

# **Proposed 2002 New York State Energy Conservation Construction Code**

## **Summary of Requirements**

### **Intent:**

To provide statewide uniform regulations for the design of building envelopes to ensure adequate thermal performance; and for the design and selection of mechanical, electrical, and lighting systems and equipment which will enable the efficient use of energy.

### **Chapter 1 - Administration and Enforcement**

#### **Application:**

All new and renovated public and private building construction in New York State.

#### **Exempt Buildings:**

1. Buildings that do not contain conditioned space
2. Building that peak design rate of energy use for all purposes < 3.4Btu/h per ft<sup>2</sup> (1.0 watt/ft<sup>2</sup>)
2. Historic buildings

#### **Additions:**

Additions alone shall conform to the provisions of the code.

#### **Substantial Alteration:**

When more than 50% of a building system is replaced (in 12 month period), the replaced portion shall comply with the code.

### **Chapter 2 - Definitions**

Where terms are not found in this section and are defined in the other codes (Building, Mechanical, Fire, etc). than they shall have the meaning as ascribed to them in those codes.

### **Chapter 3 - Design Conditions**

Data specific to New York State with weather data broken down by county.

**Basic Requirements for All Compliance Methods (Chapters 4 through 8)**

Basic requirements which apply to all buildings and additions regardless of compliance method used.

*The following are examples of basic requirements:*

A written statement on the construction documents that such plans or specifications are in compliance with the code

Moisture Control - vapor retarder having a maximum permeance rating of 1.0 perm

Recessed light Fixtures- when installed, recessed lighting fixtures shall meet one of three sealing requirements

Air Leakage - sealing and penetration requirements in the building envelope

Basic controls for lighting, HVAC and water heating systems

Equipment efficiencies for lighting, HVAC equipment and water heating equipment

Requirements for duct insulation, duct leakage and pipe insulation

Provide Operation and maintenance (O&M) manuals

Electrical power metering required for dwelling units

**Chapter 4 - Residential Building Design By System Analysis And Design Of Buildings Utilizing Renewable Energy Sources*****Building Energy Cost Budget Method***

The energy cost budget method allows trade-offs in performance from all elements of the building design except for basic requirements. This method provides the maximum design flexibility, but requires elaborate computer modeling of two buildings: a budget building and the proposed design. The proposed building is the building being designed. The budget building is like the proposed building, but it must meet either the prescriptive or system performance section of the code. Compliance with this method is accomplished if a proposed building design has an annual energy cost that is no higher than that of the budget building. Using this method, the designer can exceed any prescriptive or system performance requirement which allows for the most design flexibility.

**Chapter 5 - Residential Building Design By Component Performance Approach*****Building Envelope Compliance Method******Component Performance Approach***

The system performance allows trade-off within components of the envelope system. This method allows greater design flexibility than the prescriptive method, while being easier to apply than the energy cost budget method. A computer program models the building envelope as a system and allows trade-offs between different envelope components. A designer can increase window area for a higher insulation in the opaque wall. This method can be accomplished by utilizing either worksheets or computer software which will be freely available.

***Prescriptive Method***

The prescriptive method is component oriented and is the simplest most direct method of demonstrating compliance with the code. It include look-up tables with specific values that a particular building component must meet. This procedure is usually the fastest and easiest way to demonstrate compliance. The prescriptive requirements also the most stringent and less flexible of the compliance methods.

**Building Mechanical System and Equipment**

The requirements in this section must be met for all compliance paths.

Basic requirements include:

- \_\_\_ Heat Load Calculations - design parameters based on Chapter 3 "Design Conditions"
- \_\_\_ Thermostatic Controls - Setback Thermostats
- Humidistat Control limits- if used
- Duct and Piping distribution system, construction and insulation
- Equipment Efficiencies
- Balancing - system design shall provide a means for balancing air and water systems

**Service Water Heating**

The Code requires hot water conservation devices, pipe insulation, and temperature control, which also must be met regardless of the code compliance path met.

Basic requirements include:

- \_\_\_ Performance Efficiency
- Pipe insulation
- Requirements for combination service water/space heating boilers
- Swimming pools- covers for heated pools, time-clocks on pumps, on-off switch on pool heaters

**Electrical Power and Lighting**

Electrical power metering required for dwelling units

Lighting systems to meet more stringent provisions, more similar to current practice than existing code.

(Exception: one and two family dwelling units and dwelling portions of R-2, R-4 and townhouses)

Control Requirements - Bi-level switching, tandem wiring

Maximum Lighting Power - entire building method or portion of building method

Exterior Lighting - controls, minimum efficacy

**Chapter 6 - Simplified Prescriptive Requirements For Residential Buildings*****Prescriptive Method***

See Chapter 5 description for prescriptive method

## **Chapter 7 - Commercial & Residential Over 3 Stories**

Buildings shall meet the requirements of ASHRAE STANDARD 90.1-1999 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

*Prescriptive Method* - See Chapter 5 description for prescriptive method

*Building Energy Cost Budget Method* - See Chapter 4 description for Energy Cost Budget Method

*Building Mechanical Systems and Equipment*

*Service Water Heating*

*Electrical Power and Lighting*

## **Chapter 8 - Design By Acceptable Practice For Commercial Buildings**

*Envelope Prescriptive Method* - See Chapter 5 description for prescriptive method

*Building Mechanical Systems and Equipment*

\_\_\_ *Simple HVAC systems and equipment*

*Requirements that apply to Single zone unitary or packaged HVAC equipment and two-pipe heating system with no cooling:*

\_\_\_\_\_ *Equipment Sizing*  
\_\_\_\_\_ *Equipment performance*  
\_\_\_\_\_ *Controls*  
\_\_\_\_\_ *Ventilation*  
\_\_\_\_\_ *Economizers*  
\_\_\_\_\_ *Duct insulation and sealing*

\_\_\_ *Complex HVAC systems and equipment*

\_\_\_\_\_ *Requirements that apply to systems not covered in simple HVAC systems:*  
*Similar to simple requirements but more detailed*

*Service Water Heating*

Basic requirements include:

\_\_\_ *Performance Efficiency*  
\_\_\_ *Controls*  
\_\_\_ *Pipe insulation*

*Electrical Power and Lighting*

\_\_\_ Basic requirements include:

\_\_\_\_\_ Controls

\_\_\_\_\_ Tandem Wiring

Interior lighting Power Requirements

Exterior Lighting

Transformers

**Chapter 9 - Reference Standards**