

## 1. Purpose

- To provide for a cleaner, more sustainable and energy-efficient New York City, the Buildings Department requires that all New Building or Alteration Type 1, 2 or 3 applications comply with the Energy Conservation Construction Code of New York State (ECCCNYS). The ECCCNYS sets minimum efficiency requirements for buildings.

***In Spring 2009, the Buildings Department will begin auditing New Building and Alteration applications for ECCCNYS compliance and, when appropriate, issuing objections and notices of revocation for applications that do not meet these requirements.***

## 2. Required Documents

To demonstrate ECCCNYS compliance, all New Building and Alteration Type 1, 2 and 3 applications must include:

- A Professional Statement;
- An Energy Analysis; and
- Supporting Documentation.

### A. Professional Statement

For applications filed *on or after* February 19, 2008 (using the new [PW1](#)):

The design professional must indicate in Section 10 of the PW1 that the application complies with the ECCCNYS.

If the project is exempt from ECCCNYS requirements, the design professional must indicate the exemption in Section 10 of the PW1 and cite the code section allowing exemption.

For applications filed *before* February 19, 2008 (using the old PW1):

The design professional must include and sign the following statement on the drawings provided with the Energy Analysis:

"To the best of my knowledge, belief and professional judgment, these plans

and specifications are in compliance with the Energy Conservation Construction Code of New York State."

If the project is exempt from ECCCNY requirements, the design professional must indicate on the drawings that the project is exempt and cite the code section allowing exemption.

When compliance with fire protection, detection, alarm and/or suppression requirements of Title 28 and/or the 2008 New York City Construction Codes conflicts with ECCCNY compliance, the Title 28 and/or 2008 Construction Codes safety provisions will take precedence over conflicting provisions in the ECCCNY in accordance with ECCC §101.6, and the applicant shall note such precedence on the PW1 or in the drawings.

**B. Energy Analysis**

The design professional must perform an Energy Analysis, which describes how the project complies with the ECCCNY.

For a new building, the Energy Analysis compares the proposed new building project with a "standard" building --- a building that has similar occupancy, massing, number of floors and area, but that complies with all prescriptive requirements of the ECCCNY -- and determines whether the proposed building will use less than or equal to the energy used by the standard building.

For an alteration, the Energy Analysis compares the values of each work scope element of the alteration project with the prescriptive values required by the ECCCNY for that element to determine whether the alteration uses less than or equal to the prescriptive requirements of the Energy Code.

l) **Residential Buildings** (Defined in ECCCNY as one- and two-family dwellings and multiple dwellings three stories or less.)

a. **New Buildings.**

The applicant shall use [REScheck](#) software, provided free by the US Department of Energy, for the 2007 New York State Energy Conservation Construction Code. (The 2002 edition is acceptable if the project was filed on or before October 15, 2008.) Page one of the four-page report must indicate that the project passes.

b. **Alterations.**

The applicant shall create a table entitled Energy Analysis, similar to the table below, and must clearly identify the climate zone. Each item of the scope of work shall be listed in the left column, the proposed design value shall be listed in the center column, and the prescriptive requirement in the code shall be listed in the right column, with citation.

**ENERGY ANALYSIS FOR ALTERATION - CLIMATE ZONE 4**

ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE PRESCRIPTIVE VALUE
Replace roof and add insulation (metal joist/truss)	R-49 cavity insulation	Minimum R-49 or R-38+3 cavity insulation (Table 402.2.4)
Replace window	U = 0.3 SHGC = 0.5	Maximum U-0.4 and SHGC NR (Table 402.1(1))
Add new lighting in a home office	1 watt/SF	NR
Boiler replacement (20-gallon gas boiler, 90,000 Btu/h)	90% efficiency AFUE	Minimum 82% efficiency AFUE (Table 403.7)
Any piping required for boiler (automatic circulating system)	R-2	Minimum R-2 (Sec. 403.3)

II) **Commercial buildings** (Defined in ECCCNY as any building that does not meet the definition of “residential” – includes but is not limited to multiple dwellings four stories or higher.)

a) **New Buildings.**

The applicant shall use one of the following, as applicable:

- i) [COMcheck](#) software, provided free by the US Department of Energy, for the 2007 New York State Energy Conservation Construction Code. (The 2002 edition is acceptable if the project was filed on or

before October 15, 2008.) Include the Envelope Compliance Certificate indicating the envelope passes, the Lighting Application Worksheet(s) indicating the lighting passes, and the Mechanical Compliance Certificate indicating the mechanical equipment and systems used. All elements of the report shall come from the same edition and run of the full report; or

- ii) [DOB Form EC1](#): For complex buildings requiring energy modeling more sophisticated than COMcheck, the Energy Cost Budget Worksheet (Form EC1) may be used to demonstrate compliance with ECCCNY. EC1 is available in the [Forms section of our website](#).

b) **Alterations.**

The applicant shall create a table entitled Energy Analysis, similar to the table below, and must clearly identify the climate zone. Each item of the scope of work shall be listed in the left column, the proposed design value shall be listed in the center column, and the prescriptive requirement in the code shall be listed in the right column, with citation.

**ENERGY ANALYSIS FOR ALTERATION - CLIMATE ZONE 11B**  
**See Chapter 3 of the ECCCNY for correct climate zone, based upon county.**

ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE PRESCRIPTIVE VALUE
Replace roof and add insulation (fenestration 20% of wall area; metal joist/truss)	R-30 cavity insulation + R-20 continuous insulation	Minimum R-25 cavity insulation + R-20 continuous insulation (Table 802.2(2))
Replace window (fenestration 20% of wall area; PF = 0)	U = 0.3 SHGC = 0.5	Maximum U-0.6 and SHGC 0.5 (Table 802.2(2))
Add new lighting in an office	1 watt/SF	Maximum 1.1 W/SF (Table 805.5.2)
Boiler replacement (20-gallon gas boiler,	90% efficiency <i>Et</i> , per required test procedure	Minimum 75% <i>Et</i> , tested by ANSI Z21.13 (Table

300,000 Btu/h, minimum capacity)		803.2.2(5), footnote e)
Any piping required for boiler, 1" pipe diameter (hot water)	1" of .27 Btu/inch/h x SF x deg F conductivity	Minimum 1" having conductivity of $\leq .27$ Btu/inch/h x SF x deg F (Table 803.3.7)

NOTE: In March, 2008, the State adopted the 2004 version of the reference standard, ASHRAE 90.1. All commercial applications for which the applicant is using ASHRAE 90.1 for any part of ECCCNYC compliance must use ASHRAE 90.1/2004.

- III) **Location.** The Energy Analysis shall be placed on a sheet in the drawing set for the **initial filing** of the project. Thus, if the architect files first, and the mechanical engineer files under a separate application number, the Energy Analysis must be included in the architect's drawing set and must include all disciplines, i.e. Envelope, HVAC, Lighting/Power.
- IV) **Lead professional.** Where the team elects to underperform the prescriptive requirements of the ECCCNYC in one discipline (e.g. Envelope), it must demonstrate that the underperformance is fully mitigated in the other disciplines (Mechanical, Lighting/Power) by having one professional sign and seal the entire Energy Analysis. This may require the use of energy modeling and the Energy Cost Budget Worksheet ([Form EC-1](#)).
- (V) **Professional responsible for single discipline.** Where each discipline complies with the respective prescriptive requirements of the ECCCNYC (Envelope, Mechanical, Lighting/Power Systems), each professional may sign and seal his/her respective required report. However, these must still be assembled on the Energy Analysis sheet in the **initial filing** drawing set, and they must all come from the same run of the software report.
- (VI) **Registered design professional other than the applicant of record.** If an energy consultant or other professional is used to prepare and sign compliance documents, including the Energy Analysis, such professional shall register with the department by filing a separate application indicating such role. Such professional may be designated either the lead

professional (paragraph IV above) or as a professional taking responsibility for one of the three prescriptively designed systems (Envelope, Mechanical, Lighting/Power) (paragraph V above).

### **C. Supporting Documentation**

Construction drawings must reflect the descriptions, areas and values shown in the Energy Analysis for all applicable disciplines – Envelope, HVAC and Lighting/Power. For the envelope, such descriptions and values shall be shown on building wall sections and door, window and skylight schedules. For lighting, reflected ceiling plans or lighting layouts on the floor plans must be provided, along with the descriptive information and values shown in the Energy Analysis, including for each space in the building all the lighting fixtures, the type, quantity and wattage of lamps in each fixture, the total wattage and the total square footage. (Lighting is not regulated by the Residential chapter, Chapter 4, and is not required to be shown in Residential drawings. Lighting is also not regulated within dwelling units of commercial multiple dwelling buildings, but is regulated within such buildings' common spaces.) For mechanical systems, all space heating and cooling equipment, service water heating equipment, economizer systems and heat recovery systems, controls and sensors shall be shown.

### **3. Applicability (ECCCNYS §101.4)**

In accordance with the ECCCNYS, the following buildings must comply with the noted provisions of the Code:

- One- and two-family residential buildings and all multiple dwellings of three stories or less must comply with Chapters 1, 2, 3, 4 and 10;
- All other buildings, including multiple dwellings four stories or higher (but excluding one- and two-family residences four stories or higher), must comply with Chapters 1, 2, 3, 8 and 10 (or ASHRAE 90.1/2004, as provided in §801.1 as amended);
- Except where explicitly stated in the Code, the ECCCNYS is not retroactive in existing buildings;
- Additions to existing buildings must comply with the ECCCNYS with respect to new construction;
- Alterations must comply with the Energy Code where 50% or more of any building system or subsystem, measured in appropriate units, is being replaced within any 12-month period, with some exceptions; and
- In mixed-use buildings, each major use shall comply with the requirements of its occupancy.

#### **4. Exempt Buildings (ECCCNYS §101.5.2)**

In accordance with the ECCCNYS, the following buildings are exempt from the Code provisions:

- Buildings with a peak design rate of energy usage less than 3.4 Btu/h/SF, or buildings that do not contain conditioned space, are exempt from the thermal envelope provisions only;
- Buildings whose energy usage is entirely supplied from renewable energy sources;
- Historic buildings (ECCCNYS §101.4. 3); and
- Non-residential farm buildings.

#### **5. Reconsiderations**

The applicant must obtain Code reconsiderations from the NYS Department of State prior to plan approval. The State does not authorize local jurisdictions to provide reconsiderations for ECCCNYS compliance.

#### **6. Construction**

Applicants shall update the Energy Analysis throughout construction when substitutions are made or plans are revised and shall demonstrate that compliance is maintained.

#### **7. Plan Examiners**

Plan examiners shall check for each professional's Professional Statement and Energy Analysis for the project. Examiners may look to determine the completeness of the work and the correctness of the Energy Analysis. Applications will be reviewed in detail by plan examiners trained as energy auditors and by Technical Affairs staff beginning in Spring, 2009.

#### **8. Additional Information**

##### **A. Technical Information and Training Opportunities**

The United States Department of Energy, the International Code Council and the New York State Department of State, among other sources, provide substantial information, guidance and training opportunities (including self-paced training) on their websites regarding energy-conserving design and the ECCCNYS. Please visit the following sites for more information:

- <http://www.eere.energy.gov/>
- <http://www.dos.state.ny.us/code/energycode/nyenergycode.htm>

- <http://www.energycodes.gov/training/>
- <http://www.iccsafe.org/training/>
- <http://www.ashrae.org/publications/detail/16056#>
- <http://www.energycodes.gov/training/presentations.stm>

**B. Code Availability**

The ECCCNY is available for purchase either at [CityStore](#) or at the website of the International Code Council. Visit <http://www.iccsafe.org> and click on [ICC Store](#), then on State and Local Codes. Be sure to purchase the current [New York State version](#).

NOTE: In March, 2008, the State updated this 2007 publication, adopting the 2004 version of ASHRAE 90.1 in place of the 2001 version as referenced in the published ECCCNY. Effective October 15, 2008, the Department enforces the use of ASHRAE 90.1/2004 edition when the applicant opts to use that standard.

**C. Software Availability**

Both [REScheck](#) and [COMcheck](#) software formats for the Energy Analysis are free from the [US Department of Energy](http://www.energycodes.gov/) website (<http://www.energycodes.gov/>). The interactive software may be downloaded or saved online. Be sure to obtain the New York State form and the 2007 edition.

**Please see our related sites and additional links under the Practice Green section of our website:**

- [Conserve Energy!](#)
- [Conserve Water!](#)
- [Green Building](#)
- [PlaNYC 2030](#)

View the [presentation](#) for Frequent Errors found in auditing for NYS Energy Code compliance.