

NYStretch Energy Code–2020

Comparison to 2020

Energy Conservation

Construction Code of NYS



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NYStretch Energy Code–2020

Comparison to 2020 Energy Conservation Construction Code of NYS



The following is a summary of the differences between the 2020 Energy Conservation Construction Code of New York State (ECCCNYS-2020) and the NYStretch Energy Code-2020 v1.0 Supplement to the ECCCNYS-2020 (NYStretch). This document is a simple reference tool and cannot be used in place of NYStretch or the ECCCNYS-2020.

I. Differences between NYStretch and ECCCNYS-2020: Residential Buildings

Compliance Path Options:

Compliance Path	NYStretch	ECCCNYS-2020
Prescriptive (including REScheck)	✓	✓
Simulated Performance Alternative	✓	✓
Energy Rating Index Compliance Alternative	✓	✓
Passive House	✓	

Comparison of residential NYStretch requirements that amend or add to the ECCCNYS-2020:

Code Section	NYStretch	ECCCNYS-2020
R401.2 Compliance	R405 Simulated Performance Alternative limited to Group R2, R3 and R4 buildings and, if used, requires building energy cost to be ≤80% of the standard reference design	Section R405 is a compliance alternative for all residential buildings. Annual energy cost must be ≤ the standard reference design
Table R402.1.2 Insulation and Fenestration Requirements by Component	Some values have changed. See comparison table below	See comparison table below
R402.2.2 Ceiling Without Attic Spaces	R-38 insulation, minimum	R-30 insulation, minimum
R402.4.1.1 Installation	Inspection by an <i>approved agency</i> required	Inspection by an <i>approved agency</i> when required by the building official
R403.3 Ducts	Installation within conditioned space required (new buildings/additions only); duct air leakage testing exempt	Installation within conditioned space optional; duct air leakage testing mandatory unless located entirely in conditioned space
R403.3.8 Duct Sizing (Mandatory) [New Section]	Duct sizing in accordance with ACCA Manual D is required	Size per ACCA Manual D, manufacturer instructions, or other approved method (MCNYS-2020)
R403.5.4 Drain Water Heat Recovery Units	Requires minimum efficiencies (40% equal flow, 52% unequal flow) and adds details for vertical vs sloped drain units	No minimum efficiencies, does not distinguish between drain types
R403.5.5 Supply of Heated Water [New Section]	Requires one of the following in new buildings: 1. maximum allowable pipe length between water heater and fixture; 2. maximum allowable pipe volume between water heater and fixture; 3. drain-water heat recovery; or 4. recirculation system	N/A
R403.6.2 Balanced and HRV/ERV Systems (Mandatory) [New Section]*	Requires HRV or ERV in all new dwelling units (exception for use of balanced ventilation system as an alternative in Climate Zone 4)	Ventilation by supply only, exhaust only, or combination of the two (RCNYS-2020)
R403.6.3 Verification [of Ventilation, New Section]	Verified by approved agency per ANSI/ACCA 9Qlvp-2016	N/A

*Severing NYStretch Section R403.6.2 Balanced and HRV/ERV Systems from local adoption will not impact Clean Energy Communities eligibility.

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Comparison of residential NYStretch requirements that amend or add to the ECCCNY-2020: (continued)

Code Section	NYStretch	ECCCNY-2020
R404.1 Lighting Equipment (Mandatory)	≥90% permanently installed fixtures use lamps with an efficacy of ≥65 lumens/watt or have a total luminaire efficacy of ≥45 lumens/watt	≥90% permanently installed fixtures use high-efficiency lamps with efficacy not less than 60 lumens/watt for lamps >40 watts; 50 lumens/watt for lamps >15 watts to 50 watts; 40 lumens/watt for lamps ≤15 watts
R404.2 (1) Electrical Power Packages: Solar-ready Zone (Mandatory) [New Section]	Appendix RA required for new detached one-and two-family dwellings and townhouses >1,400 sqft. Appendix RA applies only to roofs with ≥ 600 sq.ft. of area oriented between 110°-270° of true north. Exceptions for buildings with on-site renewables and/or roof area shaded more than 70% of annual daylight hours	Appendix RA is informative only
R404.2 (2) Electrical Power Packages: Electric Vehicle Charging Capability (Mandatory) [New Section]	Requires conduit and panel capacity or 208/240V 40A outlets for new detached one-and two-family dwellings and townhouses with on-stie parking	N/A
R406.4 Maximum Energy Rating Index [Applicable When Using the Energy Rating Index Compliance Alternative]	ERI of 50 in all Climate Zones	ERI of 62 in Climate Zone 4, and 61 in Climate Zones 5 and 6
R408 Passive House [New Section]	Offers a Passive House compliance alternative	N/A

ECCCNY-2020 Table R402.1.2 – Insulation and Fenestration Requirements by Component, with NYStretch amendments in red.

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Glazed Fenestration SHGC	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value & Depth	Crawl Space Wall R-Value
4	0.32/ 0.27	0.55/ 0.50	0.40	49	20 or 13+5/ 21 int. or 20+5 or 13+10	8/13/ 15/20	19/30	10/13/ 15/19	10, 2 ft./ 10, 4 ft.	10/13/ 15/19
5	0.30/ 0.27	0.55/ 0.50	NR	49	20 or 13+5/ 21 int. or 20+5 or 13+10	13/17/ 15/20	30	15/19	10, 2 ft./ 10, 4 ft.	15/19
6 Option 1	0.30/ 0.27	0.55/ 0.50	NR	49	20+5 or 13+10	15/20	30	15/19	10, 4 ft.	15/19
6 Option 2	0.28	0.55	NR	60	23 cavity	19/21	30	15/19	10, 4 ft.	15/19

- For Climate Zones 4 and 5, where wood frame wall R-values refer to “21 int,” this means R-21 cavity insulation with intermediate framing. Int. (intermediate framing) denotes standard framing 16” o/c. Headers shall be insulated with a minimum R-10 insulation. This is very similar to the ECCCNY-2020 which, by comparison, allows for R-20 cavity insulation and, per Table R402.4.1.1, requires stud corners and headers insulated to a minimum R-3 per inch.
- The “Slab R-Value & Depth” footnote to Table R402.1.2 differs between NYStretch and ECCCNY-2020. In addition to required slab edge insulation indicated in the table, NYStretch requires R-10 continuous insulation under the full area of a heated slab whereas the ECCCNY-2020 requires R-5.
- Not shown in this document, NYStretch makes corresponding amendments to Table R402.1.4.

II. Differences between NYStretch and ECCCNY-2020: Commercial Buildings

Compliance Path Options:

Compliance Path	NYStretch	ECCCNY-2020
ASHRAE Compliance Path	✓	✓
Prescriptive (including COMcheck)	✓	✓
Total Building Performance (C407)		✓

Comparison of residential NYStretch requirements that amend or add to the ECCCNY-2020. This does not include corresponding amendments and additions to ASHRAE 90.1-2016:

Code Section	NYStretch	ECCCNY-2020
Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements, R-value Method	Some values have changed. See comparison table below	See comparison table below
Table C402.1.4 Opaque Thermal Envelope Assembly Maximum Requirements, U-factor Method	Some values have changed. See comparison table below	See comparison table below
C402.1.4.2 Thermal Resistance of Mechanical Equipment Penetrations (Mandatory) [New Section]	Mechanical equipment penetrations exceeding 1% of the opaque above-grade wall area must be calculated as a separate wall assembly with default U-factor of 0.5	N/A
C402.2.8 Continuous Insulation (Mandatory) [New Section]	Structural elements of balconies and parapets that penetrate the building thermal envelope must be continuously insulated (R-3 minimum) or thermally broken (R-3 minimum)	N/A
Table C402.4 Building Envelope Fenestration Maximum U-factor and SHGC Requirements	Some values have changed. See comparison table below	See comparison table below
C402.5 Air Leakage—Thermal Envelope (Mandatory)/C402.5.9 Air Barrier Testing [New Section]	New buildings between 25,000 sq.ft. and 50,000 sq.ft. and ≤75' tall must be air barrier pressure tested in accordance with C402.5.9 of NYStretch. All other buildings have the option to comply with C402.5.1 through C402.5.8 and C408.4 [new commissioning requirement, see below]	All buildings have the option to comply with Sections C402.5.1 through C402.5.8 or by air barrier pressure testing
C403.7.4 Energy Recovery Ventilation Systems (Mandatory)	Exception where the largest source of air exhausted at a single location, or multiple locations within a 30' radius from the outdoor air supply unit, is <75% of designed outdoor air flow rate	Exception where the largest source of air exhausted at a single location is <75% of designed outdoor air flow rate
C403.8.1 Allowable Fan Horsepower (Mandatory)	New exception added for fans supplying air to active chilled beams	N/A
Table C403.8.1(1) Fan Power Limitation	Some values have changed. See comparison table below	See comparison table below
C405.2.1 Occupant Sensor Controls	Adds corridors/transition and dining areas to locations where occupancy sensors are required	N/A
C405.2.1.4 Occupant Sensor Control Function for Egress Illumination [New Section]	New buildings have automatic lighting reduction controls for exit access and egress lighting (exceptions apply)	N/A

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Code Section	NYStretch	ECCCNY-2020
C405.2.3 Daylight Responsive Controls	Applies to spaces with a total of > 100 watts of general lighting	Applies to spaces with a total of > 150 watts of general lighting
C405.2.3.2 (3) Sidelit Zone	The distance from fenestration to any building or geological formation that would block access to daylight is > ½ height from the bottom of the fenestration to top of the building or geological formation	The distance from fenestration to any building or geological formation that would block access to daylight is > height from the bottom of the fenestration to top of the building or geological formation
C405.2.6.3 Lighting Setback	Applicable exterior lighting must be controlled to reduce total wattage by 50% during select times	Applicable exterior lighting must be controlled to reduce total wattage by 30% during select times
C405.2.6.5 Outdoor Parking Area Lighting Control [New Section]	Applies to all applicable outdoor parking lighting wattages. Adds an exception for outdoor parking areas with less than 1,000W of lighting	Applies to applicable outdoor parking lighting with rated inputs > 78W
C405.3.2(1) Interior Lighting Power Allowances: Building Area Method	Some values have changed. See comparison table below	See comparison table below
C405.3.2(2) Interior Lighting Power Allowances: Space-By-Space Method	Some values have changed. See comparison table below	See comparison table below
C405.4.2(2) Lighting Power Allowances for Building Exteriors	Some values have changed. See comparison table below	See comparison table below
C405.8.1.1 Power Conversion System [New Section]	Elevators with a rise of > 75' must have a power conversion system	N/A
C405.9 Commercial Kitchen Equipment [New Section]	Minimum efficiency requirements for commercial fryers, hot food holding cabinets, steam cookers, dishwashers, and ovens	N/A
C405.10 Electric Vehicle Charging Station Capable [New Section]	New parking garages and lots with > 10 spaces must provide at a minimum, panel space and conduit for 208/240V 40A outlets for 5% of the total parking spaces (not less than two spaces)	N/A
C405.11 Solar-Ready Zone (Mandatory) [New Section]	New buildings must comply with Appendix CA	Appendix CA is informative only
C405.12 Whole Building Energy Monitoring [New Section]	New buildings must monitor energy use. Exceptions for buildings < 25,000 sq.ft.; Group R buildings with < 10,000 sq.ft. of common area; and on-site emergency equipment	N/A
C405.13 Whole Building Electrical Monitoring [New Section]	New buildings must measure electricity use. Exceptions for buildings < 25,000 sq.ft.; Group R buildings with < 10,000 sq.ft. of common area; and on-site emergency equipment	N/A
C406.1 Requirements	Additional efficiency package option for on-site supply of renewable energy is moved to Appendix CC	Includes on-site renewable energy option in Section C406.5
C407 Total Building Performance	Replaces Section C407 to require use of ASHRAE 90.1-2016 Section 11 or Appendix G	Allows use of Section C407

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Comparison of residential NYStretch requirements that amend or add to the ECCCNY-2020: (continued)

Code Section	NYStretch	ECCCNY-2020
C408.2 Mechanical, Renewable Energy, and Service Water Heating Systems Commissioning and Completion Requirements	Applies to: <ul style="list-style-type: none"> • buildings \geq 25,000 sq.ft., or • where total installed mechanical equipment cooling capacity is $>$ 480,000 Btu/h, or • where combined service water-heating and space-heating capacity is $>$ 600,000 Btu/h Adds a list of applicable systems that require commissioning	Applies to: <ul style="list-style-type: none"> • where total installed mechanical equipment cooling capacity is $>$ 480,000 Btu/h, or • where combined service water-heating and space-heating capacity is $>$ 600,000 Btu/h Includes an exception for systems included in Section C403.5 serving individual dwelling and sleeping units. Does not list specific systems that require commissioning
C408.2.2 Systems Adjusting and Balancing	HVAC systems must be balanced per ANSI/ASHRAE Standard 111 or other approved engineering standards	HVAC systems must be balanced per generally accepted engineering standards
C408.4 Air Barrier Commissioning [New Section]	Air barrier commissioning must be performed and documented by a registered design professional or approved agent	N/A
Appendix CB Rated R-Value of Insulation-Commercial	NYStretch moves ECCCNY-2020 Table C402.1.3 and insulation component R-value-based method of prescriptive compliance to Appendix CB. Appendix CB is informative unless adopted by the local government.	N/A
Appendix CC Additional Power Distribution System Packages-Commercial	Informative unless adopted by the local government.	N/A

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ECCCNYS-2020 Table C402.4 – Building Envelope Fenestration Maximum U-Factor and SHGC Requirements, with **NYSStretch amendments in red.**

Climate Zone	4	5	6
Vertical Fenestration			
U-Factor			
Fixed fenestration	0.38/0.36	0.38/0.36	0.36/0.34
Operable fenestration	0.45/0.43	0.45/0.43	0.43/0.41
All fenestration [non-metal framing-all]	0.30	0.27	0.27
Entrance doors	0.77	0.77	0.77
SHGC			
PF < 0.2	0.36	0.38	0.40
0.2 ≤ PF < 0.5	0.43	0.46	0.48
PF ≥ 0.5	0.58	0.61	0.64
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

ECCCNYS-2020 Table C403.8.1(1) – Fan Power Limitation, with **NYSStretch amendments in red.**

	Limit	Constant Volume	Variable Volume
Option 1: Fan system motor nameplate hp	Allowable nameplate motor hp	$hp \leq CFMs \times 0.0011/$ $hp \leq CFMs \times 0.0009$	$hp \leq CFMs \times 0.0015/$ $hp \leq CFMs \times 0.0011$
Option 2: Fan system bhp	Allowable fan system bhp	$bhp \leq CFMs \times 0.00094 + A/$ $bhp \leq CFMs \times 0.00088 + A$	$bhp \leq CFMs \times 0.0013 + A/$ $bhp \leq CFMs \times 0.0010 + A$

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ECCCNYS-2020 Table C405.3.2(1) – Interior Lighting Power Allowances: Building Area Method, with **NYStretch amendments in red.**

Building Area Type	LPD (w/ft2)
Automotive facility	0.71/0.64
Convention center	0.76/0.70
Courthouse	0.90/0.74
Dining: bar lounge/leisure	0.90/0.69
Dining: cafeteria/fast food	0.79/0.66
Dining: family	0.78/0.61
Dormitory	0.61/0.52
Exercise center	0.65
Fire station	0.53/0.50
Gymnasium	0.68/0.67
Health care clinic	0.82/0.68
Hospital	1.05/0.86
Hotel/Motel	0.75/0.70
Library	0.78
Manufacturing facility	0.90/0.60
Motion picture theater	0.83/0.62
Multifamily	0.68/0.49
Museum	1.06/0.68
Office	0.79/0.69
Parking garage	0.15/0.12
Penitentiary	0.75/0.67
Performing arts theater	1.18/0.85
Police station	0.80/0.68
Post office	0.67/0.62
Religious building	0.94/0.72
Retail	1.06/0.91
School/university	0.81/0.67
Sports arena	0.87/0.76
Town hall	0.80/0.72
Transportation	0.61/0.51
Warehouse	0.48/0.41
Workshop	0.90/0.83

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ECCCNYS-2020 Table C405.3.2(2) – Interior Lighting Power Allowances: Space-by-Space Method, with NYStretch amendments in red.

Common Space Type	LPD (w/ft2)
Atrium < 40' in height	0.03 per foot in total height/0.023 per foot in total height
Atrium > 40' in height	0.40 + 0.02 per foot in total height
Audience seating area	
In an auditorium	0.63
In a convention center	0.82/0.65
In a gymnasium	0.65/0.43
In a motion picture theater	1.14/0.64
In a penitentiary	0.28
In a performing arts theater	2.03/1.34
In a religious building	1.53/0.98
In a sports arena	0.43/0.42
Otherwise	0.43/0.40
Banking activity area	0.86/0.79
Breakroom (See lounge/breakroom)	
Classroom/lecture hall/training room	
In a penitentiary	1.34/1.06
Otherwise	0.96/0.74
Computer room	1.33/1.16
Conference/meeting/multipurpose room	1.07/0.93
Confinement cells	0.52
Copy/print room	0.56/0.50
Corridor	
In a facility for the visually impaired (and not used primarily by the staff)	0.92/0.81
In a hospital	0.92/0.81
In a manufacturing facility	0.29/0.28
In a primary or secondary school (and not used primarily by the staff)	0.74
Otherwise	0.66/0.58
Courtroom	1.39/1.06
Dining area	
In bar/lounge or leisure dining	0.93/0.62
In cafeteria or fast food dining	0.63/0.53
In a facility for the visually impaired (and not used primarily by the staff)	2.00/1.48

Common Space Type	LPD (w/ft2)
In family dining	0.71/0.54
In a penitentiary	0.96/0.72
Otherwise	0.63/0.53
Electrical/mechanical room	0.43/0.39
Emergency vehicle garage	0.41
Food preparation area	1.06/0.92
Guestroom	0.77/0.75
Laboratory	
In or as a classroom	1.20/1.04
Otherwise	1.45/1.32
Laundry/washing area	0.43
Loading dock, interior	0.58/0.51
Lobby	
For an elevator	0.68/0.52
In a facility for the visually impaired (and not used primarily by the staff)	2.03
In a hotel	1.06/0.68
In a motion picture theater	0.45/0.38
In a performing arts theater	1.70/0.82
Otherwise	1.00/0.90
Locker room	0.48/0.45
Lounge/breakroom	
In a healthcare facility	0.78/0.53
Otherwise	0.62/0.44
Office	
Enclosed	0.93/0.85
Open plan	0.81/0.78
Parking area, interior	0.14/0.11
Pharmacy area	1.34/1.23
Restroom	
In a facility for the visually impaired (and not used primarily by the staff)	0.96/0.81
Otherwise	0.85/0.75
Sales area	1.22/1.06
Seating area, general	0.42/0.38
Stairway (See space containing stairway)	
Stairwell	0.58/0.50
Storage room	0.46/0.43
Vehicular maintenance area	0.56/0.53
Workshop	1.14/1.09

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ECCCNYS-2020 Table C405.3.2(2) – (continued)

Building Area Type	LPD (w/ft2)
Automotive (See vehicular maintenance area)	
Convention center-exhibit space	0.88/0.69
Dormitory-living quarters	0.54/0.46
Facility for the visually impaired	
In a chapel (and not used primarily by the staff)	1.06/0.89
In a recreation room (and not used primarily by the staff)	1.80/1.53
Fire station-sleeping quarters	0.20/0.19
Gymnasium/fitness center	
In an exercise area	0.50
In a playing area	0.82/0.75
Healthcare facility	
In an exam/treatment room	1.68/1.16
In an imaging room	1.06/0.98
In a medical supply room	0.54
In a nursery	1.00/0.94
In a nurse's station	0.81/0.75
In an operating room	2.17/1.87
In a patient room	0.62/0.45
In a physical therapy room	0.84
In a recovery room	1.03/0.89
Library	
In a reading area	0.82/0.77
In the stacks	1.20
Manufacturing facility	
In a detailed manufacturing area	0.93/0.86
In an equipment room	0.65/0.61
In an extra-high-bay area (greater than 50' floor-to-ceiling height)	1.05/0.73

Building Area Type	LPD (w/ft2)
In a high-bay area (25-50' floor-to-ceiling height)	0.75/0.58
In a low-bay area (less than 25' floor-to-ceiling height)	0.96/0.61
Museum	
In a general exhibition area	1.05/0.61
In a restoration room	0.85/0.77
Performing arts theater-dressing room	0.36/0.35
Post office-sorting area	0.68/0.66
Religious buildings	
In a fellowship hall	0.55/0.54
In a worship/pulpit/choir area	1.53/0.98
Retail facilities	
In a dressing/fitting room	0.50/0.49
In a mall concourse	0.90/0.79
Sports arena—playing area	
For a Class I facility	2.47/2.26
For a Class II facility	1.96/1.45
For a Class III facility	1.70/1.08
For a Class IV facility	1.13/0.72
Transportation facility	
In a baggage/carousel area	0.45/0.40
In an airport concourse	0.31
At a terminal ticket counter	0.62/0.48
Warehouse—storage area	
For medium to bulky, palletized items	0.35/0.27
For smaller, hand-carried items	0.69/0.65

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ECCCNYS-2020 Table C405.4.2(2) – Lighting Power Allowances for Building Exteriors, with **NYStretch amendments in red.**

	Lighting Zones			
	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance	350 W	400 W	500 W	900 W
Uncovered Parking Areas				
Parking areas and drives	0.03 W/ft ²	0.04 W/ft ²	0.06 W/ft ² /0.05 W/ft ²	0.08 W/ft ² /0.05 W/ft ²
Building Grounds				
Walkways and ramps less than 10 feet wide	0.50 W/linear foot	0.50 W/linear foot	0.60 W/linear foot	0.70 W/linear foot
Walkways and ramps 10 feet wide or greater, plaza areas special feature areas	0.10 W/ft ²	0.10 W/ft ²	0.11 W/ft ²	0.14 W/ft ²
Dining areas	0.65 W/ft ²	0.65 W/ft ²	0.75 W/ft ²	0.95 W/ft ²
Stairways	0.60 W/ft ²	0.70 W/ft ²	0.70 W/ft ²	0.70 W/ft ²
Pedestrian tunnels	0.12 W/ft ²	0.12 W/ft ²	0.14 W/ft ²	0.21 W/ft ²
Landscaping	0.03 W/ft ²	0.04 W/ft ²	0.04 W/ft ²	0.04 W/ft ²
Building Entrances and Exits				
Pedestrian and vehicular entrances and exits	14 W/linear foot of opening width/ 12.6 W/linear foot of opening width	14 W/linear foot of opening width/ 12.6 W/linear foot of opening width	21 W/linear foot of opening width/ 20 W/linear foot of opening width	21 W/linear foot of opening width/ 20 W/linear foot of opening width
Entry canopies	0.20 W/ft ²	0.25 W/ft ²	0.40 W/ft ²	0.40 W/ft ²
Loading docks	0.35 W/ft ²	0.35 W/ft ²	0.35 W/ft ²	0.35 W/ft ²
Sales Canopies				
Free-standing and attached	0.40 W/ft ²	0.40 W/ft ²	0.60 W/ft ²	0.70 W/ft ²
Outdoor Sales				
Open areas (including vehicle sales lots)	0.20 W/ft ²	0.20 W/ft ²	0.35 W/ft ²	0.50 W/ft ²
Street frontage for vehicle sales lots in addition to "open area" allowance	No allowance	7 W/linear foot	7 W/linear foot	21 W/linear foot