Buildings

Promulgation Details for 1 RCNY 5000-02

This rule became effective on August, 5, 2018.

Since such date, one or more amendments have been made to this rule. Each rule amendment has its own effective date and Statement of Basis and Purpose.

Below you will find one or more rule amendments (the most recent appearing at the top), followed by the original rule.

The effective date of each amendment and the original rule can be found at the top of each "NOTICE OF ADOPTION OF RULE."

This rule has an effective date of 8-23-20

NOTICE OF ADOPTION OF RULE

NOTICE IS HEREBY GIVEN, pursuant to the authority vested in the Commissioner of the Department of Buildings by Section 643 of the New York City Charter and in accordance with Section 1043 of the Charter, that the Department of Buildings hereby adopts the amendments to Sections 5000-01, 5000-02, and 101-07 of Title 1 of the Official Compilation of the Rules of the City of New York, regarding the implementation of the New York City Energy Conservation Code to conform to changes in the New York City Energy Conservation Code that were necessitated by updates to the New York State Energy Code.

This rule was published in the City Record on June 1, 2020 and a virtual public hearing was held on July 1, 2020.

Dated: 7/16/2020
New York, New York

Melanie E. La Rocca
Commissioner

Statement of Basis and Purpose

New York City Council's Local Law 48 of 2020 (LL 48) was enacted on March 29, 2020, and went into effect on May 12, 2020. LL 48 updates the New York City Energy Conservation Code ("City Energy Code") to comply with the requirements of the State Energy Law and the 2020 updates to the New York State Energy Conservation Construction Code ("State Energy Code").

This rule amends 1 RCNY 5000-01, 5000-02 and 101-07 to conform to the City Energy Conservation Code and to implement code requirements.

This rule amends the referenced rules as follows:

1 RCNY 5000-01

- adds and removes progress inspections to correspond to City Energy Code requirements that come into effect with Local Law 48 of 2020, including two new required progress inspections related to electric vehicle equipment-ready requirements and expanded air sealing and insulation testing.
- clarifies which versions of REScheck and COMcheck may be used to demonstrate compliance with the City Energy Code.
- clarifies the requirements for submitting supporting documentation.

1 RCNY 5000-02

- clarifies that 1 RCNY 5000-02 only applies to the 2016 NYCECC Appendix CA, which are the NYC amendments to ASHRAE 90.1-2013.

1 RCNY 101-07

- provides a definition for a qualified commissioning agent.
- clarifies the required documentation for progress inspection reports.
- clarifies that progress inspectors are not required to revise approved construction documents where the performance value of a given space or system is more efficient than the performance value on the approved construction documents.
- clarifies the requirements for approved agencies performing commissioning in accordance with the City Energy Code.

The proposed rule also includes plain language revisions.

References in this proposed rule to the Administrative Code or the New York City Energy Conservation Code mean the Administrative Code of the City of New York or the New York City Energy Conservation Code, respectively, as amended by Local Law 48.

The Department of Buildings' authority for this rule is found in sections 643 and 1043 of the New York City Charter. Section 5 of Local Law 48 authorizes DOB to promulgate rules implementing the changes to the City Energy Code. Section 3 of Local Law 48 repeals and replaces section 28-1001.2 of the Administrative Code, and includes authority for DOB to issue this proposed rule.

New material is underlined.
[Deleted material is in brackets.]

"Shall" and "must" denote mandatory requirements and may be used interchangeably in the rules of this department, unless otherwise specified or unless the context clearly indicates otherwise.

Proposed Rule Amendment

Section 1. Subdivision (b) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

(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").

§2. Subdivision (c) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

(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.

§3. Subdivision (d) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

(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.

§4. Paragraph (2) of subdivision (e) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

(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.

§5. Subdivision (f) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

(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 application, 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	**[Proposed Design Value]Code Prescriptive Value & Citation**	**[Code Prescriptive Value & Citation] Proposed Design Value**	**Supporting Documentation**
(List all elements of the scope of work in the detail that they are addressed by the energy code.)	[(List the value used in the design.)]List the prescriptive value required by the Energy Code and provide the citation for such value.	[(List the prescriptive value required by the Energy Code and provide the citation for such value.)]List the value used in the design.	Indicate where in the drawing set the information is to be found.

(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 must 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.

§6. Subdivision (g) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

(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**
[(]List specific code section[)]	[(]List all elements of the scope of work in the detail that they are addressed by the energy code.[)]	[(]List the drawing page number and/or section title.[)]

[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 must 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 shall 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-factor, 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 12in^2 in commercial buildings and larger than 8in^2 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

Linear Thermal Bridge Type	**Total Length**	**Detail Location**	**Ψ-value**
List all applicable thermal bridges that are identified in Table C402.6, R402.6 or 90.1 Table 5.4.4	List aggregate length of each type of thermal bridge.	List the drawing page number and/or section title.	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 from default value above.

(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 and 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 Sections 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 [listed]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.[as described in ECC C408.] 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, 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 show 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/ft^2. 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 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 be shown on the elevation and 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 material 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.

§7. Paragraph (1) and Table I of subdivision (h) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York are amended to read as follows:

(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 [shall]must 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, including thermal bridges and heated slab insulation, [shall]must 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 [shall]must be similarly visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	R303.1, [R303.1.1,] [R303.1.2,] R303.2, [R402.1,] R402.1.2 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 [shall]must 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), [and] (2), and (3).	As required during installation	Approved construction drawings; NFRC 100, NFRC 200, ANSI/DASMA 105	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, [shall]must 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 [shall]must 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, [shall]must 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 [shall]must be performed in accordance with section ECC R402.4.1.2 or R402.4.1.3 and shall be accepted if the building meets the requirements detailed in such section. Test results [shall]must be retained in accordance with the provisions of Title 28 of the Administrative Code. Testing must be performed by a third-party	Prior to final construction inspection	ASTM E779; ASTM 1827; ANSI/BOMA Z65.1; RESNET/ICC 380; Approved construction documents	R402.4.1.2, R402.4.1.3

	independent of the contractor and acceptable to the department.			
IB	**Mechanical and Plumbing Inspections**			
IB1	**Fireplaces**: Provision of combustion air and tight-fitting fireplace doors [shall]must be verified by visual inspection.	Prior to final construction inspection	Approved construction documents; UL 127[, UL 907, ANSI Z21.60 (see also MC 904), ANSI Z21.50]	R402.4.2[;], BC 2111; MC Chapters 7, 8, 9; FGC Chapter 6
IB2	**[Shutoff dampers]Ventilation and air distribution system**: Ventilation system must be verified to comply with the ERV/HRV requirements or balanced ventilation system. Whole-house ventilation fan efficacy must be verified by visual inspection. Not less than 20% of installed automatic or gravity dampers, and a minimum of one of each type, [shall]must be visually inspected and physically tested for proper operation.	Prior to final construction inspection	Approved construction documents; HVI Standard 916; ANSI/ACCA 9Qlvp-2016	R403.6, R403.8, C403, C404
IB3	**HVAC and service water heating equipment**: Heating and cooling equipment [shall]must 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 [shall]must 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 [shall]must be inspected to verify that such controls prevent supplemental heat operation when the heat pump compressor can meet the heating load.	Prior to final electrical and construction inspection	Approved construction documents, including control system narratives	[R403,] R403.1, R403.2, R403.5, C403, C404

	Controls for whole-house mechanical ventilation (balanced ventilation option) shall enable manual override. Controls for snow- and ice-melting systems and pools [shall]must be inspected for proper operation. Not less than 20% or one of each control type, whichever is more, [shall]must be inspected. Controls for turning off circulating hot water pumps when not in use [shall]must be inspected for an automatic or manual switch.			
IB5	**HVAC and service water piping design and insulation [and sealing]**: Installed [duct and] piping insulation [shall]must be visually inspected to verify correct insulation placement and values. [Ducts, air handlers, filter boxes and building cavities used as ducts shall be visually inspected for proper sealing.] Service hot water distribution systems must be inspected to verify the supply of heated water.	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	**Duct leakage testing, insulation and design**: All ductwork and air handlers must be inspected to verify that the system is entirely within conditioned space. Ducts must be verified by visual inspection for proper sizing. Ducts, air handlers, filter boxes and building cavities used as ducts must be visually inspected for proper sealing. [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.	Prior to closing ceilings and walls and prior to final construction inspection	Approved construction documents; ASHRAE 193; ASHRAE Manual D	[R403.3.3, R403.3.4,] R403.3, [R403.8,]C403; MC603.9
IC	**Electrical Power and Lighting Systems**			
IC1	**[Electrical energy consumption]Metering**: The presence and operation of individual meters	Prior to final electrical and	Approved construction documents	R404.2

	[shall]must be verified by visual inspection for all dwelling units.	construction inspection		
IC2	**Interior lighting power**: 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	R404.1
ID	**Other**			
ID1	**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. Labels required for such equipment or systems [shall]must be inspected for accuracy and completeness.	Prior to sign-off or issuance of Certificate of Occupancy	Approved construction documents	R303.3
ID2	**Permanent certificate**: The installed permanent certificate [shall]must be visually inspected for location, completeness and accuracy.	Prior to final plumbing, electrical and/or construction inspection as applicable	Approved construction documents	R401.3, [RB103.8;] 1RCNY 5000-01(g)[(5)](4)
ID3	**[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 compliance. Location [shall]must be noted on the permanent certificate.	Prior to final construction inspection	Approved construction documents	[RB103.3, RB103.7, RB103.8] R404.3

§8. Table II of subdivision (h) of section 5000-01 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

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 [shall]must be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space	As required during foundation work and prior to backfill	Approved construction documents, ASTM C272	C303.2.1; ASHRAE 90.1 – [5.8.1.7] 5.8.1, 5.9

	walls and/or the perimeter of slab-on-grade floors.			
IIA2	**Insulation placement and R-values**: Installed insulation for each component of the conditioned space envelope and at junctions between components, including thermal bridges and heated slab insulation, [shall]must 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 [shall]also be [similarly] visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	C303.1, [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
IIA3	**Fenestration and door U-factor and product ratings**: U-factors, SHGC and VT values of installed fenestration [shall]must 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, NFRC 300, ANSI/DASMA 105, ASTM E972	C303.1, C303.1.3, 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
IIA4	**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. 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. Weatherseals at loading docks must be visually verified.	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, C402.5.6; ASHRAE 90.1 –5.4.3.2, 5.4.3.3, [5.8.2.2]5.8.2, 5.9
IIA5	**Fenestration areas**: Dimensions of windows, doors and skylights [shall]must be verified by visual inspection.	Prior to final construction inspection	Approved construction documents	C402.4; ASHRAE 90.1 –5.4, [5.5.4.2,] 5.5.4, 5.6, 5.9

				11 or Appendix G
IIA6	**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. 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.	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, 5.9
IIA7	**Air [sealing and insulation]barrier testing**: Testing [must] must be performed in accordance with section ECC [C402.5.1.3]C402.5.1.3.1 or ASHRAE 90.1 section [5.4.3.5]5.4.3.1.3, and shall be accepted if the building [and/or its air-barrier assemblies] meets the requirements detailed in such section. 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.	As required during construction, or prior to final construction inspection	Approved construction documents; ASTM E 779, ANSI/BOMA Z65.1, ASTM E3158, RESNET/ICC 380	C402.5, C402.5.1.3, C406; ASHRAE 90.1 – [5.4.3.5]5.4.3.1.3, 5.9, Appendix I
IIA8	**[Loading dock weatherseals**: Weatherseals at loading docks shall be visually verified.] **Air barrier continuity plan testing:** 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 must be retained in accordance with the provisions of Title 28 of the Administrative Code.	[Prior to final construction inspection]As required during construction	Approved construction documents; ASTM E779, ASTM E1186, ASTM E2813, ASTM E3158	[C402.5.6; ASHRAE 90.1 – 5.4.3.3] C402.5.1.3; ASHRAE 90.1 – 5.4.3.1.3, 5.9

	Testing must be performed by a third-party independent of the contractor and acceptable to the department.			
IIA9	**Vestibules**: Required entrance vestibules [shall]must 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 [shall]must be verified by visual inspection.	Prior to final construction inspection	Approved construction documents; [ANSI Z21.60 (see also MC 904), ANSI Z21.50]UL 127	[C402.2.7;] C402.2.8; 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 envelope [shall]must be visually inspected to verify that such dampers, except where permitted to be gravity dampers, comply with approved construction drawings. Manufacturer's literature [shall]must be reviewed to verify that the product has been tested and found to meet the standard.	As required during installation	Approved construction documents; AMCA 500D	[C403.2.4.3;] C402.5.5, C403.7.7; ASHRAE 90.1 – 6.4.3.4
IIB3	**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, [shall]must be verified by visual inspection and, where necessary, review of manufacturer's data. Pool heaters and covers [shall]must be verified by visual inspection.	Prior to final plumbing and construction inspection	Approved construction documents, ASHRAE 183, ASHRAE HVAC Systems and Equipment Handbook	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
IIB4	**HVAC-R and service water heating system controls**: No less than 20% of each type of required controls [shall]must be verified by visual inspection and tested for functionality and proper operation. Such controls [shall]must include, but are not limited to: • 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 • 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 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	After installation and prior to final electrical and construction inspection, except that for controls with seasonally dependent functionality, such testing [shall]must 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	[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

	[shall]must perform a supplemental inspection where the controls are visually inspected and tested for functionality and proper operation during the next immediate season thereafter. The owner [shall]must provide full access to the progress inspector within two weeks of the progress inspector's request for such access to perform the progress inspection. For such supplemental inspections, the Department [shall]must be notified by the approved progress inspection agency of any unresolved deficiencies in the installed work within 180 days of such supplemental inspection.			
IIB5	**HVAC-R and service water piping design and insulation [and sealing]**: Installed [duct and] piping insulation [shall]must be visually inspected to verify proper insulation placement and values. Service hot water distribution systems must be inspected to verify the supply of heated water. [Joints, longitudinal and transverse seams and connections in ductwork shall be visually inspected for proper sealing.]	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	**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] must be tested to verify that actual air leakage is below allowable amounts. Installed duct insulation must be visually inspected to verify proper insulation placement and values.	After installation and sealing and prior to closing shafts, ceilings and walls	Approved construction documents; SMACNA HVAC Air Duct Leakage Test Manual; SMACNA Duct Construction Standards, Metal and Flexible	[C403.2.9.1.3] C403.11;ASHRAE 90.1 – 6.4.4.2.2

	Joints, longitudinal and transverse seams and connections in ductwork must be visually inspected for proper sealing.			
IIC	**Electrical Power and Lighting Systems**			
IIC1	**[Electrical energy consumption]Metering**: The presence and operation of all required meters for monitoring total electrical energy usage and/or total fuel use, 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.	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, 8.4.6, 10.4.5
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; 1RCNY §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; 1RCNY §101-07(c)(3)(v)(C)4
IIC5	**Lighting controls**: Each type of required lighting controls, including: • occupant sensors • manual interior lighting controls • light-reduction controls • automatic lighting shut-off • daylight zone controls • sleeping unit controls • exterior lighting controls • egress illumination controls	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

	[shall]must be verified by visual inspection and tested for functionality and proper operation.			
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 [shall] be visually inspected to verify that they comply with the respective energy requirements in the construction documents. Elevators and escalators must be inspected for compliance with regenerative drive requirements.	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; ASHRAE 90.1 – 8.4.4, 10.4, 10.8
IID	**Other**			
IID1	**Maintenance information**: Maintenance manuals for mechanical, service hot water and electrical 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. Labels required for such equipment or systems [shall]must 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	[C303.3,] C408.1.1, C408.2.5.2, C408.3.2; ASHRAE 90.1 – 4.2.2.3, 6.7.2.2, 6.7.2.3.5.2, 8.7.2, 9.7.2.2, 9.4.3.2.2

§9. The introductory paragraph of section 5000-02 of Chapter 5000 of title 1 of the rules of the city of New York is amended to read as follows:

§ 5000-02 Amendment to ASHRAE 90.1 Relating to Lighting Controls and Modeling Requirements.

Pursuant to Section 28-103.19 of the Administrative Code of the City of New York, ASHRAE 90.1, as modified by Section ECC CA102.1 of the 2016 New York City Energy Conservation Code, [appendix CA of Section 28-1001.2.2 of such code,] is hereby amended to read as follows:

§10. Paragraphs (10) through (16) of subdivision (a) of section 101-07 of Subchapter A of Chapter 100 of title 1 of the rules of the city of New York are renumbered (11) through (17) and subdivision (a) is amended by adding a new paragraph (10) to read as follows:

(10) *Qualified commissioning agent.* An individual with at least 3 years of relevant experience.

§11. Clause (C) of subparagraph (v) of paragraph (3) of subdivision (c) of section 101-07 of Subchapter A of Chapter 100 of Title 1 of the Rules of the City of New York is amended to read as follows:

(C) *Energy code verifications.* Progress inspectors for Energy Code compliance shall perform inspections in accordance with the following:

1. *Reports.* The progress inspector is required to compile all documentation, as required in paragraph (3) of subdivision (b) of this section, into a report. The report must also include, but shall not be limited to:

i. Identification of the Energy Code Progress Inspections performed;

ii. A list of the approved construction documents referenced for each inspection performed;

iii. Identification of any inspections performed where the built conditions observed were not in compliance with the energy code as documented in the approved construction documentation;

iv. Identification of any inspections performed where non-compliant built conditions, documented in accordance with Item iii above, were corrected and made in compliance with the energy code as documented in the approved construction documentation;

v. Photographic documentation. Each report must include a dated photo sufficient to identify the building, a dated photo of the progress inspector and/or his or her employees performing physical inspections, and a dated photo for each inspection performed. All photographs must be date-stamped, clearly legible, labeled indicating the related inspection, and include enough visible evidence to support the determinations contained in the report, including but not limited to scale reference demonstrating insulation depths, insulation installer certificate.

vi. Signed and sealed by the Progress Inspection Agency with a statement of approval such as "To the best of my knowledge, belief, and professional judgement, all work performed substantially conforms to the latest relevant approved construction documents and has been performed in accordance with applicable provisions of the New York City Energy Conservation Code and other designed rules and regulations."

[1.] 2. *Sampling.* Unless noted otherwise in the Inspection/Test columns of Tables I and II of 1 RCNY §5000-01 (h), required

inspections or tests [shall]must be performed on not less than 15% of each relevant construction item in the scope of work as listed in the applicable table, and on not less than one of each type where applicable. Selection of such sample construction shall be at the sole discretion of the progress inspector. Nothing in this item shall prevent the progress inspector from determining that, in his or her professional judgment, more than 15% of a given type of construction item [shall]must be inspected.

[2.] 3. *Phased inspection for temporary certificates of occupancy*. Prior to issuance of a temporary certificate of occupancy for less than the total scope of work, [inspection shall be required for]all work serving the portion of the building for which the temporary certificate of occupancy is to be issued must be inspected. Where a practical difficulty for some inspections is demonstrated to the commissioner, the commissioner may grant a waiver of those inspections for a specified time or until final inspection for the final certificate of occupancy.

[3.] 4. *Phased inspection of controls*. Notwithstanding item [2] 3 of this clause, where inspection of the HVAC and lighting controls for central head-end systems and communication networks depends upon completion of installation of all related end devices and components located in the building, such inspection of such controls for head-end systems and communication networks [shall]must be completed prior to issuance of a final certificate of occupancy.

[4.] 5. [*Lighting*] *Installed value more efficient than approved energy analysis.* Where the progress inspector verifies that, for any given space or system, the [lighting power density is less] installed performance value is more efficient than the [lighting power density for such space] performance value on the approved construction documents, the progress inspector may approve such space without the need for revised construction documents to be submitted to and approved by the Department. [For the purposes of this item, a space shall mean an area within the building separated by floor-to-ceiling partitions from all other spaces within the building.]

§12. Subdivision (c) of section 101-07 of Subchapter A of Chapter 100 of Title 1 of the Rules of the City of New York is amended by adding a new paragraph (9) to read as follows:

(9) Commissioning approved agencies. An agency shall be deemed an approved agency for performing commissioning in accordance with the Energy Conservation Code, where such agency complies with the following:

(i) Responsibility of owner. It shall be the responsibility of the owner to retain an approved agency to perform commissioning for a new building or alteration.

(ii) Obligation to avoid conflict of interest. A commissioning approved agency must not engage in any activities that may conflict with their objection judgment and integrity, including, but not limited to, having a financial and/or other interest in the construction, installation, manufacture or maintenance of structures or components that they inspect.

(iii) Agency qualifications. Commissioning and related testing pursuant to section C408 of the Energy Conservation Code shall be performed by or under the direct supervision of a qualified commissioning agent.

(iv) A qualified commissioning agency must maintain records of inspections and tests for at least 6 years and must make such records available to the department upon request.

(v) A qualified commissioning agency must maintain insurance coverage as set forth in paragraph (7) of subdivision (b) above.

(vi) All commissioning and test reports must be presented in a form acceptable to the department and must bear the name of the commissioning agency and the name of the qualified commissioning agent who supervised each inspection or test.

This rule has an effective date of 08-05-18

NOTICE OF ADOPTION OF RULE

NOTICE IS HEREBY GIVEN, pursuant to the authority vested in the Commissioner of the Department of Buildings by Section 643 of the New York City Charter and in accordance with Section 1043 of the Charter, that the Department of Buildings hereby adopts the amendments to Section 5000-02 of Title 1 of the Official Compilation of the Rules of the City of New York, relating to the implementation of the New York City Energy Conservation Code to conform to changes in the New York City Energy Conservation Code that were necessitated by updates to the New York State Energy Code that went into effect on October 3, 2016.

This rule was first published on March 27, 2018 and a public hearing thereon was held on May 2, 2018.

Dated: 6.20.18
New York, New York

Rick D. Chandler, P.E.
Commissioner

Statement of Basis and Purpose

The Department of Buildings (DOB) is adding a new rule to make corrections to the reference standard ASHRAE 90.1, as identified in Appendix CA of the Energy Conservation Code, and to clarify modeling methodology for lighting and pump controls.

Specifically, the rule:

- Adds a new section 5000-02 regarding lighting control requirements under American Society of Heating, Refrigerating and Air Conditioning Engineers ("ASHRAE") 90.1 to Title 1 of the RCNY,
- Adds clarifying language to Section 9.4.1.1, item c, which was omitted due to typographical error. The requirement for occupancy controls for open plan offices was added by the City, but the requirement for partial automatic ON was intended to be exempted,
- Updates the requirements of Table 9.6.1 to conform it to the requirements of ASHRAE standard 90.1-2013. These control requirements were omitted from Local Law 91 of 2016 due to typographical error,
- Further clarifies certain modeling requirements based on published addenda to ASHRAE 90.1-2013,
- Revises Section 4.2 to clarify that Appendix G is allowed for additions and alterations, and Section 11 is allowed for alterations,
- Revises Table G3.1, number 6, Lighting, to correct an inconsistency in modeling the lighting baseline requirements for not yet designed spaces and add details on modeling lighting controls,
- Revises Table G3.1.1-4 to modify a footnote to be consistent with the modeling approach of setting the baseline heat fuel source by climate zone,
- Revises Sections G3.1.3.5, G3.1.3.10 and G3.1.3.11 to provide more detail for the baseline model with regard to pumps, and
- Revises Table G3.7 to clarify the allowable reduction in lighting LPD when applying occupancy controls to the baseline lighting.

The Department of Buildings' authority for this rule is found in sections 643 and 1043 of the New York City Charter, section 28-103.19 of the New York City Administrative Code and section ECC CA102.1 of the New York City Energy Conservation Code.

New material is underlined.
[Deleted material is in brackets.]

"Shall" and "must" denote mandatory requirements and may be used interchangeably in the rules of this department, unless otherwise specified or unless the context clearly indicates otherwise.

Section 1. Chapter 5000 of Title 1 of the Rules of the City of New York is amended by adding a new section 5000-02 to read as follows:

§ 5000-02 Amendment to ASHRAE 90.1 Relating to Lighting Controls and Modeling Requirements. Pursuant to section 28-103.19 of the Administrative Code of the City of New York, ASHRAE 90.1, as modified by section CA102.1 of appendix CA of section 28-1001.2.2 of such code, is amended to read as follows:

4.2.1.2 Additions to Existing Buildings.

Revise Section 4.2.1.2 to read as follows:

4.2.1.2 Additions to Existing Buildings. Additions to existing buildings shall comply with either the provisions of Sections 5, 6, 7, 8, 9, and 10 or Section 11 or Normative Appendix G.

4.2.1.2.1 When an addition to an existing building cannot comply by itself, trade-offs will be allowed by modification to one or more of the existing components of the existing building. Modeling of the modified components of the existing building and addition shall employ the procedures of Section 11 or Normative Appendix G; the addition shall not increase the energy consumption of the existing building plus the addition beyond the energy that would be consumed by the existing building plus the addition if the addition alone did comply.

4.2.1.3 Alterations to Existing Buildings.

Revise Section 4.2.1.3 to read as follows:

4.2.1.3 Alterations to Existing Buildings. Alterations of existing buildings shall comply with the provisions of Sections 5, 6, 7, 8, 9, and 10 or Section 11 or Normative Appendix G.

Exception: Historic buildings need not comply with these requirements.

9.4.1.1 Interior Lighting Controls.

Revise Item c of Section 9.4.1.1 to read as follows:

c. *Restricted to partial automatic ON*: No more than 50% of the lighting power for the general lighting shall be allowed to be automatically turned on, and none of the remaining lighting shall be automatically turned on. For open plan offices, a control device meeting this requirement shall control no more than 2500 ft^2.

Table 9.6.1 Lighting Power Density Allowances Using the Space-by-Space Method and Minimum Control Requirements Using Either Method.

Revise Table 9.6.1 to read as follows:

TABLE 9.6.1 Lighting Power Density Allowances Using the Space-by-Space Method and Minimum Control Requirements Using Either Method

Informative Note: This table is divided into two sections; this first section covers space types that can be commonly found in multiple building types. The second part of this table covers space types that are typically found in a single building type.			**The control functions below shall be implemented in accordance with the descriptions found in the referenced paragraphs within Section 9.4.1.1. For each space type: (1) All REQs shall be implemented. (2) At least one ADD1 (when present) shall be implemented. (3) At least one ADD2 (when present) shall be implemented.**								
			Local Control (See Section9.4.1.1(a))	**Restricted to Manual ON (See Section9.4.1.1(b))**	**Restricted to Partial Automatic ON (See Section9.4.1.1(c))**	**Bilevel Lighting Control(See Section9.4.1.1(d))**	**AutomaticDaylight Responsive Controls for Sidelighting (See Section 9.4.1.1(e)[6])**	**Automatic Daylight Responsive Controls for Toplighting (See Section 9.4.1.1(f)[6])**	**Automatic Partial OFF (See Section 9.4.1.1(g) (Full Off complies))**	**Automatic Full OFF (See Section 9.4.1.1(h))**	**Scheduled Shutoff (See Section 9.4.1.1(i))**
Common Space Types[1]	**LPD W/ft²**	**RCR Threshold**	**a**	**b**	**C**	**d**	**e**	**f**	**g**	**h**	**i**
Atrium											
…that is < 20 ft in height	0.03/ft total height	NA	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
…that is ≥ 20 ft and ≤ 40 ft in height	0.03/ft total height	NA	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…that is > 40 ft in height	0.40 + 0.02/ft total height	NA	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Audience Seating Area											
…in an auditorium	0.63	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a convention center	0.82	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a gymnasium	0.65	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a motion picture theater	1.14	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a penitentiary	0.28	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
…in a performing arts theater	2.43	8	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a religious building	1.53	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a sports arena	0.43	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
…all other audience seating areas	0.43	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
Banking Activity Area	1.01	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Breakroom (See Lounge/Breakroom)											
Classroom/Lecture hall/Training Room[8,9]											
…in a penitentiary	1.34	4	REQ	REQ	-	REQ	REQ	REQ	-	REQ	-
…all other classrooms/lecture halls/training rooms	1.24	4	REQ	REQ	-	REQ	REQ	REQ	-	REQ	-
Conference/Meeting/Multipurpose Room[8,9]	1.23	6	REQ	REQ	-	REQ	REQ	REQ	-	REQ	-
Confinement Cells	0.81	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Copy/Print Room	0.72	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	REQ	-

Corridor[2]											
…in a facility for the visually impaired (and not used primarily by the staff)[3]	0.92	width < 8 ft	REQ	-	-	-	REQ	REQ	REQ	ADD2	ADD2
…in a hospital	0.99	width < 8 ft	REQ	-	-	-	REQ	REQ	ADD2	ADD2	ADD2
…in a manufacturing facility	0.41	width < 8 ft	REQ	-	-	-	REQ	REQ	-	ADD2	ADD2
…all other corridors	0.66	width < 8 ft	REQ	-	-	-	REQ	REQ	REQ	ADD2	ADD2
Courtroom	1.72	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Computer Room	1.71	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Dining Area											
…in a penitentiary	0.96	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a facility for the visually impaired and not used primarily by staff)[3]	2.65	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in bar lounge or leisure dining	1.07	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in cafeteria or fast food dining`	0.65	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in family dining	0.89	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…all other dining areas	0.65	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Electrical/Mechanical Room[7]	0.42	6	REQ	-	-	-	REQ	REQ	-	-	-
Emergency Vehicle Garage	0.56	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
Food Preparation Area	1.21	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Guest Room	0.91	6	See Section 9.4.1.3b.								
Laboratory											
…in or as a classroom	1.43	6	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2
…all other laboratories	1.81	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Laundry/Washing Area	0.60	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Loading Dock, Interior	0.47	6	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
Lobby											
…in a facility for the visually impaired and not used primarily by staff)[3]	1.80	4	REQ	-	-	-	REQ	REQ	REQ	ADD2	ADD2
…for an elevator	0.64	6	REQ	-	-	-	REQ	REQ	-	ADD2	ADD2
…in a hotel	1.06	4	REQ	-	-	-	REQ	REQ	-	ADD2	ADD2
…in a motion picture theater	0.59	4	REQ	-	-	-	REQ	REQ	-	ADD2	ADD2
…in a performing arts theater	2.00	6	REQ	-	-	-	REQ	REQ	REQ	ADD2	ADD2
…all other lobbies	0.90	4	REQ	-	-	-	REQ	REQ	REQ	ADD2	ADD2
Locker Room	0.75	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	REQ	-
Lounge/Breakroom[8,9]											
…in a healthcare facility	0.92	6	REQ	REQ	-	REQ	REQ	REQ	-	REQ	-
…all other lounges/breakrooms	0.73	4	REQ	REQ	-	REQ	REQ	REQ	-	REQ	-
Office											
…enclosed and ≤ 250 ft^2[2(8,9)]	1.0	8	REQ	REQ	-	REQ	REQ	REQ	-	REQ	-
…enclosed and > 250 ft^2	1.0	8	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…open plan	0.90	4	REQ	-	REQ	REQ	REQ	REQ	-	REQ	-
Parking Area, Interior	0.19	4	See Section 9.4.1.2								
Pharmacy Area	1.68	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Restroom											
…in a facility for the visually impaired (and not used primarily by the staff)[3]	1.21	8	REQ	-	-	-	REQ	REQ	-	REQ	-

…all other restrooms	0.98	8	REQ	-	-	-	REQ	REQ	-	REQ	-
Sales Area[4]	1.30	6	REQ	ADD1	ADD1	REQ	-	REQ	-	ADD2	ADD2
Seating Area, General	0.54	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
Stairway	The space containing the stairway shall determine the LPD and control requirements for the stairway.										
Stairwell	0.69	10	REQ	-	-	REQ	REQ	REQ	REQ	ADD2	ADD2
Storage Room											
…< 50 ft^2	1.24	6	REQ	-	-	-	-	-	-	ADD2	ADD2
…≥ 50 ft^2 and ≤1000 ft^2	0.63	6	REQ	ADD1	ADD1	-	REQ	REQ	-	REQ	-
…all other storage rooms	0.63	6	REQ	ADD1	ADD1	-	REQ	REQ	REQ	ADD2	ADD2
Vehicular Maintenance Area	0.67	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Workshop	1.59	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2

TABLE 9.6.1 Lighting Power Density Allowances Using the Space-by-Space Method and Minimum Control Requirements Using Either Method (Continued)

Informative Note: This table is divided into two sections; this first section covers space types that can be commonly found in multiple building types. The second part of this table covers space types that are typically found in a single building type.			**The control functions below shall be implemented in accordance with the descriptions found in the referenced paragraphs within Section 9.4.1.1. For each space type: (1) All REQs shall be implemented. (2) At least one ADD1 (when present) shall be implemented. (3) At least one ADD2 (when present) shall be implemented.**								
			Local Control (See Section 9.4.1.1(a))	**Restricted to Manual ON (See Section 9.4.1.1(b))**	**Restricted to Partial Automatic ON (See Section 9.4.1.1(c))**	**Bilevel Lighting Control (See Section 9.4.1.1(d))**	**Automatic Daylight Responsive Controls for Sidelighting (See Section 9.4.1.1(e)[6])**	**Automatic Daylight Responsive Controls for Toplighting (See Section 9.4.1.1(f)[6])**	**Automatic Partial OFF (See Section 9.4.1.1(g) (Full Off complies))**	**Automatic Full OFF (See Section 9.4.1.1(h))**	**Scheduled Shutoff (See Section 9.4.1.1(i))**
Building Type Specific/Space Types[1]	**LPD W/ft²[2]**	**RCR Threshold**	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**
Facility for the Visually Impaired[3]											
…in a chapel (used primarily by residents)	2.21	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a recreation room/common living room (and not used primarily by staff)	2.41	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Automotive (See "Vehicular Maintenance Area")											
Convention Center-Exhibit Space	1.45	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Dormitory-Living Quarters	0.38	8	REQ	-	-	-	-	-	-	-	-
Fire Station-Sleeping Quarters	0.22	6	REQ	-	-	-	-	-	-	-	-
Facility for the Visually Impaired[3]											
…in a recreation room/common living room (and not used primarily by staff)	2.41	6	-	-	-	-	-	-	-	-	-
Gymnasium/Fitness Center											
…in an exercise area	0.72	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a playing area	1.20	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Healthcare Facility											
…in an exam/treatment room	1.66	8	REQ	-	-	REQ	REQ	REQ	-	ADD2	ADD2
…in an imaging room	1.51	6	REQ	-	-	REQ	-	-	-	ADD2	ADD2
…in a medical supply room	0.74	6	(See "Storage Room" under "Common Space Types" for control requirements)								
…in a nursery	0.88	6	REQ	-	-	REQ	REQ	REQ	-	ADD2	ADD2
…in a nurse's station	0.71	6	REQ	-	-	REQ	REQ	REQ	-	ADD2	ADD2
…in an operating room	2.48	6	REQ	-	-	REQ	-	-	-	ADD2	ADD2
…in a patient room	0.62	6	REQ	-	-	REQ	REQ	REQ	-	ADD2	ADD2
…in a physical therapy room	0.91	6	REQ	-	-	REQ	REQ	REQ	-	ADD2	ADD2
…in a recovery room	1.15	6	REQ	-	-	REQ	REQ	REQ	-	ADD2	ADD2
Library											
…in a reading area	1.06	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2

Informative Note: This table is divided into two sections; this first section covers space types that can be commonly found in multiple building types. The second part of this table covers space types that are typically found in a single building type.

The control functions below shall be implemented in accordance with the descriptions found in the referenced paragraphs within Section 9.4.1.1. For each space type: (1) All REQs shall be implemented. (2) At least one ADD1 (when present) shall be implemented. (3) At least one ADD2 (when present) shall be implemented.

			Local Control (See Section 9.4.1.1(a))	Restricted to Manual ON (See Section 9.4.1.1(b))	Restricted to Partial Automatic ON (See Section 9.4.1.1(c))	Bilevel Lighting Control (See Section 9.4.1.1(d))	Automatic Daylight Responsive Controls for Sidelighting (See Section 9.4.1.1(e)[6])	Automatic Daylight Responsive Controls for Toplighting (See Section 9.4.1.1(f)[6])	Automatic Partial OFF (See Section 9.4.1.1(g) (Full Off complies))	Automatic Full OFF (See Section 9.4.1.1(h))	Scheduled Shutoff (See Section 9.4.1.1(i))
Building Type Specific/Space Types[1]	**LPD W/ft²**	**RCR Threshold**	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**
…in the stacks	1.71	4	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2
Manufacturing Facility											
…in a detailed manufacturing area	1.29	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in an equipment room	0.74	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in an extra high bay area (> 50 ft floor-to-ceiling height)	1.05	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a high bay area (25-50 ft floor-to-ceiling height)	1.23	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a low bay area (< 25 ft floor-to-ceiling height)	1.19	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Museum											
…in a general exhibition area	1.05	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a restoration room	1.02	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Performing Arts Theater-Dressing Room	0.61	6	REQ	ADD1	ADD1	REQ	REQ	REQ	-	REQ	-
Post Office-Sorting Area	0.94	4	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2
Religious Buildings											
…in a fellowship hall	0.64	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…in a worship/pulpit/choir area	1.53	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Retail Facilities											
…in a dressing/fitting room	0.71	8	REQ	ADD1	ADD1	REQ	-	REQ	-	REQ	-
…in a mall concourse	1.10	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Sports Arena-Playing Area											
…for a Class I facility	3.68	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…for a Class II facility	2.40	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…for a Class III facility	1.80	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
…for a Class IV facility	1.20	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Transportation Facility											
…in a baggage/carousel area	0.53	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
…in an airport concourse	0.36	4	REQ	ADD1	ADD1	-	REQ	REQ	-	ADD2	ADD2
…at a terminal ticket counter	0.80	4	REQ	ADD1	ADD1	REQ	REQ	REQ	-	ADD2	ADD2
Warehouse-Storage Area											
…for medium to bulky,	0.58	4	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2

Informative Note: This table is divided into two sections; this first section covers space types that can be commonly found in multiple building types. The second part of this table covers space types that are typically found in a single building type.			**The control functions below shall be implemented in accordance with the descriptions found in the referenced paragraphs within Section 9.4.1.1. For each space type: (1) All REQs shall be implemented. (2) At least one ADD1 (when present) shall be implemented. (3) At least one ADD2 (when present) shall be implemented.**								
			Local Control (See Section 9.4.1.1(a))	**Restricted to Manual ON (See Section 9.4.1.1(b))**	**Restricted to Partial Automatic ON (See Section 9.4.1.1(c))**	**Bilevel Lighting Control (See Section 9.4.1.1(d))**	**Automatic Daylight Responsive Controls for Sidelighting (See Section 9.4.1.1(e)[6])**	**Automatic Daylight Responsive Controls for Toplighting (See Section 9.4.1.1(f)[6])**	**Automatic Partial OFF (See Section 9.4.1.1(g) (Full Off complies))**	**Automatic Full OFF (See Section 9.4.1.1(h))**	**Scheduled Shutoff (See Section 9.4.1.1(i))**
Building Type Specific/Space Types[1]	**LPD W/ft²**	**RCR Threshold**	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**
palletized items …for smaller, hand-carried items[5]	0.95	6	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2

1. In cases where both a common space type and a building area specific space type are listed, the building area specific space type shall apply.
2. In corridors, the extra lighting power density allowance is permitted when the width of the corridor is less than 8 ft and is not based on the RCR.
3. A "Facility for the Visually Impaired" is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and is licensed or will be licensed by local/state authorities for either senior long-term care, adult daycare, senior support and/or people with special visual needs.
4. For accent lighting, see Section 9.6.2(b).
5. Sometimes referred to as a "Picking Area."
6. Automatic daylight responsive controls are mandatory only if the requirements of the specified sections are present.
7. An additional 0.53w/ft² shall be allowed, provided that the additional lighting is controlled separately from the base allowance of 0.42 W/ft². The additional 0.53 w/ft² allowance shall not be used for any other purpose.
8. Occupant sensor shall not have an override switch that converts from manual-on to automatic-on functionality.
9. The occupant sensor may have a grace period of up to 30 seconds to turn on the lighting automatically after the sensor has turned off the lighting if occupancy is detected.

APPENDIX G – PERFORMANCE RATING METHOD

G1.3 Trade-Off Limits.

Revise Section G1.3 to read as follows:

G1.3 Trade-Off Limits. RESERVED.

TABLE G3.1 Modeling Requirements for Calculating Proposed and Baseline Building Performance.

Revise Item 2 of Table G3.1 to read as follows:

No. Proposed Building Performance	Baseline Building Performance
2. Additions and Alterations	
It is acceptable to predict performance using building models that exclude parts of the existing building provided that all of the following conditions are met: a. Work to be performed in excluded parts of the building shall meet the requirements of Sections 5 through 10. b. Excluded parts of the building are served by HVAC systems that are entirely separate from those serving parts of the building that are included in the building model. c. Design space temperature and HVAC system operating setpoints and schedules on either side of the boundary between included and excluded parts of the building are essentially the same. d. If a declining block or similar utility rate is being used in the analysis, and the excluded and included parts of the building are on the same utility meter, the rate shall reflect the utility block or rate for the building plus the addition.	If the proposed building model excluded parts of the existing building, the baseline building model shall exclude them as well. When modeled, unmodified existing building component shall follow the same rules as new and modified building components.

Revise Item 6 of Table G3.1 to read as follows:

No. Proposed Building Performance	Baseline Building Performance
6. Lighting	
Lighting power in the proposed design shall be determined as follows: a. Where a complete lighting system exists, the actual lighting power for each thermal block shall be used in the model. b. Where a lighting system has been designed and submitted with design documents, lighting power shall be determined in accordance with Sections 9.1.3 and 9.1.4. c. Where lighting neither exists nor is submitted with design documents, lighting shall comply with but not exceed the requirements of Section 9. Where space types are known, lighting power shall be determined in accordance with the Space-by-Space Method. Where space types are not known, lighting power shall be determined in accordance with the Building Area Method. d. Lighting system power shall include all lighting system components shown or provided for on the plans (including lamps and ballasts and task and furniture- mounted fixtures). **Exception:** For multifamily dwelling units, hotel/motel guest rooms, and other spaces in which lighting systems are connected via receptacles and are not shown or provided for on building plans, assume identical lighting power for the proposed and baseline building designs in the simulations. e. Lighting power for parking garages and building facades shall be modeled. f. For lighting controls, at a minimum, the proposed building design shall contain the mandatory automatic lighting controls specified in Section 9.4.1 (e.g., automatic daylight responsive controls, occupancy sensors, programmable controls, etc.). These controls shall be modeled in accordance with (g) and (h). g. Automatic daylighting responsive controls shall be modeled directly in the proposed building design or through schedule adjustments determined by a separate daylighting analysis approved by the rating authority. Modeling and schedule adjustments shall separately account for primary sidelighted areas, secondary sidelighted areas, and toplighted areas. h. Other automatic lighting controls included in the proposed building design shall be modeled directly in the building simulation by reducing the lighting schedule each hour by the occupancy sensor reduction factors in Table G3.7 for the applicable space type. This reduction shall be taken only for lighting controlled by the occupancy sensors. Credit for other programmable lighting control in buildings less than 5,000 ft^2 can be taken by reducing the lighting schedule each hour by 10%.	Interior lighting power in the baseline building design shall be determined using the values in Table G3.7. **Exceptions:** Where lighting neither exists nor is submitted with design documents, and the proposed building lighting power is determined in accordance with the Building Area Method, the baseline lighting power shall be determined in accordance with Table G3.8. Lighting shall be modeled having the automatic shutoff controls in buildings > 5000 ft^2 and occupancy sensors in employee lunch and break rooms, conference/meeting rooms, and classrooms (not including shop classrooms, laboratory classrooms, and preschool through 12th grade classrooms). These controls shall be reflected in the baseline building design lighting schedules. No additional automatic lighting controls (e.g., automatic controls for daylight utilization and occupancy sensors in space types not listed above) shall be modeled in the baseline building design. Exterior lighting in areas identified as "Tradable Surfaces" in Table G3.6 shall be modeled with the baseline lighting power shown in Table G3.6. Other exterior lighting shall be modeled the same in the baseline building as in the *proposed design*.

TABLE G3.1.1-4 Baseline System Descriptions

Revise Table G3.1.1-4 to read as follows:

TABLE G3.1.1-4 Baseline System Descriptions

System No.	System Type	Fan Control	Cooling Type (1)	Heating Type (1)
1. PTAC	Packaged terminal air conditioner	Constant volume	Direct expansion	Hot-water fossil fuel boiler
2. PTHP	Packaged terminal heat pump	Constant volume	Direct expansion	Electric heat pump
3. PSZ-AC	Packaged rooftop air conditioner	Constant volume	Direct expansion	Fossil fuel furnace
4. PSZ-HP	Packaged rooftop heat pump	Constant volume	Direct expansion	Electric heat pump
5. Packaged VAV with Reheat	Packaged rooftop VAV with reheat	VAV	Direct expansion	Hot-water fossil fuel boiler
6. Packaged VAV with PFP Boxes	Packaged rooftop VAV with parallel fan power boxes and reheat	VAV	Direct expansion	Electric resistance
7. VAV with Reheat	VAV with reheat	VAV	Chilled water	Hot-water fossil fuel boiler
8.VAV with PFP Boxes	VAV with parallel fan-powered boxes and reheat	VAV	Chilled water	Electric resistance
9. Heating and Ventilation	Warm air furnace, gas fired	Constant volume	None	Fossil fuel furnace
10. Heating and Ventilation	Warm air furnace, electric	Constant volume	None	Electric resistance
11. SZ-VAV	Single-zone VAV	VAV	Chilled water	See note 2.
12. SZ-CV-HW	Single zone	Constant volume	Chilled water	Hot-water fossil fuel boiler
13. SZ-CV-ER	Single zone	Constant volume	Chilled water	Electric resistance

Notes:

1. For purchased chilled water and purchased heat, see G3.1.1.3.
2. For Climate Zones 0 through 3a, the heating type shall be electric resistance. For all other climate zones the heating type shall be hot-water fossil fuel boiler.

G3.1.3.5 Hot-Water Pumps.

Revise Section G3.1.3.5 to read as follows:

G3.1.3.5 Hot-Water Pumps. The baseline building design hot-water pump power shall be 19 W/gpm. The pumping system shall be modeled as primary-only with continuous variable flow and a minimum of 25% of the design flow rate. Hot-water systems serving 120,000 ft^2 or more shall be modeled with variable-speed drives, and systems serving less than 120,000 ft^2 shall be modeled as riding the pump curve.

Exception: The pump power for systems using purchased heat shall be 14 W/gpm.

G3.1.3.10 Chilled-Water Pumps.

Revise Section G3.1.3.10 to read as follows:

G3.1.3.10 Chilled-Water Pumps. Chilled-water systems shall be modeled as primary/secondary systems with constant flow primary loop and variable flow secondary loop. For systems with a cooling capacity of 300 tons or more, the secondary pump shall be modeled with variable-speed drive and a minimum flow of 25% of the design flow rate. For systems with less than 300 tons cooling capacity the secondary pump shall be modeled as riding the pump curve. The baseline building constant-volume primary pump power shall be modeled as 9 W/gpm and the variable-flow secondary pump power shall be modeled as 13 W/gpm at design conditions. For computer room systems using System 11 with an integrated water-side economizer, the baseline building design primary chilled-water pump power shall be increased by 3 W/gpm for flow associated with the water-side economizer.

Exception: For systems using purchased chilled water, the building distribution pump shall be modeled with variable-speed drive, a minimum flow of 25% of the design flow rate, and a pump power of 16 W/gpm.

G3.1.3.11 Heat Rejection.

Revise Section G3.1.3.11 to read as follows:

G3.1.3.11 Heat Rejection (Systems 7, 8, 11, and 12). The heat rejection device shall be an axial-fan open-circuit cooling tower with variable-speed fan control and shall have an efficiency of 38.2 gpm/hp at the conditions specified in Table 6.8.1-7. Condenser water design supply temperature shall be calculated using the cooling tower approach to the 0.4% evaporation design wet-bulb temperature as generated by the formula below, with a design temperature rise of 10°F.

$$\text{Approach}_{10°\text{F Range}} = 25.72 - (0.24 \times \text{WB})$$

where WB is the 0.4% evaporation design wet-bulb temperature in °F; valid for wet bulbs from 55°F to 90°F.

The tower shall be controlled to maintain a 70°F leaving water temperature where weather permits, floating up to leaving water temperature at design conditions. The baseline building design condenser-water pump power shall be 19 W/gpm. For computer room systems using System 11 with an integrated water-side economizer, the baseline building design condenser water-pump power shall be increased 3 W/gpm for flow associated with the water-side economizer. Each chiller shall be modeled with separate condenser water and chilled-water pumps interlocked to operate with the associated chiller.

TABLE G3.7 Performance Rating Method Lighting Power.

Revise Table G3.7 to read as follows:

TABLE G3.7 Performance Rating Method Lighting Power Densities and Occupancy Sensor Reductions Using the Space-by-Space Method

Common Space Types[a]	Lighting Power Density, W/ft^2	Occupancy Sensor Reduction[b]	Building Type Specific Space Types[a]	Lighting Power Density, W/ft^2	Occupancy Sensor Reduction[b]
Audience Seating Area			Assisted Living Facility		
…in an auditorium	0.90	10%	…in a chapel (used primarily by residents)	2.77	10%
…in a convention center	0.70	10%	…in a recreation room (used primarily by residents)	3.02	10%
…in an exercise center	0.30	10%	Automotive (See "Vehicular Maintenance Area")		
…in a gymnasium	0.40	10%	Convention Center – Exhibit Space	1.30	35%
…in a motion picture theater	1.20	10%	Dormitory – Living Quarters	1.11	10%
…in a penitentiary	0.70	10%	Fire Station – Sleeping Quarters	0.30	10%
…in a performing arts theater	2.60	10%	Gymnasium/Fitness Center		
…in a religious building	1.70	10%	…in an exercise area	0.90	35%
…in a sports arena	0.40	10%	…in a playing area	1.40	35%
…in a transportation facility	0.50	10%	Healthcare Facility		
…all other audience seating area	0.90	10%	…in an emergency room	2.70	10%
Atrium			…in an exam/treatment room	1.50	10%
…that is ≤ 40 ft in height	0.0375 per foot in total height	10%	…in an imaging room	0.40	22%
…that is > 40 ft in height	0.50 + 0.025 per foot in total height	10%	…in a medical supply room	1.40	45%
Banking Activity Area	1.50	10%	…in a nursery	0.60	10%
Breakroom (See Lounge/Breakroom)			…in a nurse's station	1.00	10%
Classroom/Lecture Hall/Training Room			…in an operating room	2.20	10%
…in a penitentiary	1.30	None	…in a patient room	0.70	10%
…all other classroom/lecture hall/training room	1.40	30%	…in a physical therapy room	0.90	10%
Conference/Meeting/Multipurpose Room	1.30	None	…in a recovery room	0.80	10%
Confinement Cells	0.90	10%	Library		
Copy/Print Room	0.90	10%	…in a reading area	1.20	15%
Corridor			…in the stacks	1.70	15%
…in a facility for the visually impaired (and used primarily by residents)	1.15	25%			
…in a hospital	1.00	25%	Manufacturing Facility		
…in a manufacturing facility	0.50	25%	…in a detailed manufacturing area	2.10	10%
…all other corridor	0.50	25%	…in an equipment room	1.20	10%
Courtroom	1.90	10%	…in an extra-high bay area (> 50 ft floor-to-ceiling height)	1.32	10%
Computer Room	2.14	35%	…in a high bay area (25-50 ft floor-to-ceiling height)	1.70	10%
Dining Area			…in a low bay area (< 25 ft floor-to-ceiling height)	1.20	10%
…in a penitentiary	1.30	35%	Museum		
…in a facility for the visually impaired (and used primarily by residents)	3.32	35%	…in a general exhibition area	1.00	10%
…in bar/lounge or leisure dining	1.40	35%	…in a restoration room	1.70	10%
…in cafeteria or fast food dining	0.90	35%	Post Office – Sorting Area	1.20	10%
…in family dining	2.10	35%	Religious Buildings		
…all other dining area	0.90	35%	…in a fellowship hall	0.90	10%
Electrical/Mechanical Room	1.50	30%	…in a worship/pulpit/choir area	2.40	10%
Emergency Vehicle Garage	0.80	10%	Retail Facilities		
Food Preparation Area	1.20	30%	…in a dressing/fitting room	0.89	10%
Guest Room	1.14	45%	…in a mall concourse	1.70	10%
Judges Chambers	1.30	30%	Sport Arena – Playing Area		
Laboratory			…for a Class I facility	4.61	10%
…in or as a classroom	1.40	None	…for a Class II facility	3.01	10%
…all other laboratories	1.40	10%	…for a Class III facility	2.26	10%
Laundry/Washing Area	0.60	10%	…for a Class IV facility	1.50	10%
Loading Dock, Interior	0.59	10%	Transportation Facility		
			…in a baggage/carousel area	1.00	10%

Lobby			…in an airport concourse	0.60	10%
…in a facility for the visually impaired (and used primarily by residents)	2.26	25%			
			…at a terminal ticket counter	1.50	10%
…for an elevator	0.80	25%	Warehouse – Storage Area		
			…for medium to bulky, palletized items	0.90	45%
…in a hotel	1.10	25%			
…in a motion picture theater	1.10	25%	…for smaller, hand-carried items	1.40	45%
…in a performing arts theater	3.30	25%			
…all other lobbies	1.30	25%			
Locker Room	0.60	25%			
Lounge/Breakroom					
…in a healthcare facility	0.80	None			
…all other lounge/breakroom	1.20	None			
Office					
…enclosed	1.10	30%			
…open plan	1.10	15%			
Parking Area, Interior	0.20	15%			
Pharmacy Area	1.20	10%			
Restroom					
…in a facility for the visually impaired (and used primarily by residents)	1.52	45%			
…all other restroom	0.90	45%			
Sales Area	1.70	15%			
Seating Area, General	0.68	10%			
Stairwell	0.60	75%			
Storage Room					
…in a hospital	0.90	45%			
…that is ≥ 50 ft2	0.80	45%			
…that is < 50 ft2	0.80	45%			
Vehicular Maintenance Area	0.70	10%			
Workshop	1.90	10%			

a. In cases where both a common space type and a building area specific space type are listed, the building area specific space type shall apply.
b. For manual-ON or partial-auto-ON occupancy sensors, the occupancy sensor reduction factor shall be multiplied by 1.25.
c. For occupancy sensors controlling individual workstation lighting, occupancy sensor reduction factor shall be 30%.