

NYC Energy Conservation Code

Residential Alterations



Photo: Samantha Modell

NYC Energy Conservation Code

Alterations Type 1, 2 and 3

Existing residential buildings include any building that is used for residential purposes and is up to three stories high. Alterations that would affect the building's thermal envelope, heating systems or permanently installed lighting must comply with the New York City Energy Conservation Code (NYCECC or Energy Code). The proposed project's registered architect or licensed, professional engineer can demonstrate compliance with the Energy Code by submitting a tabular analysis. For alterations that include additions, the design professional can also use REScheck software if a full building analysis is provided.

Building Envelope

The portion of a structure to be altered must comply with the Energy Code. The Energy Code sets 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. They should be properly sized. Ducts and system piping should be properly insulated and sealed. Shut-off dampers should be provided where the building envelope is penetrated. Any full- or partial-replacement of components must comply with the Energy Code.

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 for electricity consumption.

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

For complete and current information, please refer to the NYCECC, as this guide provides only provide a brief overview of the compliance requirements.

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FIRST STEPS

Determine if Residential Building (ECCNYS 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 affected
2. Identify heating systems and whether they are affected
3. Identify lighting and power systems and whether they are affected

Applicable Exemptions

1. Federal- or State-designated historic buildings
2. Envelope of low-energy buildings
3. Scope of work does not affect energy use of the building (temporary building, life safety work types: FA, FP, SD, SP or other work types: FS, EQ, CC, OT-BPP, OT-FPP)
4. Post-Approval Amendment (PAA) under a prior edition of the Energy Code

Acceptable Codes

The code elected at the time of initial filing remains in effect for the lifetime of the application.

1. 2007 Energy Conservation Construction Code of New York State, modified by 2009 NYCECC (applications filed between 7/1/2010 – 12/27/2010)
2. 2011 NYCECC, 2010 ECCNYS with modifications (applications filed after 12/28/2010)

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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

Related Applications

- PW1, Section 11 (related application numbers, and when not yet filed, indication what disciplines to be filed and by whom)
- Other disciplines may be filed under subsequent documents

BIS Required Items

- Post-Approval Amendment filed to resolve audit
- 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)

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ENERGY ANALYSIS

Tabular Analysis, REScheck or Simulated Performance Alternative of energy analysis are acceptable.

Tabular Analysis

- Indicate Code-prescribed values and compare to proposed values in tabular format
- Analysis is based on the correct code version
- Analysis accounts for all building thermal envelope, heating system and lighting system components proposed or modified
- Analysis indicates that all proposed values meet or exceed code prescribed efficiency values

REScheck:

- May be used for additions only, with full building analysis required
- Analysis:
 - Indicates correct property address and site information
 - Accounts for the entire project even if other disciplines are filed under separate documents or applications
- Analysis Worksheets:
 - Scanned onto plans, signed and sealed
 - Indicate correct code version (if this is an amendment, verify that previous documents used the same code version)
 - Account for all building thermal envelope, heating system and lighting system components proposed or modified
 - Indicate that proposal passes

Simulated Performance Alternative

- EN1 form is scanned on the plans

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SUPPORTING DOCUMENTATION

Drawings must correspond to each item applicable and as indicated in the energy analysis.

Envelope

- Identify thermal envelope and whether it is affected (it must be continuous)
- Drawings must 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
 - That 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 – NYCECC 103.2
- 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
 - Provisions for snow melt systems and pools where applicable – NYCECC 403.8, 403.9

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Electrical Power and Lighting Systems

- Drawings indicate that at least 50% of lamps in newly installed permanent lighting fixtures are high-efficacy – NYCECC 404.1
- Drawings indicate 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 applicable to most filings and must be indicated on the TR8 form and presented in tabular format on the drawings according to 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) Plenum and Piping Insulation and Sealing
- IB6) Duct Leakage Testing
- IC1) Electrical Metering
- IC2) Lighting in Dwelling Units
- ID1) Maintenance Information
- ID2) Permanent Certificate

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.