

Community HIA Adoption: NYStretch Energy Code-2020

Introduction for Communities Considering Adoption
Orange County Climate Smart Community Task Force
March 10, 2022

What is NYStretch Energy Code-2020?

> Readily adoptable local energy code

- On average, 11% more efficient than ECCCCNYS-2020
- Expressly authorized by Article 11 of NYS Energy Law

> Overlay of IECC-2018/ECCCCNYS-2020

- NYStretch prepares municipalities for future code cycles
- Intended to be a 1-cycle stretch; anticipated to be roughly as efficient as the next version of the State Energy Code

> Based on proven technologies, systems & construction techniques

- Integrates best practices from programs such as ENERGY STAR for Homes
- Does not require builders to use new, unavailable or unfamiliar products
- Does not require building departments to adopt new means of enforcement



Clean Energy Communities Action Grant: NYStretch Energy Code



- > Adopt NYStretch Code to reduce energy consumption, operating + utility costs, and greenhouse gas emissions
- > CEC designation not required
- > 1,200 points
- > \$5,000 or \$50,000 grants available
- > Must be adopted and take effect no later than June 30, 2022

Energy Benefits

- > Energy and cost savings of roughly 11%¹ over ECCCNY-2020
- > Cost Effective (1-2% incremental cost for new construction)
- > Paybacks <10 years
- > Greater GHG reductions than ECCCNY-2020
- > Residential code near net zero
- > Helps ensure verifiable performance
- > Addresses 40% of our energy use—buildings



Non-energy Benefits



> Long-term benefits of building better today

- Saves tenants and owners Energy and Money
- Lower energy use means reduced operating costs
- Energy \$\$ saved in YOUR community STAY in the community

> Climate & community benefits

- Develops and utilizes local workforce and creates more green jobs and **responds to CLCPA goals**
- Economic development via green developers and green workforce expansion
- Increases community attractiveness - more owners and tenants desire green and energy efficient buildings
- More resilient buildings and communities
- Energy Codes help provides healthier indoor environments
- Greater comfort = resident/occupant satisfaction/comfort

> Encourages plan review and site inspection by third parties/HERS Raters

- Promotes Performance Compliance and Testing that can lessen load on building departments
 - Examples – HERS Raters for Residential, Blower Door testing, Cx Agents for Commercial Lighting, HVAC Cx
 - Specialized Air Barrier professionals, large building testing, Ventilation testing
- **Several NYS communities ALREADY implementing advanced codes – L.I. Communities, Bedford, Greenburgh**

Cost impact: Commercial construction

> **Statewide weighted average¹** results—9 building types, 3 climate zones:

- Percent savings: 7.1%
- Incremental cost: \$1.14/ft²
- Simple payback: 10.5 years²

1. **Based on prescriptive and mandatory provisions. Results will vary depending on building and construction type, location in NYS and compliance path**
2. **Before NYSERDA or utility incentives, federal tax credits, C-PACE Financing, etc.**

Cost impact: commercial construction, continued

> Weighted averages by **climate zone**¹:

Climate Zone	Construction Weight	Energy Cost Savings	Incremental First Cost ²	Simple Payback
4A	71%	5.5%	\$ 0.85/SF	11.0
5A	21%	10.5%	\$ 1.81/SF	9.8
6A	8%	9.9%	\$ 1.96/SF	10.5

1. Based on prescriptive and mandatory provisions. Results will vary depending on building and construction type, location in NYS and compliance path
2. Before NYSERDA or utility incentives, federal tax credits, C-PACE Financing, etc.

Cost impact: residential construction

- > **Statewide weighted average**¹ results—2 building types, 3 climate zones:
 - Percent savings: 21.5%

Building Type	Incremental Cost (per dwelling unit) ²	Simple Payback (years)
Single family	\$2,156	5.5
Multifamily	\$1,590	9.7

- 1. Based on prescriptive and mandatory provisions. Results will vary depending on building and construction type, location in NYS and compliance path**
- 2. Before NYSERDA or utility incentives, federal tax credits, C-PACE Financing, etc.**

Cost impact: residential construction, continued

> Weighted averages by **climate zone**¹:

Climate Design Zone	Single-family			Multifamily		
	Total Annual Energy Cost Savings (\$/dwelling unit)	Total Incremental Costs (\$/dwelling unit)	Simple Payback (Years)	Total Annual Energy Cost Savings (\$/dwelling unit)	Total Incremental Costs (\$/dwelling unit)	Simple Payback (Years)
4A-NYC	\$265	\$1,910	7.2	\$156	\$1,625	10.4
4A-balance	\$264	\$2,463	9.3	\$148	\$1,488	10.1
5A	\$407	\$2,202	5.4	\$198	\$1,745	8.8
6A	\$431	\$1,914	4.4	\$205	\$1,791	8.7
NY State	\$389	\$2,156	5.5	\$165	\$1,590	9.7

1. Based on prescriptive and mandatory provisions. Results will vary depending on building and construction type, location in NYS and compliance path
2. Before NYSERDA or utility incentives, federal tax credits, C-PACE Financing, etc.

Incentive programs and services

Utilities, NYSERDA, NYPA may offset or reduce incremental costs for commercial and residential construction projects

- > NYSERDA—New construction programs, design assistance
- > NYPA—Commercial construction programs
- > Utilities—Electrification and focused measures incentives
 - HVAC
 - Insulation
 - Custom whole-building

Residential compliance paths

- > **Prescriptive path** (often using *REScheck* software)
 - Roughly equivalent to ENERGY STAR Homes, ERI of ~63
 - *REScheck* supports NYStretch-2020
- > **Performance path**
 - Energy cost of proposed home <80% of reference home
- > **Passive house path**
 - Mandatory residential provisions plus PH metrics
- > **ERI path**
 - Mandatory provisions plus ERI index

ECCCNYS-2020	NYStretch-2020
62	50

Commercial Approach: COMcheck™ for NY Stretch Code

NY Stretch version available

NOW at www.energycodes.gov

*Example – Envelope Report &
Engineers*

- This documentation can be easily used by Designers and Engineers to document compliance during design*
- CAN be 3rd Party Reviewed as well (Bedford Example)*

The screenshot shows the COMcheck-Web interface. At the top, the logo "COMcheck-Web™" is visible. Below it, there are navigation tabs: "New Project", "PROJECT", "ENVELOPE", "INT. LIGHTING", and "EXT.". The main content area is titled "Code/Location" and contains a form with the following fields:

- Code: 2020 NYSTRETCH (dropdown menu is open)
- State: 90.1 (2007) Standard
- City: 90.1 (2010) Standard
- 90.1 (2013) Standard
- 90.1 (2016) Standard
- 90.1 (2019) Standard
- 2009 IECC
- 2012 IECC
- 2015 IECC
- 2018 IECC
- Local Codes**
- Ontario
- Puerto Rico 2011
- Vermont 2020
- 2017 Florida
- 2020 Boulder, CO
- 2016 NYCECC
- 2020 NYCECC
- 2020 NYCECC Appendix CA (modified ASHRAE 90.1-2016)
- 2020 NYCECC Appendix CA Modeling Envelope Backstop
- 2020 NYSTRETCH (highlighted)


A red arrow points to the dropdown menu. At the bottom of the interface, there is a "CHECK COMPLIANCE" button and a note: "« To display compliance results, click the Check Compliance button."

Commercial Approach: COMcheck™ for NY Stretch Code

- NY Code Enforcement Officials (CEOs) often use ask for this free DOE/PNNL Tool as Documentation

Example:

- Envelope Report
- Reports for Mechanical, Lighting
- Plan Review and Site Inspection Checklists
- Includes all Mandatory and Prescriptive Requirements Too


COMcheck Software Version 4.0.8.2
Envelope Compliance Certificate

Project Information

Energy Code:	2015 IECC	
Project Title:	Natick Commercial	
Location:	Natick, Massachusetts	
Climate Zone:	5a	
Project Type:	New Construction	
Vertical Glazing / Wall Area:	14%	
Permit No.:	XXXXX	

Construction Site:	Owner/Agent:	Designer/Contractor:
2121 Main Street	John Doe	Joe Lapagnatz
Natick, MA 01760	Natick Olnc.	Herschel Co.
	2111 McDonald Drive,	102 Vosburgh Ave.
	Natick, MA 01760	Boston, MA 02119
		617 585-2345

Additional Efficiency Package(s)

High efficiency HVAC. Systems that do not meet the performance requirement will be identified in the mechanical requirements checklist report.

Building Area	Floor Area
1-McDonald's (Dining, Cafeteria/Fast Food) : Nonresidential	4480

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor ₍₄₎
Floor 1: Slab-On-Grade:Unheated, [Bldg. Use 1 - McDonald's] (c)	277	—	—	0.730	0.540
Roof 1: Insulation Entirely Above Deck, [Bldg. Use 1 - McDonald's]	4116	—	30.0	0.032	0.032
Roof (Co2 Room): Attic Roof with Wood Joists, [Bldg. Use 1 - McDonald's]	15	38.0	0.0	0.027	0.027
NORTH					
Exterior Wall (Front): Wood-Framed, 16" o.c., [Bldg. Use 1 - McDonald's]	622	19.0	7.5	0.043	0.064
Window (W1): Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID N/A, SHGC 0.40, [Bldg. Use 1 - McDonald's] (b)	238	—	—	0.360	0.380
Door (Entrance): Glass (-> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID N/A, SHGC 0.40, [Bldg. Use 1 - McDonald's] (b)	24	—	—	0.770	0.770
EAST					
Exterior Wall (Drive-thru Side): Wood-Framed, 16" o.c., [Bldg. Use 1 - McDonald's]	1345	19.0	7.5	0.043	0.064
Window (W1): Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID N/A, SHGC 0.40, [Bldg. Use 1 - McDonald's] (b)	15	—	—	0.360	0.380
Drive-thru Window 1: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID N/A, SHGC 0.40, [Bldg. Use 1 - McDonald's] (b)	20	—	—	0.430	0.380
Drive-thru Window 2: Metal Frame with Thermal Break, Perf. Specs.:	20	—	—	0.430	0.380

NYStretch vs. 2020 ECCCNY S – What's Different?

NYStretch requirements include:

> Building Envelope

- Improved window performance, increased insulation requirements, air leakage testing, air barrier commissioning, mandatory mechanical ventilation

> Lighting/Electrical

- Reduced interior and exterior lighting power, lighting controls, whole-building energy monitoring

> Mechanical

- Improved equipment requirements and controls

> Compatibility

- Renewable and electric vehicle readiness – lowers the “Soft costs” of adding Renewables LATER

> introduces Passive House compliance path

> Miscellaneous:

- Commercial kitchen equipment efficiencies

> Options

- Communities may also adopt code appendices requiring solar installations for New Construction

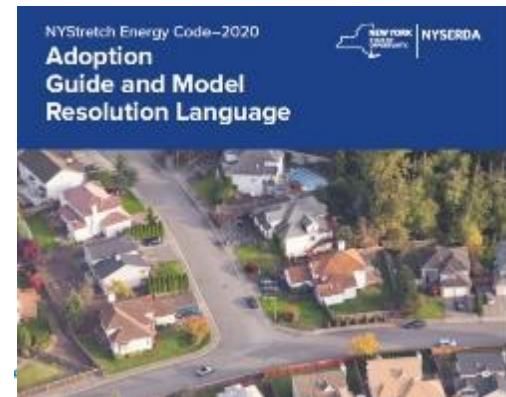
NYStretch – community interest

- > New York City's 2020 Energy Code is NYStretch with I centric amendments.
- > Athens, Philmont, Marbletown, New Rochelle, Town of Bethel, Town of Bedford, Village of Hastings-on-Hudson, City of Beacon, Village of Montour Falls, Mamaroneck, Village of Dobbs Ferry all adopted NYStretch-2020; **MANY** other communities in the process – 14 total Adoptions, another 20 in process
- > Ithaca using NYStretch as part of their Green Building Code.
 - Goal: Carbon-neutral community by 2030
- > SUNY Construction Fund using NYStretch as baseline energy code for all SUNY projects. ALSO NYS-OGS



RESOURCES

- Adoption Guide & Model Local Law
 - Training & Technical Support
 - Code Enforcement Tools/checklists
 - Single Volume Code Manual (coming soon)
 - NYStretch-specific *US-DOE REScheck™* & *COMcheck™* tools
 - Hotline for Technical and Interpretation Assistance
 - NYStretch Circuit Riders – technical and adoption support
 - www.nyserda.ny.gov/stretchenergy2020
- ** NYS-DOS has determined there is one conflict with the Uniform Code – It is addressed in the new Adoption Guide; PLUS - NYSERDA will review and comment on your language before you adoption**



Energy Code-related Incentives: NYSERDA



- **Third Party Program – 4600**
 - \$\$ to utilize Certified 3rd Parties and Advanced Code Technologies
- **Stretch To Zero Program - 4859**
 - \$500k – All-electric code
 - \$25k/Quarter 2 years
- **Build Better Homes – 4875**
 - \$\$ to design, market and build all-electric NYStretch+ homes
- **New Construction Housing – 4337**
 - \$\$ for Design, Support, Cost



NYSERDA

NYStretch-2020 Support for Communities Technical, Strategy

NYSERDA Clean Energy Communities Coordinators

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