NEW YORK STATE | NYSERDA

New York State is Updating Code: Discussion on Timing and Proposed Changes

Speaker Information

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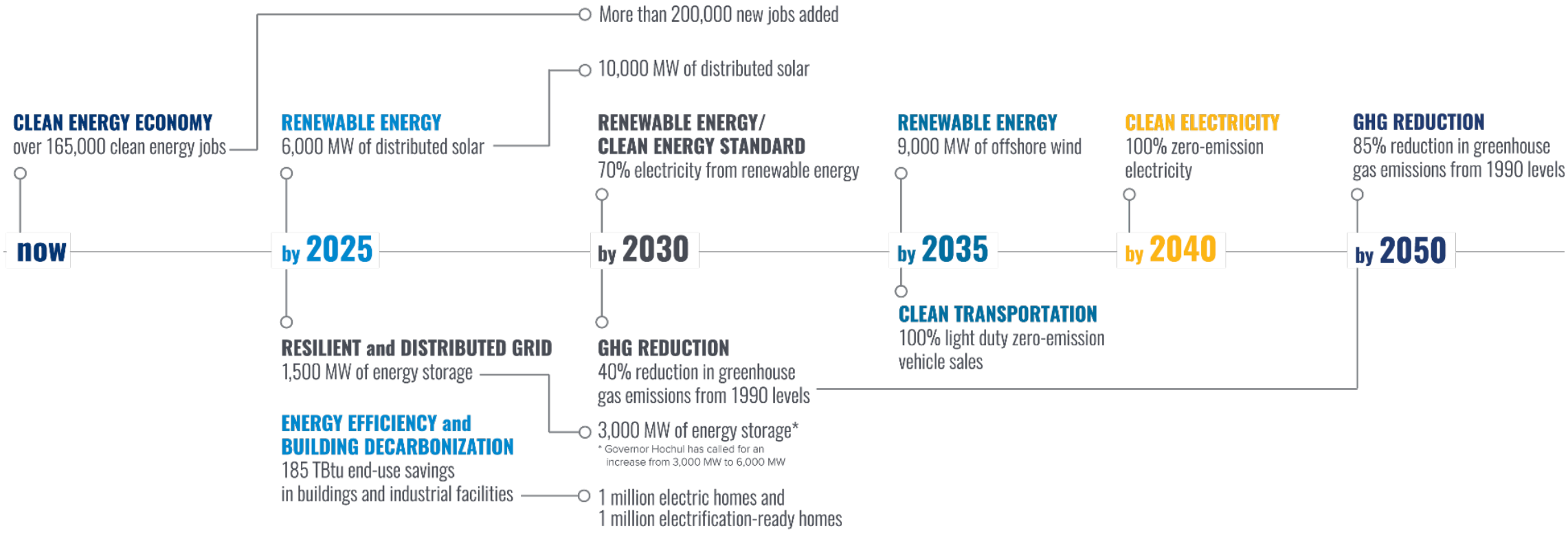
Agenda

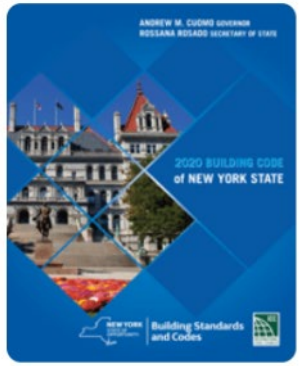
- Rulemaking context
- All-Electric Buildings Act
- Updates to the Energy Code (Codes & Standards Act of 2022)

New York Clean Energy Goals

40% REDUCTION IN GREENHOUSE GAS EMISSIONS BY 2030



Current NYS Uniform and Energy Codes

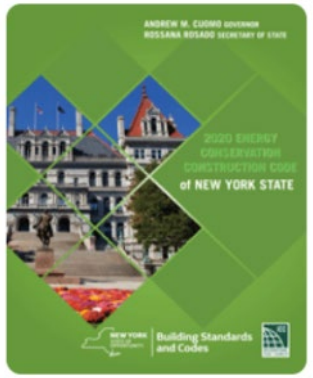


2020 BUILDING CODE OF NEW YORK STATE

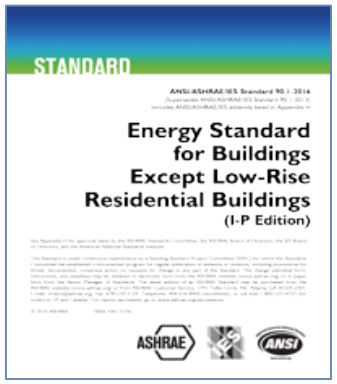
2020 RESIDENTIAL CODE OF NEW YORK STATE

2020 FIRE CODE OF NEW YORK STATE

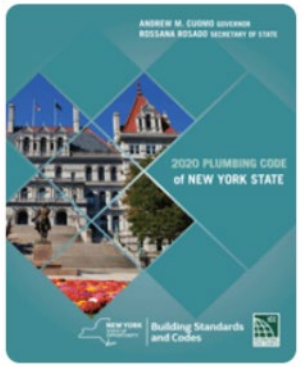
2020 MECHANICAL CODE OF NEW YORK STATE



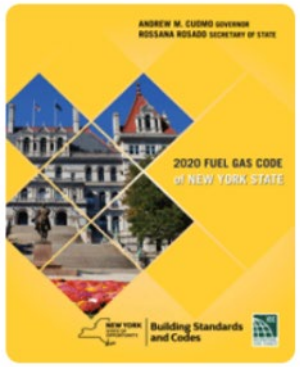
2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE



ASHRAE 90.1-2016

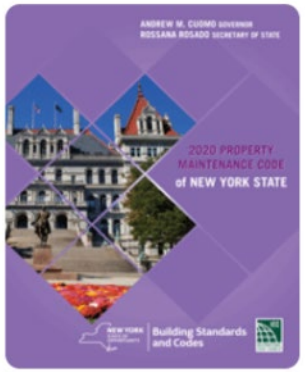


2020 PLUMBING CODE OF NEW YORK STATE



2020 FUEL GAS CODE OF NEW YORK STATE

2020 EXISTING BUILDING CODE OF NEW YORK STATE



2020 PROPERTY MAINTENANCE CODE OF NEW YORK STATE

The next NYS update will be based on the 2024 VERSION OF THE MODEL CODES

General Definitions

Residential Buildings

- Detached one-and two-family dwellings and town houses ≤ 3 stories above grade plane
- Group R-2, R-3 or R-4 buildings ≤ 3 stories above grade plane
- Factory manufactured homes

Commercial Buildings

- All buildings that are not included in the definition of “Residential Building”

Building Electrification

Proposed Rule Text, amends Part 1240 of Title 19 of the Official Compilation of Codes, Rules and Regulations of NYS (new section 1240.7)

Implements subdivisions 6-8 of Section 11-104 of Energy Law

Prohibits the installation of fossil-fuel equipment and building systems, with some exceptions, in new buildings;

(a) not more than seven stories in height or any commercial or industrial building with 100,000 square feet or less in conditioned floor area, for which a substantially complete building permit application is submitted on or after December 31, 2025; or

(b) for which a substantially complete building permit application is submitted after December 31, 2028.

Fossil fuel equipment always exempt in:

- Manufactured home
- Agricultural building
- Critical infrastructure
- Hospitals and other medical facilities
- Generation for emergency and standby power

Conditionally exempt in:

- Car wash
- Restaurant
- Crematorium
- Fuel cells
- Laboratory
- Manufacturing facility

Grid reliability exemption

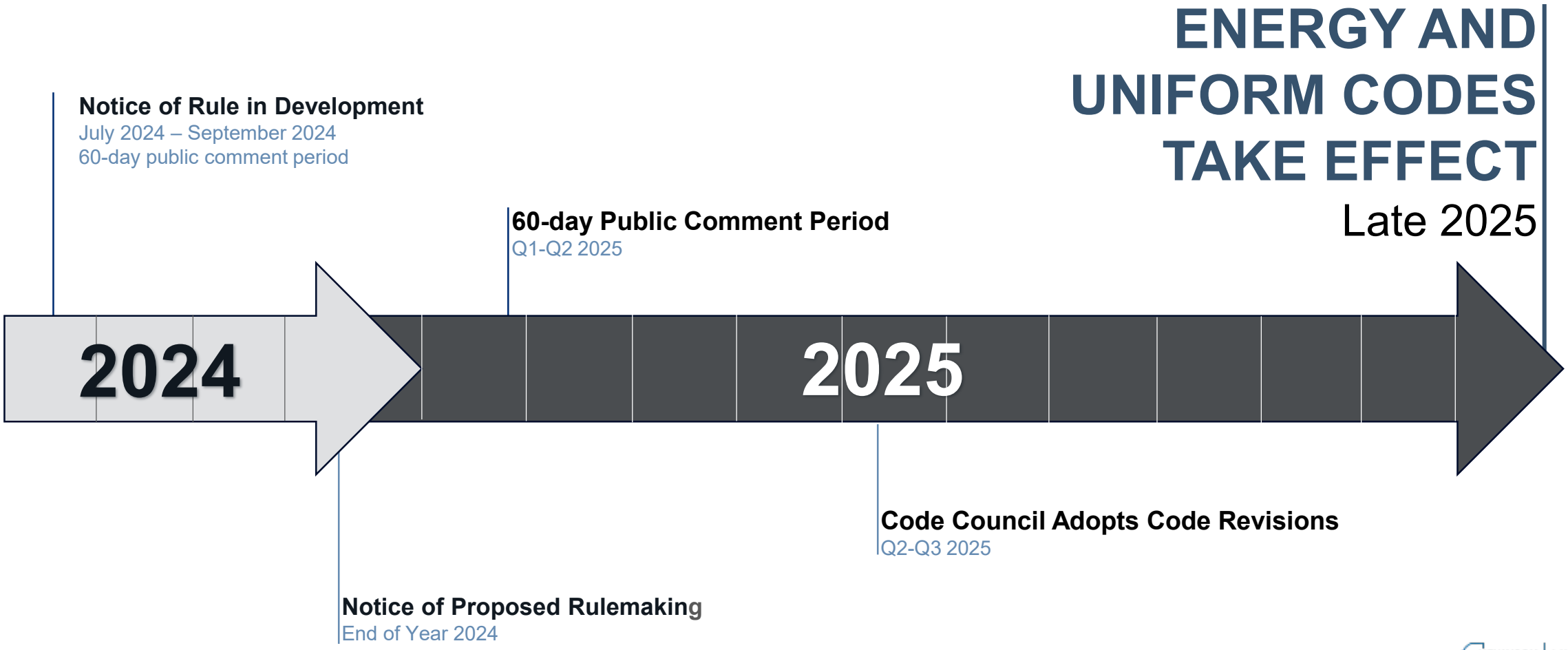
NYS Code Council

Code Council is Authorized to update the Uniform Code and Energy Code

- The State Fire Prevention and Building Code Council is comprised of 17 members appointed by the Governor, including some with the advice and consent of the Senate.
- The members of this group represent architects, engineers, builders, trade unions, persons with disabilities, code enforcement, fire prevention, villages, towns, cities, counties, state agencies, the State Fire Administrator and the Secretary of State.
- Updates to the NYS Uniform and Energy Code are enacted through a rulemaking process outlined in the State Administrative Procedure Act (SAPA) and usually occur every 3 years following national model code updates.

https://dos.ny.gov/state-fire-prevention-and-building-code-council

Code Council Rulemaking Timeline



NOTICE OF RULE IN DEVELOPMENT

Proposed Amendments to the Uniform Code

In light of the fact that DOS was working on preparing this Notice of Rule in Development simultaneously with the development of the 2024 ICC Codes, the draft documents show the proposed changes to the current version of each of the current 2020 NYS Code Books compared to the 2024 ICC Codes, along with NYS specific amendments. Please note that unaltered portions of the current 2020 NYS Code Books are not included within these documents. Specifically, the following draft documents comprise the collective proposed changes to the updated Uniform Code:

1. Proposed Changes to the Residential Code of New York State
2. Proposed Changes to the Building Code of New York State
3. Proposed Changes to the Plumbing Code of New York State
4. Proposed Changes to the Mechanical Code of New York State
5. Proposed Changes to the Fuel Gas Code of New York State
6. Proposed Changes to the Fire Code of New York State
7. Proposed Changes to the Property Maintenance Code of New York State
8. Proposed Changes to the Existing Building Code of New York State
9. Proposed Changes to Reference Standards
10. Proposed Changes to Chapter 1 of each of the NYS Code Books
11. Proposed Amendments to 19 NYCRR Part 1228 – Rail Stations
12. Proposed Amendments to 19 NYCRR Part 1229 – Other Uniform Code Provisions

https://dos.ny.gov/notice-rule-development

Proposed Amendments to the Energy Code

In light of the fact that DOS was working on preparing this Notice of Rule in Development simultaneously with the development of the 2024 International Energy Conservation Code (2024 IECC), the draft documents show the proposed changes to the current version of the 2020 Energy Conservation Construction Code of New York State (2020 ECCCNYS) compared to the 2024 IECC, along with NYS specific amendments, and proposed changes to ASHRAE 90.1-2022. Please note that unaltered portions of the current 2020 ECCCNYS are not included within these documents. Specifically, the following draft documents comprise the collective proposed changes to the updated Energy Code:

1. Proposed Changes to the Residential Provisions of the Energy Code
2. Proposed Changes to the Commercial Provisions of the Energy Code
3. Proposed Changes to ASHRAE 90.1-2022
4. Proposed Amendment to 19 NYCRR Part 1240 – fossil-fuel equipment and building systems

Notable Residential Changes

Substantial Improvement Defined

Substantial Improvement.

Any repair, rehabilitation, alteration, addition or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the building or structure before the improvement. The cost of improvements to a building to correct health, sanitary or safety code violations issued by the building official does not need to be included in the calculation of market value.

Climate Zone Updates

Were Climate Zone 6, now Climate Zone 5:

Allegany

Broome

Cattaraugus

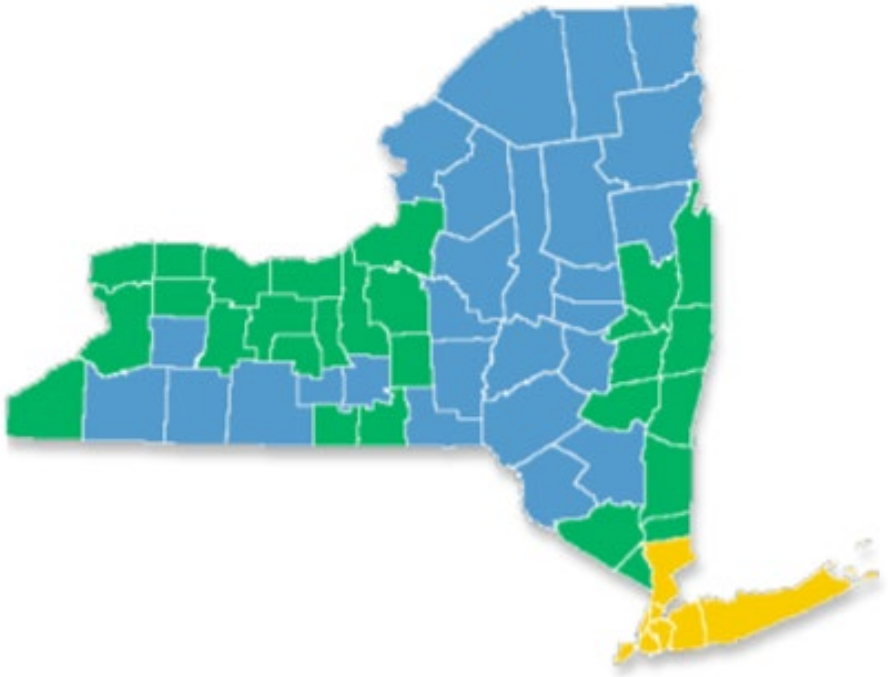
Schoharie

Schuyler

Steuben

Tompkins

Wyoming



Notable Prescriptive Envelope Improvements

- Vertical fenestration better than IECC 2024
- Defined option for roof deck insulation
- Jump in wood frame wall R-value
- Corresponding improvements reflected in U-factor table (R402.1.2)

[NY] TABLE ~~R402.1.2~~ R402.1.3
INSULATION MINIMUM *R*-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT [a]

CLIMATE ZONE	4	5	6 ~~Option 1~~	~~6 Option 2~~
VERTICAL FENESTRATION *U*-FACTOR [b,i,g]	~~0.32~~ 0.27	~~0.30~~ 0.27	~~0.30~~ 0.27	~~0.30~~
SKYLIGHT [b] *U*-FACTOR	~~0.55~~ 0.50	~~0.55~~ 0.50	~~0.55~~ 0.50	~~0.55~~
GLAZED VERTICAL FENESTRATION SHGC [b,e]	0.40	~~NR~~ 0.40	NR	~~NR~~
SKYLIGHT SHGC	0.40	NR	NR	
CEILING *R*-VALUE [i,h]	49	49	49	~~60~~
INSULATION ENTIRELY ABOVE ROOF DECK	R-30ci	R-30ci	R-30ci	
WOOD FRAME WALL *R*-VALUE [g]	~~20 or 13+5[h]~~ 30 or 20&5ci[h] or 13&10ci[h] or 0&20ci[h]	~~20 or 13+5[h]~~ 30 or 20&5ci[h] or 13&10ci[h] or 0&20ci[h]	~~20+5[h] or 13+10[h]~~ 30 or 20&5ci[h] or 13&10ci[h] or 0&20ci[h]	~~23 cavity~~
MASS WALL *R*-VALUE [h,f]	~~8/13~~ 15/20	~~13/17~~ 15/20	15/20	~~19/21~~
FLOOR *R*-VALUE [h]	~~19or 13+5ci or 15ci~~ 30[g] or 19+7.5ci or 20ci	30[g] or 19+7.5ci or 20ci	30[g] or 19+7.5ci or 20ci	~~30[g]~~
BASEMENT ~~[c,h]~~ WALL *R*-VALUE	~~10/13~~ 15ci or 19 or 13 + 5ci	~~15/19~~ 15ci or 19 or 13 + 5ci	~~15/19~~ 15ci or 19 or 13 + 5ci	~~15/19~~
UNHEATED SLAB ~~[d,c]~~ *R*-VALUE & DEPTH	10ci, ~~2~~ 4 ft	10ci, ~~2~~ 4 ft	10ci, 4 ft	~~10ci, 4 ft~~
HEATED SLAB [c] *R*-VALUE & DEPTH	R10ci, 4ft and R-10 full slab	R10ci, 4ft and R-10 full slab	R10ci, 4ft and R-10 full slab	~~R10ci, 4 ft and R-5 full slab~~
CRAWL SPACE ~~[c,h]~~ WALL *R*-VALUE [b, f]	~~10/13~~ 15ci or 19 or 13 + 5ci	~~15/19~~ 15ci or 19 or 13 + 5ci	~~15/19~~ 15ci or 19 or 13 + 5ci	~~15/19~~

Air Barrier, Air Sealing and Insulation Installation

- Open wall, visual inspection of all air barrier and insulation installation requirements explicitly required
- Third Party inspection still an option, not a requirement
- No more than 2% of total insulated area can contain gaps/voids/compressed thickness
- Greater detail added to Table R402.5.1.1

EC 07-0220

Revise as follows:

[NY] ~~R402.4.1.1~~ R402.5.1.1 **Installation.** The components of the *building thermal envelope* as indicated in Table ~~R402.4.1.1~~R402.5.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria indicated in Table ~~R402.4.1.1~~R402.5.1.1, as applicable to the method of construction. Where required by the *building official*, an *approved* third party shall inspect all components and verify compliance. The inspection shall include an open wall visual inspection of all components included in Table R402.5.1.1 and shall be installed so that the insulation material uniformly fills each cavity side-to-side and top-to-bottom, without gaps or voids around obstructions, and is split, installed, or fitted tightly around wiring and other penetrations in the cavity. No more than 2 percent of the total insulated area shall contain gaps or voids in the insulation or be compressed below the thickness required to attain the labeled R-value.

[NY] TABLE ~~R402.4.1.1~~R402.5.1.1
AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION[a]

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA
General requirements	A continuous *air barrier* shall be installed in the *building thermal envelope*. ~~The exterior thermal envelope contains a continuous *air barrier*.~~	Air-permeable insulation shall not be used as a sealing material.

Air Leakage Testing

- Section on air leakage testing requirements (R402.5.1.2) is condensed
- Testing required for the building, or each dwelling or sleeping unit in the building
  - Unit sampling allowed in buildings with 8 or more units (7 or 20% of units must be tested)
  - Exception allowing visual inspection in heated sunrooms and garages
- Third party testing still optional
- Climate Zone 4 and 5: 3 ACH 50 (unchanged from current)
- Climate Zone 6: 2.5 ACH 50 (new)
  - Exceptions of 0.27 cfm/ft^2 allowed for buildings ≤1,500ft^2 conditioned space and in dwelling/sleeping units in R-2 occupancies where unit testing is performed

Duct System Design and Insulation

- Must be installed in conditioned space (applicable to new construction and additions), except for ventilation not integrated with heating/cooling
  - Detailed requirements for what is considered within conditioned space (R403.3.4). In general, ducts must be completely within the conditioned side of the thermal envelope and air barrier OR inside the air barrier and insulated or buried within insulation in a building cavity
- New ductwork in an alteration must still be insulated
- System design (new requirement)
  - Buildings with 1-2 units, follow ANSI/ACCA Manual D
  - Buildings with 3+ units, follow ASHRAE Handbook of Fundamentals, ANSI/ACCA Manual D or equivalent procedure
- System sizing (new requirement): ANSI/ACCA Manual D

Duct System Testing

- Not required for dedicated ventilation systems
- Not required if there isn't more than 10ft of ductwork AND entirely within conditioned space AND no plenums are constructed using building cavities or gypsum board
- Specific testing accommodations where conditioning equipment is not yet installed
- Unit sampling is allowed in buildings with 8 or more units

MAXIMUM TOTAL DUCT SYSTEM LEAKAGE

	Duct systems serving more than 1,000 ft² of conditioned floor area		Duct systems serving 1,000 ft² or less of conditioned floor area
	cfm/100 ft²(LPM/9.29 m²)		cfm (LPM)
	Number of ducted returns[a]		
	<3	≥3	Any
Space conditioning equipment is not installed[b,c]	3 (85)	4 (113)	30 (850)
All components of the *duct system* are installed[c]	4 (113)	6 (170)	40 (1133)
Space conditioning equipment is not installed, but the *ductwork* is located entirely in conditioned space[c,d]	6 (170)	8 (227)	60 (1699)
All components of the *duct system* are installed and entirely located in *conditoned space*[c]	8 (227)	12 (340)	80 (2265)

Mechanical Ventilation

- Balanced whole-house mechanical ventilation systems required in all climate zones
- Heat or energy recovery ventilation systems required in climate zone 6
- Systems must be tested for compliance with flow rate requirements (new)
  - Optional third party testing
  - Similar to air leakage testing, unit sampling is an option in buildings with 8 or more units

Electrification

- Electric resistance space heating within a building is limited to 2.0 kW total capacity
- Heat-pumps with supplementary electric-resistance fuel gas or liquid fuel heating systems must have controls to prevent supplemental heat when the heat pump can meet heating load.
- Supplemental heat limited to:
  - Insufficient capacity to meet heating load
  - During heat pump defrost cycle
  - Heat pump system malfunction
  - Thermostat malfunction

Lighting

- **Increase in interior lighting efficiency**
- **New requirements for exterior lighting, with exceptions for:**
  - 1 and 2 family
  - townhouses
  - Group R-3 with ≤2 units
  - Solar-powered lamps not connected to service
  - Luminaires on motion sensor
  - Where complying with efficiency requirements for interior lighting
- **New requirements for lighting controls**

TABLE R404.1.3

LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS

Base site allowance	280 watts
Uncovered parking areas and drives	0.026 W/ft^2
Building Grounds	
Walkways and ramps	0.50 W/linear foot
Plaza areas	0.49 W/ft^2
Dining areas	0.273 W/ft^2
Stairways	Exempt
Pedestrian tunnels	0.110 W/ft^2
Landscaping	0.025 W/ft^2
Building Entrances and Exits	
Pedestrian and vehicular entrances and exits	9.8 W/linear foot of opening
Entry canopies	0.126 W/ft^2

Energy Rating Index Compliance Alternative

[NY] TABLE ~~R406.4~~ R406.5
MAXIMUM ENERGY RATING INDEX

CLIMATE ZONE	ENERGY RATING INDEX[a] NOT INCLUDING OPP	ENERGY RATING INDEX WITH OPP
4	~~62~~53	40
5	~~61~~54	43
6	~~61~~53	43

Additional Efficiency Requirements

New Construction:

- Minimum 10 credits and two measures
- 5 additional credits for dwelling units over 5,000ft^2 above grade living space

Additions:

- Minimum 5 credits
- Several critical exceptions apply (See R502.2.5)

Substantial improvements:

- New term, any repair, rehab, alteration or addition the cost of which exceeds 50% market value of the building
- Minimum 3 credits required
- Exceptions apply

[NY] TABLE R408.2
CREDITS FOR ADDITIONAL ENERGY EFFICIENCY

Measure Number	Measure Description	Credit Value		
		Climate Zone 4	Climate Zone 5	Climate Zone 6
R408.2.1.1(1)	≥2.5% Reduction in total TC	1	1	1
R408.2.1.1(2)	≥5% reduction in total TC	2	2	2
R408.2.1.1(3)	>7.5% reduction in total TC	2	2	3
R408.2.1.1(4)	>10% reduction in total TC	3	4	4
R408.2.1.1(5)	≥15% reduction in total TC	4	5	6
R408.2.1.1(6)	>20% reduction in total TC	5	7	8
R408.2.1.1(7)	>30% reduction in total TC	8	11	12
R408.2.1.2(1)	U-factor and SHGC for vertical fenestration per Table R408.2.1	2	1	1
R408.2.1.4	Reduced air leakage	2	3	NA
R408.2.2(1) [b]	Ground source heat pump	15	15	17
R408.2.2(2) [b]	High Performance Cooling (Option 1)	2	1	1
R408.2.2(3) [b]	High Performance Cooling (Option 2)	2	1	1
R408.2.2(4) [b]	High Performance Gas furnace (Option 1)	5	6	7
R408.2.2(5) [b]	High Performance Gas furnace (Option 2)	4	5	6
R408.2.2(6) [b]	High Performance Gas furnace (Option 3)	NA	NA	NA
R408.2.2(7) [b]	High Performance Gas furnace and cooling (Option 1)	NA	NA	NA
R408.2.2(8) [b]	High Performance Gas furnace and cooling (Option 2)	NA	NA	NA
R408.2.2(9) [b]	High Performance Gas furnace and heat pump (Option 1)	NA [e]	NA	NA

***Remember new construction fossil fuel prohibition**

Historic Buildings

- No longer blanket exception for historic buildings (applies to residential and commercial buildings)
- Exceptions now require a Historic Building Report, approved by building official
  - Must be signed by a registered design professional, State Historic Preservation Office, or the historic preservation AHJ
  - Report must identify each character-defining feature and demonstrate how compliance with specific energy code provisions would negatively impact the historic form, fabric or function of those features.

Notable Commercial Changes

Greenhouses

- Revised definition
- No longer a blanket exemption
- In general:
  - Opaque assemblies must comply with prescriptive requirements
  - Assemblies separating greenhouse from conditioned space must comply
  - New, minimum fenestration requirements

[NY] GREENHOUSE. A structure or a thermally isolated area of a *building*, erected for a period of 180 days or more, that maintains a specialized sunlit environment with a skylight-to-roof ratio of 50 percent or more above the growing area exclusively used for, and essential to, the cultivation, protection or maintenance of plants.

Notable Prescriptive Envelope Improvements

- Broad improvements to prescriptive opaque envelope
- Roofs, insulation entirely above roof deck and attic and other exceed IECC 2024
- Walls above grade, mass and metal building also exceed IECC 2024
- Insulation installed on suspended ceilings having removable tiles are not considered part of the thermal envelope
- Mechanical penetrations >1% above grade wall area must be calculated as a separate assembly
- Corresponding improvements reflected in U-factor table (C402.1.2)

[NY] TABLE C402.1.3
OPAQUE BUILDING THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD[w,t]

CLIMATE ZONE	4 EXCEPT MARINE		5 AND MARINE 4		6	
	All other	Group R	All other	Group R	All other	Group R
Roofs						
Insulation entirely above roof deck	R-30ci R-33ci	R-30ci R-33ci	R-30ci R-33ci	R-30ci R-33ci	R-30ci R-34ci	R-30ci R-34ci
Metal buildings [b]	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-25 + R-11 LS R-30 + R-11 LS	R-25 + R-11 LS R-30 + R-11 LS
Attic and other	R-38 R-53	R-38 R-53	R-38 R-53	R-49 R-53	R-49 R-55	R-49 R-55
Walls, above grade						
Mass [e,f]	R-9.5ci R-11.4ci	R-11.4ci R-13.3ci	R-11.4ci R-13.3ci	R-13.3ci R-15.2ci	R-13.3ci R-15.2ci	R-15.2ci R-17.5ci
Metal building	R-13 + R-13ci R-13 + R-14.9ci	R-13 + R-13ci R-13 + R-14.9ci	R-13 + R-13ci R-13 + R-14.9ci	R-13 + R-13ci R-13 + R-14.9ci	R-13 + R-13ci R-13 + R-14.9ci	R-13 + R-13ci R-13 + R-14.9ci
Metal framed [h,i]	R-13 + R-7.5ci R-15 + R-8ci or R-21 + R-7ci	R-13 + R-7.5ci R-15 + R-8ci or R-21 + R-7ci	R-13 + R-7.5ci R-13 + R-11ci or R-19 + R-10ci	R-13 + R-7.5ci R-13 + R-11ci or R-19 + R-10ci	R-13 + R-7.5ci R-15 + R-13ci or R-19 + R12ci or R-21 + R12ci	R-13 + R-7.5ci R-21+ R-14ci or R-24 + R-12ci
Wood framed and other [h,i]	R-13 + R-3.8ci or R-20 R-13 + R-4.5ci or R-19 + R-1.5ci	R-13 + R-3.8ci or R-20 R-13 + R-4.5ci or R-19 + R-1.5ci	R-13 + R-3.8ci or R-20 R-11 + R-10ci or R-19 + R-5ci or R-21 + R-4ci	R-13 + R-7.5ci or R-20 + R-3.8ci R-11 + R-10ci or R-19 + R-5ci or R-21 + R-4ci	R-13 + R-7.5ci or R-20 + R-3.8ci R-11 + R-10ci or R-19 + R-5ci or R-21 + R-4ci	R-13 + R-7.5ci or R-20 + R-3.8ci R-11 + R-12ci or R-19 + R-7ci or R-21 + R-5ci
Walls, below grade						
Below-grade wall [d]	R-7.5ci	R-7.5ci R-10ci	R-7.5ci	R-7.5ci R-10ci	R-7.5ci R-10ci	R-7.5ci R-15ci
Floors						
Mass [e]	R-10ci R-14.6ci	R-10.4 R-16.7ci	R-10ci R-14.6ci	R-12.5ci R-16.7ci	R-12.5ci R-16.7ci	R-12.5ci R-16.7ci
Joist/framing	R-30	R-30	R-30	R-30	R-30 R-38	R-30 R-38
Slab-on-grade floors						
Unheated slabs	R-10 R-15 for 24" below	R-10 R-15 for 24" below	R-10 R-15 for 24" below	R-10 R-20 for 24" below	R-10 R-20 for 24" below	R-15 for 24" below R-20 for 48" below
Heated slabs [b,g]	R-15 for 24" below + R-5 full slab R-20 for 48"+ R-5 full slab	R-15 for 24" below + R-5 full slab R-20 for 48"+ R-5 full slab	R-15 for 36" below + R-5 full slab R-20 for 48"+ R-5 full slab	R-15 for 36" below + R-5 full slab R-20 for 48"+ R-5 full slab	R-15 for 36" below + R-5 full slab R-20 for 48"+ R-5 full slab	R-20 for 48" below + R-5 full slab
Opaque doors						
Nonswinging	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75

Notable Prescriptive Envelope Improvements

- New provision for determining the U-factor of spandrel panels
- New requirements for mitigating thermal bridging in above grade walls (Section R402.7)
  - Balconies and floor decks
  - Cladding supports
  - Structural beams and columns
  - Vertical fenestration
  - Parapets
- Thermal bridging factored into Component Performance Method

Fenestration

- Broad improvements to most measures
- Operable, vertical fenestration exceeds IECC 2024
- Skylight U-factor and SHGC exceed IECC 2024

[NY] TABLE ~~C402.4~~C402.5
BUILDING THERMAL ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS

CLIMATE ZONE	4	5	6
Vertical fenestration			
***U*-factor**			
Metal framing, fixed fenestration	~~0.38~~ 0.34	~~0.38~~ 0.34	~~0.36~~ 0.34
Metal framing, Operable fenestration	~~0.45~~ 0.43	~~0.45~~ 0.43	~~0.43~~ 0.41
Nonmetal framing, all fenestration	0.30	0.27	0.27
Entrance doors	~~0.77~~ 0.63	~~0.77~~ 0.63	~~0.77~~ 0.63
SHGC			
PF < 0.2	~~0.36~~ 0.33	~~0.38~~ 0.33	~~0.40~~ 0.34
0.2 ≤ PF < 0.5	~~0.43~~ 0.40	~~0.46~~ 0.40	~~0.48~~ 0.41
PF ≥ 0.5	~~0.58~~ 0.53	~~0.61~~ 0.53	~~0.64~~ 0.54
Skylights			
U-factor	~~0.50~~ 0.48	~~0.50~~ 0.48	~~0.50~~ 0.48
SHGC	~~0.40~~ 0.38	~~0.40~~ 0.38	~~0.40~~ 0.38

Air Leakage Compliance

- Air leakage testing is required by an approved third party. (Section C402.6.2)
  - In general, measured air leakage can't be greater than 0.35cfm/ft @ 75 Pa
  - Includes exceptions for buildings >25,000ft^2 in floor area in Climate Zone 4 (other than Group R and I occupancies)
  - Exception for representative testing in buildings >50,000ft^2
  - Representative dwelling/sleeping unit sampling allowed in Group R-2 and I-1 occupancies
- Any building exempt from the testing requirement must be deemed compliant through visual inspection

Electric-resistance Space Heating

Dwelling/Sleeping Units: Total installed heating capacity of electric-resistance space heating max 2.0kW per unit

All other spaces: 2.5W/ft^2, 5% of the total building heating capacity, or <5% conditioned floor area, whichever is less.

Exceptions:

- Portions of buildings requiring more resistance heating for health care, research or commercial/industrial processes
- Emergency systems in Group I-2 and I-3
- Temporary systems for unfinished and unoccupied tenant spaces
- Heat pump supplemental heat

Controls

New requirements for:

- Demand responsive controls
  - Heating and cooling systems (C403.4.6)
  - Water heating (C404.10)
  - Lighting (C405.2.8)
- Boiler combustion air-flow (C403.3.4)
- Automatic heating/cooling shutoff for doors over 40ft2 (C403.4.7)
- Dehumidification/humidification (C403.4.8)
- Occupant sensor lighting controls in corridors (C405.2.1.4) and egress (C405.2.1.5)
- Lighting dimming controls (C405.2.3)
- Interior parking area lighting controls (C405.2.9)

Ventilation

- Greater applicability of Demand Control Ventilation requirement
- Significant revisions to parking garage ventilation control requirements
- Energy recovery systems required for nontransient dwelling units
  - Heating/cooling system fans for dwelling units cannot provide outdoor air
- Demand control kitchen ventilation required for Type 1 exhaust hoods with flow rate >5,000cfm
- New section for low-capacity ventilation fans (C403.8.5)

Lighting and Electrical Power

- **On-site renewable energy is required in new buildings (C405.15)**
  - ≥0.75W/ft^2 * gross conditioned floor area (not to exceed combined gross conditioned floor area of largest three floors)
  - Includes exceptions, if met, must procure off-site renewable energy
- Electrification readiness measures required in new buildings using fossil fuel equipment. (Expect further clarity during rulemaking)
- Comprehensive reduction in interior and exterior lighting power allowances
- Power conversion system requirement for new traction elevators with a rise ≥75ft
- New section on automatic receptacle controls (C405.12)
- Energy monitoring requirement for new buildings ≥10,000ft^2 conditioned floor area (measure, monitor, record and report energy consumption)
  - Exceptions for R-2 occupancies and tenant spaces

Additional Efficiency Requirements

New Construction:

- Buildings >2,000ft^2 conditioned floor area comply with credits per Table C406.1.1(1)
- Buildings >5,000ft^2 conditioned floor area comply with credits per Table C406.1.1(1) and Table C406.1.2
  - Limit to renewable and load management credits per Table C406.1.1(2)

Additions:

- Minimum 50% of credits required of new construction
- Several critical exceptions apply (See C502.3.7)

Substantial improvements:

- Minimum 30% of credits required of new construction
- Exceptions apply

[NY] TABLE C406.1.1(1)
ENERGY CREDIT REQUIREMENTS BY BUILDING OCCUPANCY GROUP

Building Occupancy Group	Climate Zone		
	4	5	6
R-2, R-4, and I-1	86	86	70
I-2	36	43	46
R-1	81	85	83
B	70	71	71
A-2	69	67	60
M	80	79	75
E	61	64	65
S-1 and S-2	85	90	90
All Other	35	37	36

[NY] TABLE C406.1.1(2)
LIMIT TO ENERGY EFFICIENCY CREDIT CARRYOVER FROM RENEWABLE AND LOAD MANAGEMENT CREDITS

Building Occupancy Group	Climate Zone		
	4	5	6
R-2, R-4, and I-1	5	5	5
I-2	8	17	21
R-1	24	17	5
B	23	19	5
A-2	5	5	5
M	5	5	5
E	25	23	11
S-1 and S-2	5	5	5
All Other	5	5	5

[NY] TABLE C406.1.2
RENEWABLE AND LOAD MANAGEMENT CREDIT REQUIREMENTS BY BUILDING OCCUPANCY GROUP

Building Occupancy Group	Climate Zone		
	4	5	6
R-2, R-4, and I-1	31	26	23
I-2	25	25	26
R-1	32	28	25
B	44	38	38
A-2	8	8	8
M	42	38	42
E	42	38	42
S-1 and S-2	90	70	84
All Other	40	37	36

[NY] TABLE C406.2(1)
BASE ENERGY CREDITS FOR GROUP R-2, R-4, AND I-1 OCCUPANCIES [a]

ID	Energy Credit Measure	Section	Climate Zone		
			4	5	6
E01	Envelope Performance	C406.2.1.1	Determined in accordance with Section C406.2.1.1		
E02	UA reduction (15%)	C406.2.1.2	22	29	32
E03	Reduced air leakage	C406.2.1.3	7	65	73
E04	Add Roof Insulation	C406.2.1.4	5	6	7
E05	Add Wall Insulation	C406.2.1.5	8	11	14
E06	Improve Fenestration	C406.2.1.6	22	27	41
H01	HVAC Performance	C406.2.2.1	13	15	18
H02	Heating efficiency	C406.2.2.2	6	10	14
H03	Cooling efficiency	C406.2.2.3	1	1	x
H04	Residential HVAC control	C406.2.2.4	21	23	21
H05	DOAS/fan control	C406.2.2.5	42	56	73
W01	SHW preheat recovery	C406.2.3.1a	103	102	93
W02	Heat pump water heater	C406.2.3.1b	88	88	81
W03	Efficient gas water heater	C406.2.3.1c	64	64	58
W04	SHW pipe insulation	C406.2.3.2	8	7	6
W05	Point of use water heaters	C406.2.3.3a	x	x	x
W06	Thermostatic valves	C406.2.3.3b	3	3	3
W07	SHW heat trace system	C406.2.3.3c	14	13	11
W08	SHW submeters	C406.2.3.4	19	19	17
W09	SHW flow reduction	C406.2.3.5	38	38	35
W10	Shower heat recovery	C406.2.3.6	27	27	25
P01	Energy monitoring	C406.2.4	2	2	3
L01	Lighting Performance	C406.2.5.1	x	x	x
L02	Lighting dimming & tuning	C406.2.5.2	1	1	1
L03	Increase occp. sensor	C406.2.5.3	2	1	1
L04	Increase daylight area	C406.2.5.4	x	x	x
L05	Residential light control	C406.2.5.5	6	4	3

*This is not the complete Table of credit options

[NY] TABLE C406.3(1)
RENEWABLE AND LOAD MANAGEMENT CREDITS FOR GROUP R-2, R-4, AND I-1 OCCUPANCIES

ID	Energy Credit Abbreviated Title	Section	Climate Zone		
			4	5	6
R01	Renewable Energy	C406.3.1	10	9	9
G01	Lighting load management	C406.3.2	11	8	5
G02	HVAC load management	C406.3.3	17	20	10
G03	Automated shading	C406.3.4	2	10	1
G04	Electric energy storage	C406.3.5	16	14	14
G05	Cooling energy storage	C406.3.6	12	9	7
G06	SHW energy storage	C406.3.7	19	19	18
G07	Building thermal mass	C406.3.8	19	32	27

Additional Efficiency Requirements

- **Total System Performance Ratio (TSPR): Ratio of the sum of a building's annual heating/cooling load relative to the total site energy consumption of the building HVAC systems**
- **Meant to encourage whole system efficiency**
- **For this credit, system design must be at least 5% better than target reference. Energy credits are scaled up when greater than 5%**
- **New Section C409 details requirements for calculating TSPR**

C406.2.2.1 H01 HVAC Performance (TSPR). H01 energy credits shall be earned where systems are permitted to use Section C409 and where the savings (TSPRs) based on the proposed TSPR (TSPRp) compared to the target TSPR is by 5 percent or more. If savings is greater than 5 percent, determine H01 earned credits using Equation 4-14. Energy credits for H01 shall not be combined with energy credits from HVAC measures H02, H03 or H05.

$ECTSPR = ECBASE \times AREA_{TSPR} \times TSPRs/0.05$ **(Equation 4-14)**

ECTSPR= Energy credits achieved for H01

ECBASE = H01 base energy credits from Tables C406.2(1) through C406.2(9)
TSPRs = [the lessor of 0.20 and (1-(TSPRt/TSPRp)]
$AREA_{TSPR}$ = [floor area served by systems included in TSPR] / [total building *conditioned floor area*]
TSPRp = HVAC TSPR of the proposed design calculated in accordance with Sections C409.4, C409.5 and C409.6.
TSPRt = TSPRr / MPF
TSPRr = HVAC TSPR of the reference *building* design calculated in accordance with Sections C409.4, C409.5 and C409.6.
MPF = Mechanical Performance Factor from Table C409.4 based on *climate zone* and *building* use type
Where a *building* has multiple *building* use types, MPF shall be area weighted in accordance with Section C409.4

Thank You

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