

1 RCNY §5000-01

CHAPTER 5000

New York City Energy Conservation Code

§5000-01 Construction document approval requirements for compliance with the New York City Energy Conservation Code.

- (a) **Purpose.** This section sets forth the requirements for filing and approval of construction documents and the universe of progress inspections during construction, in accordance with the New York City Energy Conservation Code.
- (b) **References.** See 2020 New York City Energy Conservation Code (Administrative Code Sections 28-1001.1 et seq.); 2020 New York State Energy Conservation Construction Code (19 NYCRR part 1240); Administrative Code Section 28-104.7.9, Sections BC107.13 and BC110.3.5, Mechanical Code, and Fuel Gas Code; 1 RCNY §101-07 (“Approved Agencies”).
- (c) **Definitions.** For the purposes of this chapter, the following terms [shall have the following meanings] mean:
- ABOVE-GRADE WALL.** An above-grade wall as defined in the Energy Code. This definition differs in the residential provisions and the commercial provisions of the Energy Code.
- ADDITION.** An addition as defined in the Energy Code.
- APPROVED PROGRESS INSPECTION AGENCY.** An approved progress inspection agency as described in subparagraph (iii) of paragraph (3) of subdivision (c) of section 101-07 of the rules of the Department.
- ASHRAE 90.1.** [American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., Standard 90.1-2013 as defined in the New York State Energy Conservation Construction Code and amended by Appendix CA of the Energy Code] ASHRAE 90.1-2016 (as amended) as defined in the Energy Code.
- COMMERCIAL BUILDING.** A commercial building as defined in the Energy Code.
- DESIGN APPLICANT.** An applicant of record who develops, signs and seals the construction drawings. The design applicant may be someone other than the registered design professional who prepares, signs and seals the energy analysis.
- ENERGY CODE.** The New York City Energy Conservation Code (“ECC”), as defined in Chapter 10 of Title 28 of the Administrative Code.
- GRADE PLANE.** A grade plane as defined in the Energy Code. This definition differs from the Building Code definition of Grade Plane.
- HISTORIC BUILDING.** An historic building as [described]defined in the Energy Code.
- PROJECT.** A project as defined in the Energy Code.
- REGISTERED DESIGN PROFESSIONAL.** A registered design professional as defined in the Energy Code.
- RESIDENTIAL BUILDING.** A residential building as defined in the Energy Code.
- STORY.** A story as defined in the Energy Code. This definition differs from the Building Code definition of Story.
- STORY ABOVE GRADE PLANE.** A story above grade plane as defined in the Energy Code. This definition differs from the Building Code definition of Story Above Grade Plane.
- SUSTAINABLE ROOFING ZONE.** A sustainable roofing zone as defined in Chapter 15 of the Building Code. Note that this is a Building Code requirement and not an Energy Code requirement.
- THERMAL BRIDGE.** A thermal bridge as defined in the Energy Code.
- (d) **Applicability.**
- (1) **Applicable version and edition of Energy Code.** Applications must comply with the Energy Code version and edition in effect when the application is filed, continuing through construction and sign-off of the application by the Department.
- (2) **Residential building projects.** All applications related to a single residential building project must follow ECC Chapters R2 through R6.
- [(2)](3) Commercial building projects.** All applications related to a single commercial building project must follow either ECC Chapters C2 through C6 or ASHRAE 90.1 in its entirety [and as modified by ECC Appendix CA].

(i) **ECC Compliance Path.** Vertical fenestration is allowed up to 30% of the gross above-grade wall area, prescriptively. Commercial buildings with vertical fenestration exceeding 30% of the above-grade wall must provide daylighting controls in required daylight zones in accordance with ECC provisions to a maximum fenestration area of 40% of the gross above-grade wall area. Alternatively, commercial buildings with vertical fenestration exceeding the prescriptive requirements for maximum vertical fenestration area may show compliance using the Component Alternative Method in Section C402.1.5, through the use of ComCheck.

(ii) **ASHRAE 90.1 Compliance Path.** Vertical fenestration is allowed up to 40% of the gross wall area, prescriptively. If the vertical fenestration exceeds 40% of the gross wall area, the design team must use energy modeling in accordance with Section 11 of ASHRAE 90.1 (“Energy Cost Budget Method”) or Appendix G of ASHRAE 90.1 (“Performance Rating Method”) and as provided in subparagraph (iv) of paragraph (1) of subdivision (f) of this section or Section 5.6 of ASHRAE 90.1 (“Building Envelope Trade-off Option”).

(iii) Additional requirements in Section 11 and Appendix G. For new buildings 25,000 square feet and greater in area, and which follow Section 11 or Appendix G, additional requirements must be satisfied to demonstrate compliance with Section 5.2.3. The building envelope must comply with either Section 5.5 of ASHRAE 90.1 (“Prescriptive Building Envelope”) or the applicant must calculate an envelope performance factor in accordance with Appendix C of ASHRAE 90.1 that meets certain thresholds dependent on the occupancy of the building.

[3](4) Identification of related applications. Applicants must indicate in the application form all applications related to the project or, if an application has not yet been filed, the name of the applicant or the applicant’s firm and discipline for any anticipated related applications.

(e) **Professional statement.** Every application filed by a registered design professional for approval of construction documents for a new building or alteration shall include a professional statement of either compliance with or exemption from the Energy Code.

(1) **Compliance.** All new building and alteration applications must indicate compliance on the application form, except as specifically excluded in paragraph (2) of this subdivision.

(2) **Exemption.** Only applications that consist entirely of work exempt from the Energy Code may indicate exemption in the professional statement. The application must state one of the following bases for exemption:

(i) **Historic building.** Any alteration to an historic building is exempt. Any addition to an historic building is not exempt, and must meet the requirements of the ECC for new construction.

(ii) **Envelope of low-energy building.** All the proposed work is related to the envelope system of a low-energy[or], unconditioned building, or equipment building, as described in ECC Chapter C4 or ECC Chapter R4.

(iii) **Categories of work not affecting energy use.** Temporary structures (as described in sections 28-111 and BC 3103) are exempt from compliance with the Energy Code. In addition, the following work types are exempt: fire alarm, fire suppression in a range hood, standpipe, sprinkler, fuel storage, construction equipment, curb cut, fire protection plan, sidewalk shed, supported scaffold, fence, place of assembly, temporary place of assembly, earthwork, support of excavation, builder’s pavement plan, protection means and methods, suspended scaffold, subdivision, full demolition, and cranes. Other work types are not exempt.

[(A)FA (fire alarm)

(B) FP (fire suppression in a range hood)

(C) SD (standpipe)

(D) SP (sprinklers)

(E) FS (fuel storage)

(F) EQ (construction equipment)

(G) CC (curb cut)

(H) OT/BPP (builder’s pavement plan)

(I) OT/FPP (fire protection plan)]

(iv) Post-approval amendment. A post-approval amendment for a job that was exempt under a prior edition of the Energy Code.

(f) **Energy analysis.** An energy analysis is required for every project that is not entirely exempt. The energy analysis [shall]must identify the compliance path followed, demonstrate how the project design complies with the Energy

Code and, for commercial projects, indicate whether the project is designed in accordance with ECC Chapters C2 through C6 or with ASHRAE 90.1.

(1) **Accepted formats for energy analysis.** [One of the] Tabular analysis along with COMcheck or REScheck may be used for different disciplines in the same project, as long as the compliance paths are identical. The following formats may be used to present the energy analysis:

(i) **Tabular analysis.** For new buildings, additions and/or alterations to existing residential or commercial buildings for which either ECC Chapters R2 through R6, ECC Chapters C2 through C6 or ASHRAE 90.1 has been used, and the applicant is complying prescriptively, the applicant may [create] include a table entitled “Energy Analysis” as described in figure 1.

Such table [shall] must compare the proposed values of each Energy Code regulated item in the scope of work with the respective prescriptive values required by the Energy Code. The items [shall] must be organized by discipline, including Envelope Systems, Mechanical and Service Water Heating Systems, Lighting and Electrical Systems, Additional Efficiency Options, and Commissioning, as applicable.

For commercial building additions and/or alterations involving lighting, the applicant may choose to utilize the Lighting Application Worksheet from COMcheck for the lighting part of the analysis in lieu of including lighting in the tabular analysis; however, the supporting documentation index must provide a breakdown of each lighting fixture to clarify the location per room type or floor. See subparagraph (iii) of this paragraph and Figure 2 in subdivision (g) of this section.

Figure 1: Sample tabular energy analysis:

ENERGY ANALYSIS			
Code chapter and/or standard used for design Climate Zone 4A			
Item Description	<u>[Proposed Design Value]</u> <u>Code Prescriptive Value</u> <u>& Citation</u>	<u>[Code Prescriptive Value</u> <u>& Citation] Proposed</u> <u>Design Value</u>	<u>Supporting</u> <u>Documentation</u>
(List all elements of the scope of work in the detail that they are addressed by the energy code.)	<u>[(List the value used in the design.)]List the prescriptive value required by the Energy Code and provide the citation for such value.</u>	<u>[(List the prescriptive value required by the Energy Code and provide the citation for such value.)]List the value used in the design.</u>	<u>Indicate where in the drawing set the information is to be found.</u>

(ii) **REScheck Software Program.** The REScheck software program available from the United States Department of Energy website may be used for residential buildings as follows:

(A) **New buildings.** REScheck may be used for new residential buildings.

(B) **Additions.** REScheck may be used for additions [only where a whole building analysis, including the existing building and the addition, is performed]. Only the new portions of the building shall be input into the software.

(C) **Alterations and repairs.** REScheck may be used for alterations and repairs [only where a whole-building analysis, including the existing-to-remain and altered envelope and mechanical systems, is performed]. Only the components being altered shall be input into the software.

(D) **REScheck version.**

[1. Only the New York City version of the REScheck form is permitted.]

[2.]1. For applications filed on or after [October 3, 2016]May 12, 2020, the report must specify the [2016]2020 New York City Energy Conservation Code.

[3.]2. For applications filed before [October 3, 2016]May 12, 2020, the report must specify the edition of REScheck that matches the edition of the [Energy Conservation Construction Code of New York State]New York City Energy Conservation Code in effect when the application was filed. If a New York City-specific version is no longer supported, the report must specify the applicable IECC version of the software.

(iii) **COMcheck Software Program.** The COMcheck software program available from the United States Department of Energy website may be used for commercial buildings as follows:

(A) **New buildings.** COMcheck may be used for new commercial buildings.

(B) **Additions.** COMcheck may be used for additions[only as follows:

1. Where a whole-building analysis, including the existing building and the addition, is performed; or
2. Where the COMcheck report states “addition” as the project type]. Only the new portions of the building shall be input into the software.

(C) Alterations and repairs. COMcheck may be used for alterations and repairs [only as follows:

1. Where a whole-building analysis, including the existing-to-remain and altered parts of the building, is performed; or
2. Where the COMcheck report states “alteration” as the project type]. Only the components being altered shall be input into the software.

(D) COMcheck version.

1. [Only the New York City version of the COMcheck form is permitted when following the New York City Energy Conservation Code. Only the 90.1 (2013) Standard version of the COMcheck form is permitted when following ASHRAE 90.1, provided that a New York City version of COMcheck for ASHRAE is unavailable.] For applications filed on or after May 12, 2020, the report must specify the edition of COMcheck that matches the edition of the New York City Energy Conservation Code or ASHRAE 90.1 in effect when the application was filed.
2. For applications filed [on or after October 3, 2016,] before May 12, 2020, the report must specify the edition of COMcheck that matches the edition of the New York City Energy Conservation Code [or New York City amended ASHRAE 90.1.] in effect when the application was filed. [In the event that] If a New York City-specific version is no longer supported, the report must specify the applicable IECC or ASHRAE 90.1 version of the software, as determined by the Department.

(iv) Energy modeling [based on DOE2]. For new commercial buildings and additions or alterations to commercial buildings, where [trade-offs among disciplines and/or] the performance path [are] is used in accordance with ASHRAE 90.1 section 11 or Appendix G, an energy modeling program developed by the United States Department of Energy, including DOE2 or updates of DOE2, shall be used; such updates include DOE2.1E, VisualDOE, EnergyPlus and eQuest.

Other energy modeling programs must be approved by the Secretary of State of New York State and the commissioner. The commissioner may at his or her discretion require the energy modeling report to be submitted to the Department.

All applications must provide a Supporting Documentation Index indicating the mandatory measures, an energy modeling form, and energy modeling reports.

Additional envelope requirements for buildings 25,000 square feet and greater. Additionally, for applications 25,000 square feet and greater, a ComCheck Envelope Compliance Certificate, using ASHRAE 90.1, must be submitted along with the energy modeling reporting to ensure compliance with additional envelope provisions.

- (v) Alternative formats.** Formats other than those listed in subparagraphs (i) through (iv) of this paragraph, including, but not limited to, the home energy software programs described in section ECC 101.5.1, may be used for a project only if they are approved in advance by both the Secretary of State of New York State and the commissioner.
- (2) Mixed-occupancy buildings three stories or fewer.** In accordance with section ECC 101.4.1, buildings three stories or fewer above grade plane with mixed residential and non-residential occupancies must comply with the respective requirements of Chapters R2 through R6 and Chapters C2 through C6 or ASHRAE 90.1, and must have separate energy analyses, except that a tabular analysis format or energy modeling may be used to show both the residential and non-residential requirements.
 - (3) Build-outs of tenant space prior to issuance of new building certificate of occupancy.** The energy analysis for any alteration application for a build-out of a new building tenant space before the final certificate of occupancy is issued must be consistent with the [energy analysis] compliance path for the new building. Such energy analysis for the new building must be provided upon request.
 - (4) Professional responsibility for energy analysis.** The energy analysis [shall] must be signed and sealed by registered design professional(s).
 - (i) Election.** The project team must elect one of the following methods for performing the energy analysis:
 - (A) Responsibility by discipline.** Where each system of the energy analysis – envelope, mechanical/service water heating and lighting/power – meets the prescriptive requirements of the Energy Code individually, different registered design professionals may sign and seal their respective parts of the energy analysis report and include them as follows:

1. If all such systems are filed with the Department under the same application number, each registered design professional may include his or her part of the energy analysis in his or her respective parts of the project construction drawings.
2. If such systems are filed with the Department under different application numbers, [all]each part[s] of the energy analysis [shall be filed in the initial application for the project]in the related applications shall utilize the same compliance path; except that in the case of foundation and earthwork permits issued pursuant to section 28-104.2.5, the energy analysis for the new building project must be submitted with subsequent construction documents. Refer also to paragraph (5) of this subdivision.

(B) Lead professional. Where energy modeling (whole-building analysis) is performed for the energy analysis [or where the project design uses tradeoffs among disciplines such that one or more systems of the energy analysis --]and the envelope, mechanical/service water heating and lighting/power [-- could]do not meet the prescriptive [or performance] requirements of the Energy Code on [its]their own, a lead professional must be identified who must sign and seal the entire energy analysis for all systems involved.

The energy modeling program must be based on [the DOE2]energy modeling software in accordance with subparagraph (iv) of paragraph (1) of this subdivision. The energy analysis must be presented in the construction drawings for one application only. The lead professional must be a registered design professional and need not be a design applicant.

(ii) Registered design professional other than a design applicant. A registered design professional other than a design applicant may prepare, sign and seal the energy analysis, either as lead professional or for individual discipline(s) in accordance with subparagraph (i) of this paragraph. [Such registered design professional shall file a PW1 form as a subsequent filing and indicate “Energy” or “Electrical” as applicable in Section 6D, OT – Other.]

(5) Foundation and earthwork permits. When phased or partial approval is requested by the applicant for the purpose of issuance of a foundation and earthwork permit in accordance with §28-104.2.5 of the *Administrative Code*, a tabular analysis must be filed showing the foundation insulation requirements of the ECC. Refer also to subclause 2 of clause (A) of subparagraph (i) of paragraph (4) of this subdivision.

(g) Supporting documentation. The construction drawings submitted for approval [shall]must provide all energy design elements and [shall]must match or exceed the energy efficiency of each value in each part of the energy analysis – envelope, mechanical/service water heating and lighting/power. The supporting documentation [shall]must be listed in a table that serves as an indexing guide to the construction document set. Such table [shall]must list the proposed values of each Energy Code-regulated item in the scope of work with the respective location in the drawing set. Such table is not required if the location of the supporting documentation is included in a column [added to]as shown in the Tabular Analysis described in figure 1.

Figure 2: Sample Supporting Documentation Index:

SUPPORTING DOCUMENTATION INDEX		
Code chapter and/or standard used for design Climate Zone 4A		
Code Section	Item Description	Supporting Documentation Location
<u>[]</u> List specific code section <u>[]</u>	<u>[]</u> List all elements of the scope of work in the detail that they are addressed by the energy code. <u>[]</u>	<u>[]</u> List the drawing page number and/or section title. <u>[]</u>

[In addition, other mandatory Energy Code requirements shall be provided as described in paragraphs 1 through 5 of this subdivision.]

[For additions, the construction documents must clearly show in the supporting documentation, the new construction as it relates to existing conditions. For alterations, the construction documents must clearly show in the supporting documentation those physical portions of the systems that are being brought up to code and those that are not being altered.]

Further, supporting documentation [shall]must provide all information necessary for a progress inspector to verify during construction that the building has been built in accordance with the approved construction documents to meet the requirements of the Energy Code.

[For additions and alterations, the applicant must clearly show those physical portions of the systems that are being brought up to code and those that are not being upgraded.]

In addition, other mandatory Energy Code requirements shall be provided as described in paragraphs 1 through 7 of this subdivision. This is not an exhaustive list.

(1) Envelope. Building wall sections and details [shall]must be provided for each unique type of roof/ceiling, wall, and either the foundation, slab-on-grade, basement or cellar assembly. Such building wall sections must show each layer of the assembly, including, but not limited to, insulation, moisture control and air barriers. If continuous insulation is indicated, it must be fully continuous, uninterrupted by framing, slab edges, shelf angles, or any other continuous breaks in the insulation. The insulation in each case [shall]must be labeled and [shall]must be equal to or greater than the R values, and an assembly in each case [shall]must be equal to or less than the assembly U factors, in the energy analysis.

(i) Fenestration. Door, window and skylight schedules [shall]must include columns for U-factors, VT and SHGC values for each fenestration assembly type, and such values [shall]must be equal to or less than those in the energy analysis. For commercial buildings, the building elevation must indicate a demarcation line at 95 feet. Fenestration located below 95 feet must be clearly identified on construction documents. For any portion of a fenestration assembly that is above 95 feet, the entire fenestration assembly may comply with the U-factor requirements for fenestration 95 feet and above. Mandatory requirements to prevent air leakage shall be detailed.

(ii) Spandrel assemblies. Spandrel assemblies are considered opaque walls. The U-factor for the proposed design must be that which is defined in the Energy Code, according to the frame type, spandrel assembly, and rated R-value of insulation between framing members. If a spandrel assembly is not described within the Energy Code, or contains insulation values outside of the range of rated R-values, the designer will be required to provide simulation of the wall assembly, using software such as THERM.

(iii) Thermal bridging. Construction documents must include information on clear field, point, and linear thermal bridges. Clear field thermal bridges, such as brick ties, cladding, studs, must be de-rated using Appendix A of ASHRAE 90.1. If the assembly is not identified in Appendix A of 90.1, such as Z-girts, then these assemblies must be noted in the drawings, accompanied by supporting documentation indicating the de-rated value. Individual point thermal bridges, such as structural beam penetration through insulation, larger than 12in² in commercial buildings and larger than 8in² in residential buildings must be identified on the construction documents. Linear thermal bridges specifically identified in the ECC, such as shelf angles, slab edges, balconies, parapets, window interfaces, must be identified both on elevation plans and in a tabular format as shown in figure 3. Each linear thermal bridge type must have a relevant detail showing the cross-section through the thermal bridge.

Figure 3: Sample Linear Thermal Bridge Documentation

<u>Linear Thermal Bridge Type</u>	<u>Total Length</u>	<u>Detail Location</u>	<u>Ψ-value</u>
<u>List all applicable thermal bridges that are identified in Table C402.6, R402.6 or 90.1 Table 5.4.4</u>	<u>List aggregate length of each type of thermal bridge.</u>	<u>List the drawing page number and/or section title.</u>	<u>List unmitigated Ψ-value directly from Table C402.6, R402.6 or 90.1 Table 5.4.4. Alternatively, provide Ψ-value with supporting documentation and/or calculations, if differing default value above.</u>

(2) Mechanical/service water heating. Mechanical system design criteria, and mechanical and service water heating system and equipment types, sizes and efficiencies shall be provided with coordinated naming convention between the mechanical schedule and the energy analysis. For commercial buildings, the total installed space cooling capacity, the total installed space heating capacity, and the total installed service hot water capacity must be listed on the drawings. For all new construction, the ventilation system design must be included in the construction documents in accordance with the requirements in the ECC.

Space heating and cooling equipment, energy recovery equipment, economizers, ventilation equipment, service water heating equipment, and mandatory requirements including control systems, duct sealing and duct and piping insulation [shall]must be shown on the construction drawings and [shall]must be equal to or

greater than the energy efficiency requirements established in the energy analysis, the Energy Code and/or this section, as applicable. A narrative [shall]must be provided for each mandatory control system describing its function and operation and specifying proper setpoints of equipment and controls.

For new buildings, the construction documents must indicate the method of compliance for the supply of heated water and clearly show the service water heating distribution system meeting the specified requirements. Sloped drain water heat recovery units that comply with IAPMO PS 92 and are tested and labeled in accordance with IAPMO 346, are deemed to comply.

(3) **Electrical.** The applicant must provide supporting documents for lighting, power and controls on either electrical drawings or drawings of other disciplines as appropriate. Such documents must:

- support the energy analysis;
- satisfy mandatory requirements of the Energy Code, such as controls, transformers, metering, voltage drop, elevator, commercial kitchen equipment, and electric motor requirements; and
- support progress inspections required by this section.

The drawings must be numbered with an “E,” “EN” or other discipline designator and must be signed and sealed by a registered design professional. If the registered design professional is an electrical engineer, the engineer must file [a PW1 form as an initial or subsequent filing and indicate either “Electrical” or “Energy” in Section 6D, OT – Other.] in a form or manner prescribed by the commissioner.

(i) **Interior and exterior lighting.** Supporting documentation for lighting must be as follows:

(A) **Commercial buildings, except within dwelling units.** The applicant [shall]must provide reflected ceiling plans, floor plans and/or electrical drawings with lighting layouts for each floor or space in the project, and for exterior lighting as applicable. Control devices and zones shall be indicated on drawings.

The lighting fixtures [shall]must be described and keyed to the lighting plans, including type designation, brief description, locations, lamp type, ballast/transformer type, watts per lamp, quantity of lamps per fixture, and system input watts per fixture, such that the drawings support the energy analysis.

[In addition, mandatory lighting and power]Lighting controls [shall]must be shown and described on a schedule, and a narrative provided describing their function and operation.

[Control devices and zones shall be indicated on drawings.]

(B) **Dwelling units in residential and commercial buildings.** In homes and dwelling units, the applicant must indicate on floor plans what fixtures are to be installed with high-efficacy lamps, and where the separate meter for each dwelling unit is located.

(ii) **Exterior lighting zones.** Exterior lighting zones as set forth in ECC [Table C405.5.2(1)]Table C405.4.2(1) correspond with the following zoning districts in the New York City Zoning Resolution:

Lighting zone 1:	Park land.
Lighting zone 2:	All R districts, R districts with C overlays and MX districts.
Lighting zone 3:	M districts, except MX; C districts, except C5, C6 and C overlays on R districts.
Lighting zone 4:	C5 and C6 districts.

(iii) **Electrical motors and controls.** Electrical motor horsepower and controls must be shown on the drawings and described.

(iv) **[Electrical submetering]Metering.** Projects requiring electrical submetering and/or monitoring must clearly indicate on the drawings that submetering and/or monitoring will be provided in accordance with the Energy Code. Projects requiring whole building fuel use metering must clearly indicate on the drawings that whole building fuel use metering will be provided in accordance with the Energy Code.

(v) **Automatic receptacle controls.** For applications using ASHRAE 90.1, [50 percent of the]certain receptacles must be automatically controlled and clearly shown on the drawings in accordance with ASHRAE 90.1.

(vi) Electric vehicle service equipment capable. New residential buildings with parking areas must indicate on the construction documents the method of compliance for the future installation of electric vehicle service equipment in accordance with the Energy Code and the Building Code, as applicable.

(vii) Elevators and escalators. For applications with elevators, the construction documents must provide the efficiency class and usage category. For new building applications with elevator shafts rising 75 feet or more must provide documentation showing compliance with regenerative drives, as applicable. For

applications with escalator installations must provide documentation showing compliance with regenerative drives, as applicable.

(viii) Commercial kitchen equipment. For applications with certain commercial kitchen equipment, the construction documents must provide the type of equipment, the minimum performance value, and the design specification value in accordance with the ECC.

(4) Permanent certificate in residential buildings. For residential buildings and commercial R-3 buildings, the construction documents must indicate the following in accordance with Section ECC R401.3:

(i) New buildings. For new buildings, a permanent certificate must be installed indoors and in accordance with Section ECC R401.3, except that it may be posted near the electrical distribution panel at eye level and in plain sight.

(ii) Additions and alterations. For additions and alterations affecting information on an existing permanent certificate, such permanent certificate must be updated, initialed where changed and reposted such that the values on the posted permanent certificate remain current. For additions and alterations where a permanent certificate was not previously required, a new permanent certificate must be provided with the values applicable to the scope of work and posted on a permanent certificate that complies with the new building requirements.

[(4) Mandatory](5) Other mandatory requirements. The construction documents [shall]must comply with all mandatory requirements of the Energy Code.

(i) For residential buildings, references for such requirements are listed throughout Chapters R2 through [R5]R6.

(ii) For commercial buildings complying with the provisions of ECC Chapters C2 through [C5]C6, references for such requirements are set forth throughout Chapters C2 through [C5]C6; for commercial buildings complying with ASHRAE 90.1, such requirements are set forth throughout the [referenced] standard.

(iii) Commissioning [statement]documentation requirements. The construction documents for each commercial building must show the following:

(A) Professional statement. Every application filed by a registered design professional for approval of construction documents for a new building or alteration under the commercial provisions of ECC or ASHRAE 90.1 [shall]must include a statement of either compliance with or exemption from the commissioning requirements of the Energy Code. The total installed space cooling capacity, the total installed space heating capacity and the total installed service hot water capacity shall be listed on the drawings, as well as all the building systems that require commissioning, as applicable. For alteration applications, the total connected load of the HVAC distribution equipment that is within the scope of work must be listed on the drawings.

(B) Commissioning plan. The commissioning plan requirements may be described in the construction documents, or the construction documents may refer to specifications. The specifications may be requested by the department.

(C) Equipment specifications. The construction documents must indicate the location of all equipment requiring commissioning, along with the performance data for each piece of equipment.

(D) Operating and maintenance manual. A statement that the owner shall receive an operating and maintenance manual for the HVAC equipment requiring commissioning within 90 days of the date of receipt of the Certificate of Occupancy or letter of completion.

(E) Balancing report. A statement that the owner shall receive a systems balancing report for the HVAC equipment requiring commissioning within 90 days of the date of receipt of the Certificate of Occupancy or letter of completion.

(iv) Air leakage and air barrier testing statement. [Every application filed by a registered design professional for approval of construction documents for a new building under the residential provisions of the ECC must include a statement of compliance with the testing requirements of the Energy Code as described in ECC R402.4.1.2 or R402.4.1.3. Every application filed by a registered design professional for approval of construction documents for a new building under the commercial provisions of the ECC must include a statement of either compliance with or exemption from the air barrier testing requirements of the Energy Code as described in ECC C402.5.1.3. Applications indicating compliance with the air barrier testing requirements under the commercial provisions must be tested in accordance with ASTM E 779 at a pressure differential of 0.3 inch water gauge (75 Pa) or an equivalent method approved by the code official and deemed to comply with the air leakage requirements when the tested air leakage rate of the building thermal envelope is not greater than 0.4 cfm/ft². Air barrier testing, when required, must

be performed by a third-party independent of the contractor and acceptable to the department.] The construction documents for each new building or for additions greater than 10,000 square feet in area must provide information relating to the air barrier testing compliance with the Energy Code. A continuous air barrier location shall be shown on elevation or section drawings and in each envelope assembly detail.

(A) Residential buildings. New buildings required to comply with the residential provisions of the Energy Code, must include a statement of compliance with the air leakage rate testing requirements of the Energy Code.

(B) Commercial buildings. New buildings or additions, required to comply with the commercial provisions of the Energy Code, must indicate compliance with one of the following three air barrier requirements:

1. Visual inspection. Only commercial buildings less than 10,000 square feet may comply with visual inspection. The continuous air barrier for the opaque envelope must indicate compliance with the materials or assemblies in the Energy Code.

2. Whole building air barrier testing. Buildings 10,000 square feet and greater, but less than 50,000 square feet and 75 feet in height or less must include a statement of compliance with the air leakage rate testing requirements of the Energy Code. For buildings not required to comply with testing, and instead choose to comply voluntarily with whole building air barrier testing must include a statement of compliance with the air leakage rate testing requirements of the Energy Code.

3. Air Barrier Continuity Plan. Buildings 10,000 square feet and greater but less than 50,000 square feet, which are greater than 75 feet in height, and for buildings greater than 50,000 square feet must include a statement of compliance with the Air Barrier Continuity Plan requirements of the Energy Code. The construction documents must indicate each unique air barrier joint or seam to be tested along with the recommended method of testing.

(5) Permanent certificate in residential buildings. For residential buildings, the construction documents shall indicate the following in accordance with Section ECC R401.3:

(i) New buildings. For new buildings regulated under ECC Chapter R4, a permanent certificate shall be required to be installed indoors and in accordance with Sections ECC R401.3 and RB103.8, except that it may be posted near the electrical distribution panel at eye level and in plain sight.

(ii) Additions and alterations. For additions and alterations affecting information on an existing permanent certificate, such permanent certificate shall be updated, initialed where changed and reposted such that the values on the posted permanent certificate remain current.]

(6) Deferred submittals. Drawings showing design intent and performance criteria matching those in the energy analysis may be submitted as supporting documentation provided that, in accordance with Section 28-104.2.6 of the Administrative Code, the applicant lists such deferred submittals in the construction drawings and submits them for approval prior to installation or construction. If required, the energy analysis must be updated when deferred submittals are provided for approval.

(7) Required progress inspections. Supporting documentation [shall also]must set forth all applicable required progress inspections in accordance with the Energy Code, 1 RCNY §101-07 and this section.

(i) **Applicant's instructions regarding required progress inspections.** Progress inspections required to be performed during construction for any new building, addition or alteration project [shall]must be identified by the design applicant according to the scope of work and listed and described in the approved construction drawings as required progress inspections.

The description [shall set forth]must show the standard of construction and the inspection criteria as appropriate for the scope of work in accordance with Table I or Table II of subdivision (h) of this section, as applicable; simple reference to the citations provided, without such description, is not sufficient.

The applicant [shall]must include the instruction that, in accordance with [Section BC 110.9]Chapter 1 of the Building Code and ECC 104.2.3, where an inspection or test fails, the construction [shall]must be corrected and must be made available for reinspection and/or retesting by the progress inspector until it complies.

For additions and alterations, the applicant must clearly indicate what portions of the altered systems [should]must be inspected and/or tested, and what inspection and/or testing may be outside the scope of the work.

- (ii) **Construction scheduling instructions.** The drawings [shall]must state that, in accordance with Article 116 of Title 28 and Section BC 110, construction [shall]must be scheduled to allow required progress inspections to take place, and that roofs, ceilings, exterior walls, interior walls, floors, foundations, basements and any other construction shall not be covered or enclosed until required progress inspections are completed or the progress inspector indicates that such covering or enclosure may proceed, at each stage of construction, as applicable.
- (iii) **Commercial building reference standards and citations.** Progress inspection reference standards and citations [shall]must conform to the respective requirements of ECC Chapters C2 through C5 or ASHRAE 90.1 as used for design, in accordance with the following:
 - (A) When ECC Chapters C2 through C5 have been used for the project design, as reflected in the energy analysis, the applicant [shall]must list on the drawings the respective references and citations for ECC for the progress inspection.
 - (B) When ASHRAE 90.1 has been used for the project design, as reflected in the energy analysis, the applicant [shall]must list on the drawings the respective references and citations for ASHRAE 90.1 for the progress inspection.

(h) **List of progress inspections required.** The following progress inspections and/or testing set forth in Tables I and II shall be required when applicable to the scope of work and shall be identified/described in the supporting documentation and included on the drawings submitted to the Department. Energy Code sections cited in Tables I and II of this section shall be understood to include the section, all subsections, all tables and, when ASHRAE 90.1 is used, appendices related to the cited Energy Code section.

- (1) **Residential buildings.** The progress inspections and tests described in Table I [shall]must be performed for buildings regulated by ECC Chapters [R4]R2 through R6. For heating, cooling and/or service hot water systems in multiple dwellings, including where such systems serve a single dwelling unit, the applicant [shall]must list inspections, tests and citations from Table II, in accordance with Section ECC R403.8.

TABLE I – PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE – RESIDENTIAL BUILDINGS

	Inspection/Test	Frequency (minimum)	Reference Standard (See ECC Chapter R6) or Other Criteria	ECC or Other Citation
IA	Envelope Inspections			
IA1	Protection of exposed foundation insulation: Insulation <u>[shall]must</u> be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space walls and/or the perimeter of slab-on-grade floors.	Prior to backfill	Approved construction documents	R303.2.1
IA2	Insulation placement and R-values: Installed insulation for each component of the conditioned space envelope and at junctions between components, <u>including thermal bridges and heated slab insulation</u> , <u>[shall]must</u> be visually inspected to ensure that the R-values are marked, that such R-values conform to the R-values identified in the construction documents and that the insulation is properly installed. Certifications for unmarked insulation <u>[shall]must</u> be similarly visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	R303.1, <u>[R303.1.1,]</u> <u>R303.2,</u> <u>[R402.1,]</u> <u>R402.1.2,</u> R402.2, Table R402.4.1.1, R402.4.4, R402.6

IA3	Fenestration and door U-factor and product ratings: U-factors, SHGC and VT values of installed fenestration <u>[shall]must</u> be verified by visual inspection for conformance with the U-factors, SHGC and VT values identified in the construction drawings, either by verifying the manufacturer's NFRC labels or, where not labeled, using the ratings in ECC Tables R303.1.3(1), <u>[and] (2), and (3).</u>	As required during installation	Approved construction drawings; NFRC 100, <u>NFRC 200,</u> <u>ANSI/DASMA 105</u>	R303.1, R303.1.3, R402.1, R402.3, R402.5
IA4	Fenestration air leakage: Windows, skylights and sliding glass doors, except site-built windows, skylights and doors, <u>[shall]must</u> be visually inspected to verify that installed assemblies are listed and labeled to the referenced standard.	As required during installation	NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440	R402.4.3
IA5	Fenestration areas: Dimensions of windows, doors and skylights <u>[shall]must</u> be verified by visual inspection.	Prior to final construction inspection	Approved construction documents	R402.3
IA6	Air [sealing and insulation]barrier – visual inspection: Openings and penetrations in the building envelope, including site-built fenestration and doors, <u>[shall]must</u> be visually inspected to verify that they are properly sealed, in accordance with Table R402.4.1.1.	As required during envelope construction	Approved construction documents; ASTM E283;	R402.4.1, R402.4.4, R402.4.5, R402.4.6
IA7	Air [sealing and insulation]barrier – testing: Testing <u>[shall]must</u> be performed in accordance with section ECC R402.4.1.2 <u>or R402.4.1.3</u> and shall be accepted if the building meets the requirements detailed in such section. Test results <u>[shall]must</u> be retained in accordance with the provisions of Title 28. Testing must be performed by a third-party independent of the contractor and acceptable to the department.	Prior to final construction inspection	ASTM E779; ASTM 1827; ANSI/BOMA Z65.1; <u>RESNET/ICC 380;</u> Approved construction documents	R402.4.1.2, <u>R402.4.1.3</u>
IB	Mechanical and Plumbing Inspections			
IB1	Fireplaces: Provision of combustion air and tight-fitting fireplace doors <u>[shall]must</u> be verified by visual inspection.	Prior to final construction inspection	Approved construction documents; UL 127[, <u>UL 907, ANSI Z21.60 (see also MC 904), ANSI Z21.50]</u>	R402.4.2[;], BC 2111; MC Chapters 7, 8, 9; FGC Chapter 6
IB2	<u>[Shutoff dampers]Ventilation and air distribution system: Ventilation system must be verified to comply with ERV/HRV requirements or balanced ventilation system.</u> <u>Whole-house ventilation fan efficacy must be verified by visual inspection.</u>	Prior to final construction inspection	Approved construction documents; <u>HVI Standard 916;</u> <u>ANSI/ACCA 90lvp-2016</u>	R403.6, R403.8, C403, C404

	Not less than 20% of installed automatic or gravity dampers, and a minimum of one of each type, <u>[shall]must</u> be visually inspected and physically tested for proper operation.			
IB3	HVAC and service water heating equipment: Heating and cooling equipment <u>[shall]must</u> be verified by visual inspection for proper sizing. Pool heaters and covers shall be verified by visual inspection.	Prior to final plumbing and construction inspection	ACCA Manuals J and S; Approved construction documents, including energy analysis	[R403] R403.7 , R403.8 , R403.10 , R403.11 , R403.12 , C403, C404
IB4	HVAC and service water heating system controls: System controls <u>[shall]must</u> be inspected to verify that each dwelling is provided with at least one individual programmable thermostat with capabilities as described in ECC R403.1.1, and that such controls are set and operate as specified in ECC R403.1.1. Controls for supplementary electric-resistance heat pumps <u>[shall]must</u> be inspected to verify that such controls prevent supplemental heat operation when the heat pump compressor can meet the heating load. <u>Controls for whole-house mechanical ventilation (balanced ventilation option) shall enable manual override.</u> Controls for snow- and ice-melting systems and pools <u>[shall]must</u> be inspected for proper operation. Not less than 20% or one of each control type, whichever is more, <u>[shall]must</u> be inspected. Controls for turning off circulating hot water pumps when not in use <u>[shall]must</u> be inspected for an automatic or manual switch.	Prior to final electrical and construction inspection	Approved construction documents, including control system narratives	[R403.] R403.1 , R403.2 , R403.5 , C403, C404
IB5	HVAC and service water piping design and insulation[and sealing]: Installed <u>[duct and]</u> piping insulation <u>[shall]must</u> be visually inspected to verify correct insulation placement and values. <u>[Ducts, air handlers, filter boxes and building cavities used as ducts shall be visually inspected for proper sealing.]</u> <u>Service hot water distribution systems shall be inspected to verify the supply of heated water.</u>	Prior to closing ceilings and walls and prior to final construction inspection	Approved construction documents; NYC Mechanical Code	[R403.3] R403.4, R403.5, R403.8, C403, C404; [MC 603.9] MC 1204

IB6	<p>Duct leakage testing, insulation and design: <u>All ductwork and air handlers must be inspected to verify that the system is entirely within conditioned space.</u></p> <p><u>Ducts must be verified by visual inspection for proper sizing.</u></p> <p><u>Ducts, air handlers, filter boxes and building cavities used as ducts shall be visually inspected for proper sealing.</u></p> <p>[Where the]For alterations, where the air handler and/or some ductwork is in unconditioned space, duct-leakage testing [shall]must be performed either after rough-in or post-construction to ensure compliance with ECC R403.3.3 and R403.3.4. Not less than 20% of such ductwork [shall]must be tested.</p>	Prior to closing ceilings and walls and prior to final construction inspection	Approved construction documents; <u>ASHRAE 193;</u> <u>ASHRAE Manual D</u>	[R403.3.3, R403.3.4, R403.3, R403.8,] C403; <u>MC603.9</u>
IC	Electrical Power and Lighting Systems			
IC1	<p>[Electrical energy consumption]Metering: The presence and operation of individual meters [shall]must be verified by visual inspection for all dwelling units.</p>	Prior to final electrical and construction inspection	Approved construction documents	R404.2
IC2	<p>Interior lighting power: Lamps in permanently installed lighting fixtures [shall]must be visually inspected to verify compliance with high-efficacy requirements.</p>	Prior to final electrical and construction inspection	Approved construction documents	R404.1
ID	Other			
ID1	<p>Maintenance information: Maintenance manuals for equipment and systems requiring preventive maintenance [shall]must be reviewed for applicability to installed equipment and systems before such manuals are provided to the owner.</p> <p>Labels required for such equipment or systems [shall]must be inspected for accuracy and completeness.</p>	Prior to sign-off or issuance of Certificate of Occupancy	Approved construction documents	R303.3
ID2	<p>Permanent certificate: The installed permanent certificate [shall]must be visually inspected for location, completeness and accuracy.</p>	Prior to final plumbing, electrical and/or construction inspection as applicable	Approved construction documents	R401.3, 1RCNY 5000-01(g)(4)
ID3	<p>[Solar-ready]Electric vehicle service equipment requirements: [Solar-ready zone area]Electric vehicle outlet or conduit and electrical service reserved space must be visually inspected to verify</p>	Prior to final construction inspection	Approved construction documents	[RB103.3, RB 103.7, RB103.8] <u>R404.3</u>

	compliance. Location <u>[shall]must</u> be noted on the permanent certificate.			
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(2) **Commercial buildings.** The progress inspections and tests described in Table II shall be performed for buildings regulated by either ECC Chapters C2 through C6 or ASHRAE 90.1 as applicable.

TABLE II – PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE – COMMERCIAL BUILDINGS

	Inspection/Test	Periodic (minimum)	Reference Standard (See ECC Chapter C6) or Other Criteria	ECC or Other Citation
IIA	Envelope Inspections			
IIA1	Protection of exposed foundation insulation: Insulation <u>[shall]must</u> be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space walls and/or the perimeter of slab-on-grade floors.	As required during foundation work and prior to backfill	Approved construction documents, <u>ASTM C272</u>	C303.2.1; ASHRAE 90.1 – <u>[5.8.1.7]5.8.1, 5.9</u>
IIA2	Insulation placement and R-values: Installed insulation for each component of the conditioned space envelope and at junctions between components, <u>including thermal bridges and heated slab insulation</u> , <u>[shall]must</u> be visually inspected to ensure that the R-values are marked, that such R-values conform to the R-values identified in the construction documents and that the insulation is properly installed. Certifications for unmarked insulation <u>[shall]also</u> be <u>[similarly]</u> visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	C303.1, <u>[C303.1.1, C303.1.2] C303.2, C402.1, C402.2, [C402.5.3];C402.6, C406; ASHRAE 90.1 – 5.5, 5.6, [5.8.1]5.8, 5.9, 11 or Appendix G, Appendix I</u>
IIA3	Fenestration and door U-factor and product ratings: U-factors, SHGC and VT values of installed fenestration <u>[shall]must</u> be visually inspected for conformance with the U-factors, SHGC and VT values identified in the construction drawings by verifying the manufacturer’s NFRC labels or, where not labeled, using the ratings in ECC Tables C303.1.3(1), (2) and (3).	As required during installation	Approved construction documents; NFRC 100, NFRC 200, <u>NFRC 300, ANSI/DASMA 105, ASTM E972</u>	C303.1, C303.1.3, <u>C402.1.4, C402.4, C406; ASHRAE 90.1 –5.4.2, 5.5, 5.6, 5.8.2, 5.9, 11 or Appendix G, Appendix I</u>

IIA4	<p>Fenestration air leakage: Windows and [sliding or swinging] door assemblies, except site-built windows and/or doors, [shall]must be visually inspected to verify that installed assemblies are listed and labeled by the manufacturer to the referenced standard.</p> <p>For curtain wall, storefront glazing, commercial entrance doors and revolving doors, the testing reports [shall]must be reviewed to verify that the installed assembly complies with the standard cited in the approved plans.</p> <p><u>Weatherseals at loading docks must be visually verified.</u></p>	As required during installation; prior to final construction inspection	NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440; ASTM E283; ANSI/DASMA 105	C402.5.2, <u>C402.5.6</u> ; ASHRAE 90.1 – 5.4.3.2, <u>5.4.3.3</u> , <u>[5.8.2.2]</u> <u>5.8.2</u> , <u>5.9</u>
IIA5	<p>Fenestration areas: Dimensions of windows, doors and skylights [shall]must be verified by visual inspection.</p>	Prior to final construction inspection	Approved construction documents	C402.4; ASHRAE 90.1 – <u>5.4</u> , <u>[5.5.4.2]</u> , <u>5.5.4</u> , 5.6, <u>5.9</u> , 11 or Appendix G
IIA6	<p>Air [sealing and insulation --]barrier visual inspection: Openings and penetrations in the building envelope, including site-built fenestration and doors, [shall]must be visually inspected to verify that a continuous air barrier around the envelope forms an air-tight enclosure.</p> <p>The progress inspector [shall]must visually inspect to verify that materials and/or assemblies have been tested and meet the requirements of the respective standards, or must observe the testing of the building and/or assemblies and verify that the building and/or assemblies meet the requirements of the standard, in accordance with the standard(s) cited in the approved plans.</p>	As required during construction	Approved construction documents; ASTM E2178, ASTM E2357, ASTM E1677, ASTM E779, ASTM E283.	C402.5; ASHRAE 90.1 – 5.4.3.1, 5.4.3.5, <u>5.9</u>
IIA7	<p>Air [sealing and insulation]barrier testing: Testing must be performed in accordance with section ECC <u>[C402.5.1.3]</u><u>C402.5.1.3.1</u> or</p>	As required during construction, or prior to final	Approved construction documents; ASTM E 779, <u>ANSI/BOMA Z65.1</u> ,	<u>C402.5</u> , C402.5.1.3, <u>C406</u> ; ASHRAE 90.1 – <u>[5.4.3.5]</u> <u>5.4.3.1.3</u> , <u>5.9</u> , <u>Appendix I</u>

	ASHRAE 90.1 section <u>[5.4.3.5]5.4.3.1.3</u> , and shall be accepted if the building <u>[and/or its air-barrier assemblies] meets</u> the requirements detailed in such section. <u>Test results must be retained in accordance with the provisions of Title 28 of the Administrative Code.</u> Testing must be performed by a third-party independent of the contractor and acceptable to the department.	construction inspection	<u>ASTM E3158, RESNET/ICC 380</u>	
IIA8	[Loading dock weatherseals: Weatherseals at loading docks shall be visually verified.] <u>Air barrier continuity plan testing:</u> <u>Each unique air barrier joint or seam must be tested or inspected for compliance. Documentation includes the method of test performed on each unique air barrier joint or seam and the results of the test. If an air barrier joint or seam has a deficiency, the deficiency must be noted, and retested until it complies with the testing requirements. Test results shall be retained in accordance with the provisions of Title 28 of the Administrative Code. Testing must be performed by a third-party independent of the contractor and acceptable to the department.</u>	[Prior to final construction inspection] <u>As required during construction</u>	Approved construction documents; <u>ASTM E779, ASTM E1186, ASTM E2813, ASTM E3158</u>	[C402.5.6; ASHRAE 90.1 – 5.4.3.3] <u>C402.5.1.3; ASHRAE 90.1 – 5.4.3.1.3, 5.9</u>
IIA9	Vestibules: Required entrance vestibules <u>[shall]must</u> be visually inspected for proper operation.	Prior to final construction inspection	Approved construction documents;	C402.5.7; ASHRAE 90.1 – 5.4.3.4
IIB	Mechanical and Service Water Heating Inspections			
IIB1	Fireplaces: Provision of combustion air and tight-fitting fireplace doors <u>[shall]must</u> be verified by visual inspection.	Prior to final construction inspection	Approved construction documents; <u>[ANSI Z21.60 (see also MC904), ANSI Z21.50] UL 127</u>	[C402.2.7 ;] <u>C402.2.8;</u> BC 2111; MC Chapters 7, 8, 9; FGC Chapter 6
IIB2	Shutoff dampers: Dampers for stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building	As required during installation	Approved construction documents; AMCA 500D	[C403.2.4.3;] <u>C402.5.5, C403.7.7;</u> ASHRAE 90.1 – 6.4.3.4

	<p>envelope <u>[shall]must</u> be visually inspected to verify that such dampers, except where permitted to be gravity dampers, comply with approved construction drawings.</p> <p>Manufacturer’s literature <u>[shall]must</u> be reviewed to verify that the product has been tested and found to meet the standard.</p>			
IIB3	<p>HVAC-R, commercial kitchen equipment, and service water heating equipment: Equipment sizing, efficiencies, pipe sizing and other performance factors of all major equipment units, as determined by the applicant of record, and no less than 15% of minor equipment units, <u>[shall]must</u> be verified by visual inspection and, where necessary, review of manufacturer’s data.</p> <p>Pool heaters and covers <u>[shall]must</u> be verified by visual inspection.</p>	Prior to final plumbing and construction inspection	Approved construction documents, ASHRAE 183, ASHRAE HVAC Systems and Equipment Handbook	<p>C403.1, C403.2, C403.3, C403.7.5, C404.2, C404.5, C404.9, C405.10, [C406.2;] C406; ASHRAE 90.1 – 6.3, [6.4.1, 6.4.2, 6.4.5, 6.4.6,]6.4, [6.5.11, 6.8,]6.5, 6.7, 7.4, 7.5, 7.8, 10.4.6, Appendix I</p>
IIB4	<p>HVAC-R and service water heating system controls: No less than 20% of each type of required controls <u>[shall]must</u> be verified by visual inspection and tested for functionality and proper operation. Such controls <u>[shall]must</u> include, but are not limited to:</p> <ul style="list-style-type: none"> ▪ Thermostatic ▪ Off-hour ▪ Zones ▪ Freeze protection/Snow- and ice-melt system ▪ Ventilation System and Fan Controls ▪ Energy recovery systems ▪ Kitchen/lab exhaust systems ▪ Fan systems serving single and multiple zones 	After installation and prior to final electrical and construction inspection, except that for controls with seasonally dependent functionality, such testing <u>[shall]must</u> be performed before sign-off for issuance of a Final Certificate of Occupancy	Approved construction documents, including control system narratives; ASHRAE Guideline 1: The HVAC Commissioning Process where applicable	<p>[C403.2, C403.3, C403.4, C403.5,] C403, [C404.6, C404.7, C404.9;] C404, C406; ASHRAE 90.1 – 6.3, 6.4, 6.5, 6.6, [7.4.4, 7.4.5]7.4, 7.5, Appendix I</p>

	<ul style="list-style-type: none"> ▪ Outdoor heating systems ▪ HVAC control in hotel/motel guest rooms ▪ Air/Water Economizers & controls ▪ Hydronic systems ▪ Heat rejection systems ▪ Hot gas bypass limitation ▪ Refrigeration systems ▪ Door switches ▪ Computer room systems ▪ Service water heating systems ▪ Pool heater and time switches <p>Controls with seasonally dependent functionality: Controls whose complete operation cannot be demonstrated due to prevailing weather conditions typical of the season during which progress inspections will be performed shall be permitted to be signed off for the purpose of a Temporary Certificate of Occupancy with only a visual inspection, provided, however, that the progress inspector shall<u>must</u> perform a supplemental inspection where the controls are visually inspected and tested for functionality and proper operation during the next immediate season thereafter.</p> <p>The owner shall<u>must</u> provide full access to the progress inspector within two weeks of the progress inspector's request for such access to perform the progress inspection.</p> <p>For such supplemental inspections, the Department shall<u>must</u> be notified by the approved progress inspection</p>			
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	agency of any unresolved deficiencies in the installed work within 180 days of such supplemental inspection.			
IIB5	<p>HVAC-R and service water piping design and insulation: Installed [duct and] piping insulation [shall] <u>must</u> be visually inspected to verify proper insulation placement and values.</p> <p><u>Service hot water distribution systems must be inspected to verify the supply of heated water.</u></p> <p>[Joints, longitudinal and transverse seams and connections in ductwork shall be visually inspected for proper sealing.]</p>	After installation and prior to closing shafts, ceilings and walls	Approved construction documents; [SMACNA Duct Construction Standards, Metal and Flexible]	[C403.2.9, C403.2.10, C403.11, C404.4, C404.5; MC 603.9; ASHRAE 90.1 – 6.3, 6.4.4, 6.8.2, 6.8.3; 7.4.3
IIB6	<p>Duct leakage testing, insulation and design: For duct systems designed to operate at static pressures in excess of 3 inches w.g. (747 Pa), representative sections, as determined by the progress inspector, totaling at least 25% of the duct area, [per ECC C403.2.9.1.3 or ASHRAE 90.1 6.4.4.2.2, shall] <u>must</u> be tested to verify that actual air leakage is below allowable amounts.</p> <p>Installed duct insulation [shall] <u>must</u> be visually inspected to verify proper insulation placement and values.</p> <p><u>Joints, longitudinal and transverse seams and connections in ductwork must be visually inspected for proper sealing.</u></p>	After installation and sealing and prior to closing shafts, ceilings and walls	Approved construction documents; SMACNA HVAC Air Duct Leakage Test Manual; <u>SMACNA Duct Construction Standards, Metal and Flexible</u>	[C403.2.9.1.3]C403.11; ASHRAE 90.1 – 6.4.4.2.2
IIC	Electrical Power and Lighting Systems			
IIC1	[Electrical energy consumption] <u>Metering:</u> The presence and operation of all required meters for monitoring total electrical energy usage <u>and/or total fuel</u>	Prior to final electrical and construction inspection	Approved construction documents	[C405.6;]C405.5, C405.11, C405.12; ASHRAE 90.1 – 8.4.3, 8.4.5, <u>8.4.6</u> , 10.4.5

	<u>use</u> , system energy usage, tenant energy usage, or electrical energy usage in the building, in individual dwelling units, or in tenant spaces [shall]must be verified by visual inspection.			
IIC2	Lighting in dwelling units: Lamps in permanently installed lighting fixtures [shall]must be visually inspected to verify compliance with high-efficacy requirements.	Prior to final electrical and construction inspection	Approved construction documents	C405.1; ASHRAE 90.1 – 9.1.1
IIC3	Interior lighting power: Installed lighting [shall]must be verified for compliance with the lighting power allowance by visual inspection of fixtures, lamps, ballasts and transformers.	Prior to final electrical and construction inspection	Approved construction documents	[C405.4.2, C405.9.1, C406.3;] C405.3, C406; ASHRAE 90.1 – 9.1, 9.2, 9.5, 9.6, 9.7; IRCNY §101-07(c)(3)(v)(C)4, Appendix I
IIC4	Exterior lighting power: Installed lighting [shall]must be verified for compliance with source efficacy and/or the lighting power allowance by visual inspection of fixtures, lamps, ballasts and relevant transformers.	Prior to final electrical and construction inspection	Approved construction documents	[C405.6;]C405.4; ASHRAE 90.1 –9.4.2; IRCNY §101-07(c)(3)(v)(C)4
IIC5	Lighting controls: Each type of required lighting controls, including: <ul style="list-style-type: none"> ▪ occupant sensors ▪ manual interior lighting controls ▪ light-reduction controls ▪ automatic lighting shut-off ▪ daylight zone controls ▪ sleeping unit controls ▪ exterior lighting controls ▪ <u>egress illumination controls</u> [shall]must be verified by visual inspection and tested for functionality and proper operation.	Prior to final electrical and construction inspection	Approved construction documents, including control system narratives	[C402.4.2.1,]C405.2, C406; ASHRAE 90.1 – 9.4.1, 9.4.3, 9.7, Appendix I
IIC6	Electric motors and elevators [(including but not limited to fan motors)]: Where required by the construction documents for energy code compliance, motor listing or labels must be visually inspected to verify	Prior to final electrical and construction inspection	Approved construction documents	[C403.2.12, C405.8;] C403.8, C405.6, C405.7, C405.8, C405.9;

	that they comply with the respective energy requirements in the construction documents. <u>Elevators and escalators must be inspected for compliance with regenerative drive requirements.</u>			ASHRAE 90.1 – <u>8.4.4, 10.4, 10.8</u>
IID	Other			
IID1	Maintenance information: Maintenance manuals for mechanical, service hot water and electrical equipment and systems requiring preventive maintenance <u>[shall]must</u> be reviewed for applicability to installed equipment and systems before such manuals are provided to the owner. Labels required for such equipment or systems <u>[shall]must</u> be inspected for accuracy and completeness.	Prior to sign-off or issuance of Final Certificate of Occupancy	Approved construction documents, including electrical drawings where applicable; ASHRAE Guideline 4: Preparation of Operating and Maintenance Documentation for Building Systems	<u>[C303.3,]C408.1.1, C408.2.5.2, C408.3.2;</u> ASHRAE 90.1 – 4.2.2.3, 6.7.2.2, <u>6.7.2.3.5.2, 8.7.2, 9.7.2.2, 9.4.3.2.2</u>

(i) **Energy Analysis of Constructed Conditions.** In accordance with Section 28-104.3 of the Administrative Code and section ECC 103.4, if constructed work differs from the last-approved full energy analysis, an as-built energy analysis shall be submitted to the Department, listing the actual values used in the building for all applicable Energy Code-regulated items and demonstrating that the building complies with the Energy Code. Such energy analysis shall be signed and sealed by a registered design professional. The progress inspector shall certify that to the best of his or her knowledge and belief the building as built complies with such signed and sealed energy analysis and construction drawings for energy code compliance; where no trade-offs have been used among disciplines, more than one registered design professional may sign and seal the elements of the energy analysis. The energy analysis shall be approved or accepted by the Department prior to sign-off.