



**INTERNATIONAL
ENERGY CONSERVATION CODE®
NEW JERSEY
EDITION**

2006

International Energy Conservation Code 2006, New Jersey Edition

First Printing

ISBN-13: 978-1-58001-516-5
ISBN-10: 1-58001-518-2

Publication Date: March 2007

COPYRIGHT© 2007
by
INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This *International Energy Conservation Code 2006, New Jersey Edition* contains substantial copyrighted material from the 2006 *International Energy Conservation Code*, Second Printing, which are copyrighted works owned by the International Code Council, Inc. Without advance written permission from the copyright owner, no part of this book may be reproduced, distributed or transmitted in any form or by any means, including, without limitation, electronic, optical or mechanical means (by way of example and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on permission to copy material exceeding fair use, please contact: Publications, 4051 West Flossmoor Road, Country Club Hills, IL 60478. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: "International Code Council," the "International Code Council" logo and the "International Energy Conservation Code" are trademarks of the International Code Council, Inc.

PRINTED IN THE U.S.A.

PREFACE

Introduction

Internationally, code officials recognize the need for a modern, up-to-date energy conservation code addressing the design of energy-efficient building envelopes and installation of energy efficient mechanical, lighting and power systems through requirements emphasizing performance. The *International Energy Conservation Code*[®], in this 2006 edition, is designed to meet these needs through model code regulations that will result in the optimal utilization of fossil fuel and nondepletable resources in all communities, large and small.

This comprehensive energy conservation code establishes minimum regulations for energy efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new energy efficient designs. This 2006 edition is fully compatible with all the *International Codes*[®] (I-Codes[®]) published by the International Code Council (ICC)[®], including: the *International Building Code*[®], *International Code Council Electrical Code Administrative Provisions*, *International Existing Building Code*[®], *International Fire Code*[®], *International Fuel Gas Code*[®], *International Mechanical Code*[®], *ICC Performance Code*[®], *International Plumbing Code*[®], *International Private Sewage Disposal Code*[®], *International Property Maintenance Code*[®], *International Residential Code*[®], *International Wildland-Urban Interface Code*[™] and *International Zoning Code*[®].

The *International Energy Conservation Code* provisions provide many benefits, among which is the model code development process that offers an international forum for energy professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

Development

The first edition of the *International Energy Conservation Code* (1998) was based on the 1995 edition of the *Model Energy Code* promulgated by the Council of American Building Officials (CABO) and included changes approved through the CABO Code Development Procedures through 1997. CABO assigned all rights and responsibilities to the International Code Council and its three statutory members at that time, including Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI). This 2006 edition presents the code as originally issued, with changes reflected in the 2003 edition and further changes approved through the ICC Code Development Process through 2005. A new edition such as this is promulgated every three years.

This code is founded on principles intended to establish provisions consistent with the scope of an energy conservation code that adequately conserves energy; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

Adoption

The *International Energy Conservation Code* is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's laws. At the time of adoption, jurisdictions should insert the appropriate information in provisions requiring specific local information, such as the name of the adopting jurisdiction. These locations are shown in bracketed words in small capital letters in the code and in the sample ordinance. The sample adoption ordinance on page v addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

Maintenance

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

The contents of this work are subject to change both through the Code Development Cycles and the governmental body that enacts the code into law. For more information regarding the code development process, contact the Code and Standard Development Department of the International Code Council.

While the development procedure of the *International Energy Conservation Code* assures the highest degree of care, ICC, its members and those participating in the development of this code do not accept any liability resulting from compliance or noncompliance with the provisions because ICC and its members do not have the power or authority to police or enforce compliance with the contents of this code. Only the governmental body that enacts the code into law has such authority.

Letter Designations in Front of Section Numbers

In each code development cycle, proposed changes to this code are considered at the Code Development Hearing by the International Energy Conservation Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section whose number begins with a letter in brackets are considered by a different code development committee. For instance, proposed changes to code sections which have the letter [EB] in front (e.g., [EB] 101.2.2.1), are considered by the International Existing Building Code Development Committee at the Code Development Hearing. Where this designation is applicable to the entire content of a main section of the code, the designation appears at the main section number and title and is not repeated at every subsection in that section.

The content of sections in this code which begin with a letter designation is maintained by another code development committee in accordance with the following:

- [B] = International Building Code Development Committee;
- [EB] = International Existing Building Code Development Committee; and
- [M] = International Mechanical Code Development Committee.

TABLE OF CONTENTS

- CHAPTER 1 ADMINISTRATION 1**
 - Section
 - 101 Scope and General Requirements..... 1
 - 102 Materials, Systems and Equipment..... 1
 - 103 Alternate Materials—Method of Construction, Design or Insulating Systems..... 2
 - 104 Deleted
 - 105 Deleted
 - 106 Deleted
 - 107 Referenced Standards 2

- CHAPTER 2 DEFINITIONS 3**
 - Section
 - 201 General..... 3
 - 202 General Definitions 3

- CHAPTER 3 CLIMATE ZONES..... 7**
 - Section
 - 301 Climate Zones 7

- CHAPTER 4 RESIDENTIAL ENERGY EFFICIENCY 9**
 - Section
 - 401 General..... 9
 - 402 Building Thermal Envelope 9
 - 403 Systems 11
 - 404 Simulated Performance Alternative 11

- CHAPTER 5 COMMERCIAL ENERGY EFFICIENCY 19**
 - Section
 - 501 General..... 19

- CHAPTER 6 REFERENCED STANDARDS 21**

- INDEX..... 23**

This is a preview of "ICC NJ-IECC-2006". [Click here to purchase the full version from the ANSI store.](#)

CHAPTER 1 ADMINISTRATION

SECTION 101 SCOPE AND GENERAL REQUIREMENTS

101.1 Title. Deleted.

101.2 Scope. This code applies to residential and commercial buildings.

101.3 Intent. This code shall regulate the design and construction of buildings for the effective use of energy. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

101.4 Applicability.

101.4.1 Existing buildings. Deleted.

101.4.2 Historic buildings. Deleted.

101.4.3 Additions, alterations, renovations or repairs. Deleted.

101.4.4 Change in occupancy. Deleted.

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

101.5 Compliance. Residential buildings shall meet the provisions of Chapter 4. Commercial buildings shall meet the provisions of Chapter 5.

101.5.1 Compliance materials. The code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

101.5.2 Low energy buildings. The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h-ft² (10.7 W/m²) or 1.0 watt/ft² (10.7 W/m²) of floor area for space conditioning purposes.
2. Those that do not contain conditioned space.

101.5.3 Residential high-efficiency mechanical tradeoff. Residential buildings provided with high-efficiency equipment (90 percent AFUE for furnaces, 85 percent AFUE for boilers and 8.0 HSPF for air source heat pumps) throughout shall be exempt from the requirement to insulate basement walls. Code requirements for other envelope components must meet the component performance approach requirements of Chapter 4.

SECTION 102 MATERIALS, SYSTEMS AND EQUIPMENT

102.1 Identification. Materials, systems and equipment shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this code.

102.1.1 Building thermal envelope insulation. An *R*-value identification mark shall be applied by the manufacturer to each piece of building thermal envelope insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and *R*-value of insulation installed in each element of the building thermal envelope. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled *R*-value, installed density, coverage area and number of bags installed shall be listed on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and *R*-value of installed thickness shall be listed on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

102.1.1.1 Blown or sprayed roof/ceiling insulation. The thickness of blown in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be written in inches (mm) on markers that are installed at least one for every 300 square feet (28 m²) throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers a minimum of 1 inch (25 mm) in height. Each marker shall face the attic access opening. Spray polyurethane foam thickness and installed *R*-value shall be listed on certification provided by the insulation installer.

102.1.2 Insulation mark installation. Insulating materials shall be installed such that the manufacturer's *R*-value mark is readily observable upon inspection.

102.1.3 Fenestration product rating. *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled *U*-factor shall be assigned a default *U*-factor from Table 102.1.3(1) or 102.1.3(2). The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled SHGC shall be assigned a default SHGC from Table 102.1.3(3).

This is a preview of "ICC NJ-IECC-2006". Click here to purchase the full version from the ANSI store.

**TABLE 102.1.3(1)
DEFAULT GLAZED FENESTRATION U-FACTOR**

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKYLIGHT	
			Single	Double
Metal	1.20	0.80	2.00	1.30
Metal with Thermal Break	1.10	0.65	1.90	1.10
Nonmetal or Metal Clad	0.95	0.55	1.75	1.05
Glazed Block	0.60			

**TABLE 102.1.3(2)
DEFAULT DOOR U-FACTORS**

DOOR TYPE	U-FACTOR
Uninsulated Metal	1.20
Insulated Metal	0.60
Wood	0.50
Insulated, nonmetal edge, max 45% glazing, any glazing double pane	0.35

**TABLE 102.1.3(3)
DEFAULT GLAZED FENESTRATION SHGC**

SINGLE GLAZED		DOUBLE GLAZED		GLAZED BLOCK
Clear	Tinted	Clear	Tinted	
0.8	0.7	0.7	0.6	0.6

102.2 Installation. All materials, systems and equipment shall be installed in accordance with the manufacturer’s installation instructions and the *International Building Code*.

102.2.1 Protection of exposed foundation insulation. Insulation applied to the exterior of basement walls, crawl-space walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation’s thermal performance. The protective covering shall cover the exposed exterior insulation and extend a minimum of 6 inches (153 mm) below grade.

102.3 Maintenance information. Deleted.

**SECTION 103
ALTERNATE MATERIALS—METHOD
OF CONSTRUCTION, DESIGN
OR INSULATING SYSTEMS**

103.1 General. This code is not intended to prevent the use of any material, method of construction, design or insulating system not specifically prescribed herein, provided that such construction, design or insulating system has been approved by the code official as meeting the intent of this code.

103.1.1 Above code programs. The code official or other authority having jurisdiction shall be permitted to deem a

national, state or local energy efficiency program to exceed the energy efficiency required by this code. Buildings approved in writing by such an energy efficiency program shall be considered in compliance with this code.

**SECTION 104
CONSTRUCTION DOCUMENTS
Deleted**

**SECTION 105
INSPECTIONS
Deleted**

**SECTION 106
VALIDITY
Deleted**

**SECTION 107
REFERENCED STANDARDS**

107.1 General. The standards, and portions thereof, referred to in this code and listed in Chapter 6 shall be considered part of the requirements of this code to the extent of such reference.

107.2 Conflicting requirements. Where the provisions of this code and the referenced standards conflict, the provisions of this code shall take precedence.

CHAPTER 2

DEFINITIONS

SECTION 201 GENERAL

201.1 Scope. Unless stated otherwise, the following words and terms in this code shall have the meanings indicated in this chapter.

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

201.3 Terms defined in other codes. Terms that are not defined in this code but are defined in the *International Building Code*, *National Electrical Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *National Standard Plumbing Code*, or the *International Residential Code* shall have the meanings ascribed to them in those codes.

201.4 Terms not defined. Terms not defined by this chapter shall have ordinarily accepted meanings such as the context implies.

SECTION 202 GENERAL DEFINITIONS

ABOVE GRADE WALL. A wall more than 50 percent above grade and enclosing conditioned space. This includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, walls enclosing a mansard roof, and skylight shafts.

ACCESSIBLE. Admitting close approach as a result of not being guarded by locked doors, elevation or other effective means (see "Readily accessible").

ALTERATION. Any construction or renovation to an existing structure other than repair or addition that requires a permit. Also, a change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit.

APPROVED. Approval by the code official as a result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by nationally recognized organizations.

AUTOMATIC. Self-acting, operating by its own mechanism when actuated by some impersonal influence, as, for example, a change in current strength, pressure, temperature or mechanical configuration (see "Manual").

BASEMENT WALL. A wall 50 percent or more below grade and enclosing conditioned space.

BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floor, roof, and any other building element that enclose conditioned space. This boundary also includes the

boundary between conditioned space and any exempt or unconditioned space.

COMMERCIAL BUILDING. For this code, all buildings that are not included in the definition of "Residential buildings."

CONDITIONED FLOOR AREA. The horizontal projection of the floors associated with the conditioned space.

CONDITIONED SPACE. An area or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space.

CRAWL SPACE WALL. The opaque portion of a wall that encloses a crawl space and is partially or totally below grade.

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

DUCT. A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

ECONOMIZER, AIR. A duct and damper arrangement and automatic control system that allows a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

ECONOMIZER, WATER. A system where the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

ENERGY ANALYSIS. A method for estimating the annual energy use of the proposed design and standard reference design based on estimates of energy use.

ENERGY COST. The total estimated annual cost for purchased energy for the building functions regulated by this code, including applicable demand charges.

ENERGY RECOVERY VENTILATION SYSTEM. Systems that employ air-to-air heat exchangers to recover energy from exhaust air for the purpose of preheating, precooling, humidifying or dehumidifying outdoor ventilation air prior to supplying the air to a space, either directly or as part of an HVAC system.

ENERGY SIMULATION TOOL. An approved software program or calculation-based methodology that projects the annual energy use of a building.

ENTRANCE DOOR. Fenestration products used for ingress, egress and access in nonresidential buildings, including, but