



**TOWN OF ISLIP
DEPARTMENT OF
PLANNING AND DEVELOPMENT
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Islip, NY 11751**

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2017 COMMERCIAL ENERGY CODE REQUIREMENTS

(2017 NYS Uniform Code, NYS DOS BSC 2017 Uniform Code Supplement and
NYS DOS BSC 2017 Supplement to the NYSECCC all effective on October 31, 2017)

PART I – GUIDELINES FOR PLAN SUBMITTAL; APPLICABILITY OF THE COMMERCIAL 2015 IECC AND ASHRAE 90.1 AS PER THE NYS DOS BSC 2017 SUPPLEMENT TO THE NYSECCC:

The 2017 NYS DOS BSC SUPPLEMENT TO THE NYSECCC regulates the required energy code compliance for commercial buildings. As such, the SUPPLEMENT under Part 1 Commercial Provisions references the use of the 2015 IECC 2nd printing Commercial Provisions and the ASHRAE 90.1 2013, July 2014 printing. **The SUPPLEMENT must first be consulted as it amends both reference standards.** Each reference standard gives compliance choices. The SUPPLEMENT also allows the use of computer software as approved by the NY Secretary of State such as COMcheck (choose either 2015 IECC or ASHRAE 90.1 2013 including R occupancies 4 or more stories) or REScheck (for residential including R occupancies up to 3 stories).

Where a building has mixed use of residential and commercial, the appropriate section of the IECC shall apply with appropriate submittal documents; Residential and Commercial submittals are required as appropriate for the portion of the mixed use building.

For additions to, remodel/alterations to, repairs of, and change of occupancy or change in use of an existing commercial building, refer to the SUPPLEMENT for the amended section C501.4 of the 2015 IECC for application and lists specific requirements and exemptions. Generally a COMcheck is not required unless a building is being “guttled” – brought down to the structural framing and being totally renovated or windows are replaced.

PART II – INFORMATION ON CONSTRUCTION DOCUMENTS:

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted where *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and shall show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Compliance and details shall include, but are not limited to, the following as applicable:

- Compliance path information 3 types (must be specific which used)

- Any alternatives and exceptions used must be noted on the construction plans and compliance documents
- Lighting fixture schedule with wattage and control narrative
- Com- Check or software documentation if used made part of plans (software must be a single building analysis for the envelope, lighting and mechanical systems. Separate submissions will not be accepted)
- R-values of insulation used in thermal envelope
- Area weighted and or U-factors and SHGC of windows, doors, & skylights as cited in code
- Solar Heat Gain Coefficient calculations where required.
- HVAC heating and cooling load calculations & design criteria for system sizing including required efficiency and calculations for ventilation and outside air; duct construction and sealing and insulation R values and location
- Mechanical and water heating equipment, type, size, & efficiencies, including fans, piping insulation and R values and location
- Economizers, demand control ventilation, energy recovery, VAV, dedicated outdoor air and hydronic systems information and required controls**
- HVAC equipment and system controls, including fan motor horsepower and controls
- Location of daylight zones and required lighting controls on floor plans**
- Where applicable, mechanical systems that are required to comply for commissioning as outlined in the 2015 IECC and ASHRAE A90.1 2013 shall include a narrative explaining the commissioning requirements, testing, etc. prepared by the design professional on the mechanical, electrical and plumbing plans.
- Air barrier sealing compliance including details of construction, sealing and testing
- Service water heating equipment and system controls
- Interior and exterior lighting plan, wattage, &controls
- Other information pertinent to energy consumption of this project
- For 2017 NYSEC and COMcheck New York State show required Additional Efficiency Package and Air Barrier Options and same on plans. COMcheck check list shall be provided showing 100% completed.
- See 2017 NYSEC Supplement for application to **existing buildings** and additions

- R2, R3 and R4 buildings up to 3 stories shall use Residential compliance

C101.5.1.1 Mandatory provisions. The use of the software approach to demonstrate compliance does not excuse compliance with any mandatory provision of the 2015 IECC Commercial Provisions (as amended) or ASHRAE 90.1-2013 (as amended), as applicable. When using the software approach to demonstrate compliance with the provisions of the 2015 IECC Commercial Provisions (as amended), compliance with all applicable mandatory provisions of the 2015 IECC Commercial Provisions (as amended) will still be required, and when using the software approach to demonstrate compliance with ASHRAE 90.1-2013 (as amended), compliance with all applicable mandatory provisions of ASHRAE 90.1-2013 (as amended) will still be required. Show compliance on plans

C103.2.1 Building thermal envelope depiction. The *building's thermal envelope* shall be represented on the construction drawings.

C103.2.2 Written statement. When plans or specifications bear the seal and signature of a *registered design professional*, such *registered design professional* shall also include a written statement "that to the best of his or her knowledge, belief and professional judgment, such plans or specifications are in compliance with the *Energy Code*".

PART III – ENERGY FORMS/REPORTS TO SUBMIT:

A Building Permit Application Package shall include:

REQUIRED – The energy compliance documentation provided to TOI at the time of plan submittal shall **include on your code analysis sheet(s)** the Method of Energy Compliance being used.

1. 2015 IECC or ASHRAE 90.1-2013?
2. If 2015 IECC is chosen, which sub-compliance method will be used?
3. Prescriptive Path (C402 through C406), or Total Building Performance Path (C407)?
4. Will the Air Barrier Details be provided, or will there be a building pressure test?
5. If 2013 ASHRAE 90.1 is chosen, which sub-method will be used?
6. Prescriptive Path (See 5.2.1), or Energy Cost Budget Method (Section 11)?
7. For the IECC Prescriptive Path, indicate which *Additional Efficiency Package* is chosen and provided in design documents.

A commissioning plan shall be developed by a registered design professional and shall include the following: Mechanical, service water heating systems (SWH), and electrical systems. This includes requirements for air balancing, list of mechanical electrical and plumbing systems to be included in commissioning and functional testing of controls (mechanical, electrical and plumbing) to be included.

1. A narrative description of the activities that will be accomplished during each phase of *commissioning*, including the personnel intended to accomplish each of the activities.
2. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.
3. Functions to be tested including, but not limited to, calibrations and economizer controls.
4. Conditions under which the test will be performed. Testing shall affirm winter and summer design conditions and full outside air conditions.
5. Measurable criteria for performance.

Two copies of the commissioning plan shall be provided with the construction drawings.

REQUIRED - Provide an **energy analysis for the building design** (software printout showing energy compliance) based on the chosen compliance strategy.

The design itself must utilize the specific energy values indicated by the energy analysis. Mandatory sections of the 2015 IECC or ASHRAE 90.1-2013 must be complied with even if the energy analysis software printout passes without the design in compliance with a mandatory section. There are energy compliance software options, but the submittal package must include an energy analysis printout. The software used must be a DOE approved software from one of the following options:

1. **COMcheck** published by the US Department of Energy (DOE) based on the 2013 ASHRAE Standard 90.1 (COMcheck Windows Version 4.0.5.1)
2. **ComCheck** based on the 2015 IECC (COMcheck v 4.0.5.1)
3. **Other software that shall have been expressly approved in writing by the New York Secretary of State as acceptable for demonstrating compliance with the 2015 IECC Commercial Provisions (as amended) or, if applicable, for demonstrating compliance with ASHRAE 90.1-2013 (as amended)**

REQUIRED – *All energy compliance documentation must be signed, sealed, stamped and dated by the appropriate design professional.*

PART IV – RESPONSIBILITES FOR ENERGY REVIEW/INSPECTION AND SPECIFIC SUBMITTAL REQUIREMENTS:

The project Architect or Registered Design Professional in Responsible Charge will perform reviews/quality checks for the building design relating to energy compliance. The Architect will submit a required statement (or multiple statements from the designers, architect and engineers) that the item(s) under their responsibility were reviewed for energy compliance. Some individual energy related items ask for a number (percent/value) or a narrative be provided with the plans. Narratives must be submitted as a document in the submittal package referencing the appropriate drawing.

PART V – LIST OF MANDATORY REQUIREMENTS OF THE 2015 IECC OR ASHRAE 90.1-2013:

If ASHRAE 90.1-2013 is chosen, there is a **Prescriptive Path (Sections 5 through 10)** and a **Energy Cost Budget Method (Section 11) *as amended by the NYS DOS BSC 2017 Supplement To The NYSECCC.*** Designers must choose one or another;

Mandatory provisions of the **Energy Cost Budget Method (Section 11)** are:

- A. **Section 5.4 Thermal Envelope Mandatory Provisions:** Insulation, Fenestration, and Air Leakage
- B. **Section 6.4 HVAC Mandatory Provisions:** Minimum Efficiencies, Equipment Sizing, HVAC Controls, HVAC construction and Insulation, Walk-in Coolers and Freezers
- C. **Section 7.4 Service Water Heating Equipment:** Load Calculations, Equipment Efficiencies, Insulation, and Controls
- D. **Section 8.4 Electrical Mandatory Provisions:** Maximum voltage drop, Receptacle Control, Energy Monitoring; Low Voltage Dry Type Distribution Transformers
- E. **Section 9.4 Lighting Mandatory Provisions:** Lighting Controls (Interior and Exterior), Functional Testing

- F. **Section 10.4 Other Mandatory Provisions:** Electric Motors, Service Water Pressure Booster Systems, Elevators, Escalators and Moving Walkways, Whole Building Energy Monitoring
- G. **Energy Cost Budget** less than or equal to the Design Energy Cost (Software for Energy Cost Budget – DOE-2, BLAST, other software that complies with Section 11.4.1.1)

Mandatory Provisions of the ASHRAE 90.1-2013 Prescriptive Path are:

- A. **Section 5 Building Envelope;** Sections 5.1, 5.2, 5.4, 5.7, 5.8 and either Section 5.5 OR Section 5.6
- B. **Section 6 HVAC;** Sections 6.1, 6.2, 6.7, 6.8 and either Section 6.3 OR Section 6.4 and 6.5 or 6.4 and 6.6
- C. **Section 7 Service Water Heating;** Sections 7.1, 7.2, 7.4, 7.5,7.7, 7.8
- D. **Section 8 Electrical Power;** Sections 8.1, 8.2, 8.4, 8.7
- E. **Section 9 Lighting;** Sections 9.1, 9.2, 9.4, 9.7, and either Section 9.5 OR Section 9.6.

If the 2015 IECC path is Chosen, there is a **Prescriptive Path (Sections C402 through C406) and a Total Building Performance Path (Section C407) as amended by the NYS DOS BSC 2017 Supplement To The NYSECCC** . Designers must choose one or another.

Mandatory provisions of the Total Building Performance Path (Section C407) are:

- A. Section C402.5 Air Leakage
- B. Section 403.2 HVAC; Minimum Efficiencies, Equipment Sizing, HVAC Controls, Energy Recovery Ventilators, HVAC construction and Insulation, Fan Horsepower and Efficiencies, Walk-in Coolers and Freezers
- C. Section C404 Service Water Heating
- D. Section C405 Electrical Power and Lighting
- E. Section C407 Total Building Performance; Building Energy Costs shall be equal to or less than 85% of the standard reference building design
- F. Section C408 System Commissioning

Mandatory Provisions of the 2015 IECC Prescriptive Path are:

- A. All of Sections C402 through C405; Building Envelope, HVAC, Service Water Heating, Power and Lighting
- B. Commercial Buildings must comply with C406 Additional Efficiency Package (Chose one of 6 options)
- C. Tenant Spaces must comply with C406.1.1 (either one of the following)
- D. Where the shell building is not in compliance, tenant spaces must comply with one of the following additional energy efficiency packages:
 - a. C406.2; or C406.3; or C406.4; or C406.6; or C406.7
 - b. Where the shell building is in compliance, comply with C406.5 On-Site Renewable Energy

PART VI - COMMISSIONING REQUIREMENTS:

A New York State Licensed architect or engineer (*Registered Design Professional*) may perform commissioning and submit the **Preliminary Report of Commissioning** to the building owner or authorized agent.

A. The preliminary report should include an itemization of deficiencies found that have not been corrected by the time of the report, list of deferred tests not accomplished because of climatic conditions, and conditions necessary for scheduling of deferred tests. The report should address the following in particular:

- a. Mechanical, and service hot water commissioning – Air system balancing, hydronic systems balancing per C408.2.2.
- b. Functional Performance Testing of Equipment and Controls per C408.2.3.
- c. Lighting System Controls Functional Testing per C408.3.

B. **ASHRAE - Duct Leakage Test Results** - If applicable to the project. For ducts designed to operate in excess of 3 in water gauge and all ductwork outside conditioned space per Section C403.2.9.

C. **Pressure Testing of the Envelope Test Results** (under Section C402.5; if applicable).

The Preliminary Report of Commissioning shall be submitted by the Architect, Engineer or the certified commissioning agent. The items listed must address all the items in the Commissioning Plan submitted at the time of application. The preliminary commissioning report must be provided to the building owner or owner's agent. A letter of transmittal from the owner or agent verifying receipt of the preliminary commissioning report must be received by TOI prior to any Use & Occupancy inspections.

Final building occupancy approval shall not be granted until TOI receives a letter of transmittal from the building owner verifying receipt of the preliminary commissioning report. The Final Report of Commissioning is to be provided to the owner. **All documentation required by C408.2.5 shall be provided to the building owner or owner's agent within 90 days of occupancy. All reports shall be made available to DPS upon request.*

Final building occupancy approval shall not be granted until TOI receives COMcheck Post Construction Compliance Statement; the *Post Construction Compliance Statement* shall be derived directly from the COMcheck compliance documentation (inspection checklist) submitted at the time of permit application.

If using AHRAE 90.1 2013, provide commissioning plan and report on the plans and specifications as per section 6.7.2.4 and appendix E.

2017 NYSUC reference 2015 IMC and 2015 IFGC. Calculations for occupant and building ventilation shall be provided as per section IMC 403. Calculations for combustion and dilution air shall be provided as per IMC Chapter 7, NFPA 31 for oil fired equipment. For gas fired equipment, provide calculations as per IFGC section 304.1.