A	$0.167g \leq S_{DS} < 0.33g$	B	B	C	$0.33g \leq S_{DS} < 0.50g$ $\leq 0.60g$	C	C	D	$0.50g \leq S_{DS}$ $0.60g < S_{DS}$	D	D	D
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Table 1613.5.6(2)	<p>TABLE 1613.5.6(2) SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION</p> <table border="1"> <thead> <tr> <th rowspan="2">VALUE OF S_{D1}</th> <th colspan="3">OCCUPANCY CATEGORY</th> </tr> <tr> <th>I or II</th> <th>III</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>$S_{D1} < 0.067g$</td> <td>A</td> <td>A</td> <td>A</td> </tr> <tr> <td>$0.067g \leq S_{D1} < 0.133g$</td> <td>B</td> <td>B</td> <td>C</td> </tr> <tr> <td>$0.133g \leq S_{D1} < 0.20g$</td> <td>C</td> <td>C</td> <td>D</td> </tr> <tr> <td>$0.20g \leq S_{D1}$</td> <td>D</td> <td>D</td> <td>D</td> </tr> </tbody> </table>	VALUE OF S_{D1}	OCCUPANCY CATEGORY			I or II	III	IV	$S_{D1} < 0.067g$	A	A	A	$0.067g \leq S_{D1} < 0.133g$	B	B	C	$0.133g \leq S_{D1} < 0.20g$	C	C	D	$0.20g \leq S_{D1}$	D	D	D	<p>TABLE 1613.5.6(2) SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION</p> <table border="1"> <thead> <tr> <th rowspan="2">VALUE OF S_{D1}</th> <th colspan="3">OCCUPANCY CATEGORY</th> </tr> <tr> <th>I or II</th> <th>III</th> <th>IV</th> </tr> </thead> <tbody> <tr> <td>$S_{D1} < 0.067g$</td> <td>A</td> <td>A</td> <td>A</td> </tr> <tr> <td>$0.067g \leq S_{D1} < 0.133g$</td> <td>B</td> <td>B</td> <td>C</td> </tr> <tr> <td>$0.133g \leq S_{D1} < 0.20g$ $\leq 0.25g$</td> <td>C</td> <td>C</td> <td>D</td> </tr> <tr> <td>$0.20 \leq S_{D1}$ $0.25 < S_{D1}$</td> <td>D</td> <td>D</td> <td>D</td> </tr> </tbody> </table>	VALUE OF S_{D1}	OCCUPANCY CATEGORY			I or II	III	IV	$S_{D1} < 0.067g$	A	A	A	$0.067g \leq S_{D1} < 0.133g$	B	B	C	$0.133g \leq S_{D1} < 0.20g$ $\leq 0.25g$	C	C	D	$0.20 \leq S_{D1}$ $0.25 < S_{D1}$	D	D	D
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1613.7	<p>ASCE 7, Section 11.7.5. Modify ASCE 7, Section 11.7.5 to read as follows:</p> <p>11.7.5 Anchorage of walls. Walls shall be anchored to the roof and all floors and members that provide lateral support for the wall or that are supported by the wall. The anchorage shall provide a direct connection between the walls and the roof or floor construction. The connections shall be capable of resisting the forces specified in Section 11.7.3 applied horizontally, substituted for E in load combinations of Section 2.3 or 2.4.</p>	<p>ASCE 7, Section 11.7.5. Modify ASCE 7, Section 11.7.5 to read as follows:</p> <p>11.7.5 Anchorage of walls. Walls shall be anchored to the roof and all floors and members that provide lateral support for the wall or that are supported by the wall. The anchorage shall provide a direct connection between the walls and the roof or floor construction. The connections shall be capable of resisting the forces specified in Section 11.7.3 applied horizontally, substituted for E in load combinations of Section 2.3 or 2.4.</p> <p>ASCE 7, Section 11.4.5. Modify the last sentence in ASCE 7, Section 11.4.5 to read as follows:</p> <p>Design Response Spectrum. T_L = long-period transition period as shown in Figure 1613.5(3).</p>																																														

Section	Original Code Language	Abu Dhabi Adopted Code Language
1613.8	New Section Added.	<p><u>ASCE 7, Section 11.7.5.</u> Modify ASCE 7, Section 11.7.5 to read as follows:</p> <p><u>11.7.5 Anchorage of walls.</u> Walls shall be anchored to the roof and all floors and members that provide lateral support for the wall or that are supported by the wall. The anchorage shall provide a direct connection between the walls and the roof or floor construction. The connections shall be capable of resisting the forces specified in Section 11.7.3 applied horizontally, substituted for <i>E</i> in load combinations of Section 2.3 or 2.4.</p>

CHAPTER 17 – STRUCTURAL TESTS AND SPECIAL INSPECTIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1710 – Structural Observations		
1710.3	<p>Structural observations for wind requirements. Structural observations shall be provided for those structures sited where the basic wind speed exceeds 110 mph (49 m/sec) determined from Figure 1609, where one or more of the following conditions exist:</p> <ol style="list-style-type: none"> 1. The structure is classified as <i>Occupancy Category III</i> or <i>IV</i> in accordance with Table 1604.5. 2. The <i>building height</i> of the structure is greater than 75 feet (22 860 mm). 3. When so designated by the <i>registered design professional</i> responsible for the structural design. 4. When such observation is specifically required by the <i>building official</i>. 	<p>Structural observations for wind requirements. Structural observations shall be provided for those structures sited where the basic wind speed exceeds 110 mph (49 m/sec) determined from Figure 1609, where one or more of the following conditions exist:</p> <ol style="list-style-type: none"> 1. The structure is classified as <i>Occupancy Category III</i> or <i>IV</i> in accordance with Table 1604.5. 2. The <i>building height</i> of the structure is greater than 75 feet (22 860 mm). 3. When so designated by the <i>registered design professional</i> responsible for the structural design. 4. When such observation is specifically required by the <i>building official</i>.

CHAPTER 18 – SOILS AND FOUNDATIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1805 – Damp-proofing and Water-proofing		
1805.1.2.1	<p>Flood hazard areas. For buildings and structures in flood hazard areas as established in Section 1612.3, the finished ground level of an under-floor space such as a crawl space shall be equal to or higher than the outside finished ground level on at least one side.</p> <p>Exception: Under-floor spaces of Group R-3 buildings that meet the requirements of FEMA/FIA-TB-11.</p>	<p>Flood hazard areas. For buildings and structures in flood hazard areas as established in Section 1612.3, the finished ground level of an under-floor space such as a crawl space shall be equal to or higher than the outside finished ground level on at least one side.</p> <p>Exception: Under-floor spaces of Group R-3 buildings that meet the requirements of FEMA/FIA-TB-11.</p>
Section 1807 – Foundation Walls, Retaining Walls and Embedded Posts and Poles		
1807.1.4	Permanent wood foundation systems.	Section Deleted.
Section 1809 – Shallow Foundations		
1809.5	Frost protection.	Section Deleted.

CHAPTER 19 – CONCRETE (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1904 – Durability Requirements		
1904.2	<p>Exposure categories and classes. Concrete shall be assigned to exposure classes in accordance with ACI 318, Section 4.2, based on:</p> <ol style="list-style-type: none"> 1. Exposure to freezing and thawing in a moist condition or deicer chemicals; 2. Exposure to sulfates in water or soil; 3. Exposure to water where the concrete is intended to have low permeability; and 4. Exposure to chlorides from deicing chemicals, salt, saltwater, brackish water, seawater or spray from these sources, where the concrete has steel reinforcement. 	<p>Exposure categories and classes. Concrete shall be assigned to exposure classes in accordance with ACI 318, Section 4.2, based on:</p> <ol style="list-style-type: none"> 1. Exposure to freezing and thawing in a moist condition or deicer chemicals; <u>2</u>1. Exposure to sulfates in water or soil; 3<u>2</u>. Exposure to water where the concrete is intended to have low permeability; and 4<u>3</u>. Exposure to chlorides from deicing chemicals, salt, saltwater, brackish water, seawater or spray from these sources, where the concrete has steel reinforcement.
1904.3	<p>Concrete properties. Concrete mixtures shall conform to the most restrictive maximum water-cementitious materials ratios and minimum specified concrete compressive strength requirements of ACI 318, Section 4.3, based on the exposure classes assigned in Section 1904.2.</p> <p><i>Exception: For occupancies and appurtenances thereto in Group R occupancies that are in buildings less than four stories above grade plane, normal-weight aggregate concrete is permitted to comply with the requirements of Table 1904.3 based on the weathering classification (freezing and thawing) determined from Figure 1904.3 in lieu of the requirements of ACI 318, Table 4.3.1.</i></p>	<p>Concrete properties. Concrete mixtures shall conform to the most restrictive maximum water-cementitious materials ratios and minimum specified concrete compressive strength requirements of ACI 318, Section 4.3, based on the exposure classes assigned in Section 1904.2.</p> <p><i>Exception: For occupancies and appurtenances thereto in Group R occupancies that are in buildings less than four stories above grade plane, <u>the minimum specified compressive strength (f'c) for normal-weight aggregate concrete is permitted to comply with the requirements of shall be 2,500 psi at 28 days as shown in Table 1904.3 based on</u> the weathering classification (freezing and thawing) determined from Figure 1904.3 in lieu of the requirements of ACI 318, Table 4.3.1.</i></p>

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Table 1904.3	<p>MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c)</p> <table border="1"> <thead> <tr> <th rowspan="2">TYPE OR LOCATION OF CONCRETE CONSTRUCTION</th> <th colspan="3">MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c at 28 days, psi)</th> </tr> <tr> <th>Negligible exposure</th> <th>Moderate exposure</th> <th>Severe exposure</th> </tr> </thead> <tbody> <tr> <td>Basement walls^c and foundations not exposed to the weather</td> <td>2,500</td> <td>2,500</td> <td>2,500^a</td> </tr> <tr> <td>Basement slabs and interior slabs on grade, except garage floor slabs</td> <td>2,500</td> <td>2,500</td> <td>2,500^a</td> </tr> <tr> <td>Basement walls^c, foundation walls, exterior walls and other vertical concrete surfaces exposed to the weather</td> <td>2,500</td> <td>3,000^b</td> <td>3,000^b</td> </tr> <tr> <td>Driveways, curbs, walks, patios, porches, carport slabs, steps and other flatwork exposed to the weather, and garage floor slabs</td> <td>2,500</td> <td>3,000^{b, d}</td> <td>3,500^{b, d}</td> </tr> </tbody> </table> <p>For SI: 1 pound per square inch = 0.00689 MPa. a. Concrete in these locations that can be subjected to freezing and thawing during construction shall be of air-entrained concrete in accordance with Section 1904.2.1. b. Concrete shall be air entrained in accordance with Section 1904.4.1. c. Structural plain concrete basement walls are exempt from the requirements for exposure conditions of Section 1904.3 (see Section 1909.6.1). d. For garage floor slabs where a steel trowel finish is used, the total air content required by Section 1904.4.1 is permitted to be reduced to not less than 3 percent, provided the minimum specified compressive strength of the concrete is increased to 4,000 psi.</p>	TYPE OR LOCATION OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c at 28 days, psi)			Negligible exposure	Moderate exposure	Severe exposure	Basement walls ^c and foundations not exposed to the weather	2,500	2,500	2,500 ^a	Basement slabs and interior slabs on grade, except garage floor slabs	2,500	2,500	2,500 ^a	Basement walls ^c , foundation walls, exterior walls and other vertical concrete surfaces exposed to the weather	2,500	3,000 ^b	3,000 ^b	Driveways, curbs, walks, patios, porches, carport slabs, steps and other flatwork exposed to the weather, and garage floor slabs	2,500	3,000 ^{b, d}	3,500 ^{b, d}	<p>MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c)</p> <table border="1"> <thead> <tr> <th rowspan="2">TYPE OR LOCATION OF CONCRETE CONSTRUCTION</th> <th>MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c at 28 days, psi)</th> </tr> <tr> <th>Negligible exposure</th> </tr> </thead> <tbody> <tr> <td>Basement walls^c and foundations not exposed to the weather</td> <td>2,500</td> </tr> <tr> <td>Basement slabs and interior slabs on grade, except garage floor slabs</td> <td>2,500</td> </tr> <tr> <td>Basement walls^c, foundation walls, exterior walls and other vertical concrete surfaces exposed to the weather</td> <td>2,500</td> </tr> <tr> <td>Driveways, curbs, walks, patios, porches, carport slabs, steps and other flatwork exposed to the weather, and garage floor slabs</td> <td>2,500</td> </tr> </tbody> </table> <p>For SI: 1 pound per square inch = 0.00689 MPa. a. Concrete in these locations that can be subjected to freezing and thawing during construction shall be of air-entrained concrete in accordance with Section 1904.2.1. b. Concrete shall be air entrained in accordance with Section 1904.4.1. c. Structural plain concrete basement walls are exempt from the requirements for exposure conditions of Section 1904.3 (see Section 1909.6.1). d. For garage floor slabs where a steel trowel finish is used, the total air content required by Section 1904.4.1 is permitted to be reduced to not less than 3 percent, provided the minimum specified compressive strength of the concrete is increased to 4,000 psi.</p>	TYPE OR LOCATION OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'_c at 28 days, psi)	Negligible exposure	Basement walls ^c and foundations not exposed to the weather	2,500	Basement slabs and interior slabs on grade, except garage floor slabs	2,500	Basement walls ^c , foundation walls, exterior walls and other vertical concrete surfaces exposed to the weather	2,500	Driveways, curbs, walks, patios, porches, carport slabs, steps and other flatwork exposed to the weather, and garage floor slabs	2,500
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Figure 1904.3	WEATHERING PROBABILITY MAP FOR CONCRETE^{a, b, c}	Figure deleted.																																		
1904.4	Freezing and thawing exposures.	Section Deleted.																																		
1904.4.1	Air entrainment.	Section Deleted.																																		
1904.4.2	Deicing chemicals.	Section Deleted.																																		

CHAPTER 20 – ALUMINUM (ADOPTED, NO AMENDMENTS)

CHAPTER 21 – MASONRY (ADOPTED, NO AMENDMENTS)

CHAPTER 22 – STEEL (ADOPTED, NO AMENDMENTS)

CHAPTER 23 – WOOD (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 2308 – Conventional Light-Frame Construction		
2308.1	<p>General. The requirements of this section are intended for <i>conventional light-frame construction</i>. Other methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior nonload-bearing partitions, ceilings and curtain walls of <i>conventional light-frame construction</i> are not subject to the limitations of this section. Alternatively, compliance with AF&PA WFCM shall be permitted subject to the limitations therein and the limitations of this code. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three <i>stories above grade plane</i> in height with a separate <i>means of egress</i> and their accessory structures shall comply with the <i>International Residential Code</i>.</p>	<p>General. The requirements of this section are intended for <i>conventional light-frame construction</i>. Other methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior nonload-bearing partitions, ceilings and curtain walls of <i>conventional light-frame construction</i> are not subject to the limitations of this section. Alternatively, compliance with AF&PA WFCM shall be permitted subject to the limitations therein and the limitations of this code. 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.</p>
2308.11.1	<p>Number of stories. Structures of <i>conventional light-frame construction</i> shall not exceed two <i>stories above grade plane</i> in <i>Seismic Design Category C</i>.</p>	<p>Number of stories. Structures of <i>conventional light-frame construction</i> shall not exceed two <i>stories above grade plane</i> in <i>Seismic Design Category C</i>.</p> <p>Exception: Detached one and two family dwellings are permitted to be three stories in height in seismic design category C.</p>

CHAPTER 24 – GLASS AND GLAZING (ADOPTED, NO AMENDMENTS)

CHAPTER 25 – GYPSUM BOARD AND PLASTER (ADOPTED, NO AMENDMENTS)

CHAPTER 26 – PLASTIC (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 2603 – Foam Plastic Insulation		
2603.8	<p>Protection against termites. In areas where the probability of termite infestation is very heavy in accordance with Figure 2603.8, extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below grade. The clearance between foam plastics installed above grade and exposed earth shall be at least 6 inches (152 mm).</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or preservative-treated wood. 2. An approved method of protecting the foam plastic and structure from subterranean termite damage is provided. 3. On the interior side of basement walls. 	<p>Protection against termites. In areas where the probability of termite infestation is very heavy in accordance with Figure 2603.8, extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below grade. The clearance between foam plastics installed above grade and exposed earth shall be at least 6 inches (152 mm).</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or preservative-treated wood. 2. An approved method of protecting the foam plastic and structure from subterranean termite damage is provided. 3. On the interior side of basement walls.
Figure 2603.8	TERMITE INFESTATION PROBABILITY MAP	Figure Deleted

CHAPTER 27 – ELECTRICAL (ADOPTED, NO AMENDMENTS)

CHAPTER 28 – MECHANICAL SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 29 – PLUMBING SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 30 – ELEVATORS AND CONVEYING SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 31 – SPECIAL CONSTRUCTION (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3103 – Temporary Structures		
3103.1	<p>General. The provisions of this section shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the <i>International Fire Code</i>. Those erected for a longer period of time shall comply with applicable sections of this code.</p>	<p>General. The provisions of this section shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the <i>International Fire Code</i>. Those erected for a longer period of time shall comply with applicable sections of this code.</p> <p>Exception: <u>Multiple extensions of time may be granted, each for a period of time not to exceed 180 days, when in the opinion of the Building Official such an extension is needed for structures serving a construction project.</u></p>
Section 3108 – Telecommunication and Broadcast Towers		
3108.2	<p>Location and access. Towers shall be located such that guy wires and other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric utility lines, or encroach upon any privately owned property without the written consent of the owner of the encroached-upon property, space or above-ground electric utility lines. Towers shall be</p>	<p>Location and access. Towers shall be located such that guy wires and other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric utility lines, or encroach upon any privately owned property without the written consent of the owner of the encroached-upon property, space or above-ground electric utility lines. Towers shall be</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	equipped with climbing and working facilities in compliance with TIA-222. Access to the tower sites shall be limited as required by applicable OSHA, FCC and EPA regulations.	equipped with climbing and working facilities in compliance with TIA-222. Access to the tower sites shall be limited as required by applicable OSHA, FCC and EPA regulations.

CHAPTER 32 – ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3201 - General		
3201.5	New Section Added	<u>No Objection Certificate.</u> When an encroachment onto an adjoining parcel or public right of way is proposed, the permit applicant shall submit a completed “No Objection Certificate” with approvals from all relevant agencies as may be determined by the municipality prior to issuance of any applicable permit.
3202.2.3	Awnings. The vertical clearance from the public right-of-way to the lowest part of any <i>awning</i> , including valances, shall be 7 feet (2134 mm) minimum.	Awnings. The vertical clearance from the public right-of-way to the lowest part of any <i>awning</i> , including valances, shall be 7 <u>9</u> feet <u>10 inches</u> (3000 mm) minimum.
3202.3.1	Awnings, canopies, marquees and signs. <i>Awnings</i> , canopies, marquees and signs shall be constructed so as to support applicable loads as specified in Chapter 16. <i>Awnings</i> , canopies, marquees and signs with less than 15 feet (4572 mm) clearance above the sidewalk shall not extend into or occupy more than two-thirds the width of the sidewalk measured from the building. Stanchions or columns that support <i>awnings</i> , canopies, marquees and signs shall be located not less than 2 feet (610 mm) in from the curb line.	Awnings, canopies, marquees and signs. <i>Awnings</i> , canopies, marquees and signs shall be constructed so as to support applicable loads as specified in Chapter 16. <u>The vertical clearance from the public right of way to the lowest part of any awning, including valances, shall be 9 feet, 10 inches (3000 mm) minimum.</u> <i>Awnings</i> , canopies, marquees and signs with less than 15 feet (4572 mm) clearance above the sidewalk shall not extend into or occupy more than two-thirds the width of the sidewalk measured from the building. Stanchions or columns that support <i>awnings</i> , canopies, marquees and signs shall be located not less than 2 feet (610 mm) in from the curb line. <u>The maximum projection over the public right-of-way shall not exceed 6 feet, 7 inches (2007 mm).</u>

CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION (ADOPTED, NO AMENDMENTS)

CHAPTER 34 – EXISTING BUILDINGS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3401 - General		
3401.2.1	New Section Added.	Maintenance Program. <u>Prior to issuance of a permit to install, enlarge or alter any plumbing or mechanical system a maintenance program shall be prepared by a registered design professional or the system contractor and submitted for review as may be required by the Building Official. Such program shall be designed to maintain the system as efficient as originally designed and in such a way as to prevent the growth and spread of harmful bacteria such as legionella.</u>
3401.3	Compliance. Alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy in the <i>International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Property Maintenance Code, International Private Sewage Disposal Code, International Residential Code</i> and NFPA 70.	Compliance. Alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy in the <i>International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Property Maintenance Code, International Private Sewage Disposal Code, International Residential Code</i> and NFPA 70.
3401.4 3401.5 <small>(Editorially corrected section number)</small>	Alternative Compliance.	Section Deleted.
Section 3403 - Additions		
3403.1	General. Additions to any building or structure shall comply with the requirements of this code for new construction. Alterations to the existing building or structure shall be made	General. Additions to any building or structure shall comply with the requirements of this code for new construction. Alterations to the existing building or structure shall be made to

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>to ensure that the existing building or structure together with the <i>addition</i> are no less conforming with the provisions of this code than the existing building or structure was prior to the <i>addition</i>. An existing building together with its additions shall comply with the height and area provisions of Chapter 5.</p>	<p>ensure that the existing building or structure together with the <i>addition</i> are no less conforming with the provisions of this code than the existing building or structure was prior to the <i>addition</i>. An existing building together with its additions shall comply with the height and area provisions of Chapter 5.</p> <p><u>Exceptions:</u> With respect to provisions within the Energy Code, the following need not comply provided the energy use of the building is not increased:</p> <ol style="list-style-type: none"> 1. <u>Storm windows installed over existing fenestration.</u> 2. <u>Glass only replacements in an existing sash and frame.</u> 3. <u>Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.</u> 4. <u>Construction where the existing roof, wall or floor cavity is not exposed.</u> 5. <u>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.</u> 6. <u>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.</u>
3403.5	New Section Added	<u>Plumbing Fixtures.</u> All plumbing fixtures installed within new additions shall comply with section 401.3 of the plumbing code.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3404 - Alterations		
3404.1	<p>General. Except as provided by Section 3401.5 or this section, alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building or structure was prior to the <i>alteration</i>.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. An existing <i>stairway</i> shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope. 2. Handrails otherwise required to comply with Section 1009.12 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration. 	<p>General. Except as provided by Section 3401.5 or this section, <u>Alterations</u> to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building or structure was prior to the <i>alteration</i>.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. An existing <i>stairway</i> shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope. 2. Handrails otherwise required to comply with Section 1009.12 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration. 3. <u>With respect to compliance with Energy Code provisions, exceptions 1 through 6 of section 3403.1 also apply to renovations and alterations.</u>
3404.7	New Section Added	<u>Plumbing Fixtures.</u> All plumbing fixtures installed within building areas undergoing an alteration shall comply with <u>section 401.3 of the plumbing code.</u>
Section 3405 - Repairs		
3405.1	General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3401.2. Work on nondamaged components that is necessary for the required	General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3401.2. Work on nondamaged components that is necessary for the required

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from <i>permit</i> in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.</p>	<p>repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from <i>permit</i> in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.</p> <p>Exception: <u>With respect to compliance with Energy Code provisions, exceptions 1 through 6 of section 3403.1 apply to proposed repairs.</u></p>
3405.6	New Section Added	<p>Plumbing Fixtures. <u>All plumbing fixtures which replace existing fixtures as part of a repair activity shall comply with section 401.3 of the plumbing code.</u></p>
Section 3408 – Change of Occupancy		
3408.5	New Section Added	<p>Plumbing Fixtures. <u>All plumbing fixtures installed as part of a change on occupancy or use shall comply with section 401.3 of the plumbing code.</u></p>
Section 3409 – Historic Buildings		
3409.2	<p>Flood hazard areas. Within flood hazard areas established in accordance with Section 1612.3, where the work proposed constitutes substantial improvement as defined in Section 1612.2, the building shall be brought into compliance with Section 1612.</p> <p>Exception: <i>Historic buildings</i> that are:</p> <ol style="list-style-type: none"> 1. <i>Listed</i> 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 	<p>Flood hazard areas. Within flood hazard areas established in accordance with Section 1612.3, where the work proposed constitutes substantial improvement as defined in Section 1612.2, the building shall be brought into compliance with Section 1612.</p> <p>Exception: <i>Historic buildings</i> that are:</p> <ol style="list-style-type: none"> 1. <i>Listed</i> 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

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>of a registered historic district or a district preliminarily determined to qualify as an historic district; or</p> <p>3. Designated as historic under a state or local historic preservation program that is <i>approved</i> by the Department of Interior.</p>	<p>a registered historic district or a district preliminarily determined to qualify as an historic district; or</p> <p>3. Designated as historic under a state or local historic preservation program that is <i>approved</i> by the Department of Interior. <u>an Abu Dhabi Emirate state or local recognized historic preservation program.</u></p>
Section 3412 – Compliance Alternatives		
3412.2	<p>Applicability. Structures existing prior to [DATE TO BE INSERTED BY THE JURISDICTION. NOTE: IT IS RECOMMENDED THAT THIS DATE COINCIDE WITH THE EFFECTIVE DATE OF BUILDING CODES WITHIN THE JURISDICTION], in which there is work involving additions, alterations or changes of occupancy shall be made to comply with the requirements of this section or the provisions of Sections 3403 through 3409. The provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.</p>	<p>Applicability. Structures existing prior to [DATE TO BE INSERTED BY THE JURISDICTION. NOTE: IT IS RECOMMENDED THAT THIS DATE COINCIDE WITH THE EFFECTIVE DATE OF BUILDING CODES WITHIN THE JURISDICTION], <u>the effective date of these codes in</u> which there is work involving additions, alterations or changes of occupancy shall be made to comply with the requirements of this section or the provisions of Sections 3403 through 3409. The provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.</p>

CHAPTER 35 – REFERENCED STANDARDS (ADOPTED, NO AMENDMENTS)

APPENDIX A – EMPLOYEE QUALIFICATIONS (NOT ADOPTED)

APPENDIX B – BOARD OF APPEALS (NOT ADOPTED)

APPENDIX C – GROUP U – AGRICULTURAL BUILDINGS (ADOPTED, NO AMENDMENTS)

APPENDIX D – FIRE DISTRICTS (NOT ADOPTED)

APPENDIX E – SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS (ADOPTED, NO AMENDMENTS)

APPENDIX F – RODENT PROOFING (ADOPTED, NO AMENDMENTS)

APPENDIX G – FLOOD-RESISTANT CONSTRUCTION (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section G102 - Applicability		
G102.2	Establishment of flood hazard areas. <i>Flood hazard areas</i> are established in Section 1612.3 of the <i>International Building Code</i> , adopted by the applicable governing authority on [INSERT DATE].	Establishment of flood hazard areas. <i>Flood hazard areas</i> are established in Section 1612.3 of the <i>International Building Code</i> , as adopted by the applicable governing authority <u>Emirate of Abu Dhabi</u> on [INSERT DATE]. Date:
Section G103 – Powers and Duties		
G103.2	Other permits. It shall be the responsibility of the <i>building official</i> to assure that approval of a proposed development shall not be given until proof that necessary permits have been granted by federal or state agencies having jurisdiction over such development.	Other permits. It shall be the responsibility of the <i>building official</i> to assure that approval of a proposed development shall not be given until proof that necessary permits have been granted by federal or state <u>Emirate of Abu Dhabi</u> agencies having jurisdiction over such development.
G103.5.1	Floodway revisions.	Section Deleted.
G103.6	Watercourse alteration. Prior to issuing a permit for any alteration or relocation of any watercourse, the <i>building official</i> shall require the applicant to provide notification of the proposal to the appropriate authorities of all affected adjacent government jurisdictions, as well as appropriate state agencies. A copy of the notification shall be maintained in the permit records and submitted to FEMA.	Watercourse alteration. Prior to issuing a permit for any alteration or relocation of any watercourse, the <i>building official</i> shall require the applicant to provide notification of the proposal to the appropriate authorities of all affected adjacent government jurisdictions, as well as appropriate state agencies. A copy of the notification shall be maintained in the permit records and submitted to FEMA.
Section G105 - Variances		
G105.1	General. The <i>board of appeals</i> established pursuant to	General. The <i>board of appeals</i> established pursuant to

Section	Original Code Language	Abu Dhabi Adopted Code Language
	Section 112 shall hear and decide requests for variances. The <i>board of appeals</i> shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.	Section 112 <u>Building Official</u> shall hear and decide requests for variances. The board of appeals <u>He</u> shall base its <u>his</u> determination on technical justifications, and has the right to attach such conditions to variances as is <u>is deemed</u> necessary to further the purposes and objectives of this appendix and Section 1612.
G105.3	<p>Historic structures. A variance is authorized to be issued for the repair or rehabilitation of a historic structure upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance is the minimum necessary to preserve the historic character and design of the structure.</p> <p>Exception: Within <i>flood hazard areas, historic structures</i> that are not:</p> <ol style="list-style-type: none"> 1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places; or 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 <i>historic</i> under a state or local historic preservation program that is approved by the Department of Interior. 	<p>Historic structures. A variance is authorized to be issued for the repair or rehabilitation of a historic structure upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance is the minimum necessary to preserve the historic character and design of the structure.</p> <p>Exception: Within <i>flood hazard areas, historic structures</i> that are not:</p> <ol style="list-style-type: none"> 1. Listed or preliminarily determined to be eligible for listing in <u>a legally recognized</u> the National Register of Hhistoric Places; or 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. <u>2.</u> Designated as <i>historic</i> under <u>an state or local</u> Emirate of Abu Dhabi or UAE historic preservation program that is approved by the Department of Interior.
G105.7	<p>Conditions for issuance. Variances shall only be issued by the <i>board of appeals</i> upon:</p> <ol style="list-style-type: none"> 1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography 	<p>Conditions for issuance. Variances shall only be issued by the <i>board of appeals</i> <u>Building Official</u> upon:</p> <ol style="list-style-type: none"> 1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>of the site renders the elevation standards inappropriate;</p> <p>2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable;</p> <p>3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances;</p> <p>4. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief; and</p> <p>5. Notification to the applicant in writing over the signature of the building official that the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage, and that such construction below the base flood level increases risks to life and property.</p>	<p>of the site renders the elevation standards inappropriate;</p> <p>2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable;</p> <p>3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances;</p> <p>4. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief; and</p> <p>5. Notification to the applicant in writing over the signature of the building official that the issuance of a variance to construct a structure below the base flood level will <u>may</u> result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage, and that such construction below the base flood level increases risks to life and property.</p>

APPENDIX H – SIGNS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section H101 - General		
H101.3	New Section Added.	<p><u>Required Signage.</u> Signage required by these codes shall <u>utilize approved internationally recognized pictographic symbols and/or be printed in Arabic and English. Unless otherwise specified, characters shall be not less than 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide and utilize an approved contrasting background.</u></p>

APPENDIX I – PATIO COVERS (ADOPTED, NO AMENDMENTS)

APPENDIX J – GRADING (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section J104 – Permit Application and Submittals		
J104.5	New Section Added	<u>Geophysical Study.</u> When, in the opinion of the Building Official site conditions suggest a potential for subsurface voids, fractures or caves which could impact proposed structures, a geophysical study shall be performed and submitted to the municipality for approval prior to issuance of a grading permit.

APPENDIX K – ADMINISTRATIVE PROVISIONS (NOT ADOPTED. APPLICABLE PROVISIONS INCORPORATED INTO GUIDE SECTION 1, PART A)

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IFC

INTERNATIONAL FIRE CODE



2009

International Fire Code

International Fire Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Fire Code (IFC), 2009 Edition as published by the International Code Council along with Appendix chapters B, C, D, E, F, G, H, I and J. Certain additions, deletions or amendments to this code and the appendix chapters are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
202	Definitions	✓	✓	
304.1.2	Vegetation	✓		
307.1	General	✓		
311.1.1	Abandoned Premises	✓		
503.1.1	Buildings and Facilities	✓		
503.2.3	Surface	✓		
505.1	Address Identification	✓		
506.1	Where required	✓		
506.2	Key Box Maintenance	✓		
507.3	Fire Flow	✓		
507.5	Fire Hydrant system	✓		
510.1	Emergency responder radio coverage in buildings	✓		
603.1	Installation	✓		
603.1.2	Approval	✓		
603.8	Incinerators	✓		
901.6	Inspection, Testing and Maintenance	✓		
903.2.8	Group R	✓		
903.3.1.3	NFPA 13D sprinkler system	✓		
Table 1004.1.1	Table 1004.1.1 Maximum Floor Area Allowances Per Occupant.	✓		
1009.5	Stairway Landings.	✓		
1011.5.1	Graphics.	✓		
1014.2	Egress Through Intervening Spaces.	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
1101.1	Scope	✓		
1103.4	Fire Department Access	✓		
1107.8	Federal Approval	✓		
1901.1	Scope	✓		
2504.4	Power Lines	✓		
2608.3	Protection against Freezing			✓
3301.1	Scope	✓		
3301.2.4	Financial Responsibility	✓		
3301.6	Notifications	✓		
3303.3	Loss, theft or unauthorized removal	✓		
3404.2.9.6.1	Locations where above-ground tanks are prohibited (outside of buildings)	✓		
3406.2.4.4	Locations where above-ground tanks are prohibited (in general)	✓		
3406.7	Refineries	✓		
3506.2	Limitations	✓		
3804.2	Maximum capacity within established limits	✓		
4504.2	Standpipes	✓		
4601.1	Scope	✓		
4601.4.1	Construction Documents	✓		
4604.1	General	✓		
B105.2	Buildings other than one and two family dwellings	✓		

Code Section	Title	Amd¹	Add¹	Del¹
D103.1	Access road width with a hydrant.	✓		
J102.1	Definitions	✓		
¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.				

CHAPTER 1 – SCOPE AND ADMINISTRATION (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART B)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
202	APPROVED. Acceptable to the <i>fire code official</i>	APPROVED. Acceptable to the <i>fire code official</i> <u>Directorate General of Civil Defence</u>
	New definition added.	CODE OFFICIAL. Wherein this code the term “Code Official” is used, it shall mean the <u>Directorate General of Civil Defence.</u>
	New definition added.	DEPARTMENT OF FIRE PREVENTION. Wherein this code reference is made to the <u>Department of Fire Prevention,</u> it shall mean the <u>Civil Protection and Safety Department of Civil Defence.</u>
	FIRE CHIEF. The chief officer of the fire department serving the jurisdiction, or a duly authorized representative.	FIRE CHIEF. The chief officer of the fire department serving the jurisdiction, <u>Directorate General of Civil Defence</u> or a duly authorized representative.
	FIRE CODE OFFICIAL. The fire chief for other designated authority charged with the administration and enforcement of the code, or a duly authorized representative.	FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the code <u>Directorate General of Civil Defence,</u> or a duly authorized representative.
	New definition added.	NATIONAL ELECTRICAL CODE. Wherein these codes reference is made to the <i>National Electrical Code</i> , it shall mean the <u>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009,</u> as promulgated by the <u>Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>
	New definition added.	NFPA 70. Wherein these codes reference is made to <i>NFPA 70</i> , it shall mean the <u>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009,</u> as promulgated by the <u>Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	New definition added	PLUMBING CODE. <u>Wherein this code reference is made to the International Plumbing Code it shall mean the Uniform Plumbing Code of Abu Dhabi Emirate as published by the Abu Dhabi Environmental Agency and or the Water Quality Regulations, January 2009, as published by the Regulation and Supervision Bureau, unless an alternative plumbing design which is based upon the IPC has been approved by the Fire Official.</u>
	New definition added.	Required Signage. <u>Signage required by these codes shall utilize approved internationally recognized pictographic symbols and/or be printed in Arabic and English. Unless otherwise specified, characters shall be not less than 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide and utilize an approved contrasting background.</u>

CHAPTER 3 – GENERAL REQUIREMENTS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 304 - Combustible Waste Materials		
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 <i>owner</i> or occupant of the premises. Vegetation clearance requirements in urban-wildland interface areas shall be in accordance with the <i>International Wildland-Urban Interface Code</i> .	Vegetation. Weeds, grass, vines or other growth that is capable of being ignited and endangering property, shall be cut down and removed by the <i>owner</i> or occupant of the premises. Vegetation clearance requirements in urban-wildland interface areas shall be in accordance with the <i>International Wildland-Urban Interface Code</i> . <u>Directorate General of Civil Defence, or a duly authorized representative.</u>
Section 307 - Open Burning, Recreational Fires and Portable Outdoor Fireplaces		

Section	Original Code Language	Abu Dhabi Adopted Code Language
307.1	General. A person shall not kindle or maintain or authorize to be kindled or maintained any <i>open burning</i> unless conducted and <i>approved</i> in accordance with this section.	General. A person shall not kindle or maintain or authorize to be kindled or maintained any <i>open burning</i> unless conducted and <i>approved</i> in accordance with this section <u>at an approved location</u>
Section 311 - Vacant Premises		
311.1.1	Abandoned premises. Buildings, structures and premises for which an <i>owner</i> cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address, which persistently or repeatedly become unprotected or unsecured, which have been occupied by unauthorized <i>persons</i> or for illegal purposes, or which present a danger of structural collapse or fire spread to adjacent properties shall be considered abandoned, declared unsafe and abated by demolition or rehabilitation in accordance with the <i>International Property Maintenance Code</i> and the <i>International Building Code</i> .	Abandoned premises. Buildings, structures and premises for which an <i>owner</i> cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address, which persistently or repeatedly become unprotected or unsecured, which have been occupied by unauthorized <i>persons</i> or for illegal purposes, or which present a danger of structural collapse or fire spread to adjacent properties shall be considered abandoned, declared unsafe and abated by demolition or rehabilitation in accordance with the <i>International Property Maintenance Code</i> and the <i>International Building Code</i> . <u>Building Codes of the Emirate of Abu Dhabi.</u>

CHAPTER 4 – EMERGENCY PLANNING AND PREPAREDNESS (ADOPTED) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

CHAPTER 5 – FIRE SERVICE FEATURES (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 503 - Fire Apparatus Access Roads		
503.1.1	Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within	Buildings and facilities. <i>Approved</i> fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.</p> <p>Exception: The fire code official is authorized to increase the dimension of 150 feet (45 720 mm) where:</p> <ol style="list-style-type: none"> 1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3. 2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided. 3. There are not more than two Group R-3 or Group U occupancies. 	<p>the jurisdiction. The fire apparatus access road shall comply with the requirements of this section, <u>Appendix C, D, Chapter 9</u> of this code and the Abu Dhabi Urban Street Design Guide and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an <i>approved</i> route around the exterior of the building or facility.</p> <p>Exception: The <i>fire code official</i> is authorized to increase the dimension of 150 feet (45 720 mm) where:</p> <ol style="list-style-type: none"> 1. The building is equipped throughout with an <i>approved automatic sprinkler system</i> installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3. 2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an <i>approved</i> alternative means of fire protection is provided. 3. There are not more than two Group R-3 or Group U occupancies.
503.2.3	<p>Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.</p>	<p>Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities <u>and comply with the requirements of the Abu Dhabi Street Design Manual.</u></p>
Section 505 - Premises Identification		
505.1	<p>Address identification. New and existing buildings shall have <i>approved</i> address numbers, building numbers or <i>approved</i> building identification placed in a position that is</p>	<p>Address <u>Location</u> identification. New and existing buildings shall be provided <u>identified</u> with an <i>approved</i> address numbers or letters <u>building identification including the</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building cannot be viewed from the <i>public way</i>, a monument, pole or other sign or means shall be used to identify the structure.</p>	<p><u>building name and sector for which it is located. Such identification signage shall be in Arabic and English and composed of</u> Each characters shall be a <u>minimum not less than</u> 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide. They shall be installed on a contrasting background and be plainly visible from the street or road fronting the property. Where access is by means of a private road and the building address cannot be viewed from the <i>public way</i>, a monument, pole or other <i>approved</i> sign or means shall be used to identify the structure.</p>
Section 506 - Key Boxes		
506.1	<p>Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the <i>fire code official</i> is authorized to require a key box to be installed in an <i>approved</i> location. The key box shall be of an <i>approved</i> type and shall contain keys to gain necessary access as required by the <i>fire code official</i>.</p>	<p>Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, <u>or at other locations determined by the fire code official,</u> the <i>fire code official</i> is authorized to require a key box to be installed in an <i>approved</i> location. The key box shall be of an <i>approved</i> type and shall contain keys to gain necessary access as required by the <i>fire code official</i>.</p>
506.2	<p>Key box maintenance. The operator of the building shall immediately notify the <i>fire code official</i> and provide the new key when a lock is changed or rekeyed. The key to such lock shall be secured in the key box.</p>	<p>Key box maintenance. The operator of the building shall immediately notify the <i>fire code official</i> and provide the new key when a lock is changed or rekeyed. The key to such lock shall be secured in the key box. <u>All required key boxes shall be maintained with current building keys and remain accessible to Civil Defence personnel.</u></p>
Section 507 - Fire Protection Water Supplies		
507.3	<p>Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an <i>approved</i> method.</p>	<p>Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved <u>method. Appendix B of this code.</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
507.5	Fire hydrant systems. Fire hydrant systems shall comply with Sections 507.5.1 through 507.5.6.	Fire hydrant systems. Fire hydrant systems shall comply with Sections 507.5.1 through 507.5.6. <u>and the requirements of Appendix C.</u>
Section 510 - Emergency Responder Radio Coverage		
510.1	<p>Emergency responder radio coverage in buildings. All buildings shall have <i>approved</i> radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Where <i>approved</i> by the building official and the <i>fire code official</i> a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an <i>approved</i> radio coverage system. 2. Where it is determined by the <i>fire code official</i> that the radio coverage system is not needed. 	<p>Emergency responder radio coverage in buildings. All buildings shall have <i>approved</i> radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Where <i>approved</i> by the building official and the <i>fire code official</i> <u>Directorate General of Civil Defence</u> a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an <i>approved</i> radio coverage system. 2. Where it is determined by the <i>fire code official</i> that the radio coverage system is not needed.

CHAPTER 6 BUILDING SERVICES AND SYSTEMS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 603 - Fuel-Fired Appliances		
603.1	Installation. The installation of nonportable fuel gas appliances and systems shall comply the <i>International Fuel Gas Code</i> . The installation of all other fuel-fired appliances,	Installation. The installation of nonportable fuel gas appliances and systems shall comply the <i>International Fuel Gas Code</i> <u>with exceptions as reflected in administrative</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	other than internal combustion engines, oil lamps and portable devices such as blow torches, melting pots and weed burners, shall comply with this section and the <i>International Mechanical Code</i> .	<u>section 101.4.1 of the building code guide</u> . The installation of all other fuel-fired appliances, other than internal combustion engines, oil lamps and portable devices such as blow torches, melting pots and weed burners, shall comply with this section and the <i>International Mechanical Code</i> .
603.1.2	Approval. The design, construction and installation of fuel-fired appliances shall be in accordance with the <i>International Fuel Gas Code</i> and the <i>International Mechanical Code</i>	Approval. The design, construction and installation of fuel-fired appliances shall be in accordance with the <i>International Fuel Gas Code</i> <u>with exceptions as reflected in administrative section 101.4.1 of the building code guide</u> and the <i>International Mechanical Code</i> .
603.8	Incinerators. Commercial, industrial and residential-type incinerators and chimneys shall be constructed in accordance with the <i>International Building Code</i> , the <i>International Fuel Gas Code</i> and the <i>International Mechanical Code</i>	Incinerators. Commercial, industrial and residential-type incinerators and chimneys shall be constructed in accordance with the <i>International Building Code</i> ; the <i>International Fuel Gas Code</i> <u>with exceptions as reflected in administrative section 101.4.1 of the building code guide</u> and the <i>International Mechanical Code</i> .

CHAPTER 7 – FIRE RESISTIVE RATED CONSTRUCTION (ADOPTED) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

CHAPTER 8 – INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS (ADOPTED) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

CHAPTER 9 – FIRE PROTECTION SYSTEMS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 901 - General		
901.6	Inspection, testing and maintenance. Fire detection, alarm	Inspection, testing and maintenance. Fire detection, alarm

Section	Original Code Language	Abu Dhabi Adopted Code Language
	and extinguishing systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Nonrequired <i>fire protection systems</i> and equipment shall be inspected, tested and maintained or removed.	and extinguishing systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Non-required <i>fire protection systems</i> and equipment shall be inspected, tested and maintained or removed. <u>The inspection, testing and maintenance of fire protection systems involving the discharge of water from the systems Main Drain as required in the referenced standards of Table 901.6.1, shall comply with the requirements of section 314 of the plumbing code for the capture and storage of the discharged water during required testing.</u>
Section 903 - Automatic Sprinkler Systems		
903.2.8	Group R. An <i>automatic sprinkler system</i> installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R <i>fire area</i> .	Group R. An <i>automatic sprinkler system</i> installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R <i>fire area</i> . <u>Exception:</u> One and Two Family Dwellings of R-3 Occupancy
903.3.1.3	NFPA 13D sprinkler systems. <i>Automatic sprinkler systems</i> installed in one- and two-family <i>dwellings</i> and <i>townhouses</i> shall be permitted to be installed throughout in accordance with NFPA 13D.	NFPA 13D sprinkler systems. <i>Automatic sprinkler systems when</i> installed in one- and two-family <i>dwellings</i> and <i>townhouses</i> shall be permitted to be installed throughout in accordance with NFPA 13D.

CHAPTER 10 – MEANS OF EGRESS (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1004 – Occupant Load		
Table 1004.1.1	MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT	MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Section	Original Code Language		Abu Dhabi Adopted Code Language	
	FUNCTION OF SPACE	FLOOR AREA IN SQ. FT. PER OCCUPANT	FUNCTION OF SPACE	FLOOR AREA IN SQ. FT. PER OCCUPANT
	Accessory storage areas, mechanical equipment room	300 gross	Accessory storage areas, mechanical equipment room	300 gross
	Agricultural building	300 gross	Agricultural building	300 gross
	Aircraft hangars	500 gross	Aircraft hangars	500 gross
	Airport terminal		Airport terminal	
	Baggage claim	20 gross	Baggage claim	20 gross
	Baggage handling	300 gross	Baggage handling	300 gross
	Concourse	100 gross	Concourse	100 gross
	Waiting areas	15 gross	Waiting areas	15 gross
	Assembly		Assembly	
	Gaming floors (keno, slots, etc.)	11 gross	Gaming floors (keno, slots, etc.)	11 gross
	Assembly with fixed seats	See Section 1004.7	Assembly with fixed seats	See Section 1004.7
	Assembly without fixed seats		Assembly without fixed seats	
	Concentrated (chairs only-not fixed)	7 net	Concentrated (chairs only-not fixed)	7 net
	Standing space	5 net	Standing space (inc. Mosques)	5 net
	Unconcentrated (tables and chairs)	15 net	Unconcentrated (tables and chairs)	15 net
	Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net	Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
	Business areas	100 gross	Business areas	100 gross
	Courtrooms-other than fixed seating areas	40 net	Courtrooms-other than fixed seating areas	40 net
	Day care	35 net	Day care	35 net
	Dormitories	50 gross	Dormitories	50 gross
	Educational		Educational	
	Classroom area	20 net	Classroom area	20 net
	Shops and other vocational room areas	50 net	Shops and other vocational room areas	50 net
	Exercise rooms	50 gross	Exercise rooms	50 gross
	H-5 Fabrication and manufacturing areas	200 gross	H-5 Fabrication and manufacturing areas	200 gross
	Industrial areas	100 gross	Industrial areas	100 gross
	Institutional areas		Institutional areas	
	Inpatient treatment areas	240 gross	Inpatient treatment areas	240 gross
	Outpatient areas	100 gross	Outpatient areas	100 gross
	Sleeping areas	120 gross	Sleeping areas	120 gross
	Kitchens, commercial	200 gross	Kitchens, commercial	200 gross
	Library		Library	
	Reading rooms	50 net	Reading rooms	50 net

Section	Original Code Language		Abu Dhabi Adopted Code Language	
	Stack area	100 gross	Stack area	100 gross
	Locker rooms	50 gross	Locker rooms	50 gross
	Mercantile		Mercantile	
	Areas on other floors	60 gross	Areas on other floors	60 gross
	Basement and grade floor areas	30 gross	Basement and grade floor areas	30 gross
	Storage, stock, shipping areas	300 gross	Storage, stock, shipping areas	300 gross
	Parking garages	200 gross	Parking garages	200 gross
	Residential	200 gross	Residential	200 gross
	Skating rinks, swimming pools		Skating rinks, swimming pools	
	Rink and pool	50 gross	Rink and pool	50 gross
	Decks	15 gross	Decks	15 gross
	Stages and platforms	15 net	Stages and platforms	15 net
	Warehouses	500 gross	Warehouses	500 gross
	For SI: 1 square foot = 0.0929 m ² .		For SI: 1 square foot = 0.0929 m ² .	

Section 1009 - Stairways

1009.5 **Stairway landings.** There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings shall not be less than the width of *stairways* they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the *stairway*. Such dimension need not exceed 48 inches (1219 mm) where the *stairway* has a straight run. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1007.6.1, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

Exception: *Aisle stairs* complying with Section 1028.

Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings shall not be less than the width of *stairways* they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the *stairway*. Such dimension need not exceed 48 inches (1219 mm) where the *stairway* has a straight run. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1007.6.1, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

Exceptions:

1. *Aisle stairs* complying with Section 1028.
2. For one and two family dwellings, a floor or landing is not required at the top of an interior flight of stairs,

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>including stairs in an enclosed garage, provided a door does not swing over the stairs. A flight of stairs shall not have a vertical rise larger than 12 feet (3658 mm) between floor levels or landings. The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.</u></p>
Section 1011 – Exit Signs		
1011.5.1	<p>Graphics. - Every <i>exit</i> sign and directional <i>exit</i> sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than $\frac{3}{4}$ inch (19.1 mm) wide. The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than $\frac{3}{8}$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.</p> <p>The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of <i>exit</i> sign illumination is or is not energized. If a chevron directional indicator is provided as part of the <i>exit</i> sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.</p>	<p>Graphics. - Every <i>exit</i> sign and directional <i>exit</i> sign shall have plainly legible <u>pictographic symbols or</u> letters not less than 6 inches (152 mm) high. <u>Letters shall have a</u> with the principal strokes of the letters not less than $\frac{3}{4}$ inch (19.1 mm) wide <u>and shall be clearly legible.</u> The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than $\frac{3}{8}$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.</p> <p><u>Pictographic symbols and/or</u> The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of <i>exit</i> sign illumination is or is not energized. If a chevron directional indicator is provided as part of the <i>exit</i> sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.</p>
Section 1014 – Exit Access		
1014.2	Egress through intervening spaces. Egress through intervening spaces shall comply with this section.	Egress through intervening spaces. Egress through intervening spaces shall comply with this section.

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an <i>exit</i>.</p> <p>Exception: <i>Means of egress</i> are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.</p> <p>2. An <i>exit access</i> shall not pass through a room that can be locked to prevent egress.</p> <p>3. <i>Means of egress</i> from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.</p> <p>4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. <i>Means of egress</i> are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit. 2. <i>Means of egress</i> are not prohibited through stockrooms in Group M occupancies when all of the following are met: <ol style="list-style-type: none"> 2.1. The stock is of the same hazard classification as that found in the main retail area; 2.2. Not more than 50 percent of the <i>exit access</i> is 	<p>1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an <i>exit</i>.</p> <p>Exception: <i>Means of egress</i> are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.</p> <p>2. An <i>exit access</i> shall not pass through a room that can be locked to prevent egress.</p> <p>3. <i>Means of egress</i> from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.</p> <p>4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. <i>Means of egress</i> are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit. 2. <i>Means of egress</i> are not prohibited through stockrooms in Group M occupancies when all of the following are met: <ol style="list-style-type: none"> 2.1. The stock is of the same hazard classification as that found in the main retail area; 2.2. Not more than 50 percent of the <i>exit access</i> is

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>through the stockroom;</p> <p>2.3. The stockroom is not subject to locking from the egress side; and</p> <p>2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) <i>aisle</i> defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the <i>exit</i> without obstructions.</p>	<p>through the stockroom;</p> <p>2.3. The stockroom is not subject to locking from the egress side; and</p> <p>2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) <i>aisle</i> defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the <i>exit</i> without obstructions.</p> <p><u>5. For one and two family dwellings a means of egress may pass through rooms and intervening spaces except garages.</u></p>

CHAPTER 11 – AVIATION FACILITIES (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1101 - General		
1101.1	Scope. Airports, heliports, helistops and aircraft hangars shall be in accordance with this chapter.	<p>Scope. Airports, heliports, helistops and aircraft hangars shall be in accordance with this chapter.</p> <p><u>Exception:</u> Military Airfields and Royal Airports</p>
Section 1103 - General Precautions		
1103.4	Fire department access. Fire apparatus access roads shall be provided and maintained in accordance with Chapter 5. Fire apparatus access roads and aircraft parking positions shall be designed in a manner so as to preclude the possibility of fire vehicles traveling under any portion of a parked aircraft.	Fire department access. Fire apparatus access roads shall be provided and maintained in accordance with Chapter 5 <u>of the Fire Code and the General Civil Aviation Authority</u> . Fire apparatus access roads and aircraft parking positions shall be designed in a manner so as to preclude the possibility of fire vehicles traveling under any portion of a parked aircraft.
Section 1107 - Helistops and Heliports		

Section	Original Code Language	Abu Dhabi Adopted Code Language
1107.8	Federal approval. Before operating helicopters from helistops and heliports, approval shall be obtained from the Federal Aviation Administration.	Federal a Approval. Before operating helicopters from helistops and heliports, approval shall be obtained from the Federal Aviation Administration. <u>General Civil Aviation Authority.</u>

CHAPTER 12 – DRY CLEANING (ADOPTED, NO AMENDMENTS)

CHAPTER 13 – COMBUSTIBLE DUST-PRODUCING OPERATIONS (ADOPTED, NO AMENDMENTS)

CHAPTER 14 – FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION (ADOPTED, NO AMENDMENTS)

CHAPTER 15 – FLAMMABLE FINISHES (ADOPTED, NO AMENDMENTS)

CHAPTER 16 – FRUIT AND CROP RIPENING (ADOPTED, NO AMENDMENTS)

CHAPTER 17 – FUMIGATION AND THERMAL INSECTICIDAL FOGGING (ADOPTED, NO AMENDMENTS)

CHAPTER 18 – SEMICONDUCTOR FABRICATION FACILITIES (ADOPTED, NO AMENDMENTS)

CHAPTER 19 – LUMBER YARDS AND WOODWORKING FACILITIES (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1901 - General Requirements		
1901.1	Scope. The storage, manufacturing and processing of timber, lumber, plywood, veneers and byproducts shall be in accordance with this chapter.	Scope. The storage, manufacturing and processing of timber, of lumber, plywood, veneers and byproducts shall be in accordance with this chapter. <u>The manufacturing and processing of raw timber is prohibited within the Emirate of Abu Dhabi.</u>

CHAPTER 20 – MANUFACTURE OF ORGANIC COATINGS (ADOPTED, NO AMENDMENTS)

CHAPTER 21 – INDUSTRIAL OVENS (ADOPTED, NO AMENDMENTS)

CHAPTER 22 – MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES (ADOPTED, NO AMENDMENTS)

CHAPTER 23 – HIGH-PILED COMBUSTIBLE STORAGE (ADOPTED, NO AMENDMENTS)

CHAPTER 24 – TENTS AND OTHER MEMBRANE STRUCTURES (ADOPTED, NO AMENDMENTS)

CHAPTER 25 – TIRE REBUILDING AND TIRE STORAGE (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 2504 - Precautions Against Fire		
2504.4	Power lines. Tire storage piles shall not be located beneath electrical power lines having a voltage in excess of 750 volts or that supply power to fire emergency systems.	Power lines. Tire storage piles shall not be located beneath electrical power lines having a voltage in excess of 750 volts or that supply power to fire emergency systems. <u>Power line locations shall be identified on plans submitted for tire rebuilding and tire storage facilities.</u>

CHAPTER 26 – WELDING AND OTHER HOT WORK (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 2608 - Acetylene Generators		
2608.3	Protection against freezing.	Section Deleted.

CHAPTER 27 – HAZARDOUS MATERIALS – GENERAL PROVISIONS (ADOPTED, NO AMENDMENTS)

CHAPTER 28 – AEROSOLS (ADOPTED, NO AMENDMENTS)

CHAPTER 29 – COMBUSTIBLE FIBERS (ADOPTED, NO AMENDMENTS)

CHAPTER 30 – COMPRESSED GASES (ADOPTED, NO AMENDMENTS)

CHAPTER 31 – CORROSIVE MATERIALS (ADOPTED, NO AMENDMENTS)

CHAPTER 32 – CRYOGENIC FLUIDS (ADOPTED, NO AMENDMENTS)

CHAPTER 33 – EXPLOSIVES AND FIREWORKS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3301 - General		
3301.1	<p>Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of <i>explosives, explosive materials</i>, fireworks and small arms ammunition.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. The Armed Forces of the United States, Coast Guard or National Guard. 2. <i>Explosives</i> in forms prescribed by the official United States Pharmacopoeia. 3. The possession, storage and use of small arms ammunition when packaged in accordance with DOTn packaging requirements. 4. The possession, storage and use of not more than 1 pound (0.454 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and 10,000 small arms primers for hand loading of small arms ammunition for personal 	<p>Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of <i>explosives, explosive materials</i>, fireworks and small arms ammunition.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. The Armed Forces of the United States, Coast Guard or National Guard <u>Arab Emirates</u>. 2. <i>Explosives</i> in forms prescribed by the official United States Pharmacopoeia. <u>3.2.</u> The possession, storage and use of small arms ammunition when packaged in accordance with DOTn packaging requirements. <u>4.3.</u> The possession, storage and use of not more than 1 pound (0.454 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and 10,000 small arms primers for hand loading of small arms ammunition for personal

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>consumption.</p> <p>5. The use of <i>explosive materials</i> by federal, state and local regulatory, law enforcement and fire agencies acting in ✓their official capacities.</p> <p>6. Special industrial <i>explosive</i> devices which in the aggregate contain less than 50 pounds (23 kg) of <i>explosive materials</i>.</p> <p>7. The possession, storage and use of blank industrial-power load cartridges when packaged in accordance with DOTn packaging regulations.</p> <p>8. Transportation in accordance with DOTn 49 CFR Parts 100-185.</p> <p>9. Items preempted by federal regulations.</p>	<p>consumption.</p> <p>5.4. The use of <i>explosive materials</i> by federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities.</p> <p>6.5. Special industrial <i>explosive</i> devices which in the aggregate contain less than 50 pounds (23 kg) of <i>explosive materials</i>.</p> <p>7.6. The possession, storage and use of blank industrial-power load cartridges when packaged in accordance with DOTn packaging regulations.</p> <p>8.7. Transportation in accordance with DOTn 49 CFR Parts 100-185.</p> <p>9.8. Items preempted by federal regulations.</p>
3301.2.4	<p>Financial responsibility. Before a permit is issued, as required by Section 3301.2, the applicant shall file with the jurisdiction a corporate surety bond in the principal sum of \$100,000 or a public liability insurance policy for the same amount, for the purpose of the payment of all damages to <i>persons</i> or property which arise from, or are caused by, the conduct of any act authorized by the permit upon which any judicial judgment results. The <i>fire code official</i> is authorized to specify a greater or lesser amount when, in his or her opinion, conditions at the location of use indicate a greater or lesser amount is required. Government entities shall be exempt from this bond requirement.</p>	<p>Financial responsibility. Before a permit is issued, as required by Section 3301.2, the applicant shall file with the jurisdiction a corporate surety bond in the principal sum of \$100,000 <u>370,000 AED</u> or a public liability insurance policy for the same amount, for the purpose of the payment of all damages to <i>persons</i> or property which arise from, or are caused by, the conduct of any act authorized by the permit upon which any judicial judgment results. The <i>fire code official</i> is authorized to specify a greater or lesser amount when, in his or her opinion, conditions at the location of use indicate a greater or lesser amount is required. Government entities shall be exempt from this bond requirement.</p>
3301.6	<p>Notification. Whenever a new <i>explosive material</i> storage or manufacturing site is established, including a temporary job site, the local law enforcement agency, fire department and local emergency planning committee shall be notified 48 hours in</p>	<p>Notification. Whenever a new <i>explosive material</i> storage or manufacturing site is established, including a temporary job site, the local law enforcement agency, fire department and local emergency planning committee shall be notified 48 hours in</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	advance, not including Saturdays, Sundays and holidays, of the type, quantity and location of <i>explosive materials</i> at the site	advance, not including Saturdays, Sundays <u>weekends</u> and holidays, of the type, quantity and location of <i>explosive materials</i> at the site.
Section 3303 - Record Keeping and Reporting		
3303.3	<p>Loss, theft or unauthorized removal. The loss, theft or unauthorized removal of <i>explosive materials</i> from a magazine or permitted facility shall be reported to the <i>fire code official</i>, local law enforcement authorities and the U.S. Department of Treasury, Bureau of Alcohol, Tobacco and Firearms within 24 hours.</p> <p>Exception: Loss of Division 1.4G (consumer fireworks) need not be reported to the Bureau of Alcohol, Tobacco and Firearms.</p>	<p>Loss, theft or unauthorized removal. The loss, theft or unauthorized removal of <i>explosive materials</i> from a magazine or permitted facility shall be reported to the <i>fire code official</i>, <u>and</u> local law enforcement authorities and the U.S. Department of Treasury, Bureau of Alcohol, Tobacco and Firearms within 24 hours.</p> <p>Exception: Loss of Division 1.4G (consumer fireworks) need not be reported to the Bureau of Alcohol, Tobacco and Firearms.</p>

CHAPTER 34 – FLAMMABLE AND COMBUSTIBLE LIQUIDS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3404 - Storage		
3404.2.9.6.1	<p>Locations where above-ground tanks are prohibited. Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited within the limits established by law as the limits of districts in which such storage is prohibited (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page v).</p>	<p>Locations where above-ground tanks are prohibited. Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited within the limits established by law as the limits of districts in which such storage is prohibited. (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page v).</p>
Section 3406 - Special Operations		
3406.2.4.4	<p>Locations where above-ground tanks are prohibited. The storage of Class I and II liquids in above-ground tanks is prohibited within the limits established by law as the limits of</p>	<p>Locations where above-ground tanks are prohibited. The storage of Class I and II liquids in above-ground tanks is prohibited within the limits established by law as the limits of</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	districts in which such storage is prohibited (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page v).	districts in which such storage is prohibited. (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page v).)
3406.7	Refineries. Plants and portions of plants in which flammable liquids are produced on a scale from crude petroleum, natural gasoline or other hydrocarbon sources shall be in accordance with Sections 3406.7.1 through 3406.7.3. Petroleum-processing plants and facilities or portions of plants or facilities in which flammable or <i>combustible liquids</i> are handled, treated or produced on a commercial scale from crude petroleum, natural gasoline, or other hydrocarbon sources shall also be in accordance with API 651, API 653, API 752, API 1615, API 2001, API 2003, API 2009, API 2015, API 2023, API 2201 and API 2350	Refineries. Plants and portions of plants in which flammable liquids are produced on a scale from crude petroleum, natural gasoline or other hydrocarbon sources shall be in accordance with Sections 3406.7.1 through 3406.7.3. Petroleum-processing plants and facilities or portions of plants or facilities in which flammable or <i>combustible liquids</i> are handled, treated or produced on a commercial scale from crude petroleum, natural gasoline, or other hydrocarbon sources shall also be in accordance with API 651, API 653, API 752, API 1615, API 2001, API 2003, API 2009, API 2015, API 2023, API 2201 and API 2350 <u>and the locally adopted crude oil production standards</u>

CHAPTER 35 – FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3506 - Flammable Cryogenic Fluids		
3506.2	Limitations. Storage of flammable <i>cryogenic fluids</i> in stationary containers outside of buildings is prohibited within the limits established by law as the limits of districts in which such storage is prohibited (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page xiii).	Limitations. Storage of flammable <i>cryogenic fluids</i> in stationary containers outside of buildings is prohibited within the limits established by law as the limits of districts in which such storage is prohibited. (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page xiii).)

CHAPTER 36 – FLAMMABLE SOLIDS (ADOPTED, NO AMENDMENTS)

CHAPTER 37 – HIGHLY TOXIC AND TOXIC MATERIALS (ADOPTED, NO AMENDMENTS)

CHAPTER 38 – LIQUIFIED PETROLEUM GASES (ADOPTED AS AMENDED BELOW) The contents of this chapter shall be used in conjunction with current Civil Defence Regulations. Where requirements differ, the most restrictive shall apply.

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 3804 - Location of LP-Gas Containers		
3804.2	<p>Maximum capacity within established limits. Within the limits established by law restricting the storage of liquefied petroleum gas for the protection of heavily populated or congested areas, the aggregate capacity of any one installation shall not exceed a water capacity of 2,000 gallons (7570 L) (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page xiii).</p> <p>Exception: In particular installations, this capacity limit shall be determined by the <i>fire code official</i>, after consideration of special features such as topographical conditions, nature of occupancy, and proximity to buildings, capacity of proposed LP-gas containers, degree of fire protection to be provided and capabilities of the local fire department.</p>	<p>Maximum capacity within established limits. Within the limits established by law restricting the storage of liquefied petroleum gas for the protection of heavily populated or congested areas, the aggregate capacity of any one installation shall not exceed a water capacity of 2,000 gallons (7570 L). (see Section 3 of the Sample Ordinance for Adoption of the <i>International Fire Code</i> on page xiii).</p> <p>Exception: In particular installations, this capacity limit shall be determined by the <i>fire code official</i>, after consideration of special features such as topographical conditions, nature of occupancy, and proximity to buildings, capacity of proposed LP-gas containers, degree of fire protection to be provided and capabilities of the local fire department.</p>

CHAPTER 39 – ORGANIC PEROXIDES (ADOPTED, NO AMENDMENTS)

CHAPTER 40 – OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS (ADOPTED, NO AMENDMENTS)

CHAPTER 41 – PYROPHORIC MATERIALS (ADOPTED, NO AMENDMENTS)

CHAPTER 42 – PYROXYLIN (CELLULOSE NITRATE) PLASTICS (ADOPTED, NO AMENDMENTS)

CHAPTER 43 – UNSTABLE (REACTIVE) MATERIALS (ADOPTED, NO AMENDMENTS)

CHAPTER 44 – WATER-REACTIVE SOLIDS AND LIQUIDS (ADOPTED, NO AMENDMENTS)

CHAPTER 45 – MARINAS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 4504 - Fire Protection Equipment		
4504.2	Standpipes. Marinas and boatyards shall be equipped throughout with standpipe systems in accordance with NFPA 303. Systems shall be provided with hose connections located such that no point on the marina pier or float system exceeds 150 feet (15 240 mm) from a standpipe hose connection.	Standpipes. Marinas and boatyards shall be equipped throughout with standpipe systems in accordance with NFPA 303. Systems shall be provided with hose connections located such that no point on the marina pier or float system exceeds 150 feet (15 240 <u>45,720</u> mm) from a standpipe hose connection. <u>The Directorate General of Civil Defence will determine the location of standpipe connections.</u>

CHAPTER 46 – CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 4601 - General		
4601.1	Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code.	Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code. <u>Modifications to existing buildings require the approval of the building official and the fire code official and shall comply with the provisions of all adopted codes of the municipality.</u>
4601.4.1	Construction documents. <i>Construction documents</i> for the necessary <i>alterations</i> shall be completed within a time	Construction documents. <i>Construction documents</i> for the necessary <i>alterations</i> shall be completed within a time

Section	Original Code Language	Abu Dhabi Adopted Code Language
	schedule <i>approved</i> by the <i>fire code official</i> .	schedule <i>approved</i> by the <i>fire code official</i> <u>and the building official</u> .
Section 4604 - Means of Egress for Existing Buildings		
4604.1	<p>General. <i>Means of egress</i> in existing buildings shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.21, and the building code that applied at the time of construction. Where the provisions conflict, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.21 and, in addition, shall have a life safety evaluation prepared, consistent with the requirements of Section 104.7.2. The life safety evaluation shall identify any changes to the <i>means of egress</i> that are necessary to provide safe egress to occupants and shall be subject to review and approval by the <i>fire code official</i>. The building shall be modified to comply with the recommendations set forth in the <i>approved</i> evaluation.</p>	<p>General. <i>Means of egress</i> in existing buildings shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.21, and the building code that applied at the time of construction. Where the provisions conflict, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.21 and, in addition, shall have a life safety evaluation prepared, consistent with the requirements of Section 104.7.2. The life safety evaluation shall identify any changes to the <i>means of egress</i> that are necessary to provide safe egress to occupants and shall be subject to review and approval by the <i>fire code official</i> <u>and the building official</u>. The building shall be modified to comply with the recommendations set forth in the <i>approved</i> evaluation.</p>

CHAPTER 47 – REFERENCED STANDARDS (ADOPTED, NO AMENDMENTS)

APPENDIX A – BOARD OF APPEALS (NOT ADOPTED)

APPENDIX B – FIRE-FLOW REQUIREMENTS FOR BUILDINGS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section B105 - Fire Flow Requirements for Buildings		
B105.2	<p>Buildings other than one- and two-family dwellings. The minimum fire-flow and flow duration for buildings other than one- and two-family <i>dwellings</i> shall be as specified in Table B105.1.</p> <p>Exception: A reduction in required fire-flow of up to 75 percent, as <i>approved</i>, is allowed when the building is provided with an <i>approved automatic sprinkler system</i> installed in accordance with Section 903.3.1.1 or 903.3.1.2. The resulting fire-flow shall not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration as specified in Table B105.1.</p>	<p>Buildings other than one- and two-family dwellings. The minimum fire-flow and flow duration for buildings other than one- and two-family <i>dwellings</i> shall be as specified in Table B105.1. <u>The specific water flow requirements for any building shall be determined by the authority having jurisdiction of the individual municipality.</u></p> <p>Exception: A reduction in required fire-flow of up to 75 percent, as <i>approved</i>, is allowed when the building is provided with an <i>approved automatic sprinkler system</i> installed in accordance with Section 903.3.1.1 or 903.3.1.2. The resulting fire-flow shall not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration as specified in Table B105.1.</p>

APPENDIX C – FIRE HYDRANT LOCATIONS AND DISTRIBUTION (ADOPTED, NO AMENDMENTS)

APPENDIX D – FIRE APPARATUS ACCESS ROADS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section D103 - Minimum Specifications		
D103.1	<p>Access road width with a hydrant. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1).</p>	<p>Access road width with a hydrant. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1). <u>All new fire apparatus access roads will comply with the Urban Street Design Manual and this code.</u></p>

APPENDIX E – HAZARD CATEGORIES (ADOPTED, NO AMENDMENTS)

APPENDIX F – HAZARD RANKING (ADOPTED, NO AMENDMENTS)

APPENDIX G – CRYOGENIC FLUIDS-WEIGHT AND VOLUME EQUIVALENTS (ADOPTED, NO AMENDMENTS)

**APPENDIX H – HAZARDOUS MATERIALS MANAGEMENT PLAN (HMMP) AND HAZARDOUS MATERIALS INVENTORY STATEMENT (HMIS)
INSTRUCTIONS (ADOPTED, NO AMENDMENTS)**

APPENDIX I – FIRE PROTECTION SYSTEMS – NONCOMPLIANT CONDITIONS (ADOPTED, NO AMENDMENTS)

APPENDIX J – EMERGENCY RESPONDER RADIO COVERAGE (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section J102 - Definitions		
J102.1	<p>Definitions. For the purpose of this appendix, certain terms are defined as follows: AGENCY. Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication. This could include, but not be limited to, various public safety agencies such as fire department, emergency medical services and law enforcement.</p>	<p>Definitions. For the purpose of this appendix, certain terms are defined as follows: AGENCY. Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication. This could include, but not be limited to, various public safety agencies such as fire department, emergency medical services and law enforcement. <u>This includes but is not limited to Civil Defence (fire and police) and ALL emergency response medical services.</u></p>

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2009

International Energy Conservation Code

International Energy Conservation Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Energy Conservation Code (IECC), 2009 Edition as published by the International Code Council. Certain additions, deletions or amendments to this code are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
201.3	Terms defined in other codes.	✓		
202	General Definitions.	✓	✓	
301.3	International climate zones.	✓		
302.1	Interior design conditions.	✓		
303.1.4	Insulation product rating.	✓		
Table 402.1.3	Equivalent U-Factors	✓		
402.2.2	Ceilings without attic spaces.			✓
402.2.7	Basement walls.			✓
402.2.8	Slab-on-grade floors.			✓
403.1.2	Heat pump supplementary heat (Mandatory).			✓
403.2.2	Sealing (Mandatory).	✓		
403.6	Equipment sizing (Mandatory).	✓		
403.8	Snow melt system controls (Mandatory).			✓
403.9.1	Pool heaters.	✓		
403.9.3	Pool covers.	✓		
405.3	Performance-based compliance.	✓		
Table 405.5.2(1)	Specifications for the Standard Reference and Proposed Designs.	✓		
405.6.1	Minimum capabilities.	✓		
501.1	Scope.	✓		
501.2	Application.	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
Table 502.1.2	Building Envelope Requirements Opaque Element, Maximum U-Factors.	✓		
502.2.1	Roof assembly.	✓		
502.2.1.1	Roof solar reflectance and thermal emittance.		✓	
Table 502.3	Building Envelope Requirements: Fenestration.	✓		
502.4.1	Air Barriers.	✓		
502.4.1.1	Continuous Air Barrier.		✓	
502.4.1.2	Air barrier compliance options.		✓	
502.4.1.2.1	Materials.		✓	
502.4.1.2.2	Assemblies.		✓	
502.4.1.2.3	Building Test.		✓	
502.4.2	Air Barrier Penetrations.	✓		
502.4.3	Fenestration and Doors.	✓		
Table 502.4.3	Maximum Air Infiltration Rate for Fenestration Assemblies		✓	
502.4.4	Doors and Access Openings to Shafts, Chutes, Stairwells, and Elevator Lobbies.	✓		
Table 502.4.4	Maximum Hot Gas Bypass Capacity.			✓
502.4.5	Outdoor air intakes and exhaust	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
	openings.			
502.4.5.1	Stair and shaft vents.		✓	
502.4.5.2	Outdoor air intakes and exhausts.		✓	
502.4.7	Vestibules.	✓		
502.4.8	Recessed lighting.	✓		
503.2.1	Calculation of heating and cooling loads.	✓		
503.2.2	Equipment and system sizing.	✓		
503.2.4.3.3	Automatic start capabilities.		✓	
503.2.4.5	Snow melt system controls.			✓
503.2.6	Energy recovery ventilation systems.	✓		
Table 503.2.6	Energy Recovery Requirement		✓	
503.2.9	Mechanical systems commissioning and completion requirements.	✓		
503.2.9.1	System commissioning.	✓		
503.2.9.1.1	Commissioning plan.		✓	
503.2.9.1.2	Systems adjusting and balancing.		✓	
503.2.9.1.3	Functional performance testing.		✓	
503.2.9.1.3.1	Equipment functional performance testing.		✓	
503.2.9.1.3.2	Controls functional performance testing.		✓	
503.2.9.1.4	Preliminary commissioning report.		✓	
503.2.9.2	Acceptance.	✓		
503.2.9.3	Completion requirements.	✓		
503.2.9.3.1	Drawings.		✓	
503.2.9.3.2	Manuals.		✓	
503.2.9.3.3	System balancing report.		✓	
503.2.9.3.4	Final Commissioning Report.		✓	
Table 503.2.10.1(1)	Fan Power Limitation.	✓		
503.3.1	Economizers.			✓

Code Section	Title	Amd ¹	Add ¹	Del ¹
Table 503.3.1(1)	Economizer Requirements.			✓
Table 503.3.1(2)	Equipment Efficiency Performance, Exception for Economizers.			✓
503.4.2	Variable air volume (VAV) fan control.	✓		
504.7.1	Pool heaters.	✓		
504.7.3	Pool covers.	✓		
505.1	General (Mandatory).	✓		
505.2.2.1	Light reduction controls.	✓		
505.2.2.2	Daylight Zone Control.	✓		
505.2.2.2.1	Occupant override.			✓
505.2.2.2.2	Holiday scheduling.			✓
505.2.2.3	Automatic lighting controls.	✓		
505.2.2.3.1	Occupancy sensors.		✓	
505.2.2.3.2	Time Clock Controls		✓	
505.2.2.3.3	Automatic daylighting controls.		✓	
505.2.3	Specific Application Controls.	✓		
505.2.4	Functional Testing.	✓		
Table 505.5.2	Sleeping Unit Controls	✓		
505.7	Electrical energy consumption. (Mandatory).	✓		
506.1	Requirements.		✓	
506.2	Efficient Mechanical Equipment.		✓	
Table 506.2(1)	Unitary Air Conditioners and Condensing Units, Electrically Operated, Efficiency Requirements.		✓	
Table 506.2(2)	Unitary and Applied Heat Pumps, Electrically Operated, Efficiency Requirements.		✓	
Table 506.2(3)	Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps.		✓	

Code Section	Title	Amd ¹	Add ¹	Del ¹
Table 506.2(6)	Chillers – Efficiency Requirements.		✓	
Table 506.2(7)	Absorption Chillers – Efficiency Requirements.		✓	
506.3	Efficient Lighting System.		✓	
506.3.1	Reduced Lighting Power Density.		✓	
Table 506.3	Reduced Interior Lighting Power.		✓	

Code Section	Title	Amd ¹	Add ¹	Del ¹
506.3.2	Automatic Daylighting Controls.		✓	
506.4	On-site Supply of Renewable Energy.		✓	
506.3 507.3	Performance-based compliance.	✓		
506.4.1 507.4.1	Compliance report.	✓		
¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.				

CHAPTER 1 –ADMINISTRATION (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART A)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 201 - General		
201.3	Terms defined in other codes. Terms that are not defined in this code but are defined in the <i>International Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code</i> or the <i>International Residential Code</i> shall have the meanings ascribed to them in those codes.	Terms defined in other codes. Terms that are not defined in this code but are defined in the <i>International Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code</i> or the <i>International Residential Code</i> <u><i>Energy Conservation Code</i></u> shall have the meanings ascribed to them in those codes.
Section 202 – General Definitions		
202	BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.	BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy, <u>including any mechanical systems, service water heating systems and electric power and lighting systems located on the building site and supporting the building.</u>
	New definition added.	<u>BUILDING COMMISSIONING.</u> A process that verifies and documents that the selected building systems have been designed, installed, and function according to the owner’s project requirements and construction documents, and to minimum code requirements. The Registered Design Professional of Responsible Charge shall oversee this process and shall submit all documentation to the jurisdiction as required.
	New definition added.	<u>BUILDING SITE.</u> A contiguous area of land that is under the ownership or control of one entity.
	BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floor, roof, and any other building	BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floor, roof, and any other building

Section	Original Code Language	Abu Dhabi Adopted Code Language
	element that enclose <i>conditioned space</i> . This boundary also includes the boundary between <i>conditioned space</i> and any exempt or unconditioned space.	element that encloses <i>conditioned space</i> . This boundary also includes the boundary between <i>conditioned space</i> and any exempt or unconditioned space or provides a boundary between <i>conditioned space</i> and exempt or unconditioned space.
202	CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.	CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. <u>Wherein this code the term “Code Official” is used, it shall mean the “Building Official” as defined in the building code.</u>
	New definition added.	<u>CONTINUOUS AIR BARRIER.</u> A combination of materials and assemblies that restrict or prevent the passage of air through the building thermal envelope.
	New definition added.	<u>FENESTRATION PRODUCT, FIELD-FABRICATED</u> is a fenestration product including an exterior glass door whose frame is made at the construction site of standard dimensional lumber or other materials that were not previously cut, or otherwise formed with the specific intention of being used to fabricate a fenestration product or exterior door. Field fabricated does not include site-built fenestration with a label certificate or products required to have temporary or permanent labels.
	New definition added.	<u>FENESTRATION PRODUCT, SITE-ASSEMBLED</u> is fenestration designed to be field-glazed or field assembled units using specific factory cut or otherwise factory formed framing and glazing units. Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

Section	Original Code Language	Abu Dhabi Adopted Code Language
202	New definition added.	<u>NATIONAL ELECTRICAL CODE.</u> Wherein these regulations reference is made to the <i>National Electrical Code</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New definition added.	<u>NFPA 70.</u> Wherein these regulations reference is made to <i>NFPA 70</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New definition added.	<u>ON-SITE RENEWABLE ENERGY.</u> Energy derived from solar radiation, wind, landfill gas, biomass, or the internal heat of the earth. The energy system providing on-site renewable energy shall be located on or adjacent to the project site.
	New definition added	<u>PLUMBING CODE.</u> Wherein this code reference is made to the International Plumbing Code it shall mean the <u>Uniform Plumbing Code of Abu Dhabi Emirate as published by the Abu Dhabi Environmental Agency and or the Water Quality Regulations, January 2009, as published by the Regulation and Supervision Bureau, unless an alternative plumbing design which is based upon the IPC has been approved by the Building Official in accordance with section 101.4.3..</u>
	New Definition Added.	<u>SEQUENCE OF OPERATION.</u> The chronological order of steps to be executed as specified in a detailed process plan for the operation of the HVAC system.

CHAPTER 3 – CLIMATE ZONES (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 301 – Climate Zones		
301.3	International climate zones. The climate <i>zone</i> for any location outside the United States shall be determined by applying Table 301.3(1) and then Table 301.3(2).	International climate zones. The climate <i>zone</i> for any location outside the United States shall be determined by applying Table 301.3(1) and then Table 301.3(2). <u>The climate zone to be used for the design and construction of buildings or structures within the Emirate of Abu Dhabi shall be zone 1.</u>
Section 302 – Design Conditions		
302.1	Interior design conditions. The interior design temperatures used for heating and cooling load calculations shall be a maximum of 72°F (22°C) for heating and minimum of 75°F (24°C) for cooling.	Interior design conditions. The interior design temperatures used for heating and cooling load calculations shall be a maximum of 72°F (22°C) for heating and minimum of 75°F (24°C) for cooling <u>with a relative humidity of 50 ±5%.</u>
Section 303 – Materials, Systems and Equipment		
303.1.4	Insulation product rating. The thermal resistance (<i>R</i> -value) of insulation shall be determined in accordance with the U.S. Federal Trade Commission <i>R</i> -value rule (CFR Title 16, Part 460, May 31, 2005) in units of $h \times ft^2 \times ^\circ F/Btu$ at a mean temperature of 75°F (24°C).	Insulation product rating. The thermal resistance (<i>R</i> -value) of insulation shall be determined in accordance with the U.S. Federal Trade Commission <i>R</i>-value rule (CFR Title 16, Part 460, May 31, 2005) in units of $h \times ft^2 \times ^\circ F/Btu$ at a mean temperature of 75°F (24°C).

CHAPTER 4 – RESIDENTIAL ENERGY EFFICIENCY (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language																																																																																										
Section 402 – Building Thermal Envelope																																																																																												
Table 402.1.3	<p>EQUIVALENT <i>U</i>-FACTORS^a</p> <table border="1"> <thead> <tr> <th>CLIMATE ZONE</th> <th>FENESTRATION U-FACTOR</th> <th>SKYLIGHT U-FACTOR</th> <th>CEILING U-FACTOR</th> <th>FRAME WALL U-FACTOR</th> <th>MASS WALL U-FACTOR^b</th> <th>FLOOR U-FACTOR</th> <th>BASEMENT WALL U-FACTOR</th> <th>CRAWL SPACE WALL U-FACTOR^c</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.20</td> <td>0.75</td> <td>0.035</td> <td>0.082</td> <td>0.197</td> <td>0.064</td> <td>0.360</td> <td>0.477</td> </tr> <tr> <td>2</td> <td>0.65</td> <td>0.75</td> <td>0.035</td> <td>0.082</td> <td>0.165</td> <td>0.064</td> <td>0.360</td> <td>0.477</td> </tr> <tr> <td>3</td> <td>0.50</td> <td>0.65</td> <td>0.035</td> <td>0.082</td> <td>0.141</td> <td>0.047</td> <td>0.091^c</td> <td>0.136</td> </tr> <tr> <td>4 except Marine</td> <td>0.35</td> <td>0.60</td> <td>0.030</td> <td>0.082</td> <td>0.141</td> <td>0.047</td> <td>0.059</td> <td>0.065</td> </tr> <tr> <td>5 and Marine 4</td> <td>0.35</td> <td>0.60</td> <td>0.030</td> <td>0.057</td> <td>0.082</td> <td>0.033</td> <td>0.059</td> <td>0.065</td> </tr> <tr> <td>6</td> <td>0.35</td> <td>0.60</td> <td>0.026</td> <td>0.057</td> <td>0.060</td> <td>0.033</td> <td>0.050</td> <td>0.065</td> </tr> <tr> <td>7 and 8</td> <td>0.35</td> <td>0.60</td> <td>0.026</td> <td>0.057</td> <td>0.057</td> <td>0.028</td> <td>0.050</td> <td>0.065</td> </tr> </tbody> </table> <p>a. Nonfenestration <i>U</i>-factors shall be obtained from measurement, calculation or an approved source.</p> <p>b. When more than half the insulation is on the interior, the mass wall <i>U</i>-factors shall be a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except Marine, and the same as the frame wall <i>U</i>-factor in Marine Zone 4 and Zones 5 through 8.</p> <p>c. Basement wall <i>U</i>-factor of 0.360 in warm-humid locations as defined by Figure 301.1 and Table 301.1.</p>	CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR ^c	1	1.20	0.75	0.035	0.082	0.197	0.064	0.360	0.477	2	0.65	0.75	0.035	0.082	0.165	0.064	0.360	0.477	3	0.50	0.65	0.035	0.082	0.141	0.047	0.091 ^c	0.136	4 except Marine	0.35	0.60	0.030	0.082	0.141	0.047	0.059	0.065	5 and Marine 4	0.35	0.60	0.030	0.057	0.082	0.033	0.059	0.065	6	0.35	0.60	0.026	0.057	0.060	0.033	0.050	0.065	7 and 8	0.35	0.60	0.026	0.057	0.057	0.028	0.050	0.065	<p>EQUIVALENT <i>U</i>-FACTORS^a</p> <table border="1"> <thead> <tr> <th>CLIMATE ZONE</th> <th>FENESTRATION U-FACTOR</th> <th>SKYLIGHT U-FACTOR</th> <th>CEILING U-FACTOR</th> <th>FRAME WALL U-FACTOR</th> <th>MASS WALL U-FACTOR^b</th> <th>FLOOR U-FACTOR</th> <th>BASEMENT WALL U-FACTOR</th> <th>CRAWL SPACE WALL U-FACTOR^c</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><u>0.39</u></td> <td><u>0.60</u></td> <td><u>0.026</u></td> <td><u>0.057</u></td> <td><u>0.057</u></td> <td><u>0.028</u></td> <td><u>0.050</u></td> <td><u>0.065</u></td> </tr> </tbody> </table> <p>a. Nonfenestration <i>U</i>-factors shall be obtained from measurement, calculation or an approved source.</p> <p>b. When more than half the insulation is on the interior, the mass wall <i>U</i>-factors shall be a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except Marine, and the same as the frame wall <i>U</i>-factor in Marine Zone 4 and Zones 5 through 8.</p> <p>c. Basement wall <i>U</i>-factor of 0.360 in warm-humid locations as defined by Figure 301.1 and Table 301.1.</p>	CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR ^c	1	<u>0.39</u>	<u>0.60</u>	<u>0.026</u>	<u>0.057</u>	<u>0.057</u>	<u>0.028</u>	<u>0.050</u>	<u>0.065</u>
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Section 403 – Systems																																																																																												
403.1.2	Heat pump supplementary heat (Mandatory).	Section Deleted.																																																																																										
403.2.2	Sealing (Mandatory). All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4.1 of the	Sealing (Mandatory). All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4.1 <u>603.9</u> of the																																																																																										

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	<p><i>International Residential Code.</i></p> <p>Duct tightness shall be verified by either of the following:</p> <ol style="list-style-type: none"> 1. Post construction test: Leakage to outdoors shall be less than or equal to 8 cfm (226.5 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i> or a total leakage less than or equal to 12 cfm (12 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i> when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. 2. Rough-in test: Total leakage shall be less than or equal to 6 cfm (169.9 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i> when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the roughed in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i>. <p>Exceptions: Duct tightness test is not required if the air handler and all ducts are located within <i>conditioned space</i>.</p>	<p><i>International Residential Mechanical Code.</i></p> <p>Duct tightness shall be verified by either of the following:</p> <ol style="list-style-type: none"> 1. Post construction test: Leakage to outdoors shall be less than or equal to 8 cfm (226.5 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i> or a total leakage less than or equal to 12 cfm (12 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i> when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. 2. Rough-in test: Total leakage shall be less than or equal to 6 cfm (169.9 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i> when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the roughed in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 ft² (9.29 m²) of <i>conditioned floor area</i>. <p>Exceptions: Duct tightness test is not required if the air handler and all ducts are located within <i>conditioned space</i>.</p>
403.6	<p>Equipment sizing (Mandatory). Heating and cooling equipment shall be sized in accordance with Section M1401.3 of the <i>International Residential Code</i>.</p>	<p>Equipment sizing (Mandatory). Heating and cooling equipment shall be sized in accordance with Section M1401.3 of the <i>International Residential Code</i> <u>ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other <i>approved</i> heating and cooling calculation methodologies.</u></p>
403.8	<p>Snow melt system controls (Mandatory).</p>	<p>Section Deleted.</p>
403.9.1	<p>Pool heaters. All pool heaters shall be equipped with a</p>	<p>Pool heatersing or cooling systems. All pool, spa or hot tub</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	readily <i>accessible</i> on-off switch to allow shutting off the heater without adjusting the setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.	heating or cooling systems shall be equipped with a readily <i>accessible</i> on-off switch to allow shutting off the heaters system without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights. <u>Pools may be cooled to a temperature not lower than 86 degrees F (30 Degrees C).</u>
403.9.3	<p>Pool covers. Heated pools shall be equipped with a vapor-retardant pool cover on or at the water surface. Pools heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.</p> <p>Exception: Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.</p>	<p>Pool covers. Heated <u>All</u> pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools, <u>spas or hot tubs which are heated</u> to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> <u>1. Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.</u> <u>2. Pools which derive more than 70% of the energy used for cooling from geothermal heat exchange systems, evaporative cooling or from a chilled water return.</u>
Section 405 – Simulated Performance Alternative (Performance)		
405.3	<p>Performance-based compliance. Compliance based on simulated energy performance requires that a proposed residence (<i>proposed design</i>) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the <i>standard reference design</i>. Energy prices shall be taken from a source <i>approved</i> by the <i>code official</i>, such as the Department of Energy, Energy Information Administration's <i>State Energy Price and Expenditure Report</i>. <i>Code officials</i> shall be permitted to require time-of-use pricing in energy cost calculations.</p>	<p>Performance-based compliance. Compliance based on simulated energy performance requires that a proposed residence (<i>proposed design</i>) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the <i>standard reference design</i>. Energy prices shall be taken from a source <i>approved</i> by the <i>code official</i>, such as the Department of Energy, Energy Information Administration's <i>State Energy Price and Expenditure Report</i>. <i>Code officials</i> shall be permitted to require time-of-use pricing in energy cost calculations.</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language												
	<p>Exception: The energy use based on source energy expressed in Btu or Btu per square foot of <i>conditioned floor area</i> shall be permitted to be substituted for the energy cost. The source energy multiplier for electricity shall be 3.16. The source energy multiplier for fuels other than electricity shall be 1.1.</p>	<p>Exception: The energy use based on source energy expressed in Btu or Btu per square foot of <i>conditioned floor area</i> shall be permitted to be substituted for the energy cost. The source energy multiplier for electricity shall be 3.16. The source energy multiplier for fuels other than electricity shall be 1.1.</p>												
Table 405.5.2(1)	<p>SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS</p> <p><i>NOTE: Modifications to this table are limited to Heating Systems and Cooling Systems as indicated below. Balance of table and footnotes remain unchanged.</i></p> <table border="1"> <tr> <td>Heating systems^{g, h}</td> <td>As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i></td> <td>As proposed</td> </tr> <tr> <td>Cooling systems^{g, i}</td> <td>As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i></td> <td>As proposed</td> </tr> </table>	Heating systems ^{g, h}	As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i>	As proposed	Cooling systems ^{g, i}	As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i>	As proposed	<p>SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS</p> <p><i>NOTE: Modifications to this table are limited to Heating Systems and Cooling Systems as indicated below. Balance of table and footnotes remain unchanged.</i></p> <table border="1"> <tr> <td>Heating systems^{g, h}</td> <td>As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i> ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other <i>approved</i> heating and cooling calculation methodologies.</td> <td>As proposed</td> </tr> <tr> <td>Cooling systems^{g, i}</td> <td>As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i> ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other <i>approved</i> heating and cooling calculation methodologies.</td> <td>As proposed</td> </tr> </table>	Heating systems ^{g, h}	As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i> ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other <i>approved</i> heating and cooling calculation methodologies.	As proposed	Cooling systems ^{g, i}	As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i> ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other <i>approved</i> heating and cooling calculation methodologies.	As proposed
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405.6.1	<p>Minimum capabilities. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the <i>standard reference design</i> and the <i>proposed design</i> and shall include the following capabilities:</p> <ol style="list-style-type: none"> 1. Computer generation of the <i>standard reference design</i> using only the input for the <i>proposed design</i>. The calculation procedure shall not allow the user to directly modify the building component characteristics of the <i>standard reference design</i>. 2. Calculation of whole-building (as a single <i>zone</i>) sizing for 	<p>Minimum capabilities. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the <i>standard reference design</i> and the <i>proposed design</i> and shall include the following capabilities:</p> <ol style="list-style-type: none"> 1. Computer generation of the <i>standard reference design</i> using only the input for the <i>proposed design</i>. The calculation procedure shall not allow the user to directly modify the building component characteristics of the <i>standard reference design</i>. 2. Calculation of whole-building (as a single <i>zone</i>) sizing for 												

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>the heating and cooling equipment in the <i>standard reference design</i> residence in accordance with Section M1401.3 of the <i>International Residential Code</i>.</p> <p>3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air-conditioning equipment based on climate and equipment sizing.</p> <p>4. Printed <i>code official</i> inspection checklist listing each of the <i>proposed design</i> component characteristics from Table 405.5.2(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g., R-value, U-factor, SHGC, HSPF, AFUE, SEER, EF, etc.).</p>	<p>the heating and cooling equipment in the <i>standard reference design</i> residence in accordance with Section M1401.3 of the <i>International Residential Code</i> <u>ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other <i>approved</i> heating and cooling calculation methodologies.</u></p> <p>3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air-conditioning equipment based on climate and equipment sizing.</p> <p>4. Printed <i>code official</i> inspection checklist listing each of the <i>proposed design</i> component characteristics from Table 405.5.2(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g., R-value, U-factor, SHGC, HSPF, AFUE, SEER, EF, etc.).</p>

CHAPTER 5 – COMMERCIAL ENERGY EFFICIENCY (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 501 – General		
501.1	<p>Scope. The requirements contained in this chapter are applicable to commercial buildings, or portions of commercial buildings. These commercial buildings shall meet either the requirements of ASHRAE/IESNA Standard 90.1, <i>Energy Standard for Buildings Except for Low-Rise Residential Buildings</i>, or the requirements contained in this chapter.</p>	<p>Scope. The requirements contained in this chapter are applicable to commercial buildings, or portions of commercial buildings. These commercial buildings shall meet either <u>exceed</u> the requirements of ASHRAE/IESNA Standard 90.1-2007, <i>Energy Standard for Buildings Except for Low-Rise Residential Buildings</i>; <u>by at least 25%</u>, or <u>meet</u> the requirements contained in this chapter.</p>
501.2	<p>Application. The <i>commercial building</i> project shall comply with</p>	<p>Application. The <i>commercial building</i> project shall comply with</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>the requirements in Sections 502 (Building envelope requirements), 503 (Building mechanical systems), 504 (Service water heating) and 505 (Electrical power and lighting systems) in its entirety. As an alternative the <i>commercial building</i> project shall comply with the requirements of ASHRAE/IESNA 90.1 in its entirety.</p> <p>Exception: Buildings conforming to Section 506, provided Sections 502.4, 503.2, 504, 505.2, 505.3, 505.4, 505.6 and 505.7 are each satisfied.</p>	<p>the requirements in Sections 502 (Building envelope requirements), 503 (Building mechanical systems), 504(Service water heating), 505 (Electrical power and lighting systems) <u>in its entirety, and one of the additional options as presented in Section 506.</u> As an alternative the <i>commercial building</i> project <u>shall exceed by at least 25% comply with the requirements of ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except for Low Rise Residential Buildings, Section 11</u> in its entirety.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. <u>Buildings conforming to Section 507, provided Sections 502.4, 503.2, 504, 505.2, 505.3, 505.4, 505.6 and 505.7 are each satisfied. Building energy cost shall be equal to or less than 85% of the standard reference design building.</u> 2. <u>Additions, alterations and repairs shall comply with the applicable requirements in Sections 502, 503, 504, and 505 only or with ASHRAE/IESNA 90.1.</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
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Section 502 – Building Envelope Requirements

Table 502.1.2

**BUILDING ENVELOPE REQUIREMENTS
OPAQUE ELEMENT, MAXIMUM U-FACTORS**

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
	Roofs															
Insulation entirely above deck	U-0.063	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.039	U-0.039	U-0.039	U-0.039
Metal buildings	U-0.065	U-0.065	U-0.055	U-0.055	U-0.055	U-0.055	U-0.055	U-0.055	U-0.055	U-0.055	U-0.055	U-0.049	U-0.049	U-0.049	U-0.049	U-0.035
Attic and other	U-0.034	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027
Walls, Above Grade																
Mass	U-0.058	U-0.151	U-0.151	U-0.123	U-0.123	U-0.104	U-0.104	U-0.090	U-0.090	U-0.080	U-0.071	U-0.071	U-0.071	U-0.071	U-0.071	U-0.052
Metal building	U-0.093	U-0.093	U-0.093	U-0.093	U-0.084	U-0.084	U-0.084	U-0.084	U-0.069	U-0.069	U-0.069	U-0.069	U-0.057	U-0.057	U-0.057	U-0.057
Metal framed	U-0.124	U-0.124	U-0.124	U-0.124	U-0.084	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.057	U-0.064	U-0.052	U-0.064	U-0.037
Wood framed and other	U-0.089	U-0.089	U-0.089	U-0.089	U-0.089	U-0.089	U-0.064	U-0.064	U-0.051	U-0.051	U-0.051	U-0.051	U-0.051	U-0.051	U-0.036	U-0.036
Walls, Below Grade																
Below-grade wall ^a	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.119	C-1.119	C-1.119	C-1.119	C-1.119	C-1.119	C-1.092	C-1.119	C-1.075
Floors																
Mass	U-0.322	U-0.322	U-0.107	U-0.087	U-0.087	U-0.087	U-0.074	U-0.074	U-0.064	U-0.064	U-0.057	U-0.064	U-0.051	U-0.057	U-0.051	U-0.051
Joist/Framing	U-0.282	U-0.282	U-0.052	U-0.052	-	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033
Slab-on-Grade Floors																
Unheated slabs	F-0.730	F-0.730	F-0.730	F-0.730	F-0.730	F-0.730	F-0.730	F-0.540	F-0.730	F-0.540	F-0.540	F-0.520	F-0.520	F-0.520	F-0.520	F-0.510
Heated slabs	F-1.020	F-1.020	F-1.020	F-1.020	F-0.900	F-0.900	-	F-0.860	F-0.860	F-0.860	F-0.860	F-0.688	F-0.830	F-0.688	F-0.688	F-0.688

a. When heated slabs are placed below-grade, below grade walls must meet the *F*-factor requirements for perimeter insulation according to the heated slab-on-grade construction.

**BUILDING ENVELOPE REQUIREMENTS
OPAQUE ELEMENT, MAXIMUM U-FACTORS**

CLIMATE ZONE	1	
	All other	Group R
Roofs		
Insulation entirely above deck	U-0.039	U-0.039
Metal buildings	U-0.065	U-0.065
Attic and other	U-0.034	U-0.027
Walls, Above Grade		
Mass	U-0.058	U-0.058
Metal building	U-0.093	U-0.093
Metal framed	U-0.037	U-0.037
Wood framed and other	U-0.036	U-0.036
Walls, Below Grade		
Below-grade wall ^a	C-1.140	C-1.140
Floors		
Mass	U-0.322	U-0.322
Joist/Framing	U-0.282	U-0.282
Slab-on-Grade Floors		
Unheated slabs	F-0.730	F-0.730
Heated slabs	F-1.020	F-1.020

a. When heated slabs are placed below-grade, below grade walls must meet the *F*-factor requirements for perimeter insulation according to the heated slab-on-grade construction.

502.2.1 **Roof assembly.** The minimum thermal resistance (*R*-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as

Roof assembly. The minimum thermal resistance (*R*-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>specified in Table 502.2(1), based on construction materials used in the roof assembly.</p> <p>Exception: Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted <i>U</i>-factor is equivalent to the same assembly with the <i>R</i>-value specified in Table 502.2(1).</p> <p>Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.</p>	<p>specified in Table 502.2(1), based on construction materials used in the roof assembly. <u>Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-1, whichever is less.</u></p> <p>Exception: Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted <i>U</i>-factor is equivalent to the same assembly with the <i>R</i>-value specified in Table 502.2(1).</p> <p>Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.</p>
502.2.1.1	<p>New Section Added.</p>	<p><u>Roof solar reflectance and thermal emittance. Roofs in climate zones 1 to 3 not over ventilated attics or not over cooled spaces shall have a minimum three-year aged - solar reflective index (SRI) of 64 when determined in accordance with the SRI method in ASTM E1980 using a convection coefficient of (12W/m².K) or a minimum three year-aged solar reflectance of 0.55 when tested in accordance with ASTM C1549, ASTM E903 or ASTM E1918 and a minimum three-year-aged thermal emittance of at least 0.75 when testing in accordance with ASTM C1371 or ASTM E408.</u></p> <p><u>Exception: Ballasted roofs with a minimum stone ballast of 74 kg/m² or 117 kg/m².</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language																																																																																																																																																																																
Table 502.3	BUILDING ENVELOPE REQUIREMENTS: FENESTRATION <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;">CLIMATE ZONE</th> <th style="width: 10%;">1</th> <th style="width: 10%;">2</th> <th style="width: 10%;">3</th> <th style="width: 10%;">4 EXCEPT MARINE</th> <th style="width: 10%;">5 AND MARINE 4</th> <th style="width: 10%;">6</th> <th style="width: 10%;">7</th> <th style="width: 10%;">8</th> </tr> </thead> <tbody> <tr> <td colspan="9">Vertical fenestration (40% maximum of above-grade wall)</td> </tr> <tr> <td colspan="9"><i>U</i>-factor</td> </tr> <tr> <td colspan="9">Framing materials other than metal with or without metal reinforcement or cladding</td> </tr> <tr> <td><i>U</i>-factor</td> <td>1.20</td> <td>0.75</td> <td>0.65</td> <td>0.40</td> <td>0.35</td> <td>0.35</td> <td>0.35</td> <td>0.35</td> </tr> <tr> <td colspan="9">Metal framing with or without thermal break</td> </tr> <tr> <td>Curtain wall/storefront <i>U</i>-factor</td> <td>1.20</td> <td>0.70</td> <td>0.60</td> <td>0.50</td> <td>0.45</td> <td>0.45</td> <td>0.40</td> <td>0.40</td> </tr> <tr> <td>Entrance door <i>U</i>-factor</td> <td>1.20</td> <td>1.10</td> <td>0.90</td> <td>0.85</td> <td>0.80</td> <td>0.80</td> <td>0.80</td> <td>0.80</td> </tr> <tr> <td>All other <i>U</i>-factor^a</td> <td>1.20</td> <td>0.75</td> <td>0.65</td> <td>0.55</td> <td>0.55</td> <td>0.55</td> <td>0.45</td> <td>0.45</td> </tr> <tr> <td colspan="9">SHGC-all frame types</td> </tr> <tr> <td>SHGC: PF < 0.25</td> <td>0.25</td> <td>0.25</td> <td>0.25</td> <td>0.40</td> <td>0.40</td> <td>0.40</td> <td>0.45</td> <td>0.45</td> </tr> <tr> <td>SHGC: 0.25 ≤ PF < 0.5</td> <td>0.33</td> <td>0.33</td> <td>0.33</td> <td>NR</td> <td>NR</td> <td>NR</td> <td>NR</td> <td>NR</td> </tr> <tr> <td>SHGC: PF ≥ 0.5</td> <td>0.40</td> <td>0.40</td> <td>0.40</td> <td>NR</td> <td>NR</td> <td>NR</td> <td>NR</td> <td>NR</td> </tr> <tr> <td colspan="9">Skylights (3% maximum)</td> </tr> <tr> <td><i>U</i>-factor</td> <td>0.75</td> <td>0.75</td> <td>0.65</td> <td>0.60</td> <td>0.60</td> <td>0.60</td> <td>0.60</td> <td>0.60</td> </tr> <tr> <td>SHGC</td> <td>0.35</td> <td>0.35</td> <td>0.35</td> <td>0.40</td> <td>0.40</td> <td>0.40</td> <td>NR</td> <td>NR</td> </tr> </tbody> </table> <p>NR = No requirement. PF = Projection factor (see Section 502.3.2). a. All others include operable windows, fixed windows and non-entrance doors.</p>	CLIMATE ZONE	1	2	3	4 EXCEPT MARINE	5 AND MARINE 4	6	7	8	Vertical fenestration (40% maximum of above-grade wall)									<i>U</i> -factor									Framing materials other than metal with or without metal reinforcement or cladding									<i>U</i> -factor	1.20	0.75	0.65	0.40	0.35	0.35	0.35	0.35	Metal framing with or without thermal break									Curtain wall/storefront <i>U</i> -factor	1.20	0.70	0.60	0.50	0.45	0.45	0.40	0.40	Entrance door <i>U</i> -factor	1.20	1.10	0.90	0.85	0.80	0.80	0.80	0.80	All other <i>U</i> -factor ^a	1.20	0.75	0.65	0.55	0.55	0.55	0.45	0.45	SHGC-all frame types									SHGC: PF < 0.25	0.25	0.25	0.25	0.40	0.40	0.40	0.45	0.45	SHGC: 0.25 ≤ PF < 0.5	0.33	0.33	0.33	NR	NR	NR	NR	NR	SHGC: PF ≥ 0.5	0.40	0.40	0.40	NR	NR	NR	NR	NR	Skylights (3% maximum)									<i>U</i> -factor	0.75	0.75	0.65	0.60	0.60	0.60	0.60	0.60	SHGC	0.35	0.35	0.35	0.40	0.40	0.40	NR	NR	BUILDING ENVELOPE REQUIREMENTS: FENESTRATION <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 80%;">CLIMATE ZONE</th> <th style="width: 20%;">1</th> </tr> </thead> <tbody> <tr> <td colspan="2">Vertical fenestration (40% maximum of above-grade wall)</td> </tr> <tr> <td colspan="2"><i>U</i>-factor</td> </tr> <tr> <td colspan="2">Framing materials other than metal with or without metal reinforcement or cladding</td> </tr> <tr> <td><i>U</i>-factor</td> <td>0.39</td> </tr> <tr> <td colspan="2">Metal framing with or without thermal break</td> </tr> <tr> <td>Curtain wall/storefront <i>U</i>-factor</td> <td>0.37</td> </tr> <tr> <td>Entrance door <i>U</i>-factor</td> <td>0.50</td> </tr> <tr> <td>All other <i>U</i>-factor^a</td> <td>0.37</td> </tr> <tr> <td colspan="2">SHGC-all frame types</td> </tr> <tr> <td>SHGC: PF < 0.25</td> <td>0.25</td> </tr> <tr> <td>SHGC: 0.25 ≤ PF < 0.5</td> <td>0.33</td> </tr> <tr> <td>SHGC: PF ≥ 0.5</td> <td>0.40</td> </tr> <tr> <td colspan="2">Skylights (3% maximum)</td> </tr> <tr> <td><i>U</i>-factor</td> <td>0.75</td> </tr> <tr> <td>SHGC</td> <td>0.35</td> </tr> </tbody> </table> <p>NR = No requirement PF = Projection factor (see Section 502.3.2). a. 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502.4.1	<p>Window and door assemblies. The air leakage of window and sliding or swinging door assemblies that are part of the building envelope shall be determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, or NFRC 400 by an accredited, independent laboratory, and <i>labeled</i> and certified by the manufacturer and shall not exceed the values in Section 402.4.2.</p> <p>Exception: Site-constructed windows and doors that are weatherstripped or sealed in accordance with Section 502.4.3.</p>	<p>Window and door assemblies. The air leakage of window and sliding or swinging door assemblies that are part of the building envelope shall be determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, or NFRC 400 by an accredited, independent laboratory, and <i>labeled</i> and certified by the manufacturer and shall not exceed the values in Section 402.4.2.</p> <p>Exception: Site-constructed windows and doors that are weatherstripped or sealed in accordance with Section 502.4.3.</p> <p>Air Barriers. The building thermal envelope shall be designed and constructed with a continuous air barrier that complies with Section 502.4.1.1 and 502.4.1.2 to control air leakage into, or out of, the conditioned space. Construction documents shall identify the air barrier components for each</p>																																																																																																																																																																																

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>assembly, including detailing joints, interconnections and sealing of penetrations. The opaque building envelope air barrier shall be located on the inside or, outside of, or be integral with the building envelope; or any combination thereof.</u></p>
502.4.1.1	<p>New Section Added.</p>	<p><u>Continuous Air Barrier.</u> <i>The continuous air barrier shall have the following characteristics:</i></p> <ol style="list-style-type: none"> 1. <u>It shall be continuous throughout the envelope (at the lowest floor, exterior walls, and ceiling or roof). Air barrier joints and seams shall be sealed; including sealing transitions in planes and changes in materials. Air barrier penetrations shall be sealed.</u> 2. <u>The air barrier component of each assembly shall be joined and sealed in a flexible manner to the air barrier component of adjacent assemblies. The joints and seals shall allow for the relative movement of the assemblies and materials without damage to the air seal.</u> 3. <u>The air barrier shall be installed in accordance with the manufacturer's instructions in a manner that achieves the performance requirements.</u> 4. <u>Where lighting fixtures with ventilation holes or other similar objects are to be installed in such a way as to penetrate the continuous air barrier, provisions shall be made to maintain the integrity of the continuous air barrier.</u> <p><u>Exception:</u> Buildings that comply with Section 502.4.1.2.3 below are not required to comply with either 1 or 4.</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
502.4.1.2	New Section Added.	<u>Air barrier compliance options.</u> A continuous air barrier for the opaque building envelope shall meet the requirements of at least one of the compliance options in Section 502.4.1.2.1, 502.4.1.2.2, or 502.4.1.2.3.
502.4.1.2.1	New Section Added.	<p><u>Materials.</u> Individual materials shall have an air permeability not to exceed 0.02 L/s·m² under a pressure differential of 75 Pa (0.004 cfm/ft² under a pressure differential of 0.3”w.g. (1.57 lb/ft²)) when tested in accordance with ASTM E2178. The following materials comply with this requirement when all joints are sealed:</p> <ol style="list-style-type: none"> 1. <u>Plywood - minimum 10 mm</u> 2. <u>Oriented strand board - minimum 10 mm</u> 3. <u>Extruded polystyrene insulation board - minimum 19 mm</u> 4. <u>Foil-back urethane insulation board - minimum 19 mm</u> 5. <u>Closed cell spray foam meeting air permeability requirement</u> 6. <u>Open cell spray foam meeting air permeability requirement</u> 7. <u>Weather resistant barrier meeting air permeability requirement</u> 8. <u>Exterior or interior gypsum board - minimum 12 mm</u> 9. <u>Cement board - minimum 12 mm</u> 10. <u>Built up roofing membrane</u> 11. <u>Modified bituminous roof membrane</u> 12. <u>Fully adhered single-ply roof membrane</u> 13. <u>A Portland cement/sand parge, or gypsum plaster minimum 16 mm thick</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>14. Cast-in-place and precast concrete.</u> <u>15. Fully grouted concrete block masonry.</u> <u>16. Sheet steel or aluminum</u>
502.4.1.2.2	New Section Added.	<u>Assemblies. Assemblies of materials and components shall have an average air leakage not to exceed 0.2 L/s·m² @ 75 Pa under a pressure differential of 0.3” w.g. when tested in accordance with ASTM E2357 or ASTM E1677. The following assemblies comply with this requirement when all joints are sealed and every characteristic in Section 502.4.1.1 is met:</u> <ol style="list-style-type: none"> <li>1. <u>Concrete masonry walls coated with one application either of block filler and two applications of a paint or sealer coating;</u> <li>2. <u>A Portland cement/sand parge, stucco or plaster minimum 12 mm thick.</u>
502.4.1.2.3	New Section Added.	<u>Building Test. The completed building shall be tested and the air leakage rate of the <i>building envelope</i> shall not exceed 2.0 L/s·m² @ 75 Pa in accordance with ASTM E779 or an equivalent method approved by the code official.</u>
502.4.2	Curtain wall, storefront glazing and commercial entrance doors. Curtain wall, <i>storefront</i> glazing and commercial-glazed swinging entrance doors and revolving doors shall be tested for air leakage at 1.57 pounds per square foot (psf) (75 Pa) in accordance with ASTM E 283. For curtain walls and <i>storefront</i> glazing, the maximum air leakage rate shall be 0.3 cubic foot per minute per square foot (cfm/ft ²) (5.5 m ³ /h °—m ²) of fenestration area. For commercial glazed swinging entrance doors and revolving doors, the maximum air leakage	Curtain wall, storefront glazing and commercial entrance doors. Curtain wall, <i>storefront</i> glazing and commercial-glazed swinging entrance doors and revolving doors shall be tested for air leakage at 1.57 pounds per square foot (psf) (75 Pa) in accordance with ASTM E 283. For curtain walls and <i>storefront</i> glazing, the maximum air leakage rate shall be 0.3 cubic foot per minute per square foot (cfm/ft²) (5.5 m³/h °—m²) of fenestration area. For commercial glazed swinging entrance doors and revolving doors, the maximum air leakage

Section	Original Code Language	Abu Dhabi Adopted Code Language
	rate shall be 1.00 cfm/ft ² (18.3 m ³ /h ° — m ²) of door area when tested in accordance with ASTM E 283.	rate shall be 1.00 cfm/ft ² (18.3 m ³ /h ° — m ²) of door area when tested in accordance with ASTM E 283. <u>Air Barrier Penetrations.</u> All penetrations of the air barrier and paths of air infiltration / exfiltration shall be made air tight and shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seals shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material. Sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials.
502.4.3	Sealing of the building envelope. Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material. Sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials.	Sealing of the building envelope. Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor permeable wrapping material. Sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials. <u>Fenestration and doors.</u> The air leakage of fenestration assemblies and doors shall meet the provisions of Table 502.4.3. Testing shall be performed in accordance with the applicable reference test standard by an accredited and independent testing laboratory and all fenestration assemblies shall be <i>listed and labeled</i> . <u>Exception:</u> Site built fenestration assemblies that are sealed in accordance with Section 502.4.1.

Section	Original Code Language	Abu Dhabi Adopted Code Language																				
Table 502.4.3	New Table Added.	<p style="text-align: center;">Maximum Air Infiltration Rate for Fenestration Assemblies</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Fenestration Assembly</th> <th style="text-align: center;">Maximum Rate</th> </tr> </thead> <tbody> <tr> <td>Windows</td> <td style="text-align: center;">0.20^a</td> </tr> <tr> <td>Sliding Doors</td> <td style="text-align: center;">0.20^a</td> </tr> <tr> <td>Swinging Doors</td> <td style="text-align: center;">0.20^a</td> </tr> <tr> <td>Skylights</td> <td style="text-align: center;">0.20^a</td> </tr> <tr> <td>Curtain Walls</td> <td style="text-align: center;">0.06^b</td> </tr> <tr> <td>Storefront Glazing</td> <td style="text-align: center;">0.06^b</td> </tr> <tr> <td>Commercial Glazed Swinging Entrance Doors</td> <td style="text-align: center;">1.00^c</td> </tr> <tr> <td>Revolving Doors</td> <td style="text-align: center;">1.00^c</td> </tr> <tr> <td>Rolling doors</td> <td style="text-align: center;">1.00^c</td> </tr> </tbody> </table> <p>a. cfm per square foot of fenestration or door area when tested in accordance with NFRC 400 or AAMA/WDMA/CSA101/I.S.2/A440 at 1.57 psf (75 Pa). Alternatively the maximum rate is permitted to be 0.3 cfm per square foot of fenestration or door area when tested in accordance with AAMA/WDMA/CSA101/I.S.2/A440 at 6.24 psf (300 Pa)</p> <p>b. cfm per square foot of fenestration area when tested in accordance with NFRC 400 or ASTM E283 at 1.57 psf (75 Pa)</p> <p>c. cfm per square foot of fenestration or door area when tested in accordance with NFRC 400, AAMA/WDMA/CSA101/I.S.2/A440, or ASTM E283 at 1.57 psf (75 Pa)</p>	Fenestration Assembly	Maximum Rate	Windows	0.20 ^a	Sliding Doors	0.20 ^a	Swinging Doors	0.20 ^a	Skylights	0.20 ^a	Curtain Walls	0.06 ^b	Storefront Glazing	0.06 ^b	Commercial Glazed Swinging Entrance Doors	1.00 ^c	Revolving Doors	1.00 ^c	Rolling doors	1.00 ^c
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502.4.4	<p>Hot gas bypass limitation. Cooling systems shall not use hot gas bypass or other evaporator pressure control systems unless the system is designed with multiple steps of unloading or continuous capacity modulation. The capacity of the hot gas bypass shall be limited as indicated in Table 502.4.4.</p> <p>Exception: Unitary packaged systems with cooling capacities not greater than 90,000 Btu/h (26 379 W).</p>	<p>Hot gas bypass limitation. Cooling systems shall not use hot gas bypass or other evaporator pressure control systems unless the system is designed with multiple steps of unloading or continuous capacity modulation. The capacity of the hot gas bypass shall be limited as indicated in Table 502.4.4.</p> <p>Exception: Unitary packaged systems with cooling capacities not greater than 90,000 Btu/h (26 379 W).</p> <p><u>Doors and Access Openings to Shafts, Chutes, Stairwells, and Elevator Lobbies.</u> These doors and access openings shall either meet the requirements of 502.4.3 or shall be equipped with weather seals.</p>																				

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		<u>Exception: Weatherseals on elevator lobby doors are not required when a smoke control system is installed.</u>												
Table 502.4.4	<p>MAXIMUM HOT GAS BYPASS CAPACITY</p> <table border="1"> <thead> <tr> <th>RATED CAPACITY</th> <th>MAXIMUM HOT GAS BYPASS CAPACITY (% of total capacity)</th> </tr> </thead> <tbody> <tr> <td>≤ 240,000 Btu/h</td> <td>50%</td> </tr> <tr> <td>> 240,000 Btu/h</td> <td>25%</td> </tr> </tbody> </table> <p>For SI: 1 Btu/h = 0.29 watts.</p>	RATED CAPACITY	MAXIMUM HOT GAS BYPASS CAPACITY (% of total capacity)	≤ 240,000 Btu/h	50%	> 240,000 Btu/h	25%	<p>MAXIMUM HOT GAS BYPASS CAPACITY</p> <table border="1"> <thead> <tr> <th>RATED CAPACITY</th> <th>MAXIMUM HOT GAS BYPASS CAPACITY (% of total capacity)</th> </tr> </thead> <tbody> <tr> <td>≤ 240,000 Btu/h</td> <td>50%</td> </tr> <tr> <td>> 240,000 Btu/h</td> <td>25%</td> </tr> </tbody> </table> <p>For SI: 1 Btu/h = 0.29 watts.</p>	RATED CAPACITY	MAXIMUM HOT GAS BYPASS CAPACITY (% of total capacity)	≤ 240,000 Btu/h	50%	> 240,000 Btu/h	25%
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502.4.5	<p>Outdoor air intakes and exhaust openings. Stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized dampers, leakage-rated damper with a maximum leakage rate of 4 cfm per square foot (6.8 L/s · C m²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D.</p> <p>Exception: Gravity (nonmotorized) dampers are permitted to be used in buildings less than three stories in height above grade.</p>	<p>Outdoor air intakes and exhaust openings. Stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized dampers, leakage-rated damper with a maximum leakage rate of 4 cfm per square foot (6.8 L/s · C m²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D shall be provided with dampers in accordance with Sections 502.4.5.1 and 502.4.5.2.</p> <p>Exception: Gravity (nonmotorized) dampers are permitted to be used in buildings less than three stories in height above grade.</p> <p><u>Dampers shall be installed with controls so that they are capable of automatically opening upon:</u></p> <ol style="list-style-type: none"> <u>1. The activation of any fire alarm initiating device of the building's fire alarm system;</u> <u>2. The interruption of power to the damper.</u> 												
502.4.5.1	New Section Added.	<u>Stair and shaft vents. Stair and shaft vents shall be provided with Class IA motorized dampers with a maximum leakage rate</u>												

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		of 3 cfm per square foot (5.1 L/s · C m ²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D.
502.4.5.2	New Section Added.	<p><u>Outdoor air intakes and exhausts.</u> <i>Outdoor air supply and exhaust openings shall be provided with Class IA motorized dampers with a maximum leakage rate of 3 cfm per square foot (5.1 L/s · C m²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D.</i></p> <p>Exception: Gravity (nonmotorized) dampers having a maximum leakage rate of 20 cfm per square foot (34 L/s C m²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D are permitted to be used in buildings less than three stories in height above grade where the design outdoor air intake or exhaust capacity does not exceed 300 cfm.</p>
502.4.7	<p>Vestibules. A door that separates <i>conditioned space</i> from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Buildings in climate Zones 1 and 2 as indicated in Figure 301.1 and Table 301.1. 2. Doors not intended to be used as a building <i>entrance door</i>, such as doors to mechanical or electrical equipment rooms. 	<p>Vestibules. A door that separates <i>conditioned space</i> from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Buildings in climate Zones 1 and 2 as indicated in Figure 301.1 and Table 301.1 section 301.3. 2. Doors not intended to be used as a building <i>entrance door</i>, such as doors to mechanical or electrical equipment rooms.

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<ol style="list-style-type: none"> 3. Doors opening directly from a <i>sleeping unit</i> or dwelling unit. 4. Doors that open directly from a space less than 3,000 square feet (298 m²) in area. 5. Revolving doors. 6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors. 	<ol style="list-style-type: none"> 3. Doors opening directly from a <i>sleeping unit</i> or dwelling unit. 4. Doors that open directly from a space less than 3,000 square feet (298<u>278.7</u> m²) in area. 5. Revolving doors. 6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.
502.4.8	<p>Recessed lighting. Recessed luminaires installed in the <i>building thermal envelope</i> shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and <i>labeled</i> as meeting ASTM E 283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the <i>conditioned space</i> to the ceiling cavity. All recessed luminaires shall be sealed with a gasket or caulk between the housing and interior wall or ceiling covering.</p>	<p>Recessed lighting. Recessed luminaires installed in the <i>building thermal envelope</i> shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as <u>having an air leakage rate of no more 2.0 cfm (0.944 L/s)</u> meeting ASTM E 283 when tested <u>in accordance with ASTM E 283 at a</u> 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.</p>
Section 503 – Building Mechanical Systems		
503.2.1	<p>Calculation of heating and cooling loads. Design loads shall be determined in accordance with the procedures described in the ASHRAE/ACCA Standard 183. Heating and cooling loads shall be adjusted to account for load reductions that are achieved when energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE <i>HVAC Systems and Equipment Handbook</i>. Alternatively, design loads shall be determined by an <i>approved</i> equivalent computation procedure, using the design parameters specified in Chapter 3.</p>	<p>Calculation of heating and cooling loads. Design loads shall be determined in accordance with the procedures described in the ASHRAE/ACCA Standard 183. <u>The design loads shall account for the building envelope, lighting, ventilation and occupancy loads based on the project design.</u> Heating and cooling loads shall be adjusted to account for load reductions that are achieved when energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE <i>HVAC Systems and Equipment Handbook</i>. Alternatively, design loads shall be determined by an</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<i>approved</i> equivalent computation procedure, using the design parameters specified in Chapter 3.
503.2.2	Equipment and system sizing. Heating and cooling equipment and systems capacity shall not exceed the loads calculated in accordance with Section 503.2.1. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.	Equipment and system sizing. <u>The output capacity of heating and cooling equipment and systems capacity shall not exceed the loads calculated in accordance with Section 503.2.1. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.</u>
503.2.4.3.3	New Section Added.	<u>Automatic start capabilities.</u> Controls designed to automatically adjust the start time of an HVAC system each day in order to bring conditioned space to desired occupied temperature levels immediately before scheduled occupancy shall be provided on each system.
503.2.4.5	Snow melt system controls.	Section Deleted.
503.2.6	<p>Energy recovery ventilation systems. Individual fan systems that have both a design supply air capacity of 5,000 cfm (2.36 m³/s) or greater and a minimum outside air supply of 70 percent or greater of the design supply air quantity shall have an energy recovery system that provides a change in the enthalpy of the outdoor air supply of 50 percent or more of the difference between the outdoor air and return air at design conditions. Provision shall be made to bypass or control the energy recovery system to permit cooling with outdoor air where cooling with outdoor air is required.</p> <p>Exception: An energy recovery ventilation system shall not be required in any of the following conditions:</p> <ol style="list-style-type: none"> 1. Where energy recovery systems are prohibited by the 	<p>Energy recovery ventilation systems. Individual fan systems that have both a design supply air capacity of 5,000 efm (2.36 m³/s) or greater and a minimum outside air supply of 70 percent or greater of the design supply air quantity shall have an energy recovery system that provides a change in the enthalpy of the outdoor air supply of 50 percent or more of the difference between the outdoor air and return air at design conditions. Provision shall be made to bypass or control the energy recovery system to permit cooling with outdoor air where cooling with outdoor air is required. <u>Each fan system shall have an energy recovery system when the system's supply airflow rate exceeds the value listed in Table 503.2.6 based on the climate zone and percentage of outdoor air at design conditions. Required energy recovery systems shall</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p><i>International Mechanical Code.</i></p> <ol style="list-style-type: none"> 2. Laboratory fume hood systems that include at least one of the following features: <ol style="list-style-type: none"> 2.1. Variable-air-volume hood exhaust and room supply systems capable of reducing exhaust and makeup air volume to 50 percent or less of design values. 2.2. Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) below room setpoint, cooled to no cooler than 3°F (1.7°C) above room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification control. 3. Systems serving spaces that are not cooled and are heated to less than 60°F (15.5°C). 4. Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy. 5. Heating systems in climates with less than 3,600 HDD. 6. Cooling systems in climates with a 1-percent cooling design wet-bulb temperature less than 64°F (18°C). 7. Systems requiring dehumidification that employ series-style energy recovery coils wrapped around the cooling coil. 	<p><u>have the capability to provide a change in the enthalpy of the outdoor air supply equal to at least 50% of the difference between the outdoor air and return air enthalpies at design conditions. Provision shall be made to bypass or control the energy recovery system to permit air economizer operation as required by Section 503.4.</u></p> <p>Exception: An energy recovery ventilation system shall not be required in any of the following conditions:</p> <ol style="list-style-type: none"> 1. Where energy recovery systems are prohibited by the <i>International Mechanical Code</i>. 2. Laboratory fume hood systems that include at least one of the following features: <ol style="list-style-type: none"> 2.1. Variable-air-volume hood exhaust and room supply systems capable of reducing exhaust and makeup air volume to 50 percent or less of design values. 2.2. Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) above room setpoint, cooled to no cooler than 3°F (1.7°C) below room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification control. 3. Systems serving spaces that are not cooled and are heated to less than 60°F (15.5°C). 4. Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy. 5. Heating systems in climates with less than 3,600 HDD. <u>Heating energy recovery in climate zones 1 and 2.</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language																																									
		<p>6. Cooling systems in climates with a 1-percent cooling design wet bulb temperature less than 64_F (18_C).</p> <p>75. Systems requiring dehumidification that employ series-style energy recovery coils wrapped around the cooling coil.</p>																																									
Table 503.2.6	New Table Added.	<p style="text-align: center;"><u>Energy Recovery Requirement</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Zone</th> <th colspan="6" style="text-align: center;">% Outdoor air at full design airflow rate</th> </tr> <tr> <th style="text-align: center;">≥30% and <40%</th> <th style="text-align: center;">≥40% and <50%</th> <th style="text-align: center;">≥50% and <60%</th> <th style="text-align: center;">≥60% and <70%</th> <th style="text-align: center;">≥70% and <80%</th> <th style="text-align: center;">≥80%</th> </tr> </thead> <tbody> <tr> <td colspan="7" style="text-align: center;">Design Supply Fan Airflow Rate (cfm)</td> </tr> <tr> <td style="text-align: center;">3B, 3C</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">≥ 5000</td> <td style="text-align: center;">≥ 5000</td> </tr> <tr> <td style="text-align: center;">1B, 2B</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">≥ 26000</td> <td style="text-align: center;">≥ 12000</td> <td style="text-align: center;">≥ 5000</td> <td style="text-align: center;">≥ 4000</td> </tr> <tr> <td style="text-align: center;">1A, 2A, 3A</td> <td style="text-align: center;">≥ 5500</td> <td style="text-align: center;">≥ 4500</td> <td style="text-align: center;">≥ 3500</td> <td style="text-align: center;">≥ 2000</td> <td style="text-align: center;">≥ 10500</td> <td style="text-align: center;">≥ 0</td> </tr> </tbody> </table>	Zone	% Outdoor air at full design airflow rate						≥30% and <40%	≥40% and <50%	≥50% and <60%	≥60% and <70%	≥70% and <80%	≥80%	Design Supply Fan Airflow Rate (cfm)							3B, 3C	NR	NR	NR	NR	≥ 5000	≥ 5000	1B, 2B	NR	NR	≥ 26000	≥ 12000	≥ 5000	≥ 4000	1A, 2A, 3A	≥ 5500	≥ 4500	≥ 3500	≥ 2000	≥ 10500	≥ 0
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503.2.9	HVAC system completion. Prior to the issuance of a certificate of occupancy, the design professional shall provide evidence of system completion in accordance with Sections 503.2.9.1 through 503.2.9.3.	<p>HVAC system completion. Prior to the issuance of a certificate of occupancy, the design professional shall provide evidence of system completion in accordance with Sections 503.2.9.1 through 503.2.9.3.</p> <p><u>Mechanical systems commissioning and completion requirements.</u> Mechanical systems commissioning and completion shall be in accordance with the provisions of Section 503.2.9.1 through 503.2.9.3.4.</p>																																									
503.2.9.1	Air system balancing. Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the <i>International Mechanical Code</i> . Discharge dampers are prohibited on constant volume fans and variable volume fans with motors 10 horsepower (hp) (7.4 kW) and larger.	<p>Air system balancing. Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the <i>International Mechanical Code</i>. Discharge dampers are prohibited on constant volume fans and variable volume fans with motors 10 horsepower (hp) (7.4 kW) and larger.</p> <p><u>System commissioning.</u> The construction documents shall require commissioning and completion requirements in</p>																																									

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>accordance with this section. The construction documents shall be permitted to refer to equipment specifications for further requirements. The building official may request commissioning documentation for review purposes. Commissioning documentation shall be provided to the building owner and code official by the Registered Design Professional in Responsible Charge when required and it shall consist of:</u></p> <ol style="list-style-type: none"> 1. <u>Letter of Intent</u> 2. <u>Preliminary commissioning report as specified in Section 503.2.9.1.4</u> 3. <u>Final commissioning report as required in Section 503.2.9.3. Any resolution to a failure to submit the final report to the building owner may be resolved using any remedy afforded by law.</u> <p><u>At the time of plan submittal, the code official shall be provided, by the permittee, a letter of intent to commission the building in accordance with this code.</u></p>
503.2.9.1.1	New Section Added.	<p><u>Commissioning plan.</u> <u>A commissioning plan shall be prepared and shall include as a minimum the following items:</u></p> <ol style="list-style-type: none"> 1. <u>A detailed explanation of the building's project requirements for mechanical design.</u> 2. <u>A narrative describing the activities that will be accomplished during each phase of commissioning, including guidance on who accomplishes the activities and how they are completed.</u> 3. <u>Equipment and systems to be tested, including the extent</u>

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		<p>of tests,</p> <ol style="list-style-type: none"> 4. <u>Functions to be tested (for example calibration, economizer control, etc.).</u> 5. <u>Conditions under which the test shall be performed (for example winter and summer design conditions, full outside air, etc.), and</u> 6. <u>Measurable criteria for acceptable performance.</u>
503.2.9.1.2	New Section Added.	<p><u>Systems adjusting and balancing.</u> All HVAC systems shall be balanced in accordance with generally accepted engineering standards. Air and water flow rates shall be measured and adjusted to deliver final flow rates within 10% of design rates. Test and balance activities shall include as a minimum the following items:</p> <ol style="list-style-type: none"> 1. <u>Air systems balancing: Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the International Mechanical Code. Discharge dampers are prohibited on constant volume fans and variable volume fans with motors 10 hp (7.46 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp, Fan speed shall be adjusted to meet design flow conditions.</u> <p style="text-align: center;"><u>Exception:</u> Fans with fan motors of 1 hp (.75kW) or less.</p> 2. <u>Hydronic systems balancing: Individual hydronic heating and cooling coils shall be equipped with means for</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>balancing and pressure test connections. Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses, then the pump impeller shall be trimmed or pump speed shall be adjusted to meet design flow conditions. Each hydronic system shall have either the ability to measure pressure across the pump, or test ports at each side of each pump.</u></p> <p><u>Exceptions:</u></p> <ol style="list-style-type: none"> <u>1. Pumps with pump motors of 5 hp (3.7kW) or less.</u> <u>2. When throttling results in no greater than 5% of the nameplate horsepower draw above that required if the impeller were trimmed.</u>
503.2.9.1.3	New Section Added.	<u>Functional performance testing.</u> Equipment functional performance testing shall be in accordance with Section 503.2.9.1.3.1. Functional testing of HVAC controls shall be in accordance with Section 503.2.9.1.3.2.
503.2.9.1.3.1	New Section Added.	<u>Equipment functional performance testing.</u> Equipment functional performance testing shall demonstrate the correct installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications. This demonstration is to prove the operation, function, and maintenance serviceability for each of the commissioned systems. Testing shall include all modes of operation, including: <ol style="list-style-type: none"> <u>1. All modes as described in the Sequence of Operation,</u> <u>2. Redundant or automatic back-up mode,</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>3. Performance of alarms, and</u> <u>4. Mode of operation upon a loss of power and restored power.</u></p> <p>Exception: <u>Unitary or packaged HVAC equipment listed in Tables 503.2.3 (1) through (3) that do not require supply air economizers.</u></p>
503.2.9.1.3.2	New Section Added.	<p><u>Controls functional performance testing.</u> <u>HVAC control systems shall be tested to document that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with approved plans and specifications.</u></p>
503.2.9.1.4	New Section Added.	<p><u>Preliminary commissioning report.</u> <u>A preliminary report of commissioning test procedures and results shall be completed and provided to the building owner. The report shall be identified as “Preliminary Commissioning Report” and shall identify:</u></p> <ol style="list-style-type: none"> <li>1. <u>Itemization of deficiencies found during testing required by this section which have not been corrected at the time of report preparation and the anticipated date of correction.</u> <li>2. <u>Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.</u> <li>3. <u>Climatic conditions required for performance of the deferred tests, and the anticipated date of each deferred test.</u>

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503.2.9.2	<p>Hydronic system balancing. Individual hydronic heating and cooling coils shall be equipped with means for balancing and pressure test connections.</p>	<p>Hydronic system balancing. Individual hydronic heating and cooling coils shall be equipped with means for balancing and pressure test connections. Acceptance. Buildings, or portions thereof, required to comply with this section shall not be issued a final certificate of occupancy until such time that the <i>code official</i> has received a letter of transmittal from the building owner that states they have received the Preliminary Commissioning Report as required by Section 503.2.9.1.4. At the request of the code official, a copy of the Preliminary Commissioning Report shall be made available for review.</p>
503.2.9.3	<p>Manuals. The construction documents shall require that an operating and maintenance manual be provided to the building owner by the mechanical contractor. The manual shall include, at least, the following:</p> <ol style="list-style-type: none"> 1. Equipment capacity (input and output) and required maintenance actions. 2. Equipment operation and maintenance manuals. 3. HVAC system control maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings, at control devices or, for digital control systems, in programming comments. 4. A complete written narrative of how each system is intended to operate. 	<p>Manuals. The construction documents shall require that an operating and maintenance manual be provided to the building owner by the mechanical contractor. The manual shall include, at least, the following:</p> <ol style="list-style-type: none"> 1. Equipment capacity (input and output) and required maintenance actions. 2. Equipment operation and maintenance manuals. 3. HVAC system control maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings, at control devices or, for digital control systems, in programming comments. 4. A complete written narrative of how each system is intended to operate. <p>Completion requirements. The construction documents shall require that within 90 days of system acceptance by the <i>code official</i>, the documents described in Section 503.2.9 .3.1</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		and 503.2.9.3.2 shall be provided to the building owner or their designated representative by the mechanical contractor.
503.2.9.3.1	New Section Added.	<u>Drawings.</u> Construction plans shall include as a minimum the location and performance data on each piece of equipment.
503.2.9.3.2	New Section Added.	<p><u>Manuals.</u> An operating manual and a maintenance manual shall include at a minimum the following:</p> <ol style="list-style-type: none"> 1. <u>Capacity (input and output) and required maintenance actions for each piece of equipment.</u> 2. <u>Operation and maintenance manuals for each piece of equipment.</u> 3. <u>Manufacturer’s operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.</u> 4. <u>Names and addresses of at least one service agency.</u> 5. <u>HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in programming comments.</u> 6. <u>A complete narrative of how each system is intended to operate, including suggested recommended setpoints.</u>
503.2.9.3.3	New Section Added.	<u>System balancing report.</u> A written report describing the activities and measurements completed in accordance with Section 503.2.9.1.2 shall be submitted to the jurisdiction by the Registered Design Professional in Responsible Charge.

Section	Original Code Language	Abu Dhabi Adopted Code Language																								
503.2.9.3.4	New Section Added.	<p><u>Final Commissioning Report.</u> A complete report of test procedures and results identified as “Final Commissioning Report” shall include:</p> <ol style="list-style-type: none"> <u>1. Results of all Functional Performance Tests.</u> <u>2. Disposition of all deficiencies found during testing, including details of corrective measures used or proposed.</u> <u>3. All Functional Performance Test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.</u> <p><u>Exception:</u> Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.</p>																								
Table 503.2.10.1(1)	<p style="text-align: center;">FAN POWER LIMITATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">LIMIT</th> <th style="text-align: center;">CONSTANT VOLUME</th> <th style="text-align: center;">VARIABLE VOLUME</th> </tr> </thead> <tbody> <tr> <td>Option 1: Fan system motor nameplate hp</td> <td>Allowable nameplate motor hp</td> <td>$hp \leq CFM_s * 0.0011$</td> <td>$hp \leq CFM_s * 0.0015$</td> </tr> <tr> <td>Option 2: Fan system bhp</td> <td>Allowable fan system bhp</td> <td>$bhp \leq CFM_s * 0.00094 + \frac{\quad}{A}$</td> <td>$bhp \leq CFM_s * 0.0013 + \frac{\quad}{A}$</td> </tr> </tbody> </table> <p>where: CFM_s = The maximum design supply airflow rate to conditioned spaces served by the system in cubic feet per minute. hp = The maximum combined motor nameplate horsepower. Bhp = The maximum combined fan brake horsepower. A = Sum of $[PD \times CFM_D / 4131]$. where: PD = Each applicable pressure drop adjustment from Table 503.2.10.1(2) in. w.c.</p>		LIMIT	CONSTANT VOLUME	VARIABLE VOLUME	Option 1: Fan system motor nameplate hp	Allowable nameplate motor hp	$hp \leq CFM_s * 0.0011$	$hp \leq CFM_s * 0.0015$	Option 2: Fan system bhp	Allowable fan system bhp	$bhp \leq CFM_s * 0.00094 + \frac{\quad}{A}$	$bhp \leq CFM_s * 0.0013 + \frac{\quad}{A}$	<p style="text-align: center;">FAN POWER LIMITATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">LIMIT</th> <th style="text-align: center;">CONSTANT VOLUME</th> <th style="text-align: center;">VARIABLE VOLUME</th> </tr> </thead> <tbody> <tr> <td>Option 1: Fan system motor nameplate hp</td> <td>Allowable nameplate motor hp</td> <td>$hp \leq CFM_s * 0.0011$</td> <td>$hp \leq CFM_s * 0.0015$</td> </tr> <tr> <td>Option 2: Fan system bhp</td> <td>Allowable fan system bhp</td> <td>$bhp \leq CFM_s * 0.00094 + \frac{\quad}{A}$</td> <td>$bhp \leq CFM_s * 0.0013 + \frac{\quad}{A}$</td> </tr> </tbody> </table> <p>where: CFM_s = The maximum design supply airflow rate to conditioned spaces served by the system in cubic feet per minute. hp = The maximum combined motor nameplate horsepower. Bhp = The maximum combined fan brake horsepower. A = Sum of $[PD \times CFM_D / 4131]$. where: PD = Each applicable pressure drop adjustment from Table 503.2.10.1(2) in. w.c. CFM_D – The design airflow through each applicable device from Table 503.2.10.1(2) in cubic feet per minute.</p>		LIMIT	CONSTANT VOLUME	VARIABLE VOLUME	Option 1: Fan system motor nameplate hp	Allowable nameplate motor hp	$hp \leq CFM_s * 0.0011$	$hp \leq CFM_s * 0.0015$	Option 2: Fan system bhp	Allowable fan system bhp	$bhp \leq CFM_s * 0.00094 + \frac{\quad}{A}$	$bhp \leq CFM_s * 0.0013 + \frac{\quad}{A}$
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Table 503.3.1(2)	Equipment Efficiency Performance, Exception for Economizers.	Table Deleted.																								

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503.4.2	<p>Variable air volume (VAV) fan control. Individual VAV fans with motors of 10 horsepower (7.5 kW) or greater shall be:</p> <ol style="list-style-type: none"> 1. Driven by a mechanical or electrical variable speed drive; 2. The fan motor shall have controls or devices that will result in fan motor demand of no more than 30 percent of their design wattage at 50 percent of design airflow when static pressure set point equals one-third of the total design static pressure, based on manufacturer's certified fan data. <p>For systems with direct digital control of individual <i>zone</i> boxes reporting to the central control panel, the static pressure set point shall be reset based on the <i>zone</i> requiring the most pressure, i.e., the set point is reset lower until one <i>zone</i> damper is nearly wide open.</p>	<p>Variable air volume (VAV) fan control. Individual VAV fans with motors of 10 <u>7.5</u> horsepower (7.5 <u>5.6</u> kW) or greater shall be:</p> <ol style="list-style-type: none"> 1. Driven by a mechanical or electrical variable speed drive; 2. <u>Driven by a vane-axial fan with variable-pitch blades;</u> <u>or</u> 2<u>3</u>. The fan motor shall have controls or devices that will result in fan motor demand of no more than 30 percent of their design wattage at 50 percent of design airflow when static pressure set point equals one-third of the total design static pressure, based on manufacturer's certified fan data. <p><u>Static pressure sensors used to control VAV fans shall be placed in a position such that the controller setpoint is no greater than one-third the total design fan static pressure, except for systems with direct digital control. If this results in the sensor being located downstream of major duct splits, multiple sensors shall be installed in each major branch to ensure the static pressure can be maintained in each branch.</u></p> <p>For systems with direct digital control of individual <i>zone</i> boxes reporting to the central control panel, the static pressure set point shall be reset based on the <i>zone</i> requiring the most pressure, i.e., the set point is reset lower until one <i>zone</i> damper is nearly wide open.</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 504 – Service Water Heating		
504.7.1	<p>Pool heaters. All pool heaters shall be equipped with a readily <i>accessible</i> on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.</p>	<p><u>Pool heatersing or cooling systems.</u> All pool, spa or hot tub <u>heatersing or cooling systems</u> shall be equipped with a readily <i>accessible</i> on-off switch to allow shutting off the <u>heatersystem</u> without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights. <u>Pools may be cooled to a temperature not lower than 86 degrees F (30 Degrees C).</u></p>
504.7.3	<p>Pool covers. Heated pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.</p> <p>Exception: Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.</p>	<p><u>Pool covers. Heated</u>All pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools, <u>spas or hot tubs which are</u> heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.</p> <p><u>Exceptions:</u></p> <ol style="list-style-type: none"> <u>1. Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.</u> <u>2. Pools which derive more than 70% of the energy used for cooling from geothermal heat exchange systems, evaporative cooling or from a chilled water return.</u>
Section 505 – Electrical Power and Lighting Systems (Mandatory)		
505.1	<p>General (Mandatory). This section covers lighting system controls, the connection of ballasts, the maximum lighting power for interior applications and minimum acceptable lighting equipment for exterior applications.</p> <p>Lighting within dwelling units where 50 percent or more of the permanently installed interior light fixtures are fitted with high-efficacy lamps.</p>	<p>General (Mandatory). This section covers lighting system controls, the connection of ballasts, the maximum lighting power for interior applications and minimum acceptable lighting equipment for exterior applications.</p> <p>Lighting within dwelling units where 50 <u>75</u> percent or more of the permanently installed interior light fixtures are fitted with high-efficacy lamps <u>or a minimum of 75 percent of the</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>permanently installed lighting fixtures shall contain only high efficacy lamps.</u></p> <p>Exception: <u>Low-voltage lighting.</u></p>
505.2.2.1	<p>Light reduction controls. Each area that is required to have a manual control shall also allow the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reduction shall be achieved by one of the following or other <i>approved</i> method:</p> <ol style="list-style-type: none"> 1. Controlling all lamps or luminaires; 2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps; 3. Switching the middle lamp luminaires independently of the outer lamps; or 4. Switching each luminaire or each lamp. <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Areas that have only one luminaire. 2. Areas that are controlled by an occupant-sensing device. 3. Corridors, storerooms, restrooms or public lobbies. 4. <i>Sleeping unit</i> (see Section 505.2.3). 5. Spaces that use less than 0.6 watts per square foot (6.5 W/m²). 	<p>Light reduction controls. Each area that is required to have a manual control shall also allow the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reduction shall be achieved by one of the following or other <i>approved</i> method:</p> <ol style="list-style-type: none"> 1. Controlling all lamps or luminaires; 2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps; 3. Switching the middle lamp luminaires independently of the outer lamps; or 4. Switching each luminaire or each lamp. <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Areas that have only one luminaire. 2. Areas that are controlled by an occupant-sensing device. 3. Corridors, storerooms, restrooms or public lobbies. 4. <i>Sleeping unit</i> (see Section 505.2.3). 5. Spaces that use less than 0.6 watts per square foot (6.5 W/m²). 6. <u>Daylight spaces complying with Section 505.2.2.2.3 Automatic Daylighting Controls</u>
505.2.2.2	<p>Automatic lighting shutoff. Buildings larger than 5,000 square feet (465m²) shall be equipped with an automatic control device to shut off lighting in those areas. This</p>	<p>Automatic lighting shutoff. Buildings larger than 5,000 square feet (465m²) shall be equipped with an automatic control device to shut off lighting in those areas. This</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>automatic control device shall function on either:</p> <ol style="list-style-type: none"> 1. A scheduled basis, using time-of-day, with an independent program schedule that controls the interior lighting in areas that do not exceed 25,000 square feet (2323 m²) and are not more than one floor; or 2. An occupant sensor that shall turn lighting off within 30 minutes of an occupant leaving a space; or 3. A signal from another control or alarm system that indicates the area is unoccupied. <p>Exception: The following shall not require an automatic control device:</p> <ol style="list-style-type: none"> 1. <i>Sleeping unit</i> (see Section 505.2.3). 2. Lighting in spaces where patient care is directly provided. 3. Spaces where an automatic shutoff would endanger occupant safety or security. 	<p>automatic control device shall function on either:</p> <ol style="list-style-type: none"> 1. A scheduled basis, using time of day, with an independent program schedule that controls the interior lighting in areas that do not exceed 25,000 square feet (2323 m²) and are not more than one floor; or 2. An occupant sensor that shall turn lighting off within 30 minutes of an occupant leaving a space; or 3. A signal from another control or alarm system that indicates the area is unoccupied. <p>Exception: The following shall not require an automatic control device:</p> <ol style="list-style-type: none"> 1. <i>Sleeping unit</i> (see Section 505.2.3). 2. Lighting in spaces where patient care is directly provided. 3. Spaces where an automatic shutoff would endanger occupant safety or security. <p><u>Daylight Zone Control.</u> <u>Daylight zones shall be provided with individual controls which control the lights independent of general area lighting. Contiguous daylight zones adjacent to vertical fenestration are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e. north, east, south, west). Daylight zones under skylights more than 15 feet (4,572mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration.</u></p> <p><u>Exception:</u> <u>Daylight spaces enclosed by walls or ceiling</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.</u></p>
505.2.2.2.1	Occupant override.	Section Deleted.
505.2.2.2.2	Holiday scheduling.	Section Deleted.
505.2.2.3	<p>Daylight zone control. Daylight zones, as defined by this code, shall be provided with individual controls that control the lights independent of general area lighting. Contiguous daylight zones adjacent to vertical fenestration are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e., north, east, south, west). Daylight zones under skylights more than 15 feet (4572mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration.</p> <p>Exception: Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.</p>	<p>Daylight zone control. Daylight zones, as defined by this code, shall be provided with individual controls that control the lights independent of general area lighting. Contiguous daylight zones adjacent to vertical fenestration are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e., north, east, south, west). Daylight zones under skylights more than 15 feet (4572mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration.</p> <p>Exception: Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.</p> <p><u>Automatic lighting controls. All commercial buildings shall be equipped with automatic control devices to shut off lighting in compliance with one of the following automatic control technologies:</u></p> <ol style="list-style-type: none"> <u>1. Section 505.2.2.3.1 - Occupancy Sensors</u> <u>2. Section 505.2.2.3.2 - Time Clock Controls</u> <u>3. Section 505.2.2.3.3 - Automatic Daylighting Controls</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>Any lighting control required in Sections 505.2.2.3.1, 505.2.2.2.3.2 and 505.2.2.3.3 shall either be manual on or shall be controlled to automatically turn the lighting on to not more than 50% power unless otherwise provided in Sections 505.2.2.3.1, 505.2.3.2 or 505.2.2.3.3.</u></p> <p><u>Exception:</u> Full automatic-on controls shall be permitted to control lighting in public corridors, stairways, restrooms, primary building entrance areas and lobbies, and areas where manual-on operation would endanger the safety or security of the room or building occupants.</p>
505.2.2.3.1	New Section Added.	<p><u>Occupancy sensors.</u> Occupancy sensors shall be installed in all classrooms, conference/meeting rooms, employee lunch and break rooms, private offices, restrooms, storage rooms and janitorial closets, and other spaces 300 sf. (27.9m²) or less enclosed by ceiling height partitions. These automatic control devices shall be installed to automatically turn off lights within 15 minutes of all occupants leaving the space, except spaces with multi-scene control.</p>
505.2.2.3.2	New Section Added.	<p><u>Time Clock Controls</u> In areas not controlled by occupancy sensors, automatic time switch control devices shall be used. It shall incorporate an override switching device that:</p> <ol style="list-style-type: none"> <u>1. Is readily accessible.</u> <u>2. Is located so that a person using the device can see the lights or the area controlled by that switch, or so that the area being lit is annunciated.</u> <u>3. Is manually operated.</u> <u>4. Allows the lighting to remain on for no more than 2</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>hours when an override is initiated.</u></p> <p>5. <u>Controls an area not exceeding 5,000 square feet (465 m²).</u></p> <p>Exception: <u>In malls and arcades, auditoriums, single-tenant retail spaces, industrial facilities and arenas, which do not exceed 20,000 square feet (1,858 m²) and where captive-key override is utilized, override time may exceed 2 hours.</u></p>
505.2.2.3.3	New Section Added.	<p><u>Automatic daylighting controls.</u> <u>Automatic controls installed in daylight zones shall control lights in the daylight areas separately from the non-daylit areas. Controls for calibration adjustments to the lighting control device shall be readily accessible to authorized personnel. Each daylight control zone shall not exceed 2,500 square feet (232m²). Automatic daylighting controls must incorporate an automatic shut-off ability based on time or occupancy in addition to lighting power reduction controls.</u></p> <p><u>Controls will automatically reduce lighting power in response to available daylight by either one of the following methods:</u></p> <ol style="list-style-type: none"> 1. <u>Continuous dimming using dimming ballasts and daylight-sensing automatic controls that are capable of reducing the power of general lighting in the daylight zone continuously to less than 35% of rated power at maximum light output.</u> 2. <u>Stepped Dimming using multi-level switching and daylight-sensing controls that are capable of reducing</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>lighting power automatically. The system should provide a minimum of two control channels per zone and be installed in a manner such that at least one control step shall reduce power of general lighting in the daylit zone by 30% to 50% of rated power and another control step that reduces lighting power by 65% to 100%. Stepped dimming control is not allowed in continuously occupied areas with ceiling heights of 14 feet (4.2m) or lower.</u></p> <p><u>Exception:</u> <u>Daylight spaces enclosed by walls or ceiling height partitions and containing 2 or fewer luminaire are not required to have a separate switch for general area lighting.</u></p>
505.2.3	<p>Sleeping unit controls. <i>Sleeping units</i> in hotels, motels, boarding houses or similar buildings shall have at least one master switch at the main entry door that controls all permanently wired luminaires and switched receptacles, except those in the bathroom(s). Suites shall have a control meeting these requirements at the entry to each room or at the primary entry to the suite.</p>	<p>Sleeping unit controls. <i>Sleeping units</i> in hotels, motels, boarding houses or similar buildings shall have at least one master switch at the main entry door that controls all permanently wired luminaires and switched receptacles, except those in the bathroom(s). Suites shall have a control meeting these requirements at the entry to each room or at the primary entry to the suite. <u>Specific Application Controls.</u> <u>Specific application controls shall be provided for the following:</u></p> <ol style="list-style-type: none"> 1. <u>Display/Accent Lighting—display or accent lighting shall have a separate control device.</u> 2. <u>Case Lighting—lighting in cases used for display purposes shall have a separate control device.</u> 3. <u>Hotel and Motel Guest Room Lighting—hotel and motel guest rooms and guest suites shall have a master control</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>device at the main room entry that controls all permanently installed luminaires and switched receptacles.</u></p> <p><u>4. Task Lighting—supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting, shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device is readily accessible and located so that the occupant can see the controlled lighting.</u></p> <p><u>5. Non-visual Lighting—lighting for non-visual applications, such as plant growth and food warming, shall have separate control device.</u></p> <p><u>6. Demonstration Lighting—lighting equipment that is for sale or for demonstrations in lighting education shall have a separate control device.</u></p> <p><u>Exception:</u> <u>Where LED lighting is used no additional control is required for items 1, 2, and 4.</u></p>
505.2.4	<p>Exterior lighting controls. Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.</p>	<p>Exterior lighting controls. Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.</p> <p><u>Functional Testing.</u> <u>Controls for automatic lighting systems shall be tested prior to and as a condition for issuance of an</u></p>

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		<p><u>approval under Section 104.8. Testing shall ensure that control hardware and software are calibrated, adjusted, programmed, and in proper working condition in accordance with the construction documents and manufacturer's installation instructions. The construction documents shall state the party who will conduct the required functional testing. The party responsible for the functional testing shall not be directly involved in the design or construction of the project and shall provide documentation to the <i>code official</i> prior to final inspection approval which certifies that the installed lighting controls meet the provisions of Section 505.</u></p> <p><u>When <i>occupant sensors</i>, time switches, programmable schedule controls, <i>photosensors</i> or <i>daylighting controls</i> are installed, at a minimum, the following procedures shall be performed:</u></p> <ol style="list-style-type: none"> <u>1. Confirm that the placement, sensitivity and time-out adjustments for <i>occupant sensors</i> yield acceptable performance, i.e. lights turn off only after space is vacated and do not turn on unless space is occupied.</u> <u>2. Confirm that the time switches and programmable schedule controls are programmed to turn the lights off.</u> <u>3. Confirm that photosensor controls reduce electric light based on the amount of usable daylight in the space as specified.</u>

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Table 505.5.2	Interior Lighting Power Allowances	Interior Lighting Power Allowances		
	LIGHTING POWER DENSITY	LIGHTING POWER DENSITY		
	Building Area Type^a	(W/ft²)		
	Automotive Facility	0.9	Automotive Facility	0.9
	Convention Center	1.2	Convention Center	1.2
	Court House	1.2	Court House	1.2
	Dining: Bar Lounge/Leisure	1.3	Dining: Bar Lounge/Leisure	1.3
	Dining: Cafeteria/Fast Food	1.4	Dining: Cafeteria/Fast Food	1.4
	Dining: Family	1.6	Dining: Family	1.6
	Dormitory	1.0	Dormitory	1.0
	Exercise Center	1.0	Exercise Center	1.0
	Gymnasium	1.1	Gymnasium	1.1
	Healthcare-Clinic	1.0	Healthcare-Clinic	1.0
	Hospital	1.2	Hospital	1.2
	Hotel	1.0	Hotel	1.0
	Library	1.3	Library	1.3
	Manufacturing Facility	1.3	Manufacturing Facility	1.3
	Motel	1.0	Motel	1.0
	Motion Picture Theater	1.2	Motion Picture Theater	1.2
	Multi-Family	0.7	Multi-Family	0.7
	Museum	1.1	Museum	1.1
	Office	1.0	Office	1.0
	Parking Garage	0.3	Parking Garage	0.3
	Penitentiary	1.0	Penitentiary	1.0
	Performing Arts Theater	1.6	Performing Arts Theater	1.6
	Police/Fire Station	1.0	Police/Fire Station	1.0
	Post Office	1.1	Post Office	1.1
	Religious Building	1.3	Religious Building	1.3
	Retail	1.5	Retail	1.5
	School/University	1.2	School/University	1.2
	Sports Arena	1.1	Sports Arena	1.1
	Town Hall	1.1	Town Hall	1.1
	Transportation	1.0	Transportation	1.0
Warehouse	0.8	Warehouse	0.8	
Workshop	1.4	Workshop	1.4	
For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m ² .		For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m ² .		

Section	Original Code Language	Abu Dhabi Adopted Code Language																																																									
	<p>a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.</p> <p>b. Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment installed specifically for merchandise, or additional lighting power as determined below shall be added to the interior lighting power determined in accordance with this line item.</p> <p>Calculate the additional lighting power as follows: Additional Interior Lighting Power Allowance = 1000watts + (Retail Area 1 X 0.6 W/ft²) + (Retail Area 2 X 0.6 W/ft²) + (Retail Area 3 X 1.4 W/ft²) + (Retail Area 4 X 2.5 W/ft²), where: Retail Area 1 = The floor area for all products not listed in Retail Area 2, 3 or 4. Retail Area 2 = The floor area used for the sale of vehicles, sporting goods and small electronics. Retail Area 3 = The floor area used for the sale of furniture, clothing, cosmetics and artwork. Retail Area 4 = The floor area used for the sale of jewelry, crystal and china.</p> <p>Exception: Other merchandise categories are permitted to be included in Retail Areas 2 through 4 above, provided that justification documenting the need for additional lighting power based on visual inspection, contrast, or other critical display is <i>approved</i> by the authority having jurisdiction.</p>	<p>a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.</p> <p>b. Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment installed specifically for merchandise, or additional lighting power as determined below shall be added to the interior lighting power determined in accordance with this line item.</p> <p>Calculate the additional lighting power as follows: Additional Interior Lighting Power Allowance = 1000watts + (Retail Area 1 X 0.6 W/ft²) + (Retail Area 2 X 0.6 W/ft²) + (Retail Area 3 X 1.4 W/ft²) + (Retail Area 4 X 2.5 W/ft²), where: Retail Area 1 = The floor area for all products not listed in Retail Area 2, 3 or 4. Retail Area 2 = The floor area used for the sale of vehicles, sporting goods and small electronics. 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Section	Original Code Language	Abu Dhabi Adopted Code Language	
		<u>COURTHOUSE</u>	<u>1.2</u>
		Audience/Seating Area	0.9
		<u>Courtroom</u>	<u>1.9</u>
		<u>Confinement Cells</u>	<u>0.9</u>
		<u>Judges Chambers</u>	<u>1.3</u>
		<u>Dressing/Locker/Fitting Room</u>	<u>0.6</u>
		<u>DINING: BAR LOUNGE/LEISURE</u>	<u>1.3</u>
		Lounge/Leisure Dining	1.4
		<u>DINING: CAFETERIA/FAST FOOD</u>	<u>1.4</u>
		<u>DINING: FAMILY</u>	<u>1.6</u>
		Dining	1.4
		<u>Kitchen</u>	<u>1.2</u>
		<u>DORMITORY</u>	<u>1</u>
		<u>Living Quarters</u>	<u>1.1</u>
		<u>Bedroom</u>	<u>0.5</u>
		<u>Study Hall</u>	<u>1.4</u>
		<u>EXERCISE CENTER</u>	<u>1</u>
		<u>Dressing/Locker/Fitting Room</u>	<u>0.6</u>
		<u>Audience/Seating Area</u>	<u>0.3</u>
		<u>Exercise Area</u>	<u>0.9</u>
		<u>Exercise Area/Gymnasium</u>	<u>0.9</u>
		<u>GYMNASIUM</u>	<u>1.1</u>
		<u>Dressing/Locker/Fitting Room</u>	<u>0.6</u>
		<u>Audience/Seating Area</u>	<u>0.4</u>
		<u>Playing Area</u>	<u>1.4</u>
		<u>Exercise Area</u>	<u>0.9</u>
		<u>HEALTHCARE CLINIC</u>	<u>1</u>
		<u>Corridors w/patient waiting, exam</u>	<u>1</u>
		<u>Exam/Treatment</u>	<u>1.5</u>
		<u>Emergency</u>	<u>2.7</u>
		<u>Public & Staff Lounge</u>	<u>0.8</u>
		<u>Hospital/Medical supplies</u>	<u>1.4</u>
		<u>Hospital - Nursery</u>	<u>0.6</u>
		<u>Nurse station</u>	<u>1</u>
		<u>Physical therapy</u>	<u>0.9</u>
		<u>Patient Room</u>	<u>0.7</u>
		<u>Pharmacy</u>	<u>1.2</u>
		<u>Hospital/Radiology</u>	<u>0.4</u>
		<u>Operating Room</u>	<u>2.2</u>
		<u>Recovery</u>	<u>0.8</u>
		<u>Active storage</u>	<u>0.9</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language	
		<u>Laundry-Washing</u>	0.6
		<u>HOTEL</u>	1
		<u>Dining Area</u>	1.3
		<u>Guest quarters</u>	1.1
		<u>Reception/Waiting</u>	2.5
		<u>Lobby</u>	1.1
		<u>LIBRARY</u>	1.3
		<u>Library-Audio Visual</u>	0.7
		<u>Stacks</u>	1.7
		<u>Card File & Cataloguing</u>	1.1
		<u>Reading Area</u>	1.2
		<u>MANUFACTURING FACILITY</u>	1.3
		<u>MOTEL</u>	1
		<u>Dining Area</u>	1.2
		<u>Guest quarters</u>	1.1
		<u>Reception/Waiting</u>	2.1
		<u>MOTION PICTURE THEATER</u>	1.2
		<u>Audience/Seating Area</u>	1.2
		<u>Lobby</u>	1
		<u>MULTI-FAMILY</u>	0.7
		<u>MUSEUM</u>	1.1
		<u>Active Storage</u>	0.8
		<u>General exhibition</u>	1
		<u>Restoration</u>	1.7
		<u>OFFICE</u>	0.9
		<u>Enclosed</u>	1
		<u>Open Plan</u>	1
		<u>PARKING GARAGE</u>	0.3
		<u>PENITENTIARY</u>	1.0
		<u>PERFORMING ARTS THEATER</u>	1.6
		<u>Audience/Seating Area</u>	2.6
		<u>Lobby</u>	3.3
		<u>Dressing/Locker/Fitting Room</u>	1.1
		<u>POLICE STATIONS</u>	1
		<u>FIRE STATIONS</u>	0.8
		<u>Fire Station Engine Room</u>	0.8
		<u>Sleeping Quarters</u>	0.3
		<u>Audience/Seating Area</u>	0.8
		<u>Police Station Laboratory</u>	1.4
		<u>POST OFFICE/SF</u>	1.1
		<u>Sorting Area</u>	1.2

Section	Original Code Language	Abu Dhabi Adopted Code Language	
		Lobby	1
		<u>RELIGIOUS BUILDINGS</u>	1.3
		Lobby	0.6
		Worship/Pulpit/Choir	2.4
		<u>RETAIL</u>	1.3
		Department Store Sales Area	1.3
		Specialty Store Sales Area	1.8
		Fine Merchandise Sales Area	2.9
		Supermarket Sales Area	1.3
		Personal Services Sales Area	1.3
		Mass Merchandising Sales Area	1.3
		Mall Concourse	1.7
		<u>RETAIL: SPECIALTY^a</u>	1.6
		<u>RETAIL: SUPERMARKET</u>	1.3
		<u>SCHOOL/UNIVERSITY</u>	1.2
		Classroom	1.3
		Audience	0.7
		Dining	1.1
		Office	1.1
		Corridor	0.5
		Storage	0.5
		Laboratory	1.1
		<u>TOWN HALL</u>	1.1
		<u>TRANSPORTATION</u>	1
		Dining Area	2.1
		Baggage Area	1
		Airport - Concourse	0.6
		Terminal - Ticket Counter	1.5
		Reception/Waiting	0.5
		<u>SPORTS ARENA</u>	1.1
		<u>WAREHOUSE</u>	0.6
		Fine Material	1.4
		Medium/Bulky Material	0.6
		<u>WORKSHOP</u>	1.4
		For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m ² .	
		a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.	
		b. Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment installed specifically for merchandise, or additional lighting power as determined below shall be added to the interior lighting power determined in accordance	

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p>with this line item.</p> <p>Calculate the additional lighting power as follows:</p> <p>Additional Interior Lighting Power Allowance = 1000 watts + (Retail Area 1 X 0.6 <u>1</u> W/ft²) + (Retail Area 2 X 0.6 W/ft²) + (Retail Area 3 X 1.4 <u>0.9</u> W/ft²) + (Retail Area 4 X 2.5 <u>1.5</u> W/ft²).</p> <p>where:</p> <p>Retail Area 1 = The floor area for all products not listed in Retail Area 2, 3 or 4. Retail Area 2 = The floor area used for the sale of vehicles, sporting goods and small electronics. Retail Area 3 = The floor area used for the sale of furniture, clothing, cosmetics and artwork. Retail Area 4 = The floor area used for the sale of jewelry, crystal and china.</p> <p>Exception: Other merchandise categories are permitted to be included in Retail Areas 2 through 4 above, provided that justification documenting the need for additional lighting power based on visual inspection, contrast, or other critical display is <i>approved</i> by the authority having jurisdiction.</p>
505.7	<p>Electrical energy consumption. (Mandatory). In buildings having individual dwelling units, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units.</p>	<p>Electrical energy consumption. (Mandatory). In buildings having individual dwelling units, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units <u>in accordance with <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</i></u></p>
<p align="center">NOTICE: THE FOLLOWING SECTION 506 IS AN ENTIRELY NEW SECTION WHICH FOLLOWS SECTION 505 AND PRECEDES THE EXISTING SECTION 506 WHICH IS RENUMBERED TO SECTION 507.</p>		
<p>Section 506 – Additional Efficiency Package Options</p>		
506.1	<p>New Section Added.</p>	<p><u>Requirements.</u> Buildings shall comply with at least one of the following:</p> <p align="center">a. <u>506.2 Efficient Mechanical Equipment</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language																							
		<p><u>b. 506.3 Efficient Lighting System Requirement</u> <u>c. 506.4 On-Site Supply of Renewable Energy</u></p> <p><u>At the time of plan submittal, the permit applicant shall submit to the jurisdiction documentation which reflects the intent to comply with Section 506.2, 506.3 or 506.4 in their entirety. Individual tenant spaces must comply with either 506.2 or 506.3 in their entirety unless documentation can be provided that demonstrates compliance with Section 506.4 for the entire building.</u></p>																							
506.2	New Section Added.	<p><u>Efficient Mechanical Equipment.</u> Equipment shall meet the minimum efficiency requirements of Tables 506.2.(1) through 506.2(7) in addition to the requirements in Section 503. This section shall only be used where an equipment efficiency option is available.</p>																							
Table 506.2(1)	New Table Added.	<p style="text-align: center;"><u>UNITARY AIR CONDITIONERS AND CONDENSING UNITS, ELECTRICALLY OPERATED, EFFICIENCY REQUIREMENTS</u></p> <table border="1"> <thead> <tr> <th><u>EQUIPMENT TYPE</u></th> <th><u>SIZE CATEGORY</u></th> <th><u>SUBCATEGORY OR RATING CONDITION</u></th> <th><u>REQUIRED EFFICIENCY_a</u></th> </tr> </thead> <tbody> <tr> <td rowspan="5">Air conditioners, Air cooled</td> <td rowspan="2">< 65,000 Btu/hd</td> <td>Split system</td> <td>For zones 1 to 5: 15.0 SEER, 12.5 EER</td> </tr> <tr> <td>Single package</td> <td>For zones 1 to 5: 15.0 SEER, 12.0 EER</td> </tr> <tr> <td>>= 65,000 Btu/h and < 240,000 Btu/h</td> <td>Split system and single package</td> <td>For zones 1 to 5: 12.0 EERb, 12.4 IPLVb</td> </tr> <tr> <td>>= 240,000 Btu/h and < 760,000 Btu/h</td> <td>Split system and single package</td> <td>For zones 1 to 5: 10.8 EERb, 12.0 IPLVb</td> </tr> <tr> <td>>= 760,000 Btu/h</td> <td></td> <td>For zones 1 to 5: 10.2 EERb, 11.0 IPLVb</td> </tr> <tr> <td>Air conditioners, Water and evaporatively cooled</td> <td></td> <td>Split system and single package</td> <td>14.0 EER</td> </tr> </tbody> </table> <p>For SE: 1 British thermal unit per hour = 0.2931 W. a. IPLVs are only applicable to equipment with capacity modulation. b. Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.</p>	<u>EQUIPMENT TYPE</u>	<u>SIZE CATEGORY</u>	<u>SUBCATEGORY OR RATING CONDITION</u>	<u>REQUIRED EFFICIENCY_a</u>	Air conditioners, Air cooled	< 65,000 Btu/hd	Split system	For zones 1 to 5: 15.0 SEER, 12.5 EER	Single package	For zones 1 to 5: 15.0 SEER, 12.0 EER	>= 65,000 Btu/h and < 240,000 Btu/h	Split system and single package	For zones 1 to 5: 12.0 EERb, 12.4 IPLVb	>= 240,000 Btu/h and < 760,000 Btu/h	Split system and single package	For zones 1 to 5: 10.8 EERb, 12.0 IPLVb	>= 760,000 Btu/h		For zones 1 to 5: 10.2 EERb, 11.0 IPLVb	Air conditioners, Water and evaporatively cooled		Split system and single package	14.0 EER
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Air conditioners, Water and evaporatively cooled		Split system and single package	14.0 EER																						

Section	Original Code Language	Abu Dhabi Adopted Code Language																																							
Table 506.2(2)	New Table Added.	<p style="text-align: center;"><u>UNITARY AND APPLIED HEAT PUMPS, ELECTRICALLY OPERATED, EFFICIENCY REQUIREMENTS</u></p> <table border="1"> <thead> <tr> <th><u>EQUIPMENT TYPE</u></th> <th><u>SIZE CATEGORY</u></th> <th><u>SUBCATEGORY OR RATING CONDITION</u></th> <th><u>REQUIRED EFFICIENCY^a</u></th> </tr> </thead> <tbody> <tr> <td rowspan="4">Air cooled (Cooling mode)</td> <td rowspan="2">< 65,000 Btu/hd</td> <td>Split system</td> <td>For zones 1 to 5: 15.0 SEER, 12.5 EER For zones 6 to 8: 14.0 SEER, 12.0 EER</td> </tr> <tr> <td>Single package</td> <td>For zones 1 to 5: 15.0 SEER, 12.0 EER For zones 6 to 8: 14.0 SEER, 11.6 EER</td> </tr> <tr> <td rowspan="2">≥ 65,000 Btu/h and < 240,000 Btu/h</td> <td>Split system and single package</td> <td>For zones 1 to 5: 12.0 SEER, 12.4 EER For zones 6 to 8: 11.5 EERb, 11.9 IPLVb</td> </tr> <tr> <td>Split system and single package</td> <td>For zones 1 to 5: 12.0 SEER, 12.4 EER For zones 6 to 8: 10.5 EERb, 10.9 IPLVb</td> </tr> <tr> <td>Water SOURCES (Cooling mode)</td> <td>< 135,000 Btu/h</td> <td>85°F entering water</td> <td>14.0 EER</td> </tr> </tbody> </table>	<u>EQUIPMENT TYPE</u>	<u>SIZE CATEGORY</u>	<u>SUBCATEGORY OR RATING CONDITION</u>	<u>REQUIRED EFFICIENCY^a</u>	Air cooled (Cooling mode)	< 65,000 Btu/hd	Split system	For zones 1 to 5: 15.0 SEER, 12.5 EER For zones 6 to 8: 14.0 SEER, 12.0 EER	Single package	For zones 1 to 5: 15.0 SEER, 12.0 EER For zones 6 to 8: 14.0 SEER, 11.6 EER	≥ 65,000 Btu/h and < 240,000 Btu/h	Split system and single package	For zones 1 to 5: 12.0 SEER, 12.4 EER For zones 6 to 8: 11.5 EERb, 11.9 IPLVb	Split system and single package	For zones 1 to 5: 12.0 SEER, 12.4 EER For zones 6 to 8: 10.5 EERb, 10.9 IPLVb	Water SOURCES (Cooling mode)	< 135,000 Btu/h	85°F entering water	14.0 EER																				
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Table 506.2(3)	New Table Added.	<p style="text-align: center;"><u>PACKAGED TERMINAL AIR CONDITIONERS AND PACKAGED TERMINAL HEAT PUMPS</u></p> <table border="1"> <thead> <tr> <th><u>EQUIPMENT TYPE</u></th> <th><u>SIZE CATEGORY</u></th> <th><u>REQUIRED EFFICIENCY^a</u></th> </tr> </thead> <tbody> <tr> <td rowspan="4">Air conditioners & Heat Pumps (Cooling Mode)</td> <td>< 7,000 Btu / h</td> <td>11.9 EER</td> </tr> <tr> <td>7,000 Btu / h and < 10,000 Btu / h</td> <td>11.3 EER</td> </tr> <tr> <td>10,000 Btu / h and < 13,000 Btu / h</td> <td>10.7 EER</td> </tr> <tr> <td>> 13,000 Btu / h</td> <td>9.5 EER</td> </tr> </tbody> </table> <p>a. Replacement units must be factory labeled as follows: "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY: NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches (406 mm) high and less than 42 inches (1067 mm) wide.</p>	<u>EQUIPMENT TYPE</u>	<u>SIZE CATEGORY</u>	<u>REQUIRED EFFICIENCY^a</u>	Air conditioners & Heat Pumps (Cooling Mode)	< 7,000 Btu / h	11.9 EER	7,000 Btu / h and < 10,000 Btu / h	11.3 EER	10,000 Btu / h and < 13,000 Btu / h	10.7 EER	> 13,000 Btu / h	9.5 EER																											
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Table 506.2(6)	New Table Added.	<p style="text-align: center;"><u>CHILLERS - EFFICIENCY REQUIREMENTS</u></p> <table border="1"> <thead> <tr> <th rowspan="2"><u>EQUIPMENT TYPE</u></th> <th rowspan="2"><u>SIZE CATEGORY</u></th> <th colspan="2"><u>REQUIRED EFFICIENCY-CHILLERS</u></th> <th colspan="2"><u>OPTIONAL COMPLIANCE PATH-REQUIRED EFFICIENCY-CHILLERS WITH VSD</u></th> </tr> <tr> <th>Full Load (KW /TON)</th> <th>IPLV (KW /TON)</th> <th>Full Load (KW /TON)</th> <th>IPLV (KW /TON)</th> </tr> </thead> <tbody> <tr> <td>Air Cooled w/ Condenser</td> <td>All</td> <td>1.2</td> <td>1.0</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Air Cooled w/o Condenser</td> <td>All</td> <td>1.08</td> <td>1.08</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Water Cooled, Reciprocating</td> <td>All</td> <td>0.840</td> <td>0.630</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td rowspan="2">Water Cooled, Rotary Screw and Scroll</td> <td>< 90 tons</td> <td>0.780</td> <td>0.600</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>90 tons and < 150 tons</td> <td>0.730</td> <td>0.550</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	<u>EQUIPMENT TYPE</u>	<u>SIZE CATEGORY</u>	<u>REQUIRED EFFICIENCY-CHILLERS</u>		<u>OPTIONAL COMPLIANCE PATH-REQUIRED EFFICIENCY-CHILLERS WITH VSD</u>		Full Load (KW /TON)	IPLV (KW /TON)	Full Load (KW /TON)	IPLV (KW /TON)	Air Cooled w/ Condenser	All	1.2	1.0	N/A	N/A	Air Cooled w/o Condenser	All	1.08	1.08	N/A	N/A	Water Cooled, Reciprocating	All	0.840	0.630	N/A	N/A	Water Cooled, Rotary Screw and Scroll	< 90 tons	0.780	0.600	N/A	N/A	90 tons and < 150 tons	0.730	0.550	N/A	N/A
<u>EQUIPMENT TYPE</u>	<u>SIZE CATEGORY</u>	<u>REQUIRED EFFICIENCY-CHILLERS</u>			<u>OPTIONAL COMPLIANCE PATH-REQUIRED EFFICIENCY-CHILLERS WITH VSD</u>																																				
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Table 506.2(7)	New Table Added.	<p style="text-align: center;">TABLE 506.2(7) ABSORPTION CHILLERS - EFFICIENCY REQUIREMENTS</p> <table border="1"> <thead> <tr> <th><u>EQUIPMENT TYPE</u></th> <th><u>REQUIRED EFFICIENCY FULL LOAD COP (IPLV)</u></th> </tr> </thead> <tbody> <tr> <td><u>Air Cooled, Single Effect</u></td> <td>0.60, allowed only in heat recovery applications</td> </tr> <tr> <td><u>Water Cooled, Single Effect</u></td> <td>0.70, allowed only in heat recovery applications</td> </tr> <tr> <td><u>Double Effect - Direct Fired</u></td> <td>1.0 (1.05)</td> </tr> <tr> <td><u>Double Effect - Indirect Fired</u></td> <td>1.20</td> </tr> </tbody> </table>	<u>EQUIPMENT TYPE</u>	<u>REQUIRED EFFICIENCY FULL LOAD COP (IPLV)</u>	<u>Air Cooled, Single Effect</u>	0.60, allowed only in heat recovery applications	<u>Water Cooled, Single Effect</u>	0.70, allowed only in heat recovery applications	<u>Double Effect - Direct Fired</u>	1.0 (1.05)	<u>Double Effect - Indirect Fired</u>	1.20																										
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506.3	New Section Added.	Efficient Lighting System. Whole Building Lighting Power Density (Watts/sf) must meet the requirements of <i>Table 506.3. and automatic daylighting control requirements in Section 506.3.2.</i>																																				
506.3.1	New Section Added.	Reduced Lighting Power Density. The total interior lighting power (watts) is the sum of all interior lighting powers for all areas in the building covered in this permit. The interior lighting power is the floor area for the building times the value from Table 506.3.																																				
Table 506.3	New Table Added.	<p style="text-align: center;"><u>REDUCED INTERIOR LIGHTING POWER</u></p> <table border="1"> <thead> <tr> <th><u>BUILDING TYPE^a</u></th> <th><u>REDUCED WHOLE BUILDING (Watts/Ft²)</u></th> </tr> </thead> <tbody> <tr> <td><u>Automotive Facility</u></td> <td>0.79</td> </tr> <tr> <td><u>Convention Center</u></td> <td>1.16</td> </tr> <tr> <td><u>Courthouse</u></td> <td>1.08</td> </tr> <tr> <td><u>Dining: Bar Lounge/Leisure</u></td> <td>1.19</td> </tr> </tbody> </table>	<u>BUILDING TYPE^a</u>	<u>REDUCED WHOLE BUILDING (Watts/Ft²)</u>	<u>Automotive Facility</u>	0.79	<u>Convention Center</u>	1.16	<u>Courthouse</u>	1.08	<u>Dining: Bar Lounge/Leisure</u>	1.19																										
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Section	Original Code Language	Abu Dhabi Adopted Code Language	
		<u>Dining: Cafeteria/Fast Food</u>	<u>1.34</u>
		<u>Dining: Family</u>	<u>1.50</u>
		<u>Dormitory</u>	<u>0.90</u>
		<u>Exercise Center</u>	<u>0.92</u>
		<u>Fire Stations</u>	<u>0.74</u>
		<u>Gymnasium</u>	<u>1.07</u>
		<u>Healthcare Clinic</u>	<u>0.89</u>
		<u>Hotel</u>	<u>0.90</u>
		<u>Library</u>	<u>1.00</u>
		<u>Manufacturing Facility</u>	<u>1.24</u>
		<u>Motel</u>	<u>0.90</u>
		<u>Motion Picture Theater</u>	<u>1.18</u>
		<u>Museum</u>	<u>1.04</u>
		<u>Office</u>	<u>0.80</u>
		<u>Performing Arts Theater</u>	<u>1.46</u>
		<u>Police Stations</u>	<u>0.89</u>
		<u>Post Office</u>	<u>0.98</u>
		<u>Religious Buildings</u>	<u>1.18</u>
		<u>Retail</u>	<u>1.30</u>
		<u>Retail: Specialty</u>	<u>1.40</u>
		<u>Retail: Supermarket</u>	<u>1.30</u>
		<u>School/University</u>	<u>1.01</u>
		<u>Town Hall</u>	<u>0.94</u>
		<u>Transportation</u>	<u>0.85</u>
		<u>Warehouse^b</u>	<u>0.60</u>
		<u>Workshop</u>	<u>1.20</u>
		<p>For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m².</p> <p>a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.</p> <p>b. At least one half of the floor area shall be in the daylight zone. Automatic daylighting controls shall be installed in daylight zones and shall meet the requirements of Section 505.2.2.2.3.</p>	
506.3.2	New Section Added.	<p><u>Automatic Daylighting Controls.</u> Automatic daylighting controls shall be installed in daylight zone and shall meet the requirements of Section 505.2.2.2.3.</p>	

Section	Original Code Language	Abu Dhabi Adopted Code Language
506.4	New Section Added.	<p><u>On-site Supply of Renewable Energy.</u> <u>The building or surrounding property shall supply 3% or more of regulated building energy use with on-site renewable energy. On-site power generation using nonrenewable sources does not meet this requirement.</u></p> <p><u>The jurisdiction shall be provided with an energy analysis as described in Section 507 that documents on-site renewable energy production is capable of providing at least 3% of the total estimated annual purchased energy for the building functions regulated by this code, or a calculation demonstrating that on-site renewable energy production has a nominal (maximum) rating of at least 1.75 BTUs or at least 0.50 watts per square foot (5.38 W/m²) of conditioned floor area.</u></p>
<p align="center">NOTICE: EXISTING SECTION 506 WHICH APPEARS IN THE 2009 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE REMAINS HOWEVER HAS BEEN RENUMBERED TO SECTION 507. EXISTING IECC CODE TEXT APPLIES EXCEPT FOR CHANGES LISTED BELOW.</p>		
<p>Section 506507 – Total Building Performance</p>		
506.3 507.3	<p>Performance-based compliance. Compliance based on total building performance requires that a proposed building (<i>proposed design</i>) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the <i>standard reference design</i>. Energy prices shall be taken from a source <i>approved</i> by the <i>code official</i>, such as the Department of Energy, Energy Information Administration's <i>State Energy Price and Expenditure Report</i>. <i>Code officials</i> shall be permitted to require time-of-use pricing in energy</p>	<p>Performance-based compliance. Compliance based on total building performance requires that a proposed building (<i>proposed design</i>) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the <i>standard reference design</i>. Energy prices shall be taken from a source <i>approved</i> by the <i>code official</i>, such as the Department of Energy, Energy Information Administration's <i>State Energy Price and Expenditure Report</i>. <i>Code officials</i> shall be permitted to require time-of-use pricing in energy</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>cost calculations. Nondepletable energy collected off site shall be treated and priced the same as purchased energy. Energy from nondepletable energy sources collected on site shall be omitted from the annual energy cost of the <i>proposed design</i>.</p> <p>Exception: Jurisdictions that require site energy (1 kWh = 3413 Btu) rather than energy cost as the metric of comparison.</p>	<p>cost calculations. Nondepletable energy collected off site shall be treated and priced the same as purchased energy. Energy from nondepletable energy sources collected on site shall be omitted from the annual energy cost of the <i>proposed design</i>.</p> <p>Exception: Jurisdictions that require site energy (1 kWh = 3413 Btu) rather than energy cost as the metric of comparison.</p>
<p>506.4.1 <u>507.4.1</u></p>	<p>Compliance report. Compliance software tools shall generate a report that documents that the <i>proposed design</i> has annual energy costs less than or equal to the annual energy costs of the <i>standard reference design</i>. The compliance documentation shall include the following information:</p> <ol style="list-style-type: none"> 1. Address of the building; 2. An inspection checklist documenting the building component characteristics of the <i>proposed design</i> as listed in Table 506.5.1(1). The inspection checklist shall show the estimated annual energy cost for both the <i>standard reference design</i> and the <i>proposed design</i>; 3. Name of individual completing the compliance report; and 4. Name and version of the compliance software tool. 	<p>Compliance report. Compliance software tools shall generate a report that documents that the <i>proposed design</i> has annual energy costs less than or equal to the annual energy costs of the <i>standard reference design</i>. The compliance documentation shall include the following information:</p> <ol style="list-style-type: none"> 1. Address<u>Location</u> of the building; 2. An inspection checklist documenting the building component characteristics of the <i>proposed design</i> as listed in Table 506.5.1(1). The inspection checklist shall show the estimated annual energy cost for both the <i>standard reference design</i> and the <i>proposed design</i>; 3. Name of individual completing the compliance report; and 4. Name and version of the compliance software tool.

CHAPTER 6 – REFERENCED STANDARDS (ADOPTED, NO AMENDMENTS)

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INTERNATIONAL MECHANICAL CODE®

2009

International Mechanical Code

International Mechanical Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Mechanical Code (IMC), 2009 Edition as published by the International Code Council along with Appendix chapter A. Certain additions, deletions or amendments to this code and the appendix chapters are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
202	New definitions added		✓	
307.2.1	Condensate disposal.	✓		
307.2.2	Drain pipe materials and sizes.	✓		
307.2.3	Auxiliary and secondary drain systems.	✓		
1102.2.2.3	Reclaimed refrigerants.	✓		
¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.				

CHAPTER 1 – SCOPE AND APPLICATION (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART A)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 202 – General Definitions		
202	CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.	CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. <u>Wherein this code the term “Code Official” is used, it shall mean the “Building Official” as defined in the building code.</u>
	New definition added.	<u>DEPARTMENT OF MECHANICAL INSPECTION.</u> <u>Wherein this code reference is made to the Department of</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
202		<u>Mechanical Inspection, it shall mean the Construction Permit Department of the municipality.</u>
	New definition added.	<u>NATIONAL ELECTRICAL CODE. Wherein these codes reference is made to the <i>National Electrical Code</i>, it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i>, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>
	New definition added.	<u>NFPA 70. Wherein these codes reference is made to <i>NFPA 70</i>, it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i>, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>
	New definition added	<u>PLUMBING CODE. Wherein this code reference is made to the <i>International Plumbing Code</i> it shall mean the <i>Uniform Plumbing Code of Abu Dhabi Emirate</i> as published by the Abu Dhabi Environmental Agency and or the <i>Water Quality Regulations, January 2009</i>, as published by the Regulation and Supervision Bureau, unless an alternative plumbing design which is based upon the <i>IPC</i> has been approved by the Building Official in accordance with section 101.4.3..</u>

CHAPTER 3 – GENERAL REGULATIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 307 – Condensate Disposal		
307.2.1	Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an <i>approved</i> place of disposal. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-	Condensate disposal collection. Condensate from all cooling coils and evaporators, as well as test water from the fire <u>sprinkler main drain</u> , shall be <u>collected, stored and reused as required by Section 314 of the plumbing codes</u> shall be conveyed from the drain pan outlet to an <i>approved</i> place of

Section	Original Code Language	Abu Dhabi Adopted Code Language
	percent slope). Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.	disposal. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.
307.2.2	Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the <i>International Plumbing Code</i> relative to the material type. Condensate waste and drain line size shall be not less than ³ / ₄ -inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2.	Drain pipe materials and sizes. Components of the condensate disposal <u>collection</u> system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the <i>International Plumbing Code</i> relative to the material type. Condensate waste and drain line size shall be not less than ³ / ₄ -inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2.
307.2.3	Auxiliary and secondary drain systems. In addition to the requirements of Section 307.2.1, where damage to any building components could occur as a result of overflow from the <i>equipment</i> primary condensate removal system, one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired <i>appliance</i> that produces condensate: 1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will	Auxiliary and secondary drain systems. In addition to the requirements of Section 307.2.1, where damage to any building components could occur as a result of overflow from the <i>equipment</i> primary condensate removal <u>collection</u> system, one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired <i>appliance</i> that produces condensate: 1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1½ inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet steel pans shall have a minimum thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage). Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).</p> <ol style="list-style-type: none"> <li>2. A separate overflow drain line shall be connected to the drain pan provided with the <i>equipment</i>. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection. <li>3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the <i>equipment</i> served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section. <li>4. A water-level detection device conforming to UL 508 shall be provided that will shut off the <i>equipment</i> served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the 	<p>occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1½ inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet steel pans shall have a minimum thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage). Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).</p> <ol style="list-style-type: none"> <li>2. A separate overflow drain line shall be connected to the drain pan provided with the <i>equipment</i>. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection. <li>3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the <i>equipment</i> served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section. <li>4. A water-level detection device conforming to UL 508 shall be provided that will shut off the <i>equipment</i> served in the event that the primary drain is blocked. The device shall be installed in the primary drain line,

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.</p> <p>Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.</p>	<p>the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.</p> <p>Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.</p>

CHAPTER 4 – VENTILATION (ADOPTED, NO AMENDMENTS)

CHAPTER 5 – EXHAUST SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 6 – DUCT SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 7 – COMBUSTION AIR (ADOPTED, NO AMENDMENTS)

CHAPTER 8 – CHIMNEYS AND VENTS (ADOPTED, NO AMENDMENTS)

CHAPTER 9 – SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL BURNING EQUIPMENT (ADOPTED, NO AMENDMENTS)

CHAPTER 10 – BOILERS, WATER HEATERS AND PRESSURE VESSELS (ADOPTED, NO AMENDMENTS)

CHAPTER 11 – REFRIGERATION (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1102 - System Requirements		
1102.2.2.3	1102.2.2.3 Reclaimed refrigerants. Used refrigerants shall not be reused in a different owner's <i>equipment</i> or appliances	1102.2.2.3 Reclaimed refrigerants. Used refrigerants shall not be reused in a different owner's <i>equipment</i> or appliances

Section	Original Code Language	Abu Dhabi Adopted Code Language
	unless tested and found to meet the purity requirements of ARI 700. Contaminated refrigerants shall not be used unless reclaimed and found to meet the purity requirements of ARI 700.	unless tested and found to meet the purity requirements of ARI <u>AHRI</u> 700. Contaminated refrigerants shall not be used unless reclaimed and found to meet the purity requirements of ARI <u>AHRI</u> 700.

CHAPTER 12 – HYDRONIC PIPING (ADOPTED, NO AMENDMENTS)

CHAPTER 13 – FUEL OIL PIPING AND STORAGE (ADOPTED, NO AMENDMENTS)

CHAPTER 14 – SOLAR SYSTEMS (ADOPTED, NO AMENDMENTS)

APPENDIX A – COMBUSTION AIR OPENINGS AND CHIMNEY CONNECTOR PASS-THROUGHS (ADOPTED, NO AMENDMENTS)

APPENDIX B – RECOMMENDED PERMIT FEE SCHEDULE (NOT ADOPTED)

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Uniform Plumbing Code (AD. UPC)

International Plumbing Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Plumbing Code (IPC), 2009 Edition as published by the International Code Council along with Appendix chapters E, F, G and H. Certain additions, deletions or amendments to this code and the appendix chapters are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
202	General Definitions	✓	✓	
301.1	Scope	✓		
301.3	Connections to the sanitary drainage system	✓		
305.6	Burial depth.	✓		
312.1.01	New, altered, extended or repaired systems		✓	
312.1.02	Equipment, material and labor for tests		✓	
312.1.03	Reinspection and testing		✓	
312.5	Water supply system test.	✓		
314.2.1	Condensate collection.	✓		
314.2.1.1	Potable water connections.		✓	
314.2.1.2	Collection reservoir.		✓	
314.2.1.3	Filtration.		✓	
314.2.1.4	Overflow.		✓	
314.2.1.5	Drain.		✓	
314.2.1.6	Vent required.		✓	
314.2.1.7	On-site reuse of collected water.		✓	
314.2.1.7.1	Collection reservoir.		✓	
314.2.1.7.2	Disinfection.		✓	
314.2.1.7.3	Makeup water.		✓	
314.2.1.7.4	Materials.		✓	
314.2.1.7.5	Identification.		✓	

Code Section	Title	Amd ¹	Add ¹	Del ¹
314.2.2	Drain pipe materials and sizes.	✓		
314.2.3	Auxiliary and secondary drain systems.	✓		
420.3	Water closet seats	✓		
601.1	Scope	✓		
601.1.1	Preliminary Information		✓	
602.3.3	Water quality	✓		
604.1	General	✓		
Table 604.4	Maximum flow rates and consumption for plumbing fixtures and fixture fittings.	✓		
Table 604.10.1	Manifold Sizing	✓		
Table 605.3	Water Service Pipe	✓		
Table 605.4	Water Distribution Pipe	✓		
605.11	Asbestos-cement	✓		
606.05	Water storage tanks		✓	
606.5	Water pressure booster systems	✓		
606.5.5	Low-pressure cutoff required on booster pumps	✓		
606.5.8	Prohibited location of potable supply tanks.	✓		
606.5.11	Tank Access.		✓	
608.7	Valves and outlets prohibited below grade	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
608.8	Identification of nonpotable water	✓		
610.1	General	✓		
716.1	General		✓	
716.2	Pre-inspection		✓	
716.3	Installation		✓	
716.4	Where permitted		✓	
716.5	Cleanouts		✓	
716.6	Final inspection and testing		✓	
904.1	Roof extension	✓		
904.2	Frost closure			✓
904.7	Extension outside a structure			✓
916.5	Sump vents	✓		
1003.2	Approval	✓		
1003.3.1	Grease interceptors and automatic grease removal devices required.	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
1003.3.4	Hydro-mechanical grease interceptors and automatic grease removal devices.	✓		
1003.3.6	Gravity grease interceptor sizing-alternate method		✓	
1003.5	Sand interceptors in commercial establishments	✓		
1003.6	Laundries	✓		
1106.1	General	✓		
Figure 1106.1	100-Year, 1-Hour Rainfall			✓
1110.5	Siphonic roof drainage system		✓	

¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.

CHAPTER 1 – SCOPE AND ADMINISTRATION – (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART A)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 202 – General Definitions		
202	<p>CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.</p>	<p>CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. <u>Wherein this code the term “Code Official” is used, it shall mean the “Building Official” as defined in the building code.</u></p>
	<p>New Definition Added.</p>	<p>DEPARTMENT OF PLUMBING INSPECTION. Wherein this code reference is made to the Department of Plumbing Inspection, <u>it shall mean the Construction Permit Department of the municipality.</u></p>
	<p>GREASE INTERCEPTOR. A plumbing appurtenance that is installed in a sanitary drainage system to intercept oily and greasy wastes from a wastewater discharge. Such device has the ability to intercept free-floating fats and oils.</p>	<p>GREASE INTERCEPTOR. A plumbing appurtenance that is installed in a sanitary drainage system to intercept oily and greasy wastes from a wastewater discharge. Such device has the ability to intercept free-floating fats and oils.</p> <p>HYDRO-MECHANICAL. <u>Plumbing appurtenances that are installed in the sanitary free-floating fats, oils and grease from wastewater discharge. Continuous separation entrainment, buoyancy and interior baffling.</u></p> <p>GRAVITY. <u>Plumbing appurtenances of not less than 500 gallons (1893 L) capacity drainage system to intercept free-floating fats, oils and grease from wastewater accomplished by gravity during a retention time of not less than 30 minutes.</u></p>
	<p>New Definition Added.</p>	<p>LAVATORY. <u>Wherein this code reference is made to the term lavatory, it shall mean wash basin.</u></p>
	<p>New Definition Added</p>	<p>NATIONAL ELECTRICAL CODE. <u>Wherein these codes reference is made to the <i>National Electrical Code</i>, it shall mean</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
202		<u>the The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>
	New Definition Added	<u>NFPA 70.</u> Wherein these codes reference is made to <i>NFPA 70</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</i>
	New definition added	<u>PLUMBING CODE.</u> Wherein this code reference is made to the International Plumbing Code it shall mean the <u>Uniform Plumbing Code of Abu Dhabi Emirate as published by the Abu Dhabi Environmental Agency and or the Water Quality Regulations, January 2009, as published by the Regulation and Supervision Bureau, unless an alternative plumbing design which is based upon the IPC has been approved by the Building Official in accordance with section 101.4.3..</u>

CHAPTER 3 – GENERAL REGULATIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 301 - General		
301.1	Scope. The provisions of this chapter shall govern the general regulations regarding the installation of plumbing not specific to other chapters.	Scope. The provisions of this chapter shall govern the general regulations regarding the installation of plumbing not specific to other chapters. <u>NOTE: Wherein conflicts may occur between the Water Supply Regulations, 2009 edition, as promulgated by the Regulation and Supervision Bureau and this code, the most restrictive provision shall apply.</u>
301.3	Connections to the sanitary drainage system. All plumbing	Connections to the sanitary drainage system. All plumbing

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>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.</p>	<p>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.</p> <p>Exception: <u>Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved gray water system for flushing of water closets and urinals or for subsurface landscape irrigation.</u></p>
Section 305 – Protection of Pipes and Plumbing System Components		
305.6	<p>Freezing. Water, soil and waste pipes shall not be installed outside of a building, in attics or crawl spaces, concealed in outside walls, or in any other place subjected to freezing temperatures unless adequate provision is made to protect such pipes from freezing by insulation or heat or both. Exterior water supply system piping shall be installed not less than 6 inches (152 mm) below the frost line and not less than 12 inches (305 mm) below grade.</p>	<p>FreezingBurial Depth. Water, soil and waste pipes shall not be installed outside of a building, in attics or crawl spaces, concealed in outside walls, or in any other place subjected to freezing temperatures unless adequate provision is made to protect such pipes from freezing by insulation or heat or both. Exterior water supply system piping shall be installed not less than 6 inches (152 mm) below the frost line and not less than 12 inches (305 mm) below grade. <u>Water, soil and waste pipes shall not be installed outside of a building, in attics or crawl spaces, concealed in outside walls, or in any other place subjected to freezing temperatures unless adequate provision is made to protect such pipes from freezing by insulation or heat or both. Exterior water supply system piping shall be installed not less than 6 inches (152 mm) below the frost line and not less than 20 inches (500 mm) below grade.</u></p>
Section 312 – Tests and Inspections		
312.1.01	<p>New Section Added.</p>	<p><u>New, altered, extended or repaired systems.</u> <u>New plumbing systems and parts of existing systems that have been altered, extended or repaired shall be tested as prescribed herein to disclose leaks and defects, except that testing is not required in the following cases:</u></p> <ol style="list-style-type: none"> <u>1. In any case that does not include addition to, replacement, alteration or relocation of any water supply, drainage or</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>vent piping.</u> 2. <u>In any case where plumbing equipment is set up temporarily for exhibition purposes.</u>
312.1.02	New Section Added.	<u>Equipment, material and labor for tests.</u> All equipment, material and labor required for testing a plumbing system or part thereof shall be furnished by the permit holder.
312.1.03	New Section Added.	<u>Reinspection and testing.</u> Where any work or installation does not pass any initial test or inspection, the necessary corrections shall be made to comply with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.
312.5	Water supply system test. Upon completion of a section of or the entire water supply system, the system, or portion completed, shall be tested and proved tight under a water pressure not less than the working pressure of the system; or, for piping systems other than plastic, by an air test of not less than 50 psi (344 kPa). This pressure shall be held for at least 15 minutes. The water utilized for tests shall be obtained from a potable source of supply. The required tests shall be performed in accordance with this section and Section 107.	Water supply system test. Upon completion of a section of or the entire water supply system, the system, or portion completed, shall be tested and proved tight under a water pressure not less than <u>1.5 times</u> the working pressure of the system; or, for piping systems other than plastic, by an air test of not less than 50 psi (344 kPa). This pressure shall be held for at least 15 minutes. The water utilized for tests shall be obtained from a potable source of supply. The required tests shall be performed in accordance with this section and Section 107 <u>110.8</u> .
Section 314 – <u>Condensate Disposal Collection</u>		
314.2.1	Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an <i>approved</i> place of disposal. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.	<u>Condensate disposal collection.</u> Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an approved place of disposal, and collected for onsite reuse. <u>Fire sprinkler test water from the main test drain shall be collected for on-site reuse.</u> Piping for these systems shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into

Section	Original Code Language	Abu Dhabi Adopted Code Language
		a street, alley or other areas so as to cause a nuisance. Collected water shall be stored in an approved collection reservoir and reused.
314.2.1.1	New Section Added.	Potable water connections. Only connections in accordance with Section 314.2.1.7.3 shall be made between a water recycling system and a potable water system.
314.2.1.2	New Section Added.	Collection reservoir. Condensate shall be collected in an <u>approved</u> reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. <u>Access openings shall be provided to allow inspection and cleaning of the reservoir interior.</u>
314.2.1.3	New Section Added.	Filtration. Collected water entering the reservoir shall pass through an <u>approved</u> filter such as a media, sand or diatomaceous earth filter. <u>A full-open valve shall be installed downstream of the last fixture connection to the gray water discharge pipe before entering the required filter.</u>
314.2.1.4	New Section Added.	Overflow. The collection reservoir shall be equipped with an overflow pipe having the same or larger diameter as the influent pipe for the condensate. The overflow pipe shall be trapped and shall be indirectly connected to the sanitary drainage system.
314.2.1.5	New Section Added.	Drain. A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system. The drain shall be the same diameter as the overflow pipe required in Section 314.2.1.3.
314.2.1.6	New Section Added.	Vent required. The reservoir shall be provided with a vent sized in accordance with Chapter 9 and based on the diameter of the reservoir influent pipe.

Section	Original Code Language	Abu Dhabi Adopted Code Language
314.2.1.7	New Section Added.	<u>On-site reuse of collected water.</u> Water collected from condensate or fire test water may be used for the flushing of water closets and urinals only.
314.2.1.7.1	New Section Added.	<u>Collection reservoir.</u> The holding capacity of the reservoir shall be a minimum of twice the volume of water required to meet the daily flushing requirements of the fixtures supplied with collected water, but not less than 50 gallons (189 L). The reservoir shall be sized to limit the retention time of gray water to a maximum of 72 hours.
314.2.1.7.2	New Section Added.	<u>Disinfection.</u> Collected water shall be disinfected by an <i>approved</i> method that employs one or more disinfectants such as chlorine, iodine or ozone that are recommended for use with the pipes, fittings and equipment by the manufacturer of the pipes, fittings and equipment.
314.2.1.7.3	New Section Added.	<u>Makeup water.</u> Potable water shall be supplied as a source of makeup water for the collected water system. The potable water supply shall be protected against backflow in accordance with Section 608. There shall be a full-open valve located on the makeup water supply line to the collection reservoir.
314.2.1.7.4	New Section Added.	<u>Materials.</u> Distribution piping shall conform to one of the standards listed in Table 605.3.
314.2.1.7.5	New Section Added.	<u>Identification.</u> Distribution piping and reservoirs shall be identified as containing nonpotable water. Piping identification shall be in accordance with Section 608.8.
314.2.2	Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All	Drain pipe materials and sizes. Components of the condensate disposal collection system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 relative to the material type. Condensate waste and drain line size shall be not less than $\frac{3}{4}$-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 314.2.2.</p>	<p>tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 relative to the material type. Condensate waste and drain line size shall be not less than $\frac{3}{4}$-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal <u>collection</u>. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 314.2.2.</p>
314.2.3	<p>Auxiliary and secondary drain systems. In addition to the requirements of Section 314.2.1, where damage to any building components could occur as a result of overflow from the equipment primary condensate removal system, one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired appliance that produces condensate:</p> <ol style="list-style-type: none"> 1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of $1\frac{1}{2}$ inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet metal pans shall have a minimum thickness of not less than 0.0236-inch (0.6010 mm) 	<p>Auxiliary and secondary drain systems. In addition to the requirements of Section 314.2.1, where damage to any building components could occur as a result of overflow from the equipment primary condensate removal <u>collection</u> system, one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired appliance that produces condensate:</p> <ol style="list-style-type: none"> 1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of $1\frac{1}{2}$ inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet metal pans shall have a minimum thickness of not less than 0.0236-inch (0.6010 mm) (No. 24 gage)

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	<p>(No. 24 gage) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).</p> <ol style="list-style-type: none"> 2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection. 3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section. 4. A water-level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan. <p>Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.</p>	<p>galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).</p> <ol style="list-style-type: none"> 2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection. 3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section. 4. A water-level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan. <p>Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.</p>

CHAPTER 4 – FIXTURES, FAUCETS AND FIXTURE FITTINGS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 420 – Water Closets		
420.3	Water closet seats. Water closets shall be equipped with seats of smooth, nonabsorbent material. All seats of water closets provided for <i>public</i> or employee toilet facilities shall be of the hinged open-front type. Integral water closet seats shall be of the same material as the fixture. Water closet seats shall be sized for the water closet bowl type.	Water closet seats. Water closets shall be equipped with seats of smooth, nonabsorbent material. All seats of water closets provided for <i>public</i> or employee toilet facilities shall be of the hinged open-front type. Integral water closet seats shall be of the same material as the fixture. Water closet seats shall be sized for the water closet bowl type.

CHAPTER 5 – WATER HEATERS (ADOPTED, NO AMENDMENTS)

CHAPTER 6 – WATER SUPPLY AND DISTRIBUTION (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
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.	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. <u>The provisions of this chapter assume that an adequate infrastructure exists for the supply of water at an appropriate pressure for all requirements.</u>
601.1.1	New Section Added.	<u>Preliminary Information.</u> a. <u>Provide an estimate of the quantity of water required based upon the occupant load of the proposed building or</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>project.</u></p> <p>b. <u>Identify all possible sources of water which may augment the shortfall in the public water supply. Such sources may include but is not limited to:</u></p> <ol style="list-style-type: none"> <u>1. Rainwater harvesting.</u> <u>2. Underground source (open well/bore/tube well).</u> <u>3. Recycled/reclaimed water from sewage treatment works.</u> <u>4. Desalinated sea water.</u> <u>5. Any combination of the above sources.</u>
Section 602 – Water Required		
602.3.3	<p>Water quality. Water from an individual water supply shall be <i>approved</i> as potable by the authority having jurisdiction prior to connection to the plumbing system.</p>	<p>Water quality. Water from an individual water supply shall be <i>approved</i> as potable by the authority having jurisdiction prior to connection to the plumbing system.</p> <p><u>An analysis of the available water is required in order to assure the water quality is fit for human consumption. The treatment process required is based upon the water quality required for its ultimate end use. Standards referenced in Chapter 13 and within the RSB Water Quality regulations shall be complied with in order to achieve the desired water quality. Additional treatment may be required for specialized occupancies such as laboratories, industrial, pharmaceutical and health care facilities.</u></p>
Section 604 – Design of Building Water Distribution System		
604.1	<p>General. The design of the water distribution system shall conform to <i>accepted engineering practice</i>. Methods utilized to determine pipe sizes shall be <i>approved</i>.</p>	<p>General. The design of the water distribution system shall conform to <i>accepted engineering practice</i>. Methods utilized to determine pipe sizes shall be <i>approved</i>.</p>

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Table 604.4	<p align="center">MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS</p> <table border="1"> <thead> <tr> <th>PLUMBING FIXTURE OR FIXTURE FITTING</th> <th>MAXIMUM FLOW RATE OR QUANTITY^b</th> </tr> </thead> <tbody> <tr> <td>Lavatory, private</td> <td>2.2 gpm at 60 psi</td> </tr> <tr> <td>Lavatory, public (metering)</td> <td>0.25 gallon per metering cycle</td> </tr> <tr> <td>Lavatory, public (other than metering)</td> <td>0.5 gpm at 60 psi</td> </tr> <tr> <td>Shower head^a</td> <td>2.5 gpm at 80 psi</td> </tr> <tr> <td>Sink faucet</td> <td>2.2 gpm at 60 psi</td> </tr> <tr> <td>Urinal</td> <td>1.0 gallon per flushing cycle</td> </tr> <tr> <td>Water closet</td> <td>1.6 gallons per flushing cycle</td> </tr> </tbody> </table> <p>For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa</p> <p>a. A hand-held shower spray is a shower head. b. Consumption tolerances shall be determined from referenced standards.</p>	PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY ^b	Lavatory, private	2.2 gpm at 60 psi	Lavatory, public (metering)	0.25 gallon per metering cycle	Lavatory, public (other than metering)	0.5 gpm at 60 psi	Shower head ^a	2.5 gpm at 80 psi	Sink faucet	2.2 gpm at 60 psi	Urinal	1.0 gallon per flushing cycle	Water closet	1.6 gallons per flushing cycle	<p align="center">MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS</p> <table border="1"> <thead> <tr> <th rowspan="2">PLUMBING FIXTURE OR FIXTURE FITTING</th> <th colspan="2">MAXIMUM FLOW RATE OR QUANTITY^b</th> </tr> <tr> <th>gpm</th> <th>L/m</th> </tr> </thead> <tbody> <tr> <td>Lavatory, private</td> <td>2.21.5 gpm at 60 psi</td> <td><u>6 L/minute at 413.7 kilopascals</u></td> </tr> <tr> <td>Lavatory, public (metering)</td> <td>0.25 gallon per metering cycle</td> <td><u>1 liter per metering cycle</u></td> </tr> <tr> <td>Lavatory, public (other than metering)</td> <td>0.5 gpm at 60 psi</td> <td><u>1.9 liters at 413.7 kilopascals</u></td> </tr> <tr> <td>Shower head^a</td> <td>2.5 gpm at 80 psi</td> <td><u>9.5 liters at 551.6 kilopascals</u></td> </tr> <tr> <td>Sink faucet (incl. bidet and ablution faucets)</td> <td>2.21.5 gpm at 60 psi</td> <td><u>6 L/minute at 413.7 kilopascals</u></td> </tr> <tr> <td>Urinal</td> <td>1.0 gallon <u>pint</u> per flushing cycle</td> <td><u>0.5 liters per flushing cycle</u></td> </tr> <tr> <td>Water closet^c</td> <td>1.6 gallons per flushing cycle</td> <td><u>6 liters per flushing cycle</u></td> </tr> </tbody> </table> <p>For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.</p> <p>a. A hand-held shower spray is a shower head. b. Consumption tolerances shall be determined from referenced standards. c. <u>Water closets to be dual flush with a maximum 1.6 gallons (6 liters) per flush.</u></p>	PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY ^b		gpm	L/m	Lavatory, private	2.2 1.5 gpm at 60 psi	<u>6 L/minute at 413.7 kilopascals</u>	Lavatory, public (metering)	0.25 gallon per metering cycle	<u>1 liter per metering cycle</u>	Lavatory, public (other than metering)	0.5 gpm at 60 psi	<u>1.9 liters at 413.7 kilopascals</u>	Shower head ^a	2.5 gpm at 80 psi	<u>9.5 liters at 551.6 kilopascals</u>	Sink faucet (incl. bidet and ablution faucets)	2.2 1.5 gpm at 60 psi	<u>6 L/minute at 413.7 kilopascals</u>	Urinal	1.0 gallon <u>pint</u> per flushing cycle	<u>0.5 liters per flushing cycle</u>	Water closet ^c	1.6 gallons per flushing cycle	<u>6 liters per flushing cycle</u>
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Section 605 – Materials, Joints and Connections

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	Polyethylene (PE) plastic pipe	ASTM D 2239; ASTM D 3035; CSA B137.1	Polyethylene (PE) plastic pipe	ASTM D 2239; ASTM D 3035; CSA B137.1
	Polyethylene (PE) plastic tubing	ASTM D 2737; CSA B137.1	Polyethylene (PE) plastic tubing	ASTM D 2737; CSA B137.1
	Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F 1282; CAN/CSA B137.9	Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F 1282; CAN/CSA B137.9
	Polypropylene (PP) plastic pipe or tubing	ASTM F 2389; CSA B137.11	Polypropylene (PP) plastic pipe or tubing	ASTM F 2389; CSA B137.11
	Polyvinyl chloride (PVC) plastic pipe	ASTM D 1785; ASTM D 2241; ASTM D 2672; CSA B137.3	Polyvinyl chloride (PVC) plastic pipe	ASTM D 1785; ASTM D 2241; ASTM D 2672; CSA B137.3
	Stainless steel pipe (Type 304/304L)	ASTM A 312; ASTM A 778	Stainless steel pipe (Type 304/304L)	ASTM A 312; ASTM A 778
	Stainless steel pipe (Type 316/316L)	ASTM A 312; ASTM A 778	Stainless steel pipe (Type 316/316L)	ASTM A 312; ASTM A 778
Table 605.4	WATER DISTRIBUTION PIPE		WATER DISTRIBUTION PIPE	
	MATERIAL		MATERIAL	
	STANDARD		STANDARD	
	Brass pipe	ASTM B 43	Brass pipe	ASTM B 43
	Chlorinated polyvinyl chloride (CPVC) plastic pipe and tubing	ASTM D 2846; ASTM F 441; ASTM F 442; CSA B137.6	Chlorinated polyvinyl chloride (CPVC) plastic pipe and tubing	ASTM D 2846; ASTM F 441; ASTM F 442; CSA B137.6
	Copper or copper-alloy pipe	ASTM B 42; ASTM B 302	Copper or copper-alloy pipe	ASTM B 42; ASTM B 302
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	Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F 1986	Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F 1986
	Ductile iron pipe	AWWA C151/A21.51; AWWA C115/A21.15	Ductile iron pipe	AWWA C151/A21.51; AWWA C115/A21.15
	Galvanized steel pipe	ASTM A 53	Galvanized steel pipe	ASTM A 53
	Polyethylene/aluminum/polyethylene (PE-AL-PE) composite pipe	ASTM F 1282	<u>Polyethylene pipe and tubing</u>	<u>ASTM D3035; ASTM D2737; ASTM D2239; AWWA C901; CSA B137.1</u>
	Polypropylene (PP) plastic pipe or tubing	ASTM F 2389; CSA B137.11	Polyethylene/aluminum/polyethylene (PE-AL-PE) composite pipe	ASTM F 1282
	Stainless steel pipe (Type 304/304L)	ASTM A 312; ASTM A 778	Polypropylene (PP) plastic pipe or tubing	ASTM F 2389; CSA B137.11
	Stainless steel pipe (Type 316/316L)	ASTM A 312; ASTM A 778	Stainless steel pipe (Type 304/304L)	ASTM A 312; ASTM A 778
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Section	Original Code Language	Abu Dhabi Adopted Code Language
605.11	Asbestos-cement. Joints between asbestos-cement pipe or fittings shall be made with a sleeve coupling of the same composition as the pipe, sealed with an elastomeric ring conforming to ASTM D 1869.	Asbestos-cement. Joints between asbestos-cement pipe or fittings shall be made with a sleeve coupling of the same composition as the pipe, sealed with an elastomeric ring conforming to ASTM D 1869. <u>Asbestos-cement pipe shall not be used for the potable water system within, or serving buildings or structures.</u>
Section 606 – Installation of the Building Water Distribution System		
606.05	New Section Added.	<u>Water Storage Tanks.</u> <u>A. Water storage tanks shall be designed, constructed and installed in accordance with the Water Supply Regulations, 2009 Edition as issued by the Regulation and Supervision Bureau (RSB) and these provisions. Should there be any conflict between this code and the RSB regulations, the most restrictive provision shall apply.</u> <u>B. It is important to have supplemental storage facilities for water as the availability of water at adequate pressure cannot be assured. For gravity systems, the combined capacity of the low level and high level tanks shall be adequate for the duration of any anticipated disruption in the water supply. Tank partitions shall be designed in consideration of structural loading, varying qualities of water to be stored as well as for fire fighting needs. Tank compartments for non-potable and potable shall be properly separated to avoid cross contamination. Storage tanks shall be constructed of impervious materials, protected against contamination and sealed with locked, water-tight covers. Overflow or vent openings shall terminate in a downward direction and be protected with a corrosion-resistant screening of not less than 24 gauge</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>mesh to prevent the entry of insects and vermin. Water storage tanks shall not be connected directly to building drains or sewers.</u></p> <p><u>C. In order to avoid contamination, low level tanks shall not be located below ground unless approved by the Building Official. If a below ground location is permitted, the following precautions shall be taken:</u></p> <ol style="list-style-type: none"> <u>1. All inspection covers shall be raised above the surrounding ground surface.</u> <u>2. Submersible pumps shall be installed within an appropriate sump at the floor of the tank in order to thoroughly drain the tank for cleaning.</u> <u>3. An adequate number of vent pipes with insect screens shall be provided and shall be terminated at a suitable location.</u> <u>4. Potable water tanks shall not be located in any area where industrial, hydro-carbon activity may be present.</u>
606.5	<p>Water pressure booster systems. Water pressure booster systems shall be provided as required by Sections 606.5.1 through 606.5.10.</p>	<p>Water pressure booster systems. Water pressure booster systems shall be provided as required by Sections 606.5.1 through 606.5.10.</p> <p><u>NOTE: Where storage tanks are required, they shall be designed and sized in accordance with the Water Supply Regulations, 2009 edition, as required by the Distribution Company. Unless approved as an alternate design as specified in section 104.12, tanks shall be manufactured and listed by an approved third party listing service.</u></p> <p><u>Where ground storage tanks are required, separate tanks for</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
606.5.5	<p>Low-pressure cutoff required on booster pumps. A low-pressure cutoff shall be installed on all booster pumps in a water pressure booster system to prevent creation of a vacuum or negative pressure on the suction side of the pump when a positive pressure of 10 psi (68.94 kPa) or less occurs on the suction side of the pump.</p>	<p><u>fire-fighting purposes are prohibited unless prior approval is obtained from the distribution company.</u></p> <p>Low-pressure cutoff required on booster pumps. A low-pressure cutoff shall be installed on all booster pumps in a water pressure booster system to prevent creation of a vacuum or negative pressure on the suction side of the pump when a positive pressure of 10 psi (68.94 kPa) or less occurs on the suction side of the pump.</p> <p><u>The following two requirements apply to booster pumps:</u></p> <ol style="list-style-type: none"> <u>1. They shall cut in and out at preset low/high pressure limits, and</u> <u>2. They shall be VFD, Variable Frequency Drive whereas the frequency of the motor is determined by the system demand.</u> <p><u>Booster pumps shall be provided with a flooded section from a storage tank. Alternatively, self-priming or submersible pumps may be provided. All pumps shall be provided with dry run protection.</u></p>
606.5.8	<p>Prohibited location of potable supply tanks. Potable water gravity tanks or manholes of potable water pressure tanks shall not be located directly under any soil or waste piping or any source of contamination.</p>	<p>Prohibited location of potable supply tanks. Potable water gravity tanks or manholes of potable water pressure tanks shall not be located directly under any soil or waste piping or any source of contamination.</p> <p><u>The distance between the wall of a tank and any part of a wastewater drainage system shall be not less than 1500mm (60 inches).</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
606.5.11	New Section Added.	<u>Tank Access.</u> <u>Tank access and inspection openings shall be not less than 300mm (12 inches) above grade or the highest known flood level. A properly sized sump pump shall be provided as may be required by the distribution company. The maximum height of the entry point to a ground storage tank shall be not more than 3,000mm (10 feet) from the water service connection invert.</u>
Section 608 – Protection of Potable Water Supply		
608.7	<p>Valves and outlets prohibited below grade. Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade. Freezeproof yard hydrants that drain the riser into the ground are considered to be stop-and-waste valves.</p> <p>Exception: Freezeproof yard hydrants that drain the riser into the ground shall be permitted to be installed, provided that the potable water supply to such hydrants is protected upstream of the hydrants in accordance with Section 608 and the hydrants are permanently identified as nonpotable outlets by <i>approved</i> signage that reads as follows: "Caution, Nonpotable Water. Do Not Drink."</p>	<p>Valves and outlets prohibited below grade. Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade. Freezeproof yard hydrants that drain the riser into the ground are considered to be stop-and-waste valves.</p> <p>Exception: Freezeproof yard hydrants that drain the riser into the ground shall be permitted to be installed, provided that the potable water supply to such hydrants is protected upstream of the hydrants in accordance with Section 608 and the hydrants are permanently identified as nonpotable outlets by <i>approved</i> signage that reads <u>in Arabic and English</u> as follows: "Caution, Nonpotable Water. Do Not Drink."</p>
608.8	<p>Identification of nonpotable water. In buildings where nonpotable water systems are installed, the piping conveying the nonpotable water shall be identified either by color marking or metal tags in accordance with Sections 608.8.1 through 608.8.3. All nonpotable water outlets such as hose connections, open ended pipes, and faucets shall be identified at the point of use for each outlet with the words, "Nonpotable—not safe for drinking." The words shall be</p>	<p>Identification of nonpotable water. In buildings where nonpotable water systems are installed, the piping conveying the nonpotable water shall be identified either by color marking or metal tags in accordance with Sections 608.8.1 through 608.8.3. All nonpotable water outlets such as hose connections, open ended pipes, and faucets shall be identified at the point of use for each outlet with the words, "Nonpotable—not safe for drinking." The words shall be</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches in height and color in contrast to the background on which they are applied.	indelibly printed <u>in Arabic and English</u> on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches in height and color in contrast to the background on which they are applied.
Section 610 – Disinfection of Potable Water System		
610.1	<p>General. New or repaired potable water systems shall be purged of deleterious matter and disinfected prior to utilization. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. This requirement shall apply to "on-site" or "in-plant" fabrication of a system or to a modular portion of a system.</p> <ol style="list-style-type: none"> 1. The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlet. 2. The system or part thereof shall be filled with a water/chlorine solution containing at least 50 parts per million (50 mg/L) of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing at least 200 parts per million (200 mg/L) of chlorine and allowed to stand for 3 hours. 3. Following the required standing time, the system shall be flushed with clean potable water until the chlorine is purged from the system. 4. The procedure shall be repeated where shown by a bacteriological examination that contamination remains 	<p>General. New or repaired potable water systems shall be purged of deleterious matter and disinfected prior to utilization. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. This requirement shall apply to "on-site" or "in-plant" fabrication of a system or to a modular portion of a system.</p> <ol style="list-style-type: none"> 1. The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlet. 2. The system or part thereof shall be filled with a water/chlorine solution containing at least 50 parts per million (50 mg/L) of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing at least 200 parts per million (200 mg/L) of chlorine and allowed to stand for 3 hours. 3. Following the required standing time, the system shall be flushed with clean potable water until the chlorine is purged from the system. 4. <u>Once flushed, the water shall stand for not less than 24 hours after which samples shall be taken as required by the</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	present in the system.	<u>distribution company and submitted for chemical and bacteriological tests at an approved laboratory.</u> 45. The procedure shall be repeated where shown by a bacteriological examination that contamination remains present in the system.

CHAPTER 7 – SANITARY DRAINAGE (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 716 – Trenchless Underground Pipe Replacement		
716.1	New Section Added	<u>General.</u> This method used a special splitting head attached to the new sewer pipe at its end and to a pulling ram cable at its tip. The splitting head is pulled through the existing pipe with the new sewer pipe trailing. High Density Polyethylene (HDPE) 3408 SDR 17 pipe shall be used in this process.
716.2	New Section Added	<u>Pre-inspection.</u> A reasonable and complete video inspection shall be performed in order to determine the location and depth of all “wye” connections, tees and access holes.
716.3	New Section Added	<u>Installation.</u> The pipe shall be installed in accordance with this code and the manufacture’s instructions. The method may be used for gravity drainage systems up to 6 inch (152 mm) diameter only. The replacement tubing, fittings, couplings and cleanouts shall be an approved type in accordance with this code and shall comply with ASTM F714 and ASTM D2683.
716.4	New Section Added	<u>Where Permitted.</u> The pulling hole shall have the most stable soil available to withstand the large forces developed by the ram and shall be large enough to allow the set-up of the hydraulic puller, pulley base and resistance plate. The

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>side of the hole from which the host pipe comes through shall be flat and completely perpendicular to the host pipe. The entry hole and the exit port for the splitting head and new pipe shall not force the new pipe to make an excessively tight radius bend in order to enter or exit, respectively. The minimum allowed bend radius shall be as required by the new pipe listing.</u>
716.5	New Section Added	<u>Cleanouts.</u> Cleanouts shall be installed in accordance with section 708.
716.6	New Section Added	<u>Final Inspection and Testing.</u> The new piping shall be inspected internally by the use of a television camera upon completion and as required by section 312.6.

CHAPTER 8 – INDIRECT/SPECIAL WASTES (ADOPTED, NO AMENDMENTS)

CHAPTER 9 – VENTS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 904 – Vent Terminals		
904.1	Roof extension. All open vent pipes that extend through a roof shall be terminated at least [NUMBER] inches (mm) above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent extensions shall be run at least 7 feet (2134 mm) above the roof.	Roof extension. All open vent pipes that extend through a roof shall be terminated at least [NUMBER] <u>12</u> inches (<u>304</u> mm) above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent extensions shall be run at least 7 feet (2134 mm) above the roof.
904.2	Frost closure.	Section Deleted.
904.7	Extension outside a structure.	Section Deleted.
Section 916 – Vent Pipe Sizing		

Section	Original Code Language	Abu Dhabi Adopted Code Language
916.5	Sump vents. Sump vent sizes shall be determined in accordance with Sections 916.5.1 and 917.6.2.	Sump vents. Sump vent sizes shall be determined in accordance with Sections 916.5.1 and 917.6.2 <u>916.5.2</u> .

CHAPTER 10 – TRAPS, INTERCEPTORS AND SEPARATORS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1003 – Interceptors and Separators		
1003.2	Approval. The size, type and location of each interceptor and of each separator shall be designed and installed in accordance with the manufacturer's instructions and the requirements of this section based on the anticipated conditions of use. Wastes that do not require treatment or separation shall not be discharged into any interceptor or separator.	Approval. The size, type and location of each interceptor and of each separator shall be designed and installed in accordance with the manufacturer's instructions and the requirements of this section based on the anticipated conditions of use. Wastes that do not require treatment or separation shall not be discharged into any interceptor or separator. <u>Grease or oil interceptors and sand traps shall be installed within the property served, the location of such shall be approved by ADSSC prior to installation and the interceptor shall remain accessible to ADSSC for periodic maintenance inspections.</u>
1003.3.1	Grease interceptors and automatic grease removal devices required. A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with grease-laden waste located in food preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. Grease interceptors and automatic grease removal devices shall receive waste only from	Grease interceptors and automatic grease removal devices required. A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with grease-laden waste located in food preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. Grease interceptors and automatic grease removal devices shall receive waste only from

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>fixtures and equipment that allow fats, oils or grease to be discharged.</p>	<p>fixtures and equipment that allow fats, oils or grease to be discharged.</p> <p><u>Grease interceptors shall be located as close as possible to the building drain outlet of the building served.</u></p>
1003.3.4	<p>Grease interceptors and automatic grease removal devices. Grease interceptors and automatic grease removal devices shall be sized in accordance with PDI G101, ASME A112.14.3 Appendix A, or ASME A112.14.4. Grease interceptors and automatic grease removal devices shall be designed and tested in accordance with PDI G101, ASME A112.14.3 or ASME A112.14.4. Grease interceptors and automatic grease removal devices shall be installed in accordance with the manufacturer's instructions.</p> <p>Exception: Interceptors that have a volume of not less than 500 gallons (1893 L) and that are located outdoors shall not be required to meet the requirements of this section.</p>	<p><u>Hydro-mechanical gGrease interceptors and automatic grease removal devices.</u> <u>Hydro-mechanical gGrease interceptors and automatic grease removal devices shall be sized in accordance with PDI G101, ASME-A112.14.3 Appendix A, or ASME A112.14.4. Hydro-mechanical gGrease interceptors and automatic grease removal devices shall be designed and tested in accordance with PDI G101, PDI G102, ASME-A112.14.3 Appendix A, or ASME A112.14.4. Hydro-mechanical gGrease interceptors and automatic grease removal devices shall be installed in accordance with the manufacturer's instructions. This section shall not apply to gravity grease interceptors.</u></p> <p>Exception: Interceptors that have a volume of not less than 500 gallons (1893 L) and that are located outdoors shall not be required to meet the requirements of this section.</p>
1003.3.6	<p>New Section Added</p>	<p><u>Gravity Grease Interceptor Sizing – Alternate Method.</u> <u>Gravity grease interceptors with a volume of not less than 1,900 liters may be sized in accordance with German Din Standard 4040 with a period of retention of wastewater in the separation compartment as follows:</u></p> <p>a. <u>Three (3) minutes minimum for 2 liters/second to 9 liters/second through-flow.</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<ul style="list-style-type: none"> b. <u>Four (4) minutes minimum for 10 liters/second to 19 liters/second through-flow.</u> c. <u>Five (5) minutes minimum for 20 liters/second and over through-flow.</u>
1003.5	<p>Sand interceptors in commercial establishments. Sand and similar interceptors for heavy solids shall be designed and located so as to be provided with ready <i>access</i> for cleaning, and shall have a water seal of not less than 6 inches (152 mm).</p>	<p>Sand interceptors in commercial establishments. Sand and similar interceptors for heavy solids shall be designed and located so as to be provided with ready <i>access</i> for cleaning, and shall have a water seal of not less than 6 inches (152 mm).</p> <p><u>The sand interceptor shall be installed at the upstream end of the property connection and upstream of the grit separator or oil separator.</u></p>
1003.6	<p>Laundries. Laundry facilities not installed within an individual dwelling unit or intended for individual family use shall be equipped with an interceptor with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids $\frac{1}{2}$ inch (12.7 mm) or larger in size, string, rags, buttons or other materials detrimental to the public sewage system.</p>	<p>Laundries. Laundry facilities not installed within an individual dwelling unit or intended for individual family use shall be equipped with an interceptor with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids $\frac{1}{2}$ inch (12.7 mm) or larger in size, string, rags, buttons or other materials detrimental to the public sewage system. <u>In order to properly neutralize detergents, pretreatment of laundry wastewater shall be required prior to discharge into the drainage system.</u></p>

CHAPTER 11 – STORM DRAINAGE (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 1106 – Size of Conductors, Leaders and Storm Drains		
1106.1	General. The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on the 100-year hourly rainfall rate indicated in Figure 1106.1 or on other rainfall rates determined from <i>approved</i> local weather data.	General. The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on the 100-year hourly rainfall rate indicated in Figure 1106.1 or on other rainfall rates determined from <i>approved</i> local weather data.
Figure 1106.1	100-YEAR, 1-HOUR RAINFALL (INCHES) EASTERN UNITED STATES Note: This figure includes several maps which depict various portions of the United States.	All maps which depict various portions of the United States are hereby deleted.
Section 1110 – Controlled Flow Roof Drain Systems		
1110.5	New section added	<u>Siphonic Roof Drainage System.</u> Siphonic roof drainage systems shall be designed to comply with ASPE Standard 45.

CHAPTER 12 – SPECIAL PIPING AND STORAGE SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 13 – REFERENCED STANDARDS (ADOPTED, NO AMENDMENTS)

APPENDIX A – PLUMBING PERMIT FEE SCHEDULE (NOT ADOPTED)

APPENDIX B – RATES OF RAINFALL FOR VARIOUS CITIES (NOT ADOPTED)

APPENDIX C – GRAY WATER RECYCLING SYSTEMS (NOT ADOPTED)

APPENDIX D – DEGREE DAY AND DESIGN TEMPERATURES (NOT ADOPTED)

APPENDIX E – SIZING OF WATER PIPING SYSTEM (ADOPTED, NO AMENDMENTS)

APPENDIX F – STRUCTURAL SAFETY (ADOPTED, NO AMENDMENTS)

APPENDIX G – VACUUM DRAINAGE SYSTEM (ADOPTED, NO AMENDMENTS)

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IPSDC®

INTERNATIONAL PRIVATE
SEWAGE DISPOSAL CODE®



W0007

International Private Sewage Disposal Code

International Private Sewage Disposal Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Private Sewage Disposal Code (IPSDC), 2009 Edition as published by the International Code Council however will not be adopting Appendix chapters A and B. Certain additions, deletions or amendments to this code are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the private sewage disposal code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
202	General Definitions.		✓	
401.3.1	Nonconforming site conditions.	✓		
405.2.6	Reporting data.	✓		
Table 406.1	Minimum Horizontal Separation Distances for Soil Absorption Systems.	✓		
501.2	Minimum standards.	✓		
503.1	Approved materials required.	✓		
504.1	Approval.	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
605.8	Winter installation.			✓
802.1	General.	✓		
802.2	Design of Septic Tanks.	✓		
Table 802.8	Minimum Horizontal Separation Distances for Treatment Tanks.	✓		
805.9	Disposal of Contents		✓	
805.10	Operational Permit Required		✓	
¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.				

CHAPTER 1 – SCOPE AND ADMINISTRATION – (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART A)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 202 – General Definitions		
202	CODE OFFICIAL. The officer or other designated authority charged with administration and enforcement of this code or a duly authorized representative.	CODE OFFICIAL. The officer or other designated authority charged with administration and enforcement of this code or a duly authorized representative. <u>Wherein this code the term “Code Official” is used, it shall mean the “Building Official” as defined in the building code.</u>
	New definition added.	<u>DEPARTMENT OF PRIVATE SEWAGE DISPOSAL INSPECTION.</u> Wherein this code reference is made to the <u>Department of Private Sewage Disposal Inspection, it shall mean the Construction Permit Department of the municipality.</u>
	New definition added.	<u>NATIONAL ELECTRICAL CODE.</u> Wherein these codes reference is made to the <u>National Electrical Code, it shall mean the The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>
	New definition added.	<u>NFPA 70.</u> Wherein these codes reference is made to <u>NFPA 70, it shall mean the The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u>
	New definition added	<u>PLUMBING CODE.</u> Wherein this code reference is made to the <u>International Plumbing Code it shall mean the Uniform Plumbing Code of Abu Dhabi Emirate as published by the Abu Dhabi Environmental Agency and or the Water Quality Regulations, January 2009, as published by the Regulation</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>and Supervision Bureau, unless an alternative plumbing design which is based upon the IPC has been approved by the Building Official in accordance with section 101.4.3..</u>

CHAPTER 3 – GENERAL REGULATIONS (ADOPTED, NO AMENDMENTS)

CHAPTER 4 – SITE EVALUATION AND REQUIREMENTS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 401 – General		
401.3.1	Nonconforming site conditions. Where site conditions do not permit replacement systems in accordance with this code and an alternative system is used, the alternative system shall be approved in accordance with Section 105.	Nonconforming site conditions. Where site conditions do not permit replacement systems in accordance with this code and an alternative system is used, the alternative system shall be approved in accordance with Section 105 <u>104</u> .
Section 405 – Soil Verification		
405.2.6	Reporting data. Where monitoring shows saturated conditions, the following data shall be submitted in writing: test locations; ground elevations at the wells; soil profile descriptions; soil series, if available from soil maps; dates observed; depths to observed water; and local precipitation data-monthly from [DATE] and daily during monitoring. Where monitoring discloses that the site is acceptable, the following data shall be submitted in writing: location and depth of test holes, ground elevations at the wells and soil profile descriptions; soil series, if available from soil maps; dates observed; results of observations; information on artificial drainage; and local precipitation data-monthly from [DATE] and daily during monitoring. A request to install a	Reporting data. Where monitoring shows saturated conditions, the following data shall be submitted in writing: test locations; ground elevations at the wells; soil profile descriptions; soil series, if available from soil maps; dates observed; depths to observed water; and local precipitation data-monthly from [DATE] and daily during monitoring. Where monitoring discloses that the site is acceptable, the following data shall be submitted in writing: location and depth of test holes, ground elevations at the wells and soil profile descriptions; soil series, if available from soil maps; dates observed; results of observations; information on artificial drainage; and local precipitation data-monthly from [DATE] and daily during monitoring. A request to install a

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CHAPTER 5 – MATERIALS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 501 – General		
501.2	Minimum standards. Materials shall conform to the standards referenced in this code for the construction, installation, alteration or repair of <i>private sewage disposal</i>	Minimum standards. Materials shall conform to the standards referenced in this code for the construction, installation, alteration or repair of <i>private sewage disposal</i>

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p><i>systems</i> or parts thereof.</p> <p>Exception: The extension, addition to or relocation of existing pipes with materials of like grade or quality in accordance with Sections 102.6 and 105.</p>	<p><i>systems</i> or parts thereof.</p> <p>Exception: The extension, addition to or relocation of existing pipes with materials of like grade or quality in accordance with Sections 102.6 <u>Chapter 34 of the building code</u> and 105<u>104</u>.</p>
Section 503 – Performance Requirements		
503.1	<p>Approved materials required. All materials, fixtures or equipment used in the installation, repair or alteration of any <i>private sewage disposal system</i> shall conform to the standards referenced in this code, except as otherwise approved in accordance with Section 105.</p>	<p>Approved materials required. All materials, fixtures or equipment used in the installation, repair or alteration of any <i>private sewage disposal system</i> shall conform to the standards referenced in this code, except as otherwise approved in accordance with Section 105.9<u>104.9</u>.</p>
Section 504 - Tanks		
504.1	<p>Approval. All tanks shall be of an approved type. The design of tanks shall conform to the requirements of Chapter 8. All tanks shall be designed to withstand the pressures to which they are subjected.</p>	<p>Approval. All tanks shall be of an approved type. The design of tanks shall conform to the requirements of Chapter 8. All tanks shall be designed to withstand the pressures to which they are subjected.</p> <p><u>Tanks shall be tested to be water-tight in accordance with section 312.2 of the Plumbing Code by filling with water after installation and prior to backfilling.</u></p>

CHAPTER 6 – SOIL ABSORPTION SYSTEMS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 605 – Installation of Conventional Soil Absorption Systems		
605.8	Winter installation.	Section Deleted.

CHAPTER 7 – PRESSURE DISTRIBUTION SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 8 – TANKS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 802 – Septic Tanks And Other Treatment Tanks		
802.1	<p>General. Septic tanks shall be fabricated or constructed of welded steel, monolithic concrete, fiberglass or an approved material. Tanks shall be water tight and fabricated to constitute an individual structure, and shall be designed and constructed to withstand anticipated loads. The design of prefabricated septic tanks shall be approved. Plans for site-constructed concrete tanks shall be approved prior to construction.</p>	<p>General. Septic tanks shall be fabricated or constructed of welded steel, monolithic concrete, fiberglass or an approved material. Tanks shall be water tight and fabricated to constitute an individual structure, and shall be designed and constructed to withstand anticipated loads. <u>Holding tanks shall be designed to withstand vehicular traffic loads when subject to such due to proximity of roads or driveways.</u> The design of prefabricated septic tanks shall be approved. Plans for site-constructed concrete tanks shall be approved prior to construction.</p>
802.2	<p>Design of septic tanks. Septic tanks shall have not less than two compartments. The inlet compartment shall be not less than two-thirds of the total capacity of the tank, not less than a 500-gallon (1893 L) liquid capacity and not less than 3 feet (914 mm) wide and 5 feet (1524 mm) long. The secondary compartment of a septic tank shall have not less than a capacity of 250 gallons (946 L) and not more than one-third of the total capacity. The secondary compartment of septic tanks having a capacity more than 1,500 gallons (5678 L) shall be not less than 5 feet (1524 mm) long. The liquid depth shall be not less than 30 inches (762 mm) and a maximum average of 6 feet (1829 mm). The total depth shall be not less than 8 inches (203 mm) greater than the liquid depth.</p> <p>Rectangular tanks shall be constructed with the longest dimensions parallel to the direction of the flow.</p>	<p>Design of septic tanks. Septic tanks shall have not less than two compartments. The inlet compartment shall be not less than two-thirds of the total capacity of the tank, not less than a 500-gallon (1893 L) liquid capacity and not less than 3 feet (914 mm) wide and 5 feet (1524 mm) long. The secondary compartment of a septic tank shall have not less than a capacity of 250 gallons (946 L) and not more than one-third of the total capacity. The secondary compartment of septic tanks having a capacity more than 1,500 gallons (5678 L) shall be not less than 5 feet (1524 mm) long. The liquid depth shall be not less than 30 inches (762 mm) and a maximum average of 6 feet (1829 mm). The total depth shall be not less than 8 inches (203 mm) greater than the liquid depth.</p> <p>Rectangular tanks shall be constructed with the longest dimensions parallel to the direction of the flow.</p>

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	Cylindrical tanks shall be not less than 48 inches (1219 mm) in diameter.	Cylindrical tanks shall be not less than 48 inches (1219 mm) in diameter. <u>Above grade tanks shall be listed by an approved listing service and installed in accordance with manufacturer's installation instructions.</u>																																																								
Table 802.8	<p align="center">MINIMUM HORIZONTAL SEPARATION DISTANCES FOR TREATMENT TANKS</p> <table border="1"> <thead> <tr> <th>ELEMENT</th> <th>DISTANCE (feet)</th> </tr> </thead> <tbody> <tr><td>Building</td><td>5</td></tr> <tr><td>Cistern</td><td>25</td></tr> <tr><td>Foundation wall</td><td>5</td></tr> <tr><td>Lake, high water mark</td><td>25</td></tr> <tr><td>Lot line</td><td>2</td></tr> <tr><td>Pond</td><td>25</td></tr> <tr><td>Reservoir</td><td>25</td></tr> <tr><td>Spring</td><td>50</td></tr> <tr><td>Stream or watercourse</td><td>25</td></tr> <tr><td>Swimming pool</td><td>15</td></tr> <tr><td>Water service</td><td>5</td></tr> <tr><td>Well</td><td>25</td></tr> </tbody> </table> <p>For SI: 1 foot = 304.8 mm.</p>	ELEMENT	DISTANCE (feet)	Building	5	Cistern	25	Foundation wall	5	Lake, high water mark	25	Lot line	2	Pond	25	Reservoir	25	Spring	50	Stream or watercourse	25	Swimming pool	15	Water service	5	Well	25	<p align="center">MINIMUM HORIZONTAL SEPARATION DISTANCES FOR TREATMENT TANKS</p> <table border="1"> <thead> <tr> <th>ELEMENT</th> <th>DISTANCE (feet-meters)</th> </tr> </thead> <tbody> <tr><td>Building</td><td>5 1.5</td></tr> <tr><td>Cistern</td><td>25 15</td></tr> <tr><td><u>Drainage Line</u></td><td>1.5</td></tr> <tr><td>Foundation wall</td><td>5 1.5</td></tr> <tr><td><u>Interceptor</u></td><td>1.5</td></tr> <tr><td>Lake, high water mark</td><td>25 15</td></tr> <tr><td>Lot line</td><td>2 1.5</td></tr> <tr><td>Pond</td><td>25 15</td></tr> <tr><td>Reservoir</td><td>25 15</td></tr> <tr><td>Spring</td><td>50 15</td></tr> <tr><td>Stream or watercourse</td><td>25 15</td></tr> <tr><td>Swimming pool</td><td>15 4.5</td></tr> <tr><td>Water service</td><td>5 3</td></tr> <tr><td>Well</td><td>25 30</td></tr> </tbody> </table> <p>For SI: 1 foot = 304.8 mm.</p>	ELEMENT	DISTANCE (feet -meters)	Building	5 1.5	Cistern	25 15	<u>Drainage Line</u>	1.5	Foundation wall	5 1.5	<u>Interceptor</u>	1.5	Lake, high water mark	25 15	Lot line	2 1.5	Pond	25 15	Reservoir	25 15	Spring	50 15	Stream or watercourse	25 15	Swimming pool	15 4.5	Water service	5 3	Well	25 30
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Section 805 – Holding Tanks																																																										
805.9	New Section Added	<p><u>Disposal of Contents.</u> The contents of the storage tank shall be pumped, hauled and disposed of in a manner approved by the Abu Dhabi Sewerage Services Company (ADSSC) and in accordance with the following:</p> <p>i. <u>Sewerage from the storage tank shall not be applied to</u></p>																																																								

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<p><u>or deposited onto the ground surface, ground water or surface waters.</u></p> <p><u>ii Sewerage from an approved septic tank shall be deposited at an ADSSC approved disposal system or location or treated as may be permitted by the ADSSC.</u></p>
805.10	New Section Added	<p><u>Operational Permit Required.</u> <u>An operational permit shall be issued prior to issuance of a Certificate of Occupancy for a new installation of a holding tank. Such permit shall be renewed annually or when ever the approved sewage hauler is replaced, whichever occurs first. Issuance of the permit is subject to ADSSC approval of an Operational Agreement which shall include as a minimum the following information:</u></p> <p><u>a. The name and contact information for the proposed sewage pumping contractor. This contractor shall be certified, licensed and approved by ADSSC.</u></p> <p><u>b. Location of the proposed sewage disposal site(s). All proposed sites shall be within the jurisdiction from which the sewage is collected and shall be approved by the Environmental Agency of Abu Dhabi.</u></p> <p><u>c. Operational records which include, but may not be limited to, pumping frequency, sewage volume, disposal site, proof of acceptance by the sewage site, alarms and record of system servicing or repairs, shall be maintained by the sewage pumping contractor and the property owner.</u></p> <p><u>d. Acknowledgement that records maintained in item “c” above shall be submitted to ADSSC as required.</u></p> <p><u>e. An emergency response plan which addresses events such as, but not limited to, the inability of the sewage pumping</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>contractor to provide service, hydraulic overload of the system, sewage spill, etc.</u> f. <u>Provide a right of entry to ADSSC or their designee to enter the property to inspect and mitigate any problems which could result in an insanitary condition.</u>

CHAPTER 9 – MOUND SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 10 – CESSPOOLS (ADOPTED, NO AMENDMENTS)

CHAPTER 11 – RESIDENTIAL WASTE WATER SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 12 – INSPECTIONS (ADOPTED, NO AMENDMENTS)

CHAPTER 13 – NON-LIQUID SATURATED TREATMENT SYSTEMS (ADOPTED, NO AMENDMENTS)

CHAPTER 14 – REFERENCE STANDARDS (ADOPTED, NO AMENDMENTS)

APPENDIX A – SYSTEM LAYOUT ILLUSTRATIONS (NOT ADOPTED)

APPENDIX B – TABLES FOR PRESSURE DISTRIBUTION SYSTEMS (NOT ADOPTED)

A MEMBER OF THE INTERNATIONAL CODE FAMILY®

IFGC®

INTERNATIONAL FUEL GAS CODE®



2009

International Fuel Gas Code

International Fuel Gas Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Fuel Gas Code (IPSDC), 2009 Edition as published by the International Code Council however will not be adopting the Appendix chapters. Certain additions, deletions or amendments to this code are necessary for proper application to any proposed building or structure built within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the fuel gas code.

Code Section	Title	Amd ¹	Add ¹	Del ¹
202	General Definitions.	✓	✓	
301.3	Listed and labeled.	✓		
301.15	Prohibited Location.	✓		
303.3	Prohibited Locations.	✓		
307.2	Fuel-burning Appliances	✓		
307.3	Drain Pipe Materials and Sizes.	✓		
307.5	Auxiliary Drain Pan.	✓		
402.2.1	Diversity Factor.		✓	
Table 402.2.1	Diversity Factors for Gas Appliances		✓	
402.5.1	Altitude Adjustment		✓	
402.6	Maximum design operating pressure	✓		
403.1	General.	✓		
403.4.2	Steel.	✓		
403.4.4	Aluminum.	✓		
403.5.3	Aluminum Tubing.	✓		
403.6	Plastic Pipe, Tubing and Fittings.	✓		
403.10.1	Pipe Joints.	✓		
Table 403.10.1	Ventilation, Joining and Testing of Steel Pipe.		✓	
403.10.4	Metallic Fittings.	✓		
404.1	Prohibited Locations.	✓		

Code Section	Title	Amd ¹	Add ¹	Del ¹
404.2	Piping in Solid Partitions and Walls.	✓		
404.3	Piping in Concealed Locations.	✓		
404.5.1	Stress and Strain.		✓	
404.9	Protection Against Corrosion.	✓		
404.15.1	Limitations.	✓		
404.17	Expansion, Contraction and Settlement.	✓		
404.18	Ventilation of Shafts, Ducts and Concealed Piping.		✓	
Table 404.18	Ventilation of Concealed Fuel Gas Piping.		✓	
404.19	Testing of Piping.		✓	
404.20	Gas Leak Detection System.		✓	
411.1.1	Commercial cooking appliances	✓		
Table 415.1	Support of Piping.	✓		
415.2	Duct Sizing.		✓	
Table 415.2	Required Duct Size.			
701.2	Permits	✓		
703.2.1	Limitations for indoor storage and use	✓		

¹ AMD, Reference code section has been amended; ADD, new code section has been added; DEL, an existing code section has been deleted.

CHAPTER 1 – SCOPE AND ADMINISTRATION – (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART A)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 202 (IFGC) – General Definitions		
202	New Definition Added.	<u>CHASE, PIPE.</u> An approved channel constructed into a floor, ceiling, interior or exterior walls which accomodates fuel gas piping.
	CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.	CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. <u>Wherein this code the term “Code Official” is used, it shall mean the “Building Official” as defined in the building code.</u>
	New Definition Added.	<u>CONTAINMENT PIPE.</u> A tubular casing or sleeve which is installed over fuel gas piping and used to contain fuel vapors in the event of a leak.
	New Definition Added.	<u>DEPARTMENT OF INSPECTION.</u> Wherein this code reference is made to the Department of Inspection, it shall mean the Construction Permit Department of the municipality.
	New Definition Added.	<u>DROPPER.</u> Any vertical pipe in which the flow of gas is downward.
	New Definition Added.	<u>DUCT, PIPE.</u> An approved channel constructed into a floor, ceiling, interior or exterior walls which accommodates fuel gas piping.
	FUEL GAS. A natural gas, manufactured gas, liquefied petroleum gas or mixtures of these gases.	FUEL GAS. A natural gas, manufactured gas, liquefied petroleum gas, <u>substitute natural gas</u> or mixtures of these gases.

Section	Original Code Language	Abu Dhabi Adopted Code Language
202	New Definition Added.	<u>LATERAL.</u> A section of horizontal pipe connected to or from a riser, dropper or any combination thereof.
	New Definition Added.	<u>LEAK DETECTION SYSTEM.</u> A system of sensors, conductors, gauges, panels, alarms, indicator lights, etc. that will detect the presence of fuel gas in any occupied or confined space as required that will either sound an alarm and/or terminate the flow of gas until the leak can be repaired.
	New Definition Added.	<u>LEL.</u> Lower Explosion Limit.
	New Definition Added.	<u>NATIONAL ELECTRICAL CODE.</u> Wherein these codes reference is made to the <i>National Electrical Code</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New Definition Added.	<u>NFPA 70.</u> Wherein these codes reference is made to <i>NFPA 70</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New Definition Added.	<u>NG.</u> Natural gas.
	New Definition Added.	<u>NOC.</u> No objection certificate.
	New Definition Added.	<u>OTS.</u> Open to sky.
	New Definition Added.	<u>P & ID.</u> Piping and instrumentation diagram.
New definition added	<u>PLUMBING CODE.</u> Wherein this code reference is made to the <i>International Plumbing Code</i> it shall mean the <i>Uniform Plumbing Code of Abu Dhabi Emirate</i> as published by the <i>Abu Dhabi Environmental Agency</i> and or the <i>Water Quality Regulations, January 2009</i> , as published by the Regulation and Supervision Bureau, unless an alternative plumbing design which is based upon the <i>IPC</i> has been approved by the	

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>Building Official in accordance with section 101.4.3..</u>
	RISER, GAS. A vertical pipe supplying fuel gas.	RISER, GAS. A vertical pipe <u>supplying in which the fuel gas flows upward.</u>
	New Definition Added.	SCM. Standards cubic meter.
	New Definition Added.	SNG. Substitute natural gas.

CHAPTER 3 – GENERAL REGULATIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 301 (IFGC) – General		
301.3	Listed and labeled. Appliances regulated by this code shall be <i>listed</i> and <i>labeled</i> for the application in which they are used unless otherwise <i>approved</i> in accordance with Section 105. The approval of unlisted appliances in accordance with Section 105 shall be based upon <i>approved</i> engineering evaluation.	Listed and labeled. Appliances regulated by this code shall be <i>listed</i> and <i>labeled</i> for the application in which they are used unless otherwise <i>approved</i> in accordance with Section 105 <u>104</u> . The approval of unlisted appliances in accordance with Section 105 <u>104</u> shall be based upon <i>approved</i> engineering evaluation.
301.15	Prohibited location. The appliances, <i>equipment</i> and systems regulated by this code shall not be located in an elevator shaft.	Prohibited location. The appliances, <i>equipment</i> and systems regulated by this code shall not be located in an elevator shaft. <u>Appliances for LPG/SNG systems shall not be installed within a basement.</u>
Section 303 (IFGC) – Appliance Location		
303.3	Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following: 1. The <i>appliance</i> is a direct-vent <i>appliance</i> installed in	Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following: 1. The <i>appliance</i> is a direct-vent <i>appliance</i> installed in

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>accordance with the conditions of the listing and the manufacturer's instructions.</p> <ol style="list-style-type: none"> 2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5. 3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5. 4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5. 5. The <i>appliance</i> is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an <i>approved</i> self-closing device. All <i>combustion air</i> shall be taken directly from the outdoors in accordance with Section 304.6. 	<p>accordance with the conditions of the listing and the manufacturer's instructions.</p> <ol style="list-style-type: none"> 2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5. 3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5. 4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5. 5. The <i>appliance</i> is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an <i>approved</i> self-closing device. All <i>combustion air</i> shall be taken directly from the outdoors in accordance with Section 304.6. 6. <u>Within efficiency dwelling units, a full height wall shall separate the sleeping area from the kitchen area.</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
		<u>SNG or LPG systems shall not be installed within living rooms, within common walls to bedrooms, or in a basement.</u>
Section 307 – Condensate DisposalCollection		
307.2	Fuel-burning appliances. Liquid combustion by-products of condensing appliances shall be collected and discharged to an <i>approved</i> plumbing fixture or disposal area in accordance with the manufacturer's installation instructions. Condensate <i>pipng</i> shall be of <i>approved</i> corrosion-resistant material and shall not be smaller than the drain connection on the <i>appliance</i> . Such <i>pipng</i> shall maintain a minimum slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope).	Fuel-burning appliances. Liquid combustion by-products of condensing appliances shall be collected <u>for on-site reuse in accordance with Section 314 of the plumbing code</u> and discharged to an <i>approved</i> plumbing fixture or disposal area in accordance with the manufacturer's installation instructions. Condensate <i>pipng</i> shall be of <i>approved</i> corrosion-resistant material and shall not be smaller than the drain connection on the <i>appliance</i> . Such <i>pipng</i> shall maintain a minimum slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope).
307.3	Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the <i>International Plumbing Code</i> relative to the material type. Condensate waste and drain line size shall be not less than $\frac{3}{4}$ -inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an <i>approved</i> method.	Drain pipe materials and sizes. Components of the condensate disposal <u>collection</u> system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the <i>International Plumbing Code</i> relative to the material type. Condensate waste <u>and</u> drain line size shall be not less than $\frac{3}{4}$ -inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal <u>collection</u> . Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an <i>approved</i> method.

Section	Original Code Language	Abu Dhabi Adopted Code Language
307.5	<p>Auxiliary drain pan. Category IV condensing appliances shall be provided with an auxiliary drain pan where damage to any building component will occur as a result of stoppage in the condensate drainage system. Such pan shall be installed in accordance with the applicable provisions of Section 307 of the <i>International Mechanical Code</i>.</p> <p>Exception: An auxiliary drain pan shall not be required for appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.</p>	<p>Auxiliary drain pan. Category IV condensing appliances shall be provided with an auxiliary drain pan where damage to any building component will occur as a result of stoppage in the condensate drainage<u>collection</u> system. Such pan shall be installed in accordance with the applicable provisions of Section 307 of the <i>International Mechanical Code</i>.</p> <p>Exception: An auxiliary drain pan shall not be required for appliances that automatically shut down operation in the event of a stoppage in the condensate drainage<u>collection</u> system.</p>

CHAPTER 4 – GAS PIPING INSTALLATIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 402 (IFGS) – Pipe Sizing		
402.2.1	New Section Added.	<p>Diversity Factor. When a diversity factor is considered, the <u>gas flow shall be calculated for each service sub-section in accordance with equation 4-0.</u></p> <p><u>Equation 4-0</u></p> $V_t = (\sum V_r)F_r$ <p><u>Where:</u></p> <p><u>V_t = Total gas flow on the section of pipe being considered (m³/h)</u></p> <p><u>V_r = Connected gas load for each individual appliance</u></p>

Section	Original Code Language	Abu Dhabi Adopted Code Language																																																																																				
		<p>(m³/h)</p> <p>$\sum V_r$ = Total connected load of appliances served by the section of fuel gas piping under consideration (m³/h).</p> <p>F_r = Diversity factor for appliances in accordance with Table 402.2.1</p>																																																																																				
Table 402.2.1	New Table Added.	<p><u>Diversity Factors for Gas Appliances</u></p> <table border="1"> <thead> <tr> <th><u>Number of Appliances</u></th> <th><u>Diversity Factor</u> F_r</th> <th><u>Connected Load per Appliance</u>¹ <u>m³/hr</u></th> <th><u>Total Average Diversified Load</u> <u>m³/hr</u></th> </tr> </thead> <tbody> <tr><td>1-5</td><td>3.529</td><td>1</td><td>2.45</td></tr> <tr><td>6-10</td><td>0.410</td><td>1</td><td>3.69</td></tr> <tr><td>11-15</td><td>0.331</td><td>1</td><td>4.67</td></tr> <tr><td>16-20</td><td>0.288</td><td>1</td><td>5.50</td></tr> <tr><td>21-25</td><td>0.261</td><td>1</td><td>6.30</td></tr> <tr><td>26-30</td><td>0.241</td><td>1</td><td>7.15</td></tr> <tr><td>31-35</td><td>0.226</td><td>1</td><td>7.74</td></tr> <tr><td>36-40</td><td>0.214</td><td>1</td><td>8.36</td></tr> <tr><td>41-45</td><td>0.207</td><td>1</td><td>9.27</td></tr> <tr><td>46-50</td><td>0.205</td><td>1</td><td>10.20</td></tr> <tr><td>51-55</td><td>0.204</td><td>1</td><td>11.22</td></tr> <tr><td>56-60</td><td>0.203</td><td>1</td><td>12.18</td></tr> <tr><td>61-65</td><td>0.203</td><td>1</td><td>13.20</td></tr> <tr><td>66-70</td><td>0.202</td><td>1</td><td>14.14</td></tr> <tr><td>71-75</td><td>0.202</td><td>1</td><td>15.15</td></tr> <tr><td>76-80</td><td>0.201</td><td>1</td><td>16.08</td></tr> <tr><td>81-85</td><td>0.201</td><td>1</td><td>17.09</td></tr> <tr><td>86-90</td><td>0.200</td><td>1</td><td>18.00</td></tr> <tr><td>91-95</td><td>0.200</td><td>1</td><td>19.00</td></tr> <tr><td>96-100</td><td>0.200</td><td>1</td><td>20.00</td></tr> </tbody> </table>	<u>Number of Appliances</u>	<u>Diversity Factor</u> F_r	<u>Connected Load per Appliance</u> ¹ <u>m³/hr</u>	<u>Total Average Diversified Load</u> <u>m³/hr</u>	1-5	3.529	1	2.45	6-10	0.410	1	3.69	11-15	0.331	1	4.67	16-20	0.288	1	5.50	21-25	0.261	1	6.30	26-30	0.241	1	7.15	31-35	0.226	1	7.74	36-40	0.214	1	8.36	41-45	0.207	1	9.27	46-50	0.205	1	10.20	51-55	0.204	1	11.22	56-60	0.203	1	12.18	61-65	0.203	1	13.20	66-70	0.202	1	14.14	71-75	0.202	1	15.15	76-80	0.201	1	16.08	81-85	0.201	1	17.09	86-90	0.200	1	18.00	91-95	0.200	1	19.00	96-100	0.200	1	20.00
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Section	Original Code Language	Abu Dhabi Adopted Code Language
402.5.1	New Section Added.	¹ The value 1 is assumed. Calculation shall reflect the actual input rating of the appliance served. Altitude Adjustment. The operating pressure within the fuel gas system shall be adjusted as calculated using the following equation. $h = 0.123(1-S)H$ Where: <u>h = Pressure change +/- due to altitude (mbar)</u> <u>S = Density of the fuel gas used relative to air</u> <u>H = Altitude change of the pipe section being evaluated (m)</u>
402.6	Maximum design operating pressure. The maximum design operating pressure for <i>pipng</i> systems located inside buildings shall not exceed 5 pounds per square inch gauge (psig) (34 kPa gauge) except where one or more of the following conditions are met: <ol style="list-style-type: none"> 1. The <i>pipng</i> system is welded. 2. The <i>pipng</i> is located in a ventilated chase or otherwise enclosed for protection against accidental gas accumulation. 3. The <i>pipng</i> is located inside buildings or separate areas of buildings used exclusively for: <ol style="list-style-type: none"> 3.1. Industrial processing or heating; 3.2. Research; 3.3. Warehousing; or 3.4. Boiler or mechanical rooms. 4. The <i>pipng</i> is a temporary installation for buildings 	Maximum design operating pressure. The maximum design operating pressure for <i>pipng</i> systems located inside buildings shall not exceed 5 pounds per square inch gauge (psig) (34 kPa gauge) except where one or more of the following conditions are met: <ol style="list-style-type: none"> 1. The <i>pipng</i> system is welded. 2. The <i>pipng</i> is located in a ventilated chase or otherwise enclosed for protection against accidental gas accumulation. 3. The <i>pipng</i> is located inside buildings or separate areas of buildings used exclusively for: <ol style="list-style-type: none"> 3.1. Industrial processing or heating; 3.2. Research; 3.3. Warehousing; or 3.4. Boiler or mechanical rooms. 4. The <i>pipng</i> is a temporary installation for buildings

Section	Original Code Language	Abu Dhabi Adopted Code Language
	<p>under construction.</p> <p>5. The piping serves appliances or <i>equipment</i> used for agricultural purposes.</p> <p>6. The <i>piping</i> system is an LP-gas <i>piping</i> system with a design operating pressure greater than 20 psi (137.9 kPa) and complies with NFPA 58.</p>	<p>under construction.</p> <p>5. The piping serves appliances or <i>equipment</i> used for agricultural purposes.</p> <p>6. The piping system is an LP-gas piping system with a design operating pressure greater than 20 psi (137.9 kPa) and complies with NFPA 58.</p>
Section 403 – (IFGS) Piping Materials		
403.1	General. Materials used for <i>piping</i> systems shall comply with the requirements of this chapter or shall be <i>approved</i> .	General. Materials used for <i>piping</i> systems shall comply with the requirements of this chapter or and shall be <i>approved</i> .
403.4.2	Steel. Steel and wrought-iron pipe shall be at least of standard weight (Schedule 40) and shall comply with one of the following standards: 1. ASME B 36.10, 10M; 2. ASTM A 53/A53M; or 3. ASTM A 106.	Steel. Steel and wrought- steel iron pipe shall be at least of standard weight (Schedule 40), <u>seamless</u> and shall comply with one of the following standards: 1. ASME B 36.10, 10M; 2. ASTM A 53/A/53M; or 3. ASTM A 106.
403.4.4	Aluminum. Aluminum-alloy pipe shall comply with ASTM B 241 (except that the use of alloy 5456 is prohibited), and shall be marked at each end of each length indicating compliance. Aluminum-alloy pipe shall be coated to protect against external corrosion where it is in contact with masonry, plaster or insulation, or is subject to repeated wettings by such liquids as water, detergents or sewage. Aluminum-alloy pipe shall not be used in exterior locations or underground.	Aluminum. Aluminum-alloy pipe shall comply with ASTM B 241 (except that the use of alloy 5456 is prohibited), and shall be marked at each end of each length indicating compliance. Aluminum-alloy pipe shall be coated to protect against external corrosion where it is in contact with masonry, plaster or insulation, or is subject to repeated wettings by such liquids as water, detergents or sewage. Aluminum-alloy pipe shall not be used in exterior locations or underground <u>not be used.</u>
403.5.3	Aluminum tubing. Aluminum-alloy tubing shall comply with ASTM B 210 or ASTM B 241. Aluminum-alloy tubing shall be coated to protect against external corrosion where it is in contact with masonry, plaster or insulation, or is subject to repeated wettings by such liquids as water, detergent or	Aluminum tubing. Aluminum-alloy tubing shall comply with ASTM B 210 or ASTM B 241. Aluminum-alloy tubing shall be coated to protect against external corrosion where it is in contact with masonry, plaster or insulation, or is subject to repeated wettings by such liquids as water, detergent or

Section	Original Code Language	Abu Dhabi Adopted Code Language																																								
	<p>sewage.</p> <p>Aluminum-alloy tubing shall not be used in exterior locations or underground.</p>	<p>sewage <u>not be used.</u></p> <p>Aluminum-alloy tubing shall not be used in exterior locations or underground.</p>																																								
403.6	<p>Plastic pipe, tubing and fittings. Plastic pipe, tubing and fittings used to supply fuel gas shall conform to ASTM D 2513. Pipe shall be marked "Gas" and "ASTM D 2513."</p>	<p>Plastic pipe, tubing and fittings. Plastic pipe, tubing and fittings used to supply fuel gas shall conform to ASTM D 2513. Pipe shall be marked "Gas" and "ASTM D 2513." <u>Use of plastic pipe is restricted to polyethylene (PE) which conforms to ASTM 2513 as permitted in section 404.15.1. Pipe shall be identified for gas use.</u></p>																																								
403.10.1	<p>Pipe joints. Pipe joints shall be threaded, flanged, brazed or welded. Where nonferrous pipe is brazed, the brazing materials shall have a melting point in excess of 1,000°F (538°C). Brazing alloys shall not contain more than 0.05-percent phosphorus.</p>	<p>Pipe joints. Pipe joints shall be threaded, flanged, brazed or welded <u>in accordance with Table 403.10.1.</u> Where nonferrous pipe is brazed, the brazing materials shall have a melting point in excess of 1,000°F (538°C). Brazing alloys shall not contain more than 0.05-percent phosphorus.</p>																																								
Table 403.10.1	<p>New Table Added.</p>	<p><u>Piping Location, Operating Pressure, Material, Ventilation, Jointing and Testing¹</u></p> <table border="1"> <thead> <tr> <th>Description</th> <th>Piping Location</th> <th>Operating Pressure² (mbar)</th> <th>Material</th> <th>Ventilation Required^{3,4}</th> <th>Joining Method</th> <th>NDT Testing⁵</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Riser, Dropper⁶</td> <td>Exterior</td> <td>75 – 350</td> <td>Black Steel Galvanized Steel</td> <td>Not Required</td> <td>Welded</td> <td>10% (Min.)</td> </tr> <tr> <td>Interior</td> <td>75</td> <td>Black Steel Galvanized Steel</td> <td>Natural, Mechanical or Containment Pipe</td> <td>Welded</td> <td>10%</td> </tr> <tr> <td rowspan="2">Lateral</td> <td>Exterior</td> <td>75 – 350</td> <td>Black Steel Galvanized Steel</td> <td>Not Required</td> <td>Welded</td> <td>10% (Min.)</td> </tr> <tr> <td>Interior</td> <td>75</td> <td>Black Steel Galvanized Steel</td> <td>Natural, Mechanical or Containment Pipe</td> <td>Welded</td> <td>10% (Min.)</td> </tr> <tr> <td>Kitchen</td> <td>Concealed⁷</td> <td>21</td> <td>Copper Black Steel Galvanized Steel</td> <td>Natural, Mechanical or Containment Pipe</td> <td>Welded, Compression or other as approved.</td> <td>Pressure Test Only</td> </tr> </tbody> </table>	Description	Piping Location	Operating Pressure ² (mbar)	Material	Ventilation Required ^{3,4}	Joining Method	NDT Testing ⁵	Riser, Dropper ⁶	Exterior	75 – 350	Black Steel Galvanized Steel	Not Required	Welded	10% (Min.)	Interior	75	Black Steel Galvanized Steel	Natural, Mechanical or Containment Pipe	Welded	10%	Lateral	Exterior	75 – 350	Black Steel Galvanized Steel	Not Required	Welded	10% (Min.)	Interior	75	Black Steel Galvanized Steel	Natural, Mechanical or Containment Pipe	Welded	10% (Min.)	Kitchen	Concealed ⁷	21	Copper Black Steel Galvanized Steel	Natural, Mechanical or Containment Pipe	Welded, Compression or other as approved.	Pressure Test Only
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			Fully Accessible	21	Copper Black Steel Galvanized Steel	Not Required	Welded, Compression or other as approved.	Pressure Test Only
403.10.4	<p>Metallic fittings. Metallic fittings shall comply with the following:</p> <ol style="list-style-type: none"> 1. Threaded fittings in sizes larger than 4 inches (102 mm) shall not be used except where <i>approved</i>. 2. Fittings used with steel or wrought-iron pipe shall be steel, brass, bronze, malleable iron or cast iron. 3. Fittings used with copper or brass pipe shall be copper, brass or bronze. 4. Fittings used with aluminum-alloy pipe shall be of aluminum alloy. 5. Cast-iron fittings: <ol style="list-style-type: none"> 5.1. Flanges shall be permitted. 5.2. Bushings shall not be used. 5.3. Fittings shall not be used in systems containing flammable gas-air mixtures. 5.4. Fittings in sizes 4 inches (102 mm) and larger shall not be used indoors except where <i>approved</i>. 5.5. Fittings in sizes 6 inches (152 mm) and larger shall not be used except where <i>approved</i>. 6. Aluminum-alloy fittings. Threads shall not form the joint seal. 7. Zinc aluminum-alloy fittings. Fittings shall not be used 	<p>Metallic fittings. Metallic fittings shall comply with the following:</p> <ol style="list-style-type: none"> 1. Threaded fittings in sizes larger than 4<u>2</u> inches (102<u>50</u> mm) shall not be used except where <i>approved</i>. 2. Fittings used with steel or wrought-iron pipe shall be steel, brass, bronze, malleable iron or cast iron. 3. Fittings used with copper or brass pipe shall be copper, brass or bronze. 4. Fittings used with aluminum-alloy pipe shall be of aluminum alloy. 5. Cast-iron fittings: shall not be used. <ol style="list-style-type: none"> 5.1. Flanges shall be permitted. 5.2. Bushings shall not be used. 5.3. Fittings shall not be used in systems containing flammable gas-air mixtures. 5.4. Fittings in sizes 4 inches (102 mm) and larger shall not be used indoors except where <i>approved</i>. 5.5. Fittings in sizes 6 inches (152 mm) and larger shall not be used except where <i>approved</i>. 6. Aluminum-alloy fittings. Threads shall not form the joint seal shall not be used. 7. Zinc aluminum-alloy fittings. Fittings shall not be used 						

¹This table is applicable to all pipe diameters.
²Piping with an operating pressure in excess of 21 mbar shall be contained when installed above an unvented ceiling.
³Reference section 404.18. When mechanical ventilation is required, it shall provide not less than 2 air changes per hour.
⁴Not less than one (1) end of the containment pipe shall terminate at the building exterior or within a ventilated shaft.
⁵Special inspection for welded connections required for piping with greater than 21mbar operating pressure.
⁶Dropper not to exceed 75 mbar operating pressure.
⁷Containment not required for concealed fuel gas piping installed in kitchens of single family dwellings.

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	<p>in systems containing flammable gas-air mixtures.</p> <p>8. Special fittings. Fittings such as couplings, proprietary-type joints, saddle tees, gland-type compression fittings, and flared, flareless or compression-type tubing fittings shall be: used within the fitting manufacturer's pressure-temperature recommendations; used within the service conditions anticipated with respect to vibration, fatigue, thermal expansion or contraction; installed or braced to prevent separation of the joint by gas pressure or external physical damage; and shall be <i>approved</i>.</p>	<p>in systems containing flammable gas-air mixtures.</p> <p>8. Special fittings. Fittings such as couplings, proprietary-type joints, saddle tees, gland-type compression fittings, and flared, flareless or compression-type tubing fittings shall be: used within the fitting manufacturer's pressure-temperature recommendations; used within the service conditions anticipated with respect to vibration, fatigue, thermal expansion or contraction; installed or braced to prevent separation of the joint by gas pressure or external physical damage; and shall be <i>approved</i>.</p>
Section 404 (IFGC) – Piping System Installation		
404.1	<p>Prohibited locations. <i>Piping</i> shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter or elevator shaft. <i>Piping</i> installed downstream of the <i>point of delivery</i> shall not extend through any townhouse unit other than the unit served by such <i>piping</i>.</p>	<p>Prohibited locations. <i>Piping</i> shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter or elevator shaft. <i>Piping</i> installed downstream of the <i>point of delivery</i> shall not extend through any townhouse <u>residential dwelling</u> unit other than the unit served by such <i>piping</i>. <u>Fuel gas piping shall not be installed in the following locations:</u></p> <ol style="list-style-type: none"> 1. <u>For LPG/SNG systems, piping shall not be installed in a basement.</u> 2. <u>In an exit enclosure or exit passageway as defined by the building code.</u> 3. <u>Within a fire standpipe or hose reel cabinet or enclosure.</u> 4. <u>In a fire control room, elevator lobby, fire pump room, fire fighting water tank room, fire sprinkler riser enclosure, area of refuge or fire rated corridors.</u>

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		<p>5. <u>Within walls common to a bedroom. Within efficiency dwelling units, a full height wall shall separate the sleeping area from the kitchen area.</u></p>
404.2	<p>Piping in solid partitions and walls. Concealed <i>pipng</i> shall not be located in solid partitions and solid walls, unless installed in a chase or casing.</p>	<p>Piping in solid partitions and walls. Concealed <i>pipng</i> shall not be located in solid partitions and solid walls, unless installed in a chase or casing <u>fire rated shaft in accordance with the building code.</u></p> <p><u>Gas risers and droppers shall be located outside the exterior wall of the structure or within a fire rated shaft, as required by the building code, within close proximity to the kitchens served.</u></p>
404.3	<p>Piping in concealed locations. Portions of a <i>pipng</i> system installed in concealed locations shall not have unions, tubing fittings, right and left couplings, bushings, compression couplings and swing joints made by combinations of fittings.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Tubing joined by brazing. 2. Fittings <i>listed</i> for use in concealed locations. 	<p>Piping in concealed locations. Portions of a <i>pipng</i> system installed in concealed locations shall not have unions, tubing fittings, right and left couplings, bushings, compression couplings and swing joints made by combinations of fittings. <u>Piping installed in concealed locations shall be fully welded, 100% NDT tested and shall remain accessible for inspection and maintenance. Access panels provided for gas lines installed within fire-rated construction shall be fire rated as required by the building code.</u></p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Tubing joined by brazing. 2. Fittings <i>listed</i> for use in concealed locations. 3. <u>When properly sleeved or contained, galvanized steel or copper pipe installed without joints, or welded steel pipe may be concealed.</u>

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404.5.1	New Section Added.	<p><u>Stress and strain.</u> Piping in a fuel gas system shall be installed so as to prevent strains and stresses that exceed the structural strength of the pipe. Where necessary, provisions shall be made to protect piping from damage resulting from expansion, contraction and structural settlement by giving consideration to the following:</p> <ol style="list-style-type: none"> 1. <u>The design professional shall evaluate the effects of expansion, contraction and the settling of the structure and provide plans that will mitigate any adverse effects to the fuel gas piping system.</u> 2. <u>Expansion and contraction shall be calculated as required in section 404.17 and can be mitigated through the use of:</u> <ol style="list-style-type: none"> a. <u>Listed and approved bends, loops or offsets.</u> b. <u>Flexible joints or couplings which are designed and listed to absorb thermal expansion, contraction and building settlement.</u> c. <u>Approved expansion joints. Piping alignment guides, installed in accordance with manufacturer's instructions, shall be used with an expansion joint.</u> 3. <u>As required by the design, the connection of the laterals to the risers and droppers may be by approved metallic flexible connections.</u>
404.9	Protection against corrosion. Metallic pipe or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in an <i>approved</i> manner. Zinc coatings (galvanizing) shall not be deemed adequate protection for gas <i>piping</i> underground. Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used. <i>Piping</i> shall not be laid in contact with	Protection against corrosion. Metallic pipe or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in an <i>approved</i> manner. Zinc coatings (galvanizing) shall not be deemed adequate protection for gas <i>piping</i> underground. Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used. <i>Piping</i> shall not be laid in contact with

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	cinders.	cinders. <u>Vertical piping which passes through floors shall be protected with an approved wrapping in accordance with section 404.9.2 then covered with an approved sleeve which extends not less than 300mm above the finished floor surface.</u>
404.15.1	<p>Limitations. Plastic pipe shall be installed outdoors underground only. Plastic pipe shall not be used within or under any building or slab or be operated at pressures greater than 100 psig (689 kPa) for natural gas or 30 psig (207 kPa) for LP-gas.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Plastic pipe shall be permitted to terminate above ground outside of buildings where installed in premanufactured anodeless risers or service head adapter risers that are installed in accordance with the manufacturer's installation instructions. 2. Plastic pipe shall be permitted to terminate with a wall head adapter within buildings where the plastic pipe is inserted in a <i>piping</i> material for fuel gas use in buildings. 3. Plastic pipe shall be permitted under outdoor patio, walkway and driveway slabs provided that the burial depth complies with Section 404.10. 	<p>Limitations. Plastic pipe shall be installed outdoors underground only. Plastic pipe shall not be used within or under any building or slab or be operated at pressures greater than 100<u>60</u> psig (689<u>413.7</u> kPa gauge) for natural gas or 30<u>20</u> psig (207<u>137.9</u> kPa gauge) for LP-gas.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Plastic pipe shall be permitted to terminate above ground outside of buildings where installed in premanufactured anodeless risers or service head adapter risers that are installed in accordance with the manufacturer's installation instructions. 2. Plastic pipe shall be permitted to terminate with a wall head adapter within buildings where the plastic pipe is inserted in a <i>piping</i> material for fuel gas use in buildings. 3. Plastic pipe shall be permitted under outdoor patio, walkway and driveway slabs provided that the burial depth complies with Section 404.10.
404.17	<p>Testing of piping. Before any system of <i>piping</i> is put in service or concealed, it shall be tested to ensure that it is gas tight. Testing, inspection and purging of <i>piping</i> systems shall comply with Section 406.</p>	<p>Testing of piping. Before any system of <i>piping</i> is put in service or concealed, it shall be tested to ensure that it is gas tight. Testing, inspection and purging of <i>piping</i> systems shall comply with Section 406.</p> <p>Expansion, Contraction and Settlement. <u>The design of fuel gas piping systems shall consider the affects of expansion, contraction</u></p>

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		<p><u>and building settlement. Expansion shall be calculated using Equation 4-3.</u></p> <p><u>Equation 4-3</u></p> $E_x = [\text{Pipe Length (mm)}] \times (\Delta T) \times \alpha$ <p><u>Where:</u></p> <p><u>E_x = Thermal expansion (mm)</u> <u>ΔT = Temperature differential, 40° Celsius</u> <u>α = Coefficient of expansion;</u> <u>Steel, 0.000013</u> <u>Copper, 0.000017</u></p>
404.18	New Section Added.	<p><u>Ventilation of Shafts, Ducts and Concealed Piping. Fuel gas piping that is installed within a shaft, duct, concealed location or when sleeved, shall be ventilated as required by Table 403.10.1 and shall comply with the following:</u></p> <ol style="list-style-type: none"> 1. <u>At least one end of the shaft, duct or sleeve shall be open and terminate at the exterior of the structure, at an area OTS or any other approved location. Shafts which contain LPG or SNG piping shall be vented or ducted at the bottom to the building exterior.</u> 2. <u>The open end shall not be less in area than as required by Table 404.18.</u> 3. <u>When natural ventilation is permitted, it may be supplied by infiltration calculated at the rate of 7 cm² per m³ of volume of the space being ventilated.</u> 4. <u>When mechanical ventilation is provided it shall provide not less than 2 air changes per hour.</u>

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Table 404.18	New Table Added.	<p><u>Ventilation of Concealed Fuel Gas Piping</u></p> <table border="1"> <thead> <tr> <th><u>Cross Sectional Area of Shaft, Duct or Sleeve (m²)</u></th> <th><u>Minimum Ventilation Area</u></th> </tr> </thead> <tbody> <tr> <td><u><= 0.05</u></td> <td><u>Full Cross-sectional Area</u></td> </tr> <tr> <td><u>>0.05 and <=7.5</u></td> <td><u>0.05 m²</u></td> </tr> <tr> <td><u>>7.5</u></td> <td><u>0.007 x cross-sectional area of shaft, duct or sleeve in meters</u></td> </tr> </tbody> </table>	<u>Cross Sectional Area of Shaft, Duct or Sleeve (m²)</u>	<u>Minimum Ventilation Area</u>	<u><= 0.05</u>	<u>Full Cross-sectional Area</u>	<u>>0.05 and <=7.5</u>	<u>0.05 m²</u>	<u>>7.5</u>	<u>0.007 x cross-sectional area of shaft, duct or sleeve in meters</u>
<u>Cross Sectional Area of Shaft, Duct or Sleeve (m²)</u>	<u>Minimum Ventilation Area</u>									
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<u>>7.5</u>	<u>0.007 x cross-sectional area of shaft, duct or sleeve in meters</u>									
404.19	New Section Added.	<p><u>Testing of piping.</u> Before any system of <i>piping</i> is put in service or concealed, it shall be tested to ensure that it is gas tight. Testing, inspection and purging of <i>piping</i> systems shall comply with Section 406.</p>								
404.20	New Section Added.	<p><u>Gas Leak Detection System.</u> Gas piping installations shall be protected with an approved gas leak detection system. Construction plans submitted for approval prior to permit issuance shall include, but may not be limited to installation of a gas control panel which is interlinked with the building fire alarm system, a sufficient number of gas detectors, automatic and manual emergency gas shut off valves and gas solenoid valves. This system shall be designed and calibrated to detect any gas leak, sound an audible and visual alarm then shut down the supply of gas to the building or portion thereof as required below.</p> <p><u>Exception:</u> Gas piping systems installed within kitchens of dwelling units may be protected with a local leak detection and alarm system which incorporates a gas solenoid valve, gas detector and electric gas switch. Upon detection of a leak, this system shall disconnect the gas service only to the dwelling unit served.</p> <p><u>All parts and components of the gas leak detection system, shall be</u></p>								

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		<p><u>listed for the use intended, designed for continuous operation and installed to comply with the following:</u></p> <p><u>Gas Control Panels:</u></p> <ol style="list-style-type: none"> 1. <u>Except for within dwelling units, gas control panels shall display the Lower Explosion Limit (LEL) in one percent increments from 0 to 100 percent. Alarms shall be audible and visible and shall activate as follows:</u> <ol style="list-style-type: none"> a. <u>First stage alarm: Activates at 15% LEL for LPG and SNG and at 20% LEL for natural gas systems.</u> b. <u>Second stage alarm: Activates at 30% LEL for LPG and SNG and 40% LEL for natural gas systems. Activation of a second alarm will immediately shut down the gas system.</u> c. <u>The alarm shall not activate at less than 15% LEL.</u> d. <u>The audible alarm shall have an output of not less than 85dBA at a distance of 3 meters.</u> e. <u>Should an alarm activate, it shall not be bypassed.</u> 2. <u>Except for within dwelling units, the gas control panel shall be linked to the gas detectors and gas solenoid valves and shall be equipped with control lights and over-ride switches for the solenoid valves.</u> <p><u>Gas Solenoid Valves:</u></p> <ol style="list-style-type: none"> 1. <u>The flow capacity of the solenoid valve shall be within the range of 1.15 to 1.25 times Vmax m3/h.</u> 2. <u>Solenoid valve shall be explosion proof.</u> 3. <u>Solenoid valve shall be normally closed and operated at 24vdc with a manual reset. Solenoid valves within dwelling units may operate at 240vac.</u>

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		<p><u>Gas Detectors:</u></p> <ol style="list-style-type: none"> 1. <u>Except for within dwelling units, the gas detector shall be listed for industrial use within exterior locations and rated as explosion proof.</u> 2. <u>The power supply shall be 24vdc.</u> 3. <u>Gas detectors shall sense the presence of gas in one percent increments from 0 to 100 percent LEL.</u> 4. <u>There shall be an adequate number of detectors, installed at critical locations necessary to immediately detect the presence of gas. Such locations shall include, but may not be limited to: OTS, shafts, ducts, or confined spaces which contain sections of gas piping.</u> 5. <u>For natural gas, there shall be a detector located not more than 30cm below the ceiling or roof above.</u> 6. <u>For LPG and SNG, there shall be a detector not more than 30cm above the floor or ground below.</u> 7. <u>For detectors within dwelling units, the maximum working range shall not exceed 4 meters.</u> 8. <u>For non-residential detectors the maximum working range shall not exceed 6 meters.</u> 9. <u>Detectors shall be placed at the closest proximate location to the appliance or equipment served.</u> 10. <u>Detectors shall be located in open space with access to ambient air. They shall not be close to doors or other openings, covered by doors, furniture, cabinetry, wall covering or curtains and shall not be located within humid, dusty or excessively warm rooms.</u>
Section 411 (IFGC) – Appliance and Manufactured Home Connections		
411.1.1	Commercial cooking appliances. Commercial cooking <i>appliances</i> installed on casters and <i>appliances</i> that are moved for cleaning and sanitation purposes shall be connected to the <i>pipng</i> system with an	Commercial cooking appliances. Commercial cooking <i>appliances</i> installed on casters and <i>appliances</i> that are moved for cleaning and sanitation purposes shall be connected to the <i>pipng</i> system with an

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	<p>appliance connector listed as complying with ANSI Z21.69 or in accordance with Item 1 or 3 of Section 411.1.</p>	<p>appliance connector listed as complying with ANSI Z21.69 or in accordance with Item 1 or 3 of Section 411.1.</p> <p><u>Commercial cooking appliance gas supply branch connections shall be installed as follows:</u></p> <p>(a) They shall be oriented vertically downward.</p> <p>(b) The bottom of the branch connection shall be not less than <u>nine-hundred and fourteen (914) millimeters (36 in.) nor more than one thousand and sixty-seven (1,067) millimeters (42 in.) above the floor.</u></p> <p>(c) <u>The connection shall be located directly behind the appliance it serves and not obstructed by any other appliance or equipment. It shall also be installed in accordance with the connector manufacturer's installation instructions.</u></p>

Section 415 (IFGS) Piping Support Intervals

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Table 415.1	<p>SUPPORT OF PIPING</p> <table border="1"> <thead> <tr> <th>STEEL PIPE, NOMINAL SIZE OF PIPE (inches)</th> <th>SPACING OF SUPPORTS (feet)</th> <th>NOMINAL SIZE OF TUBING (SMOOTH-WALL) (inch O.D.)</th> <th>SPACING OF SUPPORTS (feet)</th> </tr> </thead> <tbody> <tr> <td>1/2</td> <td>6</td> <td>1/2</td> <td>4</td> </tr> <tr> <td>3/4 or 1</td> <td>8</td> <td>5/8 or 3/4</td> <td>6</td> </tr> <tr> <td>1 1/4 or larger (horizontal)</td> <td>10</td> <td>7/8 or 1 (horizontal)</td> <td>8</td> </tr> <tr> <td>1 1/4 or larger (vertical)</td> <td>Every floor level</td> <td>1 or larger (vertical)</td> <td>Every floor level</td> </tr> </tbody> </table> <p>For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.</p>	STEEL PIPE, NOMINAL SIZE OF PIPE (inches)	SPACING OF SUPPORTS (feet)	NOMINAL SIZE OF TUBING (SMOOTH-WALL) (inch O.D.)	SPACING OF SUPPORTS (feet)	1/2	6	1/2	4	3/4 or 1	8	5/8 or 3/4	6	1 1/4 or larger (horizontal)	10	7/8 or 1 (horizontal)	8	1 1/4 or larger (vertical)	Every floor level	1 or larger (vertical)	Every floor level	<p>SUPPORT OF PIPING</p> <table border="1"> <thead> <tr> <th>STEEL PIPE, NOMINAL SIZE OF PIPE (inches)</th> <th>SPACING OF SUPPORTS (feet)</th> <th>NOMINAL SIZE OF TUBING (SMOOTH-WALL) (inch O.D.)</th> <th>SPACING OF SUPPORTS (feet)</th> </tr> </thead> <tbody> <tr> <td>1/2</td> <td>6</td> <td>1/2</td> <td>4</td> </tr> <tr> <td>3/4 or 1</td> <td>8</td> <td>5/8 or 3/4</td> <td>6</td> </tr> <tr> <td>1 1/4 or larger (horizontal)</td> <td>10</td> <td>7/8 or 1 (horizontal)</td> <td>8</td> </tr> <tr> <td>1 1/4 or larger (vertical)</td> <td>Every floor level</td> <td>1 or larger (vertical)</td> <td>Every floor level</td> </tr> </tbody> </table> <p>For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.</p>	STEEL PIPE, NOMINAL SIZE OF PIPE (inches)	SPACING OF SUPPORTS (feet)	NOMINAL SIZE OF TUBING (SMOOTH-WALL) (inch O.D.)	SPACING OF SUPPORTS (feet)	1/2	6	1/2	4	3/4 or 1	8	5/8 or 3/4	6	1 1/4 or larger (horizontal)	10	7/8 or 1 (horizontal)	8	1 1/4 or larger (vertical)	Every floor level	1 or larger (vertical)	Every floor level
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415.2	New Section Added.	<p>Duct Sizing. The minimum duct size shall be as required in Table 415.2</p> <p>Ducts shall be vented. Size of vent shall be not less than 1/150 of the cross-sectional area of the duct, split top and bottom.</p>																																																																																					
Table 415.2	New Table Added.	<p style="text-align: center;"><u>Required Duct Size</u></p> <table border="1"> <thead> <tr> <th><u>Pipe Diameter (mm)</u></th> <th><u>Duct width x depth (mm)</u></th> </tr> </thead> <tbody> <tr><td>50</td><td>300 x 200</td></tr> <tr><td>80</td><td>400 x 300</td></tr> <tr><td>100</td><td>500 x 400</td></tr> <tr><td>150</td><td>600 x 500</td></tr> </tbody> </table>	<u>Pipe Diameter (mm)</u>	<u>Duct width x depth (mm)</u>	50	300 x 200	80	400 x 300	100	500 x 400	150	600 x 500																																																																											
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CHAPTER 5 – CHIMNEYS AND VENTS (ADOPTED, NO AMENDMENTS)

CHAPTER 6 – SPECIFIC APPLIANCES (ADOPTED, NO AMENDMENTS)

CHAPTER 7 – GASEOUS HYDROGEN SYSTEMS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 701 (IFGC) - General		
701.2	Permits. Permits shall be required as set forth in Section 106 and as required by the <i>International Fire Code</i> .	Permits. Permits shall be required as set forth in Section 106 <u>105</u> and as required by the <i>International</i> <i>Fire Code</i> .
Section 703 – System Design		
703.2.1	Limitations for indoor storage and use. Flammable gas cylinders in occupancies regulated by the <i>International Residential Code</i> shall not exceed 250 cubic feet (7.1 m ³) at normal temperature and pressure (NTP).	Limitations for indoor storage and use. Flammable gas cylinders in occupancies regulated by the <i>International Residential Code</i> <u>single family dwellings and duplexes</u> shall not exceed 250 cubic feet (7.1 m ³) at normal temperature and pressure (NTP).

CHAPTER 8 – REFERENCED STANDARDS (ADOPTED, NO AMENDMENTS)

A MEMBER OF THE INTERNATIONAL CODE FAMILY®

IPMC®

INTERNATIONAL PROPERTY MAINTENANCE CODE®



2007

International Property Maintenance Code

International Property Maintenance Code, 2009 Edition

The Emirate of Abu Dhabi has adopted the International Property Maintenance Code (IPMC), 2009 Edition as published by the International Code Council. Certain additions, deletions or amendments to this code are necessary for proper application to any existing building or structure within the Emirate of Abu Dhabi. This section of the guide will identify and provide the necessary clarification for proper application of the Property Maintenance Code.

Code Section	Title	Amd	Add	Del
201.3	Terms defined in other codes.	✓		
202	General Definitions.	✓	✓	
302.4	Weeds.	✓		
304.1.1	Unsafe conditions.	✓		
304.3	Location identification.	✓		
304.14	Insect screens.	✓		
305.1.1	Unsafe conditions.	✓		
308.3.1	Garbage facilities.	✓		
402.2	Common halls and stairways.	✓		
506.3	Grease interceptors.	✓		
602.1	Facilities required.	✓		
602.2	Residential occupancies.	✓		
602.3	Heat supply.	✓		
602.4	Occupiable work spaces.	✓		
604.1	Facilities required.	✓		
604.2	Service.	✓		

CHAPTER 1 – SCOPE AND ADMINISTRATION (NOT ADOPTED, REPLACED WITH GUIDE SECTION 1, PART C)

CHAPTER 2 – DEFINITIONS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 201 - General		
201.3	Terms defined in other codes. Where terms are not defined in this code and are defined in the <i>International Building Code, International Fire Code, International Zoning Code, International Plumbing Code, International Mechanical Code</i> or NFPA 70, such terms shall have the meanings ascribed to them as stated in those codes.	Terms defined in other codes. Where terms are not defined in this code and are defined in the <i>International Building Code, International Fire Code, International Zoning Code, International Plumbing Code, International Mechanical Code</i> or NFPA 70, such terms shall have the meanings ascribed to them as stated in those codes.
Section 202 – General Definitions		
202	CODE OFFICIAL. The official who is charged with the administration and enforcement of this code, or any duly authorized representative.	CODE OFFICIAL. The official who is charged with the administration and enforcement of this code, or any duly authorized representative. <u>Wherein this code the term “Code Official” is used, it shall mean the “Building Official” as defined in the building code.</u>
	New definition added	<u>DEPARTMENT OF PROPERTY MAINTENANCE INSPECTION.</u> Wherein this code reference is made to the <u>Department of Property Maintenance Inspection, it shall mean the Construction Permit Department of the municipality.</u>
	New definition added	<u>FIRE DEPARTMENT.</u> Whenever reference is made within this code to the Fire Department it shall mean the <u>Department of Civil Defence.</u>
	JURISDICTION. The governmental unit that has adopted this code under due legislative authority.	JURISDICTION. The governmental unit <u>Emirate of Abu Dhabi</u> that has adopted this code under due legislative authority.
	New definition added	<u>LAVATORY.</u> Wherein this code reference is made to the term <u>lavatory, it shall mean wash basin.</u>

Section	Original Code Language	Abu Dhabi Adopted Code Language
202	New definition added	<u>NATIONAL ELECTRICAL CODE.</u> Wherein these codes reference is made to the <i>National Electrical Code</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New definition added	<u>NFPA 70.</u> Wherein these codes reference is made to <i>NFPA 70</i> , it shall mean the <i>The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009</i> , as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.
	New definition added	<u>PLUMBING CODE.</u> Wherein this code reference is made to the International Plumbing Code it shall mean the Uniform Plumbing Code of Abu Dhabi Emirate as published by the Abu Dhabi Environmental Agency and or the Water Quality Regulations, January 2009, as published by the Regulation and Supervision Bureau, unless an alternative plumbing design which is based upon the IPC has been approved by the Building Official in accordance with section 101.4.3..

CHAPTER 3 – GENERAL REQUIREMENTS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 302 – Exterior Property Areas		
302.4	Weeds. All <i>premises</i> and <i>exterior property</i> shall be maintained free from weeds or plant growth in excess of (jurisdiction to insert height in inches). All noxious weeds shall be prohibited. Weeds shall be defined as all grasses, annual plants and vegetation, other than trees or shrubs provided; however, this term shall not include cultivated flowers and gardens. Upon failure of the <i>owner</i> or agent having charge of a	Weeds. All <i>premises</i> and <i>exterior property</i> shall be maintained free from weeds or plant growth in excess of (jurisdiction to insert height in inches) <u>a height as determined by the municipality</u> . All noxious weeds shall be prohibited. Weeds shall be defined as all grasses, annual plants and vegetation, other than trees or shrubs provided; however, this term shall not include cultivated flowers and gardens. Upon failure of the <i>owner</i> or agent having charge of a

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	<p>property to cut and destroy weeds after service of a notice of violation, they shall be subject to prosecution in accordance with Section 106.3 and as prescribed by the authority having jurisdiction. Upon failure to comply with the notice of violation, any duly authorized employee of the jurisdiction or contractor hired by the jurisdiction shall be authorized to enter upon the property in violation and cut and destroy the weeds growing thereon, and the costs of such removal shall be paid by the <i>owner</i> or agent responsible for the property.</p>	<p>property to cut and destroy weeds after service of a notice of violation, they shall be subject to prosecution in accordance with Section 106.3 <u>of Guide section 1 part C</u>, and as prescribed by the authority having jurisdiction. Upon failure to comply with the notice of violation, any duly authorized employee of the jurisdiction or contractor hired by the jurisdiction shall be authorized to enter upon the property in violation and cut and destroy the weeds growing thereon, and the costs of such removal shall be paid by the <i>owner</i> or agent responsible for the property.</p>
Section 304 – Exterior Structure		
304.1.1	<p>Unsafe conditions. The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the <i>International Building Code</i> or the <i>International Existing Building Code</i> as required for existing buildings:</p> <ol style="list-style-type: none"> 1. The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength; 2. The <i>anchorage</i> of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects; 3. Structures or components thereof that have reached their limit state; 4. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or water tight; 5. Structural members that have evidence of <i>deterioration</i> 	<p>Unsafe conditions. The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the <i>International Building Code</i> or the <i>International Existing Building Code</i> as required for existing buildings:</p> <ol style="list-style-type: none"> 1. The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength; 2. The <i>anchorage</i> of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects; 3. Structures or components thereof that have reached their limit state; 4. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or water tight; 5. Structural members that have evidence of <i>deterioration</i>

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	<p>or that are not capable of safely supporting all nominal loads and load effects;</p> <p>6. Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly <i>anchored</i> or are not capable of supporting all nominal loads and resisting all load effects;</p> <p>7. Exterior walls that are not <i>anchored</i> to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly <i>anchored</i> or are not capable of supporting all nominal loads and resisting all load effects;</p> <p>8. Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of <i>deterioration</i>, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects;</p> <p>9. Flooring and flooring components with defects that affect serviceability or flooring components that show signs of <i>deterioration</i> or fatigue, are not properly <i>anchored</i> or are incapable of supporting all nominal loads and resisting all load effects;</p> <p>10. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly anchored or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects;</p> <p>11. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs,</p>	<p>or that are not capable of safely supporting all nominal loads and load effects;</p> <p>6. Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly <i>anchored</i> or are not capable of supporting all nominal loads and resisting all load effects;</p> <p>7. Exterior walls that are not <i>anchored</i> to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly <i>anchored</i> or are not capable of supporting all nominal loads and resisting all load effects;</p> <p>8. Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of <i>deterioration</i>, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects;</p> <p>9. Flooring and flooring components with defects that affect serviceability or flooring components that show signs of <i>deterioration</i> or fatigue, are not properly <i>anchored</i> or are incapable of supporting all nominal loads and resisting all load effects;</p> <p>10. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly anchored or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects;</p> <p>11. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs,</p>

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	<p>awnings, fire escapes, standpipes and exhaust ducts not properly <i>anchored</i> or that are <i>anchored</i> with connections not capable of supporting all nominal loads and resisting all load effects;</p> <p>12. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including <i>guards</i> and handrails, are not structurally sound, not properly <i>anchored</i> or that are <i>anchored</i> with connections not capable of supporting all nominal loads and resisting all load effects; or</p> <p>13. Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly <i>anchored</i>, or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. When substantiated otherwise by an <i>approved</i> method. 2. Demolition of unsafe conditions shall be permitted when <i>approved</i> by the <i>code official</i>. 	<p>awnings, fire escapes, standpipes and exhaust ducts not properly <i>anchored</i> or that are <i>anchored</i> with connections not capable of supporting all nominal loads and resisting all load effects;</p> <p>12. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including <i>guards</i> and handrails, are not structurally sound, not properly <i>anchored</i> or that are <i>anchored</i> with connections not capable of supporting all nominal loads and resisting all load effects; or</p> <p>13. Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly <i>anchored</i>, or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. When substantiated otherwise by an <i>approved</i> method. 2. Demolition of unsafe conditions shall be permitted when <i>approved</i> by the <i>code official</i>.
304.3	<p>Premises identification. Buildings shall have <i>approved</i> address numbers placed in a position to be plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 0.5 inch (12.7 mm).</p>	<p>Premises identification. Buildings shall have <i>approved</i> address numbers placed in a position to be plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Location identification. New buildings shall be identified as approved by the authority having jurisdiction. Such identification signage shall be in Arabic and English and composed of</p>

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		<p><u>characters not less than 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide. They shall be installed on a contrasting background and be plainly visible from the street or road fronting the property. Where access is by means of a private road and the building address cannot be viewed from the <i>public way</i>, a monument, pole or other <i>approved</i> sign or means shall be used to identify the structure.</u></p>
304.14	<p>Insect screens. During the period from [DATE] to [DATE], every door, window and other outside opening required for <i>ventilation</i> of habitable rooms, food preparation areas, food service areas or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored shall be supplied with <i>approved</i> tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm), and every screen door used for insect control shall have a self-closing device in good working condition.</p> <p>Exception: Screens shall not be required where other <i>approved</i> means, such as air curtains or insect repellent fans, are employed.</p>	<p>Insect screens. During the period from [DATE] to [DATE], Every door, window and other outside opening required for <i>ventilation</i> of habitable rooms, food preparation areas, food service areas or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored shall be supplied with <i>approved</i> tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm), and every screen door used for insect control shall have a self-closing device in good working condition.</p> <p>Exception: Screens shall not be required where other <i>approved</i> means, such as air curtains or insect repellent fans, are employed.</p>
Section 305 – Interior Structure		
305.1.1	<p>Unsafe conditions. The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the <i>International Building Code</i> or the <i>International Existing Building Code</i> as required for existing buildings:</p> <ol style="list-style-type: none"> 1. The nominal strength of any structural member is exceeded by nominal loads, the load effects or the 	<p>Unsafe conditions. The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the <i>International Building Code</i> or the <i>International Existing Building Code</i> as required for existing buildings:</p> <ol style="list-style-type: none"> 1. The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required

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	<p>required strength;</p> <ol style="list-style-type: none"> 2. The anchorage of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects; 3. Structures or components thereof that have reached their limit state; 4. Structural members are incapable of supporting nominal loads and load effects; 5. Stairs, landings, balconies and all similar walking surfaces, including <i>guards</i> and handrails, are not structurally sound, not properly <i>anchored</i> or are <i>anchored</i> with connections not capable of supporting all nominal loads and resisting all load effects; 6. Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly <i>anchored</i> or are not capable of supporting all nominal loads and resisting all load effects. <p>Exceptions:</p> <ol style="list-style-type: none"> 1. When substantiated otherwise by an <i>approved</i> method. 2. Demolition of unsafe conditions shall be permitted when <i>approved</i> by the <i>code official</i>. 	<p>strength;</p> <ol style="list-style-type: none"> 2. The anchorage of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects; 3. Structures or components thereof that have reached their limit state; 4. Structural members are incapable of supporting nominal loads and load effects; 5. Stairs, landings, balconies and all similar walking surfaces, including <i>guards</i> and handrails, are not structurally sound, not properly <i>anchored</i> or are <i>anchored</i> with connections not capable of supporting all nominal loads and resisting all load effects; 6. Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly <i>anchored</i> or are not capable of supporting all nominal loads and resisting all load effects. <p>Exceptions:</p> <ol style="list-style-type: none"> 1. When substantiated otherwise by an <i>approved</i> method. 2. Demolition of unsafe conditions shall be permitted when <i>approved</i> by the <i>code official</i>.
Section 308 – Rubbish and Garbage		
308.3.1	<p>Garbage facilities. The <i>owner</i> of every dwelling shall supply one of the following: an <i>approved</i> mechanical food waste grinder in each <i>dwelling unit</i>; an <i>approved</i> incinerator unit in the structure available to the <i>occupants</i> in each <i>dwelling unit</i>; or an <i>approved</i> leakproof, covered, outside garbage container.</p>	<p>Garbage facilities. The <i>owner</i> of every dwelling shall supply one of the following: an <i>approved</i> mechanical food waste grinder in each <i>dwelling unit</i>; an <i>approved</i> incinerator unit in the structure available to the <i>occupants</i> in each <i>dwelling unit</i>; or an <i>approved</i> leakproof, covered, outside garbage container.</p>

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 402 - Light		
402.2	Common halls and stairways. Every common hall and stairway in residential occupancies, other than in one- and two-family dwellings, shall be lighted at all times with at least a 60-watt standard incandescent light bulb for each 200 square feet (19 m ²) of floor area or equivalent illumination, provided that the spacing between lights shall not be greater than 30 feet (9144 mm). In other than residential occupancies, means of egress, including exterior means of egress, stairways shall be illuminated at all times the building space served by the means of egress is occupied with a minimum of 1 footcandle (11 lux) at floors, landings and treads.	Common halls and stairways. Every common hall and stairway in residential occupancies, other than in one- and two-family dwellings, shall be lighted at all times with at least a 60-watt standard incandescent light bulb for each 200 square feet (19 m ²) of floor area or equivalent illumination, provided that the spacing between lights shall not be greater than 30 feet (9144 mm). In other than residential occupancies, means of egress, including exterior means of egress, stairways shall be illuminated at all times the building space served by the means of egress is occupied with a minimum of 1 footcandle (11 lux) at floors, landings and treads.

CHAPTER 5 – PLUMBING FACILITIES AND FIXTURE REQUIREMENTS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 506 – Sanitary Drainage System		
506.3	Grease interceptors. Where it has been determined that a grease interceptor is not being maintained and serviced as intended by this code and the manufacturer's instructions, an <i>approved</i> interceptor monitoring system shall be provided or a maintenance program shall be established with documentation submitted to the <i>code official</i> .	Grease interceptors. Where it has been determined that a grease interceptor is not being maintained and serviced as intended by this code and the manufacturer's instructions, an <i>approved</i> interceptor monitoring system shall be provided or a maintenance program <u>as approved by the Abu Dhabi Sewage Services Company</u> shall be established with documentation submitted to the <i>code official</i> .

CHAPTER 6 – MECHANICAL AND ELECTRICAL REQUIREMENTS (ADOPTED AS AMENDED BELOW)

Section	Original Code Language	Abu Dhabi Adopted Code Language
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Section	Original Code Language	Abu Dhabi Adopted Code Language
Section 602 – Heating Facilities		
602.1	Facilities required. Heating facilities shall be provided in structures as required by this section.	Facilities required. Heating facilities, <u>if installed</u> , shall be provided <u>maintained</u> in structures as required by <u>the building code section 1204.1 and</u> this section.
602.2	Residential occupancies. Dwellings shall be provided with heating facilities capable of maintaining a room temperature of 68°F (20°C) in all habitable rooms, <i>bathrooms</i> and <i>toilet rooms</i> based on the winter outdoor design temperature for the locality indicated in Appendix D of the <i>International Plumbing Code</i> . Cooking appliances shall not be used to provide space heating to meet the requirements of this section. Exception: In areas where the average monthly temperature is above 30°F (-1°C), a minimum temperature of 65°F (18°C) shall be maintained.	Residential occupancies. Dwellings shall be provided with heating facilities <u>previously installed shall remain</u> capable of maintaining a room temperature of 68°F (20°C) in all habitable rooms, <i>bathrooms</i> and <i>toilet rooms</i> based on the winter outdoor design temperature for the locality indicated in Appendix D of the <i>International Plumbing Code</i> . Cooking appliances shall not be used to provide space heating to meet the requirements of this section. Exception: In areas where the average monthly temperature is above 30°F (-1°C), a minimum temperature of 65°F (18°C) shall be maintained.
602.3	Heat supply. Every <i>owner</i> and <i>operator</i> of any building who rents, leases or lets one or more <i>dwelling units</i> or <i>sleeping units</i> on terms, either expressed or implied, to furnish heat to the <i>occupants</i> thereof shall supply heat during the period from [DATE] to [DATE] to maintain a temperature of not less than 68°F (20°C) in all habitable rooms, <i>bathrooms</i> and <i>toilet rooms</i> . Exceptions: 1. When the outdoor temperature is below the winter outdoor design temperature for the locality, maintenance of the minimum room temperature shall not be required provided that the heating system is operating at its full design capacity. The winter outdoor design temperature	Heat supply. Every <i>owner</i> and <i>operator</i> of any building who rents, leases or lets one or more <i>dwelling units</i> or <i>sleeping units</i> on terms, either expressed or implied, to furnish heat to the <i>occupants</i> thereof shall supply heat during the period from [DATE] to [DATE] <u>so as</u> to maintain a temperature of not less than 68°F (20°C) in all habitable rooms, <i>bathrooms</i> and <i>toilet rooms</i> . Exceptions: 1. When the outdoor temperature is below the winter outdoor design temperature for the locality, maintenance of the minimum room temperature shall not be required provided that the heating system is operating at its full design capacity. The winter outdoor design temperature for the

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	<p>for the locality shall be as indicated in Appendix D of the <i>International Plumbing Code</i>.</p> <p>2. In areas where the average monthly temperature is above 30°F (-1°C) a minimum temperature of 65°F (18°C) shall be maintained.</p>	<p>locality shall be as indicated in Appendix D of the <i>International Plumbing Code</i>.</p> <p>2. In areas where the average monthly temperature is above 30°F (-1°C) a minimum temperature of 65°F (18°C) shall be maintained.</p>
602.4	<p>Occupiable work spaces. Indoor occupiable work spaces shall be supplied with heat during the period from [DATE] to [DATE] to maintain a temperature of not less than 65°F (18°C) during the period the spaces are occupied.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Processing, storage and operation areas that require cooling or special temperature conditions. 2. Areas in which persons are primarily engaged in vigorous physical activities. 	<p>Occupiable work spaces. Indoor occupiable work spaces <u>heating systems, if installed shall be supplied with heat during the period from [DATE] to [DATE] to capable of maintaining</u> a temperature of not less than 65°F (18°C) during the period the spaces are occupied.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Processing, storage and operation areas that require cooling or special temperature conditions. 2. Areas in which persons are primarily engaged in vigorous physical activities.
Section 604 – Electrical Facilities		
604.1	<p>Facilities required. Every occupied building shall be provided with an electrical system in compliance with the requirements of this section and Section 605.</p>	<p>Facilities required. Every occupied building shall be provided with an electrical system in compliance with the requirements of this section, and Section 605 <u>and The Electricity Wiring Regulations 2007, Revision 1, dated January, 2009, as promulgated by the Regulation and Supervision Bureau, Emirate of Abu Dhabi.</u></p> <p><u>Wherein this section and section 605 conflicts with the Electricity Wiring Regulations 2007, Revision 1, dated January, 2009 may exist, the provisions of the Electricity Wiring Regulations 2007, Revision 1, dated January, 2009 shall apply.</u></p>
604.2	<p>Service. The size and usage of appliances and equipment</p>	<p>Service. The size and usage of appliances and equipment</p>

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	shall serve as a basis for determining the need for additional facilities in accordance with NFPA 70. <i>Dwelling units</i> shall be served by a three-wire, 120/240 volt, single-phase electrical service having a rating of not less than 60 amperes.	shall serve as a basis for determining the need for additional facilities in accordance with NFPA 70. <i>Dwelling units</i> shall be served by a three-wire, 120/240 volt, single-phase electrical service having a rating of not less than 60 amperes.

CHAPTER 7 – FIRE SAFETY REQUIREMENTS (ADOPTED, NO AMENDMENTS)

CHAPTER 8 – REFERENCED STANDARDS (ADOPTED, NO AMENDMENTS)

APPENDIX A – BOARDING STANDARD (NOT ADOPTED)



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