

# NYC Energy Conservation Code

## Residential New Buildings



Photo: Samantha Modell

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**The NYC Energy Conservation Code (NYCECC or Energy Code) governs new building and alteration applications. This guide focuses on new residential buildings up to three stories.**

**A Department of Buildings plan examination includes review for Energy Code compliance, including the proposed building's: thermal envelope; heating systems; and permanently installed lighting and power systems. Applicants may demonstrate compliance by using REScheck software or DOE2 energy modeling software.**

### **Building Envelope**

The Energy Code provides minimum standard requirements for thermal insulation of building walls, floors, roofs, windows, skylights and doors. The building envelope must also be properly air-sealed and moisture-protected from condensation.

### **Heating and Service Hot Water Systems**

Heating and service hot water systems must comply with minimum efficiency ratings and must be correctly sized. Ducts and system piping must be properly insulated and sealed, and shut-off dampers must be provided where the building envelope is penetrated.

### **Lighting and Power**

In residential buildings, 50% of all permanent light fixtures must use high-efficacy lamps, and each dwelling unit must be separately metered to track electricity consumption.

***For complete and current information, please refer to the NYC Energy Conservation Code, as this guide provides only provide a brief overview of the compliance requirements.***

***To learn more, visit the Department's [Energy Code Guideline](#) page in the Codes & Reference section at [nyc.gov/buildings](http://nyc.gov/buildings). You may also email questions to [EnergyCode@buildings.nyc.gov](mailto:EnergyCode@buildings.nyc.gov).***

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### FIRST STEPS

#### Determine if the project is for a Residential New Building (Energy Conservation Construction Code of New York State 202)

Any residential building up to three stories – 2011 NYCECC, Chapter 4

#### Determine Scope of Work

1. Identify building thermal envelope and whether it is continuous
2. Identify heating system(s)
3. Identify lighting and power system(s)

#### Applicable Exemptions

Envelope of low-energy buildings

#### Acceptable Codes

The code elected at initial filing remains in effect for the life of the application:

1. 2007 ECCNYS, modified by 2009 NYCECC (*applications filed between 7/1/2010 – 12/27/2010*); or
2. 2011 NYCECC, 2010 ECCNYS with modifications (*applications filed after 12/28/2010*)

### ADMINISTRATIVE

#### DOB Forms

- **PW1**: Section 10 (complies or is exempt), Section 11 (related applications)
- **PW1C**: For boilers greater than 350,000 Btu
- **TR1**: Progress inspection item Energy Code Compliance Inspections
- **TR8**: Energy Code progress inspections
- **EN1**: Scanned on plans (only for energy modeling using DOE2 software)

#### Technical Documents

- N/A

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### Related Applications

- PW1, Section 11: Related application numbers and, when not yet filed, indicate the disciplines to be filed and by whom
- Other disciplines may be filed under subsequent documents

### BIS Required Items

- Check current Department of Buildings Rules, Bulletins and Service Notices
- All required work types have been filed

## PROFESSIONAL STATEMENT

### Applicant's Statement of Compliance or Exemption from NYCECC

PW1, Section 10: Properly checked "in compliance" or "exempt" for the correct reasons – 1 RCNY 5000-1(e)

## ENERGY ANALYSIS

*All of the following methods of analysis are acceptable:*

### REScheck:

- Analysis accounts for the entire project, even if other disciplines are filed under separate documents or applications
- Analysis indicates correct property address and site information
- Analysis worksheets:
  - Are scanned onto plans, signed and sealed
  - Indicate correct code version
  - Account for all building thermal envelope, heating system and lighting system components proposed
  - Indicate that proposal passes

### Simulated Performance Alternative

- EN1: Scanned on the plans

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### SUPPORTING DOCUMENTATION

*Drawings correspond to each item applicable and as indicated in the Energy Analysis:*

#### Permanent Certificate

- Location of permanent certificate to be identified on drawings – NYCECC 401.3

#### Envelope

- Identify thermal envelope and whether it is continuous
- Drawings indicate:
  - Insulation R or U values for below- and above-grade walls and wall assemblies, slabs on grade, floors and roof assemblies – NYCECC 402
  - Access hatches to unconditioned attic and crawl spaces that are insulated and weather-stripped – NYCECC 402.2.3
  - Party walls in attached buildings are properly insulated and air-sealed – NYCECC 402.2.12
  - Fenestration U values for doors, windows and skylights – NYCECC 402.3
  - Specific provisions for air leakage – NYCECC 402.4

#### Heating Systems

- Controls narrative for alternating systems – determination required
- Drawings indicate:
  - Location of thermostat(s) for each separate system – NYCECC 403.1
  - Provisions for duct insulation and sealing – NYCECC 403.2
  - Provisions for mechanical system piping insulation – NYCECC 403.3
  - Circulating hot water systems are insulated to at least R-2 and include a shut-off switch – NYCECC 403.4
  - Mechanical ventilation intakes and exhausts have shut-off dampers – NYCECC 403.5
  - Heating load calculations for deriving correct equipment size – NYCECC 403.6
  - Specific provisions for snow-melt systems and pools where applicable

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– NYCECC 403.8, 403.9

### Electrical Power and Lighting Systems

Drawings indicate:

- That at least 50% of lamps in permanently installed lighting fixtures are high-efficacy – NYCECC 404.1
- That each dwelling unit is fitted with a separate electrical meter or sub-meter – NYCECC 404.2

### Progress Inspections

- Progress inspection tables and construction scheduling requirements shown on drawings

*The following progress inspections are required in most filings, must be indicated on the TR8 form and presented in tabular format on the drawings – 1 RCNY 5000-01, Table 1:*

- IA1) Protection of foundation insulation
- IA2) Insulation placement and R-values
- IA3) Fenestration thermal values and ratings
- IA4) Fenestration ratings for air leakage
- IA5) Fenestration areas
- IA6) Air sealing and insulation – visual
- IA7) Air sealing and insulation – testing
- IB1) Fireplaces
- IB2) Dampers integral to building envelope
- IB3) HVAC and service water heating equipment
- IB4) HVAC and service water heating system controls
- IB5) Duct plenum and piping insulation and sealing
- IB6) Duct leakage testing
- IC1) Electrical metering
- IC2) Lighting in dwelling units
- ID1) Maintenance information
- ID2) Permanent certificate

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The above list is not comprehensive; see 1 RCNY 5000-01 for a complete list of inspections that may be applicable. Construction scheduling requirements for the above progress inspections must be provided on the drawings in the form of notes.