HBRA
HOME BUILDERS & REMODELERS ASSOCIATION OF THE CONNECTICUT RIVER REGION

HBRA Multifamily Council

SECHA
SOUTHEASTERN CONNECTICUT HOUSING ALLIANCE

Welcome to today's program!

Energy Efficiency Programs for Builders and Developers

Part of the SECHA 2026 Energy Affordability Series

ENERGY EFFICIENCY PROGRAMS

FOR BUILDERS & DEVELOPERS

Presented by: Seema Malani - Director, Office of Affordable Housing Energy Retrofits
CT DEEP - Bureau of Energy and Technology Policy

Why This Matters

Housing, Energy, and Performance are Converging

- Multifamily buildings feel the impact of energy decisions every day
- Costs, comfort, maintenance, and operations
- Expectations for performance are rising

Connecticut Climate Goals

What this means for housing

- 45% emissions reduction by 2030
- Path to net zero by 2050
- Shaping policy, programs, and investment today

Housing at the Center of Energy Trends

Housing is where Energy Trends Hit First

- Housing drives a major share of building energy use and emissions
- Energy burden directly impacts affordability
- Hotter summers → higher cooling loads
- Peak load impacts system sizing + operating costs

Developer Realities

We Know Your Constraints Are Real

- Tight budgets + financing limits
- Complex funding layers
- Upfront cost remains a key barrier
- Performance = cost, risk, and asset value

Build it Right the First Time

Efficiency Is Cost Control and Risk Management

- Buildings last 30–40 years; early decisions have long-term impact
- Design stage = lowest cost opportunity
- Better performance → lower operating cost
- Predictable budgets matter
- Retrofits later are more expensive

The Case for Eletrification

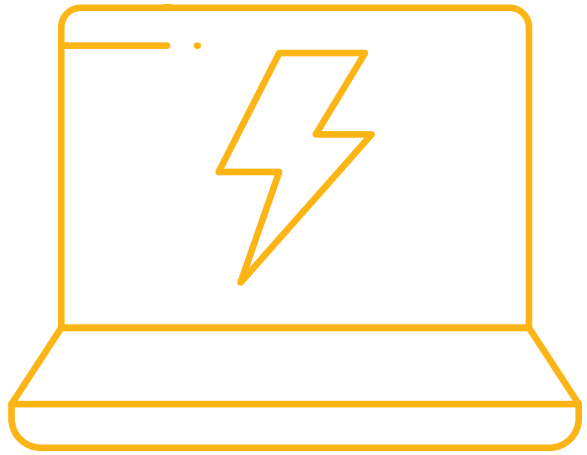
Why More Projects Are Going All-Electric

- Heat pumps = one system for heating + cooling
- Fewer systems, less coordination
- Lower fuel price risk
- Ready for future grid + funding
- No combustion = better air quality & health

Designing Around the Split Incentive

Don’t solve it later – Design around it upfront

- Better envelopes reduce demand for everyone
- Predictable utility costs support tenant stability
- Lower Opex = Higher NOI = Stronger Underwriting = Better Deal



Economics That Pencil

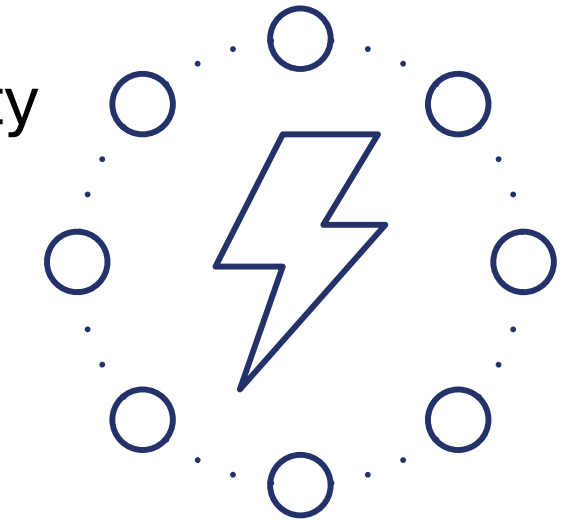
Early Integration Changes the Financial Picture

- Performance added late = expensive
- Early modeling + right-sized systems = savings
- Stacked financing makes deeper upgrades possible

Building for Resilience

Resilience Protects Both Owners and Tenants

- More extreme heat, storms, and flooding already impacting housing
- Outages and system failures are costly
- Better envelopes + resilient design = fewer surprises
- Reduced risk exposure supports long-term insurability and asset stability



Programs for New Construction Projects

Currently Available

- Residential New Construction – C&LM
- Energy Storage Solutions – PURA
- EV Charging – PURA
- Residential Renewable Energy Solutions (RRES) – PURA
- Shared Clean Energy Facilities (SCEF) – PURA
- Low-Income Discount Rate (LIDR) – PURA

Initiatives in the Pipeline

What's coming

- Multifamily Revolving Loan Program (RFI open)
- Heat Pump Accelerator (Community Grants)
- Climate Resilient Energy Code

Closing Message

Your Early Decisions Shape the Next 40 Years

- Decisions today show up in daily operations
- Build for long-term stability, comfort, and performance
- This is an opportunity to set buildings up for success

CHFA Multifamily

Architectural & Construction Services (ACS)

SECHA/HBRA Energy Efficiency Programs for Builders and Developers

Jennifer Landau

April 2026

CONNECTICUT HOUSING FINANCE AUTHORITY

Unlocking Solutions, Building Strong Communities.

Multifamily Housing - ACS

- CHFA is a mission-based lender for affordable housing

- CHFA's Architectural and Construction Services Team (FKA Technical Services)
  - staff includes CT licensed architects
  - evaluates affordable multifamily housing projects seeking funding
  - compliance with our standards and guidelines
  - minimize construction costs and mitigate construction risk

- Lead on all matters relating to architectural, construction, hard costs, environmental and energy/sustainability

- Work closely with Department of Housing (DOH) and other State Agencies such as State Historic Preservation Office (SHPO), Department of Energy and Environmental Protection (DEEP), CT Green Bank among others

- Ensure safe, cost effective, sustainable and energy efficient multifamily housing is developed and the value of the built asset is maintained

CHFA Multifamily Design & Construction Standards

- For projects funded with CHFA financing – perm and/or construction, 4% and 9% LIHTC and/or DOH funding

- Recommends high quality building materials in construction – durability, longevity, sustainability & energy efficiency

- Flexible given project scope, construction budget and project constraints

- Updated and Published Annually

- Guidelines include:
  - Construction Cost
  - Environmental and Hazardous Materials
  - Energy Conservation and Sustainability

- Adopted by Department of Housing in August 2013

- Durable high-quality materials should be used to maintain built asset value over life of mortgage

Connecticut Building and Fire Codes

- **More robust in recent years relating to:**
  - Increased climate resiliency including structural resilience
  - Higher energy efficiency:
    - tighter building envelope
    - higher insulation values
  - Durability
  - Improved life safety measures including fire rated separations
  - Accessible routes and means of egress
  - Improved safety for fire protection systems

- **CT recently ranked one of the six best states for building codes for:**
  - Coastal storm resiliency
  - Vigorous requirements for snow and wind loading
  - Addresses the impacts of climate change
  - Rated by the Insurance Institute for Business & Home Safety (IBHS)

Energy Conservation & Sustainability

- Qualified Allocation Plan (QAP) for LIHTC
  - Since 2013, incentives have been offered for various Energy Efficient measures such as:
    - High-performance building envelope
    - Renewable energy system – Photovoltaic/Solar (PV)
  - Since 2016:
    - Passive House incentives first introduced
    - High performance building envelope
    - Average HERS index <= 42 or 46
    - Solar / Geothermal systems
    - LEED (Gold and Platinum), National Green Building Standard (Gold and Emerald), Enterprise Green Communities, Living Building Challenge
    - Digital Literacy and Connectivity, Broadband internet
    - Utility Rebates & Incentives through Eversource and UI

Challenges:

- High Construction Costs due to:
  - State Prevailing Wage rates increasing
  - Limited skilled labor force in CT
  - Tariffs on goods, materials and equipment
  - Increasing costs for many building materials
  - Supply chain issues: switchgear and other components
  - Cost to achieve certifications for Passive House including labor when construction issues arise
  - State Historic requirements and impacts

Apr. 2026

EVERSOURCE

UI
An Avangrid company

Residential New Construction Energy Efficiency Program

PROUD SPONSORS OF

energize CONNECTICUT

Housing Is a Long-Term Investment in CT

A Defining Issue in CT

Homes shape affordability, durability, and energy costs for decades.

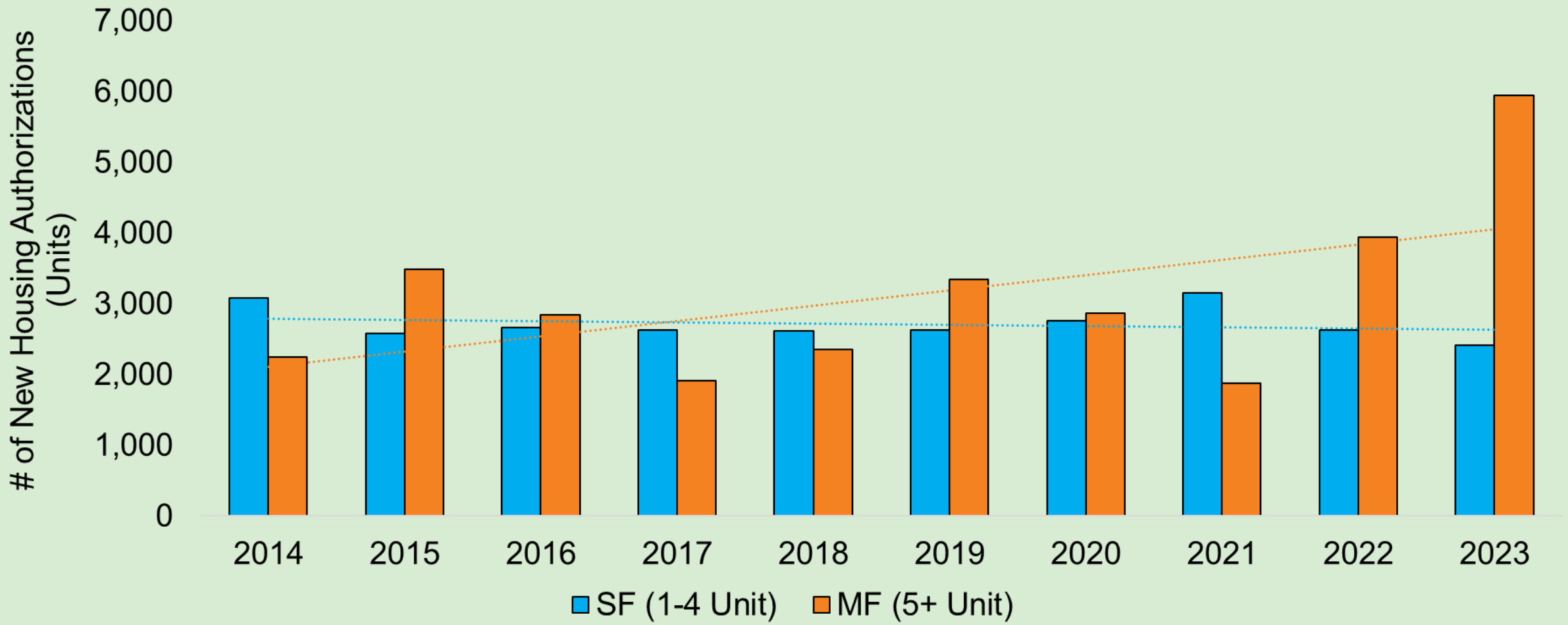
Well-built, Energy Efficient Homes Last Longer

Efficiency is not just about energy—it's about durability, comfort, and reduced risk.

Homes Built Today Will Outlive the Energy Transition

New construction must account for a cleaner, changing electric grid over time.

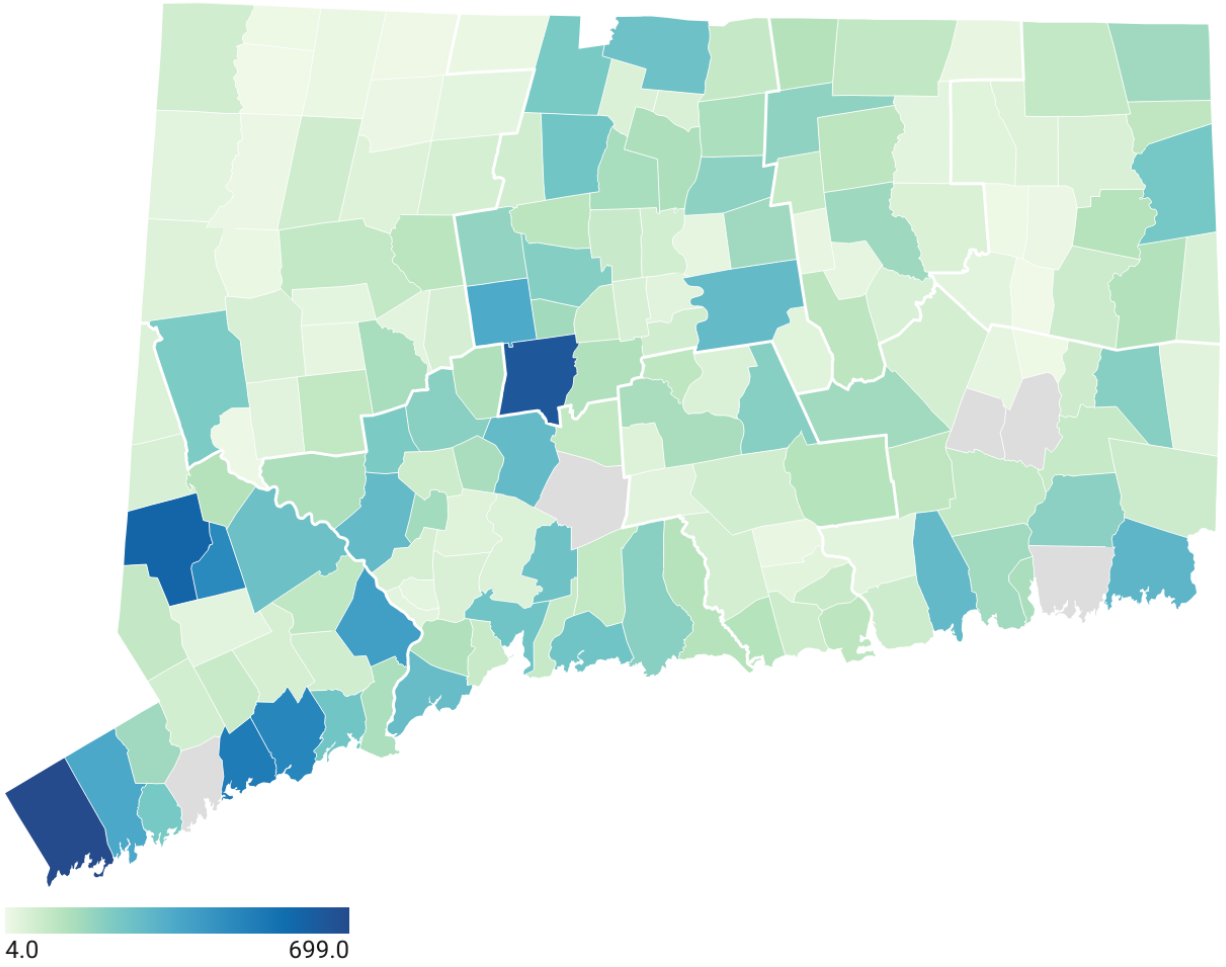
CT New Housing Authorizations



Data Source: CT DECD New Housing Authorizations (2014-2023)

CT - Single Family (1-Unit) New Housing Authorizations

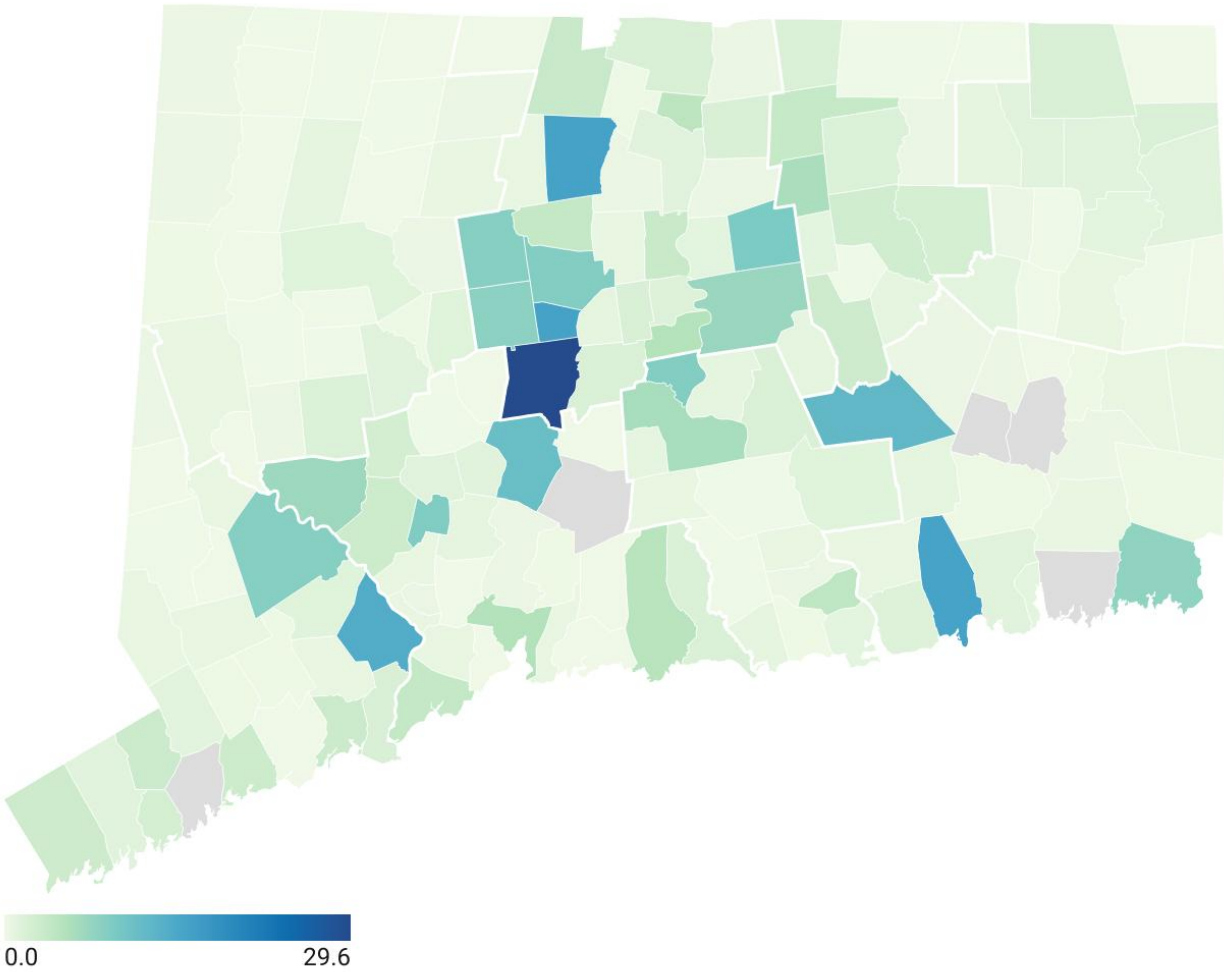
CT Average SF Units/Year (2016-2023)



Map: Created by Nick Jones • Source: CT DECD New Housing Authorizations • Created with Datawrapper

RNC - Single Family (1-Unit) Program Participation

RNC Average SF Units/Year (2016-2023)



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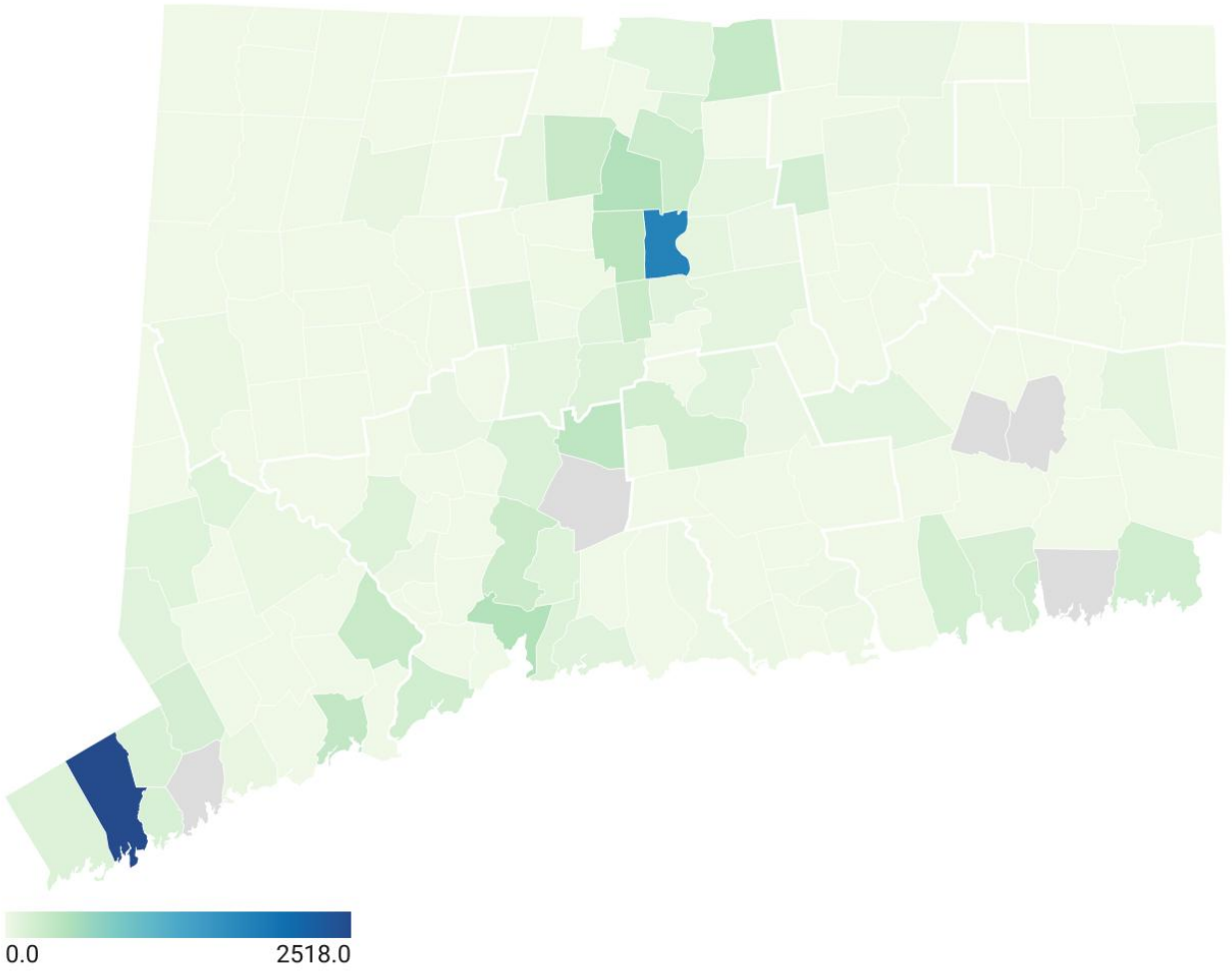
RNC - Multifamily (5+ Unit) Program Participation

RNC Average MF Units/Year (2016-2023)



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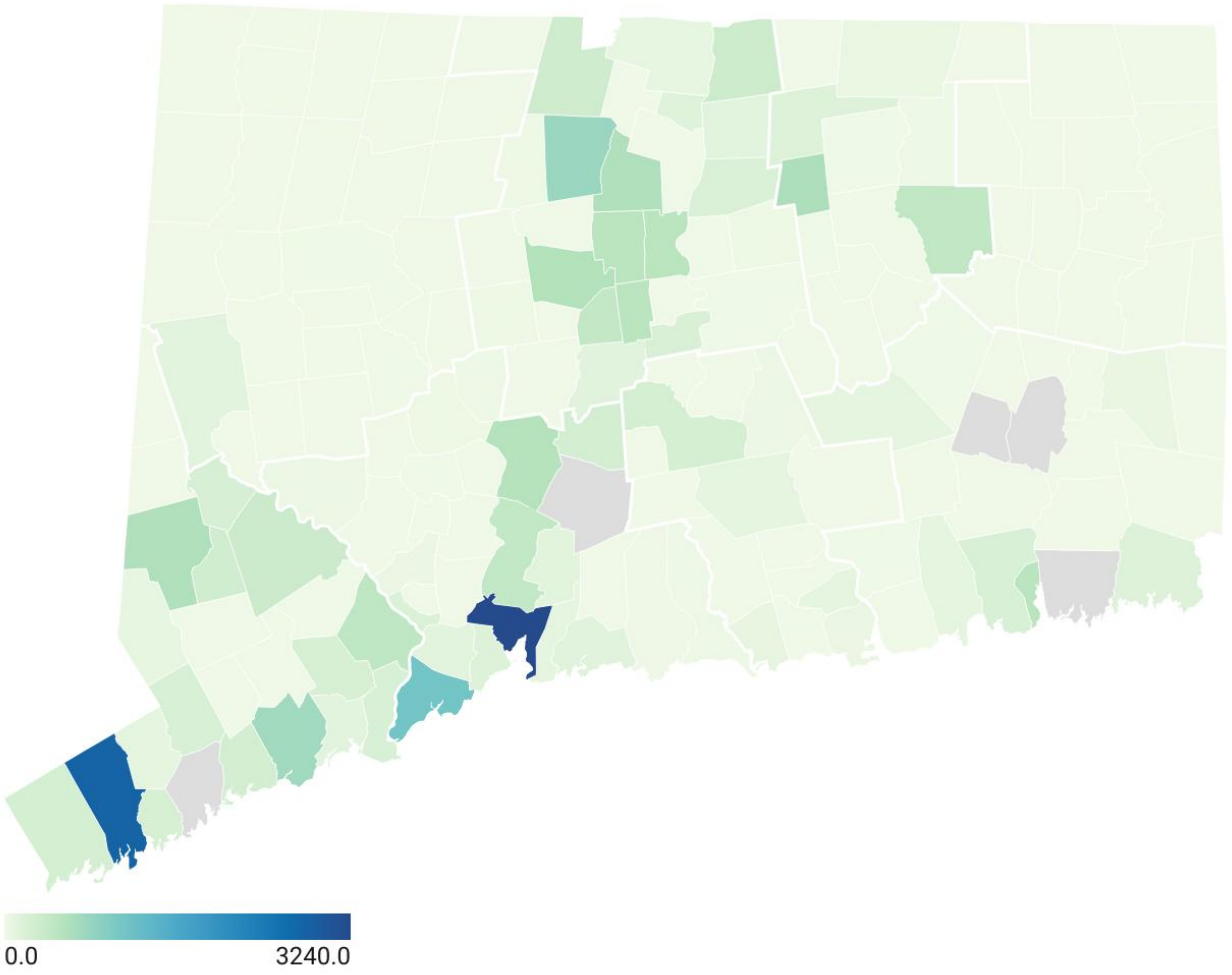


Map: Created by Nick Jones • Source: CT DECD New Housing Authorizations • Created with Datawrapper

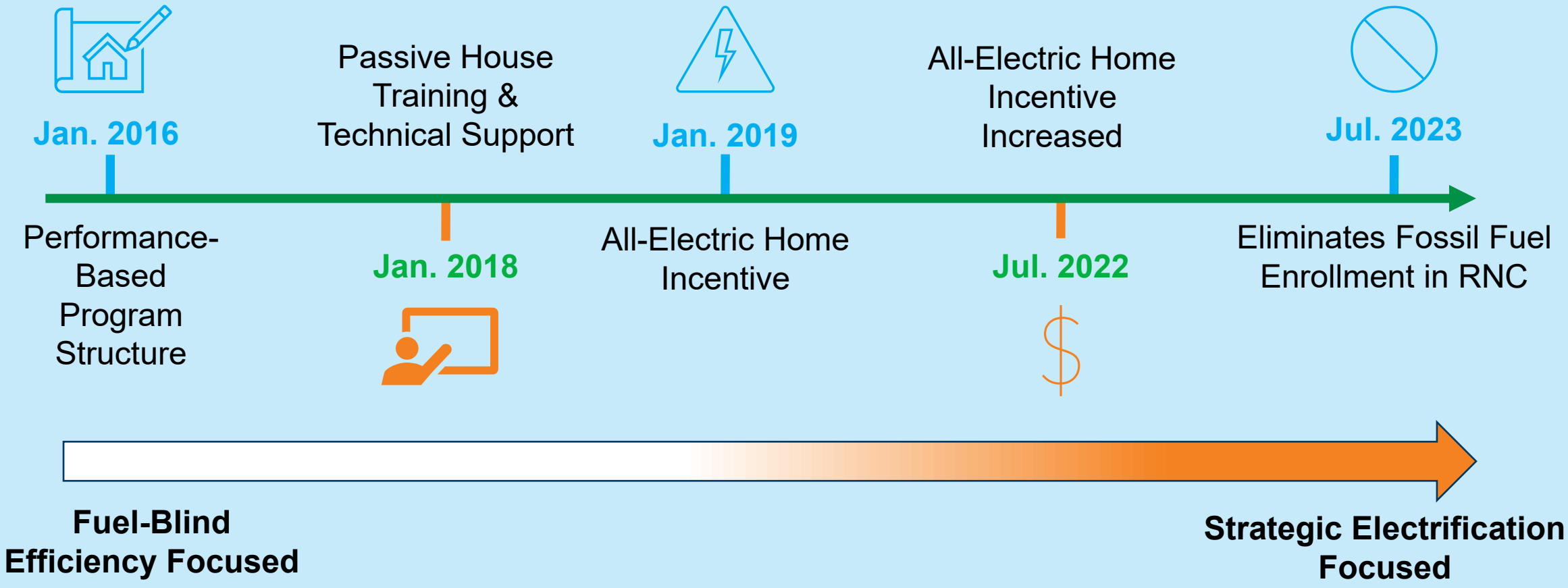
Electrification Training & Incentives

Incentives

- Modeling Incentives
- Performance Incentives
- Certification Incentives

Training

- Lunch & Learns
- Seminar & Classroom
- Exam Reimbursement


Jan. 2016
Performance-Based Program Structure
Passive House Training & Technical Support
Jan. 2018
Jan. 2019
All-Electric Home Incentive
All-Electric Home Incentive Increased
Jul. 2022
Jul. 2023
Eliminates Fossil Fuel Enrollment in RNC
Fuel-Blind Efficiency Focused
Strategic Electrification Focused

All About the HERS Index

What is the HERS Index?

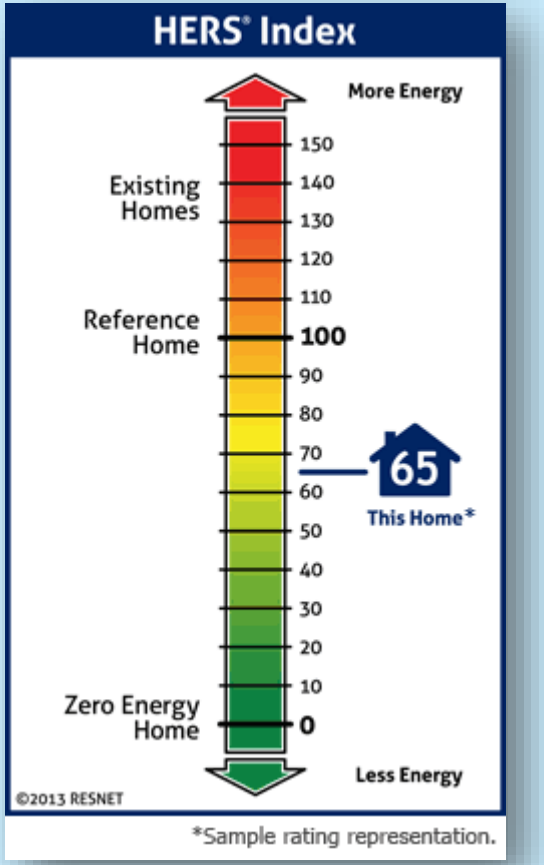
The Home Energy Rating System (HERS) index is the nationally-recognized industry standard used to measure the energy efficiency of a newly constructed dwelling.

How does a HERS Index Score Work?

Certified RESNET Raters conduct diagnostic testing of a dwelling to assess its energy performance and use energy modeling software to assign an asset score for that dwelling relative to a dwelling built to energy code

Why Get a HERS Rating?

- Improve home comfort and reduce energy demands.
- Access utility program incentives.
- Use to support IECC ERI Compliance pathway
- Higher home resale value



All-Electric Home Standards

BUILDING ENVELOPE OR HERS RATING

Tier 1: >7.5 % UA better than 2021 IECC or < HERS 55
Tier 2: >15 % UA better than 2021 IECC or < HERS 45
Tier 3: >25% UA better than 2021 IECC or < HERS 15

ELECTRIC WATER HEATING

Tier 1: >2.74 UEF (Single Family) or >.93 UEF (Multifamily)
Tier 2 & 3: >2.74 UEF (Both SF & MF) or >.93 UEF with 50% PV Offset

ENERGY RECOVERY VENTILATOR

Tier 2 & 3: HRV or ERV >70% SRE / >40% TRE

AIR OR GROUND-SOURCE HEAT PUMP

Must be listed on Energize CT HPQL
CEE Tier 2* & Ground Source Heat Pump Adders

ELECTRIC COOKING & APPLIANCES

Required

SOLAR PV & EV READINESS

Solar PV & EV readiness required across all tiers

All-Electric:
Incentive Structure

Tier Range	Base Incentive Structure		
	Single Family	Single Family Attached	Multi Family
Tier 1	$7,500	$3,000	$1,500
Tier 2	$10,000	$4,000	$2,500
Tier 3	$12,500	$5,000	$3,500

Ground-Source Heat Pump Adder			
System Type	Single Family	Single Family Attached	Multi Family
ENERGYSTAR™ Ground-Source Heat Pump	$2,500	$2,000	$1,500

Passive House:
Incentive Structure

Pre-Certification Incentives		
Offer	**Amount**	**Max. Incentive**
Feasibility Study	100% of Feasibility Costs	$5,000
Energy Modeling	75% of Energy Modeling Costs (Before 90% DD)	$500/Unit, Max. $30,000
	50% of Energy Modeling Costs (After 90% DD/Before 50% CD)	$250/Unit, Max. $15,000

Post-Certification Incentives		
Offer	**Amount**	**Max. Incentive**
Certification	$1,500/Unit	$60,000

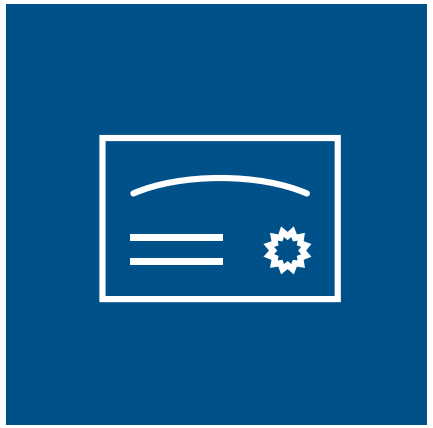
Training Overview

TRAINING DIVERSITY

Over 70+ trainings held on 50+ unique topics

TRAINING ATTENDANCE

5,000+ total attendees participating in trainings



PROFESSIONAL DEVELOPMENT

197 Professional Certification Reimbursements

Electrification & Passive House: Training Offerings

	Lunch & Learn	Seminar-Style	Certification Reimbursement
Complexity	Beginner	Novice	Advanced
Training Frequency	Quarterly	Quarterly	Variable
Training Partner	ICF & BuildGreenCT	Steven Winter Associates	PHIUS/PHI
Participant Costs	No-Cost	No-Cost	Variable

CHFA Projects

- Between 2019-2024, CHFA funded 3,044 dwelling units across 51 new construction affordable housing developments
- **95%+** of these dwelling units have either completed, or are enrolled, through the RNC program
- Continued partnership with CHFA/DOH to ensure that all projects have utility EE program letter of participation prior to final underwriting

CONNECTICUT HOUSING FINANCE AUTHORITY

Rocky Neck Village, East Lyme (Complete 2024)

49 Prince Street, New Haven (Complete 2024)

Eagleville Green

Project Location: Mansfield

Total Project Budget: $21 Million

# of Buildings: 7

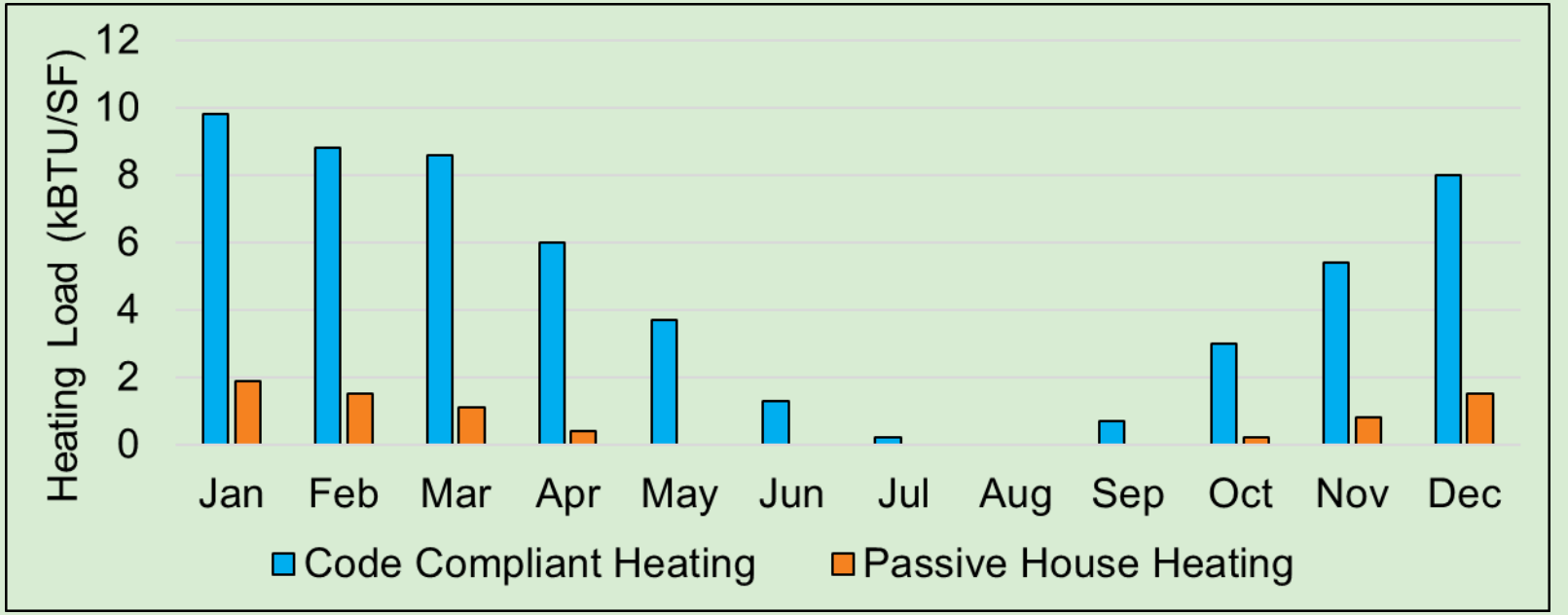
# of Dwelling Units: 41

Average HERS Index:

Certifications & Attributes:

- 80% Affordable / 20% Market Rate
- All-Electric
- PHIUS™ Zero Certified
- Designed to fit regional NE architectural style

Passive House Heating Loads



Heating Load Analysis & Comparison (kBTU/SF)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Total kBTU/SF**
Code Compliant Heating	9.8	8.8	8.5	5.9	3.6	1.3	0.1	0.0	0.7	3.0	5.4	8.0	**55.1**
Passive House Heating	1.9	1.5	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.7	1.5	**7.2**

Eagleville Green:
Incentive Structure

Pre-Construction Incentives	
Measure	**Incentive**
Passive House Feasibility	$5,000.00
Passive House Energy Modeling	$30,000.00
Total Pre-Construction	$35,000.00

Post-Construction Incentives	
Measure	**Incentive**
HERS Incentive	$172,970.00
Affordable Housing Incentive	$35,312.50
Passive House Certification	$60,000.00
DOE ZERH Certification	$20,000.00
All-Electric Tier 2 Incentive	$177,500.00
Total Post-Construction	$465,782.50

It's Time to Live Better

Who is EG Home:

Production Home Builder

- 80 Zero Energy Ready Homes in 2025
- 100 Zero Energy Ready Homes in 2026

54 Team Members

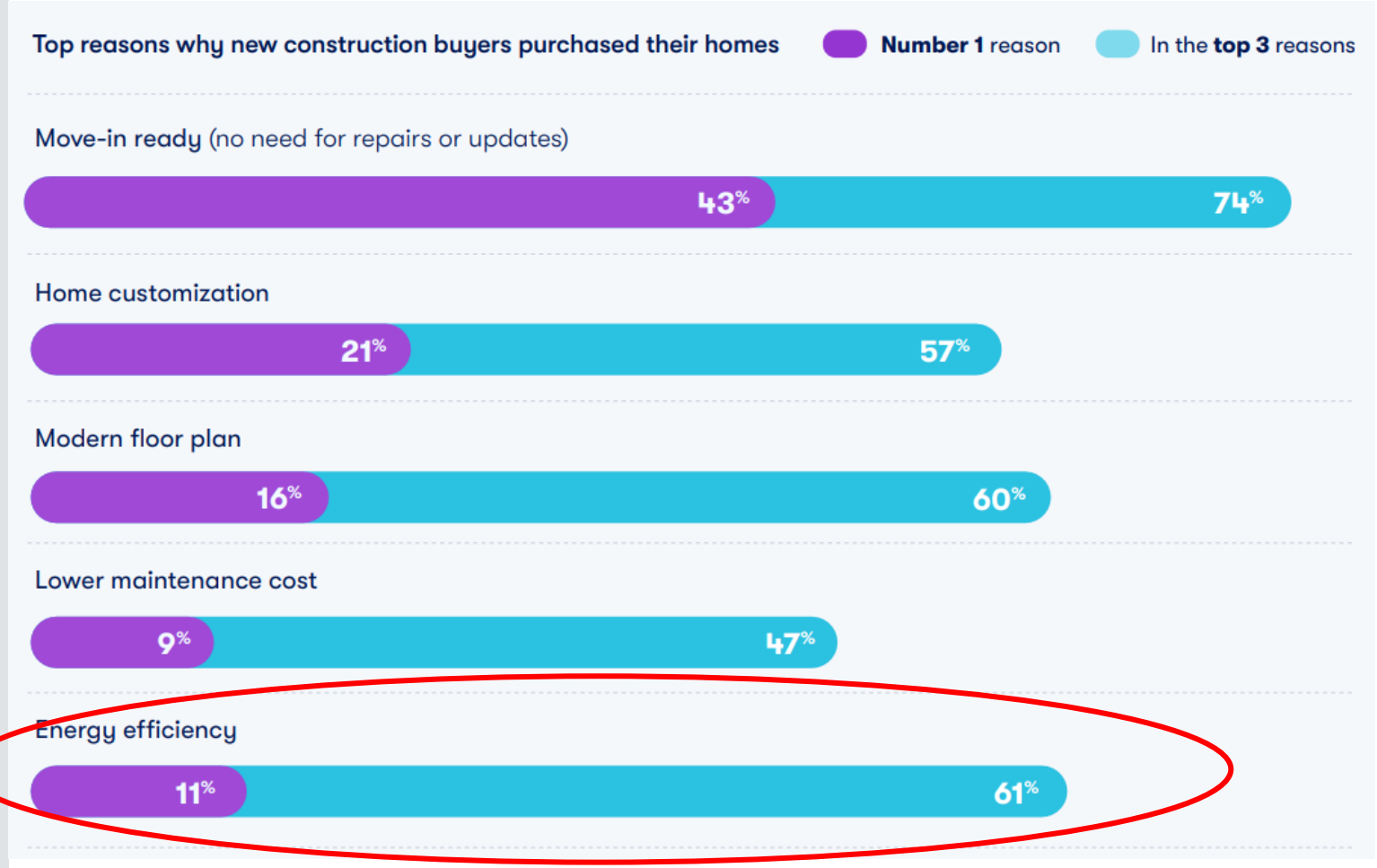
5 Active Communities

2500 square foot Design Center

Proven Repeatable Process

EG Home

Why did EG Home decide to be Zero Energy Ready?

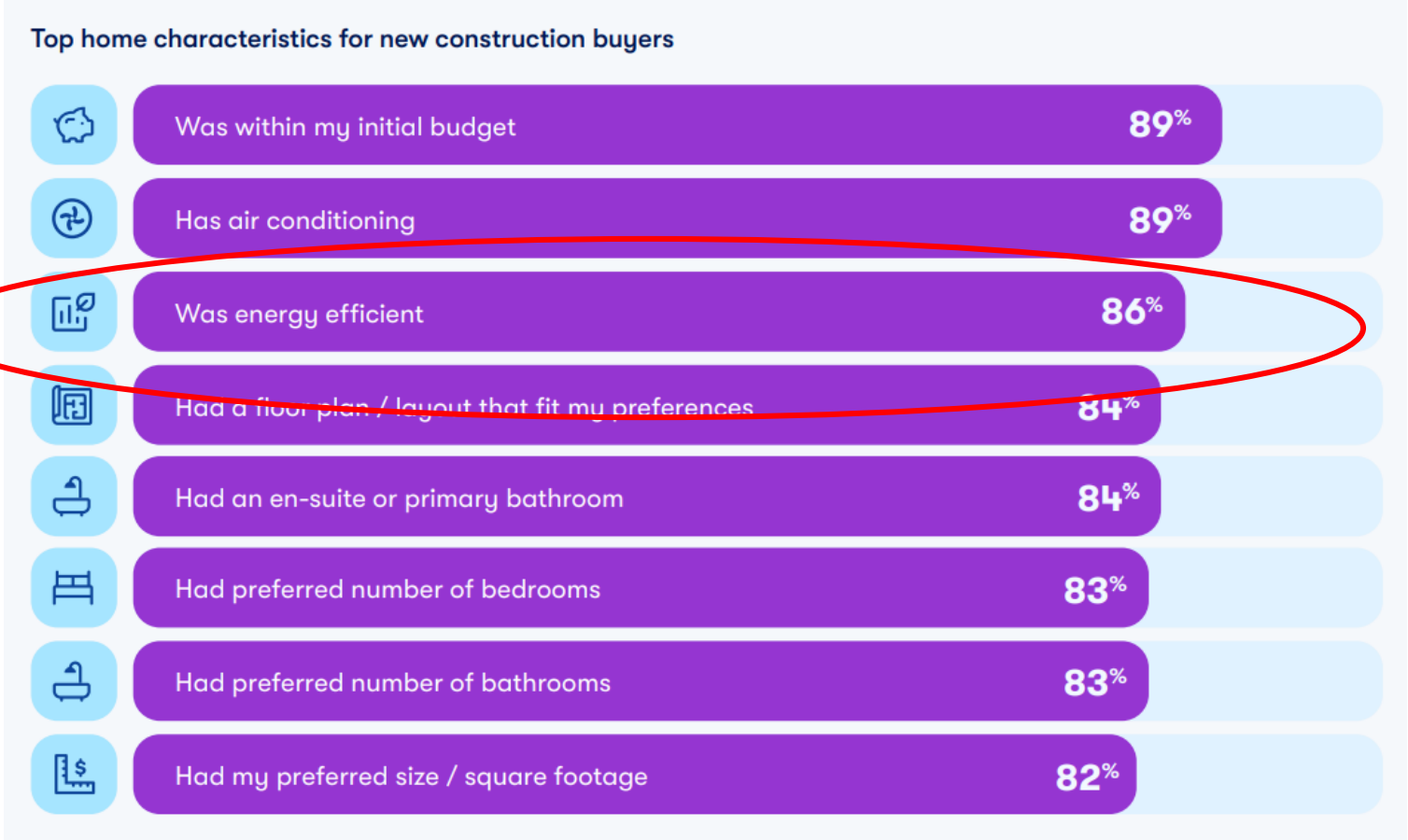


ENERGY EFFICIENCY IS A DECIDING FACTOR

CONSUMER HOUSING TRENDS REPORT 2024

These all ranked higher than:
"Home had my preferred finishes (Counter tops, hardwood floors, etc)"

Why did EG Home decide to be Zero Energy Ready?



ENERGY EFFICIENCY IS A TOP 3 CHARACTERISTIC

CONSUMER HOUSING TRENDS REPORT 2024

How hard is it to get Zero Energy Ready?

- Current building code = 55 HERS score
  - Zero Energy Ready requires 45 HERS score
  - EG achieves HERS ratings of 40 and below and easily scores 0 with solar!
  - Don't forget the rest of the requirement!

- Even with energy efficient rebates it costs more.
  - Adds between $15,000 to $20,000 per home
  - Rebates vary $5,500 to $11,000
  - Federal Tax Credits - 45L = $5,000

- Adds $30,000 of value to the home without solar

EGHome

The EG Process

- **Step by Step**
  - Partner with a HERS Rater
  - Value Engineer
  - Start with Energy Star
  - Evolve to Zero Energy (Indoor Air Plus)

- **Inspect and Use the checklists.**
  - Starts with Proper installation of the foundation and drainage
  - Slabs and insulation
  - Framing. (Perfect)
  - Mechanicals - (Inspect and Reinspect)
  - Air Seal and Insulation
  - Finish Strong.... Don't undo good work!
  - Experience Matters - Develop a process and follow it!

EGHome

Home Energy Rating Certificate

Final Report

Rating Date: 2026-01-22
Registry ID: 419771348
Ekotrope ID: LZgrjDod

HERS® Index Score: -2

Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit www.hersindex.com

Annual Savings $5,524

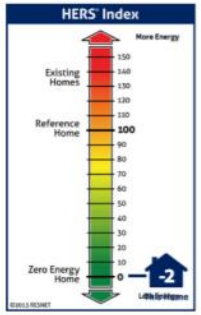
*Relative to an average U.S. home

Home:
1099 St Andrews Dr
Oxford, CT 06478

Builder:
EG Home LLC

Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	15.2	$546
Cooling	0.9	$31
Hot Water	1.7	$60
Lights/Appliances	25.9	$932
Service Charges		$115
Generation (e.g. Solar)	-46.2	-$1,570
Total:	**-2.6**	**$115**



Home Feature Summary:

Home Type:	Townhouse, end unit
Model:	Sawgrass
Community:	N/A
Conditioned Floor Area:	4,034 ft²
Number of Bedrooms:	3
Primary Heating System:	Air Source Heat Pump • Electric • 10 HSPF2
Primary Cooling System:	Air Source Heat Pump • Electric • 17.3 SEER2
Primary Water Heating:	Residential Water Heater • Electric • 4.07 UEF
House Tightness:	1024 CFM50 (1.53 ACH50) (Adjusted Infiltration: 1.13 ACH50)
Ventilation:	110 CFM • 70 Watts • ERV
Duct Leakage to Outside:	0.24 CFM25 / 100 ft²
Above Grade Walls:	R-21
Ceiling:	Vented Attic, R-67
Window Type:	U-Value: 0.23, SHGC: 0.21
Foundation Walls:	R-19
Framed Floor:	N/A

This home meets or exceeds the criteria of the following:

ENERGY STAR v3.3
ENERGY STAR v3.2
ENERGY STAR v3.1
ENERGY STAR v3
2021 International Energy Conservation Code

Rating Completed by:

Energy Rater: Nicholas Onega
RESNET ID: 3669204

Rating Company: Onega Inspection Services
80 Coogan Blvd PO Box 14 Mystic CT 06355
401-284-7455

Rating Provider: Building Efficiency Resources
PO Box 1769 Brevard, NC 28712
800-399-9620

Nicholas Onega

Nicholas Onega, Certified Energy Rater
Digitally signed: 1/26/26 at 1:09 PM

ENERGY STAR NextGen™ CERTIFIED HOME
BUILT FOR A CLEAN ENERGY FUTURE

+

EPA Indoor airPLUS

ZERO ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY

EGHome

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Questions so far?

Feel free to take a break if needed!

Unlock Solar Savings with Solar MAP+

April 2, 2026

CONNECTICUT GREEN BANK®

Mission & Vision

CONNECTICUT GREEN BANK®

Connecticut Green Bank is the nation's first state level green bank. Established in 2011 as a quasi-public agency, the Green Bank uses limited public dollars to attract private capital investment and offers green solutions that help people, businesses and all of Connecticut thrive.

Our mission is to confront climate change by increasing and accelerating investment into Connecticut's green economy to create more resilient, healthier, and equitable communities.

PLANET PROTECTED
BY THE LOVE OF HUMANITY

Our vision

Solar MAP+ for Affordable Multifamily Housing

Leverage the **expertise** of the Green Bank Team who has successfully developed over 60 solar and battery storage projects to date.

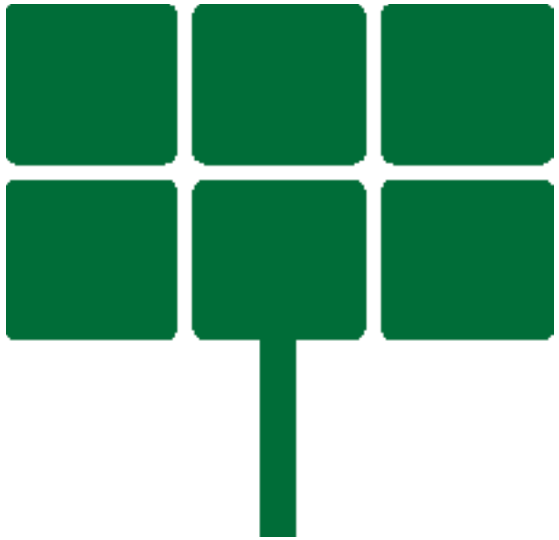
Benefit from **no cost technical assistance and project development support** that simplifies every step of the process

Third party ownership structure allows for ease of adoption with **zero investment required**
Benefit from **immediate energy savings** day 1

Eliminates ongoing operations and maintenance responsibilities

Ensure **backup power** in case of outages with integrated battery storage

Competitive RFP process run by the Connecticut Green Bank for contractor selection.



Program Steps

Site Analysis. The Solar MAP+ team works with stakeholders to perform an analysis of all eligible locations to **identify opportunities** for solar + storage projects

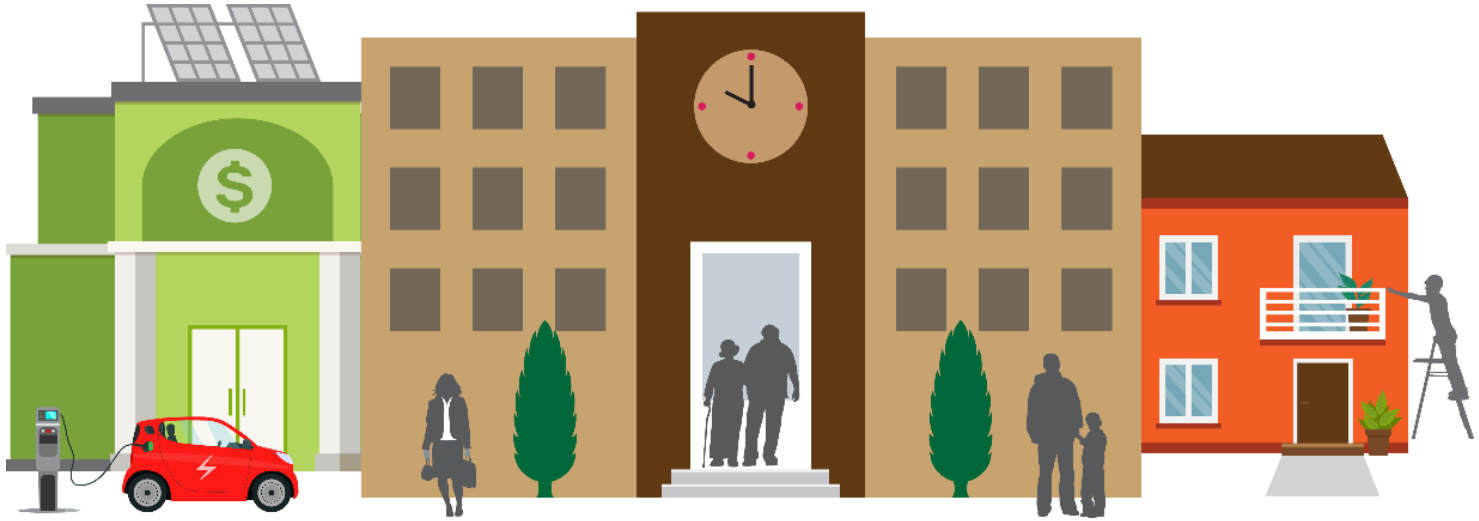
Project Development. The Solar MAP team conducts **site visits and develops system designs** for each project to determine project economics.

Execute. The Solar MAP team will present **project specs and pricing to execute a project agreement.**

Competitive Partner. The Solar MAP team will **solicit proposals** from qualified contractors and select the best proposal, **bundling participating projects together** to achieve economies of scale. Once a contractor is selected, the development and construction phases will then commence.

Overview of the Affordable Multifamily Housing Program

- Affordable Multifamily Properties are now allowed to access the Residential Incentive Program (RRES)
- The residential tariff rate is substantially higher than the alternative commercial tariff
  - **$0.3839/kWh vs ~$0.25/kWh**
- There is no cap on the number of Residential Tariff Projects
- One project to benefit all tenants and common area space

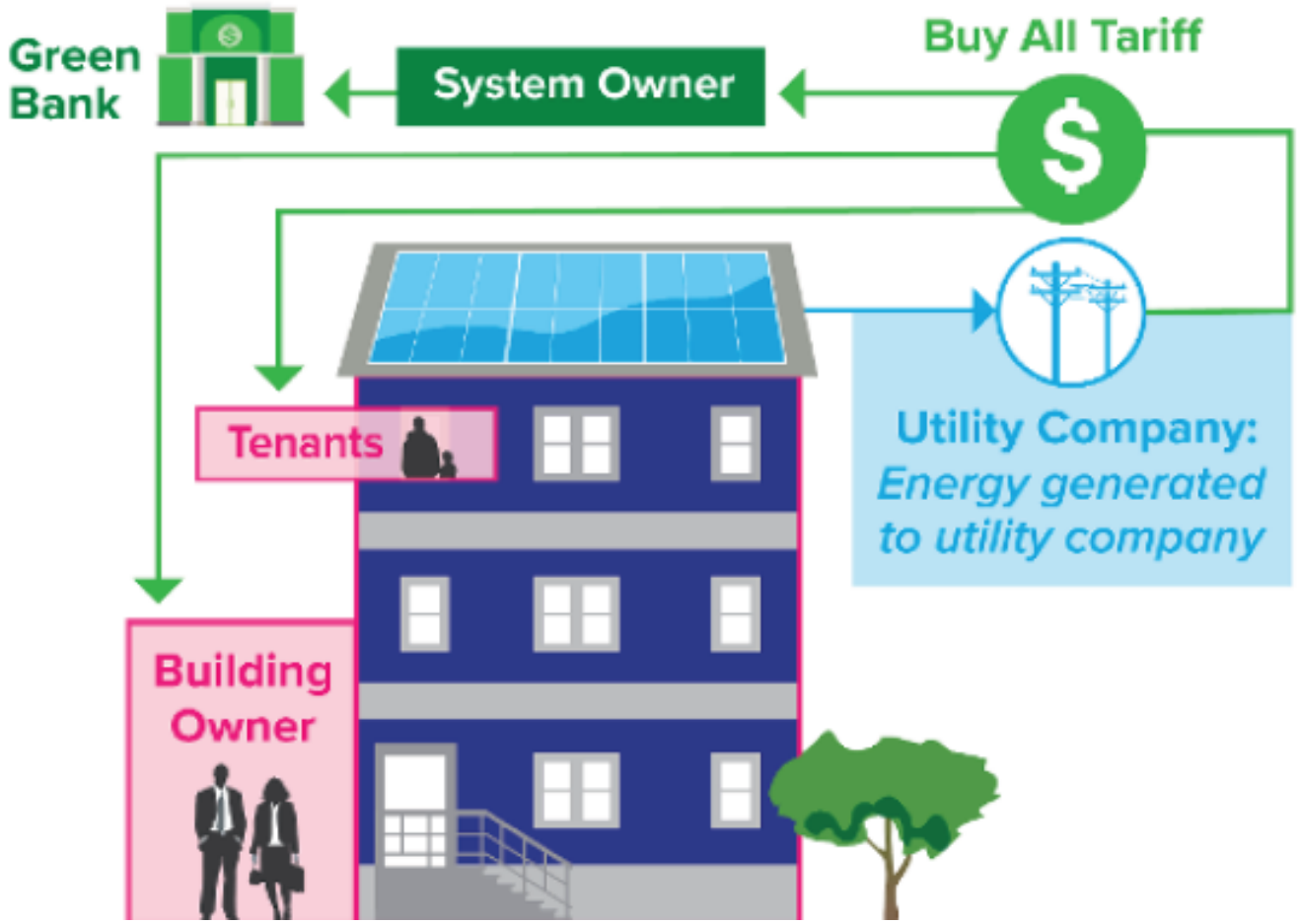


Financial Benefit Must Be Shared With Tenants

- It is a requirement of the program that the financial benefit of solar be shared with Tenants
    - Sites that are individually metered, with tenant paid electric – residents receive an ***on bill monetary credit*** on their electric bill (20% of the tariff value split equally amongst all residents.)
    - Master Metered Sites: the net present value of 25% of the tariff must be set aside for an ***eligible upgrade to benefit residents***.
        - Eligible Measures:
            - Immediate:
                - Energy efficiency measures
                - Energy Storage
                - Energy efficiency barrier remediation
                - Operational reserve
                - EV charging stations
                - Balanced ventilation systems
                - Security enhancements
            - Ongoing:
                - Onsite health and/or supportive services or residential service coordinator
                - Broadband internet access
                - Bill credits on electric bills that are delivered by landlords

- ***For sites that are cash constrained but are interested in pursuing facility upgrades, solar is a great way to reduce operating expenses, and address desired projects.***

Solar Lease



Pros:

- Off-balance sheet approach to project development
- No capital outlay required
- Green Bank bears all maintenance responsibilities
- Green Bank handles all project development scope, including submitting for and securing State and Federal Incentives
- Green Bank runs a competitive RFP to identify a contractor to build the project
- Traditional procurement requirements generally don't apply due to 3rd party ownership structure
- Removal at the end of the term is the Green Banks responsibility and expense

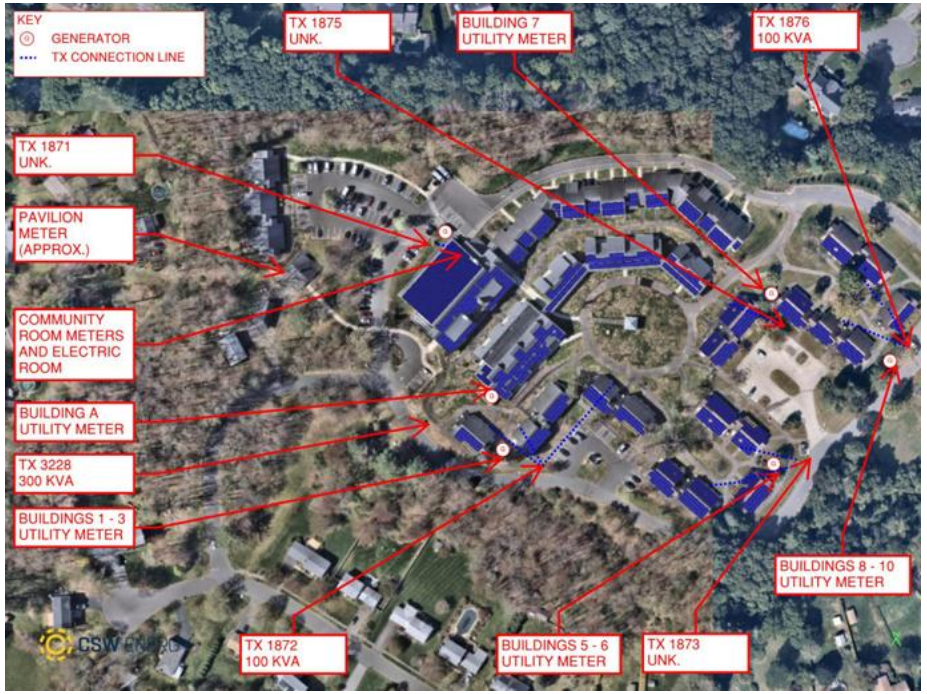
Cons:

- System is owned by the Connecticut Green Bank and not the property owner

Sample Lease Modeling

Sample Project	
System Size (kW)	1,073 kW DC
Year 1 Production (kWh)	1,223,244 kWhs
ITC Assumption	**30% ITC**

Cumulative Financial Benefit (Residents + Property Owner): $3,465,292	**Tenant** $1,322,292	**Property Owner** $2,143,000
Resident Share of Tariff	$1,322,292 (25% NPV of the tariff for eligible improvement)	
Property Owner Share of Tariff	$113,714 (25.5% of the tariff)	



Solar Loan

Pros:

- Retain a higher portion of the tariff value
- Directly monetize the available investment tax credits for the solar project (if available)

Cons:

- Direct Purchase of the system required
- Debt added to the balance sheet
- Because sites are debt constrained lender consent for financing could be difficult
- Operations and maintenance and associated expenses are owners' responsibility.
- Direct Purchase may trigger compliance with specific procurement requirements adding complexity to the project.
- Removal at the end of the useful life is owners' responsibility

Sample Loan Modeling

Loan Cost Summary	
Project Cost	**$2,800,530**
Tenant Improvements	**$1,269,869**
Closing Fee – Capitalized	**$126,936**
Estimated Construction Interest - Capitalized	**$49,727**
Total Costs	**$4,247,061**

Loan Analysis	
ITC Level	**30%**
Cumulative Financial Benefit over Loan Term (After Debt Service and OpEx)	**$2,450,602**
Payment from Borrow for Tenant Improvements	**$1,269,868.76**
Total Benefit	**$3,720,471.76**
Payback Period	**1**

Note the following Assumptions:	
Annual Degradation	0.64%
Loan Term	18
Term Interest Rate	5.80%
Project is Affordable Multifamily?	Yes - Master Metered
Buy All Payment	$0.3739

Participating Sites

Round 1 – 8 Sites	Round 2 – 8 Sites	Round 3 – 11 Sites
Cheshire Housing Authority	Hamden Housing Authority	Glastonbury Housing Authority
Hamden Housing Authority	Glastonbury Housing Authority	Mauro Meadows
Juniper Hill Village	Portland Housing Authority	Parish Court
Simon Konover Group – Federation Square	Ferry Crossing	Windsor Housing Authority
Access Housing – Parker Place	Enfield Housing Authority	Windsor Locks Housing Authority
	Sarum Village	Norwalk Housing Authority
	St. Martins Townhouses	Sheldon Oak
	New Horizons Village	East Hartford Housing Authority
		Room Unity
		Oak Tree Village

Timing Considerations – One Big Beautiful Bill

- **With the signing of the One Big Beautiful Bill (OBBBA) on July 4th, 2025 the investment tax credit (ITC) for solar is effectively being phased out.**
- **Time is of the essence.**
- **High level Overview:**
  - Projects that start construction or safe harbor between 1/1/26 to 7/4/26: Preserve ITC, FEOC applies, but existing in-service timelines remain.
    - Sites should target connecting with the Green Bank ***no later than 5/1/2026*** if there is interest in pursuing a project and preserving the ITC.
  - Projects that start construction after 7/4/26: FEOC applies. Must be placed in service by 12/31/27 to capture ITC, FEOC applies.

Contact Information

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Solar PV for New Construction

SECHA – April 2026

RESONANT ENERGY

RESONANT ENERGY

- **Mission:** Founded in 2016 to expand access to clean energy in underinvested communities
- **Service Area:** Boston-based development company building projects in the Northeast
- **Focus:** (Affordable) Multifamily, New Construction, Nonprofit institutions, Small Commercial
- **Specialty Services:** ITC adder and Elective Pay support, Lender & investor consent support, DCAMM certified

100% EMPLOYEE-OWNED COMPANY

Certified B Corporation

Build Local Power

What we're sharing today

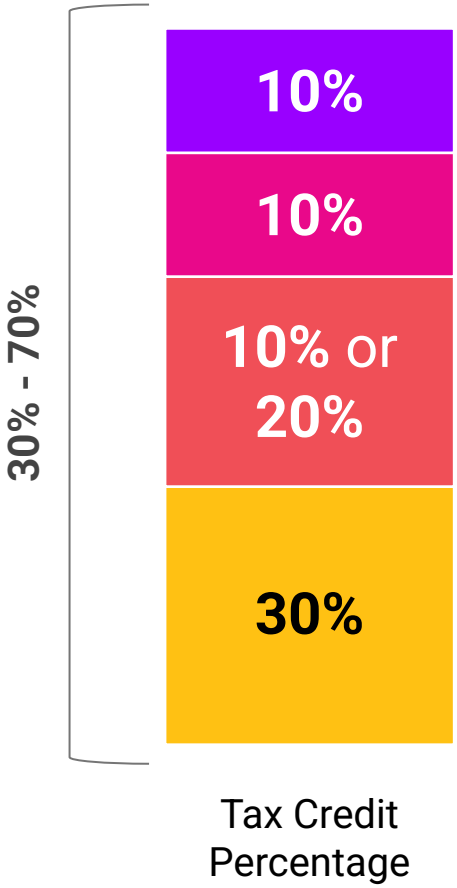
1. Federal Incentive Landscape
2. Design Coordination Best Practices
3. Underwriting & Consent Optimization

State of Solar

Federal Policy

RESONANT ENERGY

Understanding the Investment Tax Credit



Domestic Content	***Automatic**; with procurement compliance; increases total cost*
Energy Community	***Automatic**; federal map changes each year on June-May cycle*
Environmental Justice Adders	***Application required**; must meet location requirements (+10%) or have federal low-income funding (+20%)*
Base	***Automatic**; for projects meeting construction start timelines (see following slide)*

IRC 48(e) Safe Harbor

To Safe Harbor, the project must prove construction start:

- Sign a **contract**
- Complete a minimum **5% payment** toward the total project cost (5% Payment Test). Payment will go toward either:
  - Capitalized Engineering Costs
  - Equipment Procurement

Timeline:

- The 48(e) investment tax credit can be locked in by meeting the conditions above by **July 4, 2026**.
- **Deadline for Project Completion:**
  - If Safe Harbored: 4 tax years after project start (2030).
  - If Not Safe Harbored: must be placed in service prior to Dec 31, 2027.

Solar Design Coordination

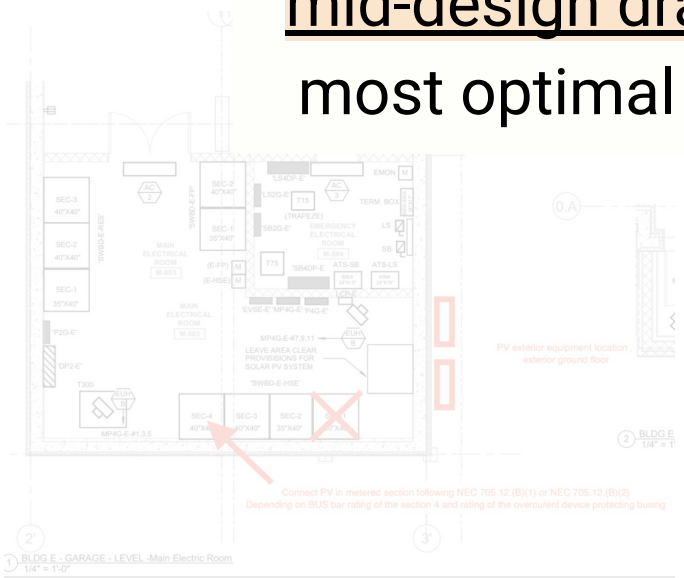
Beyond ‘Solar Ready’

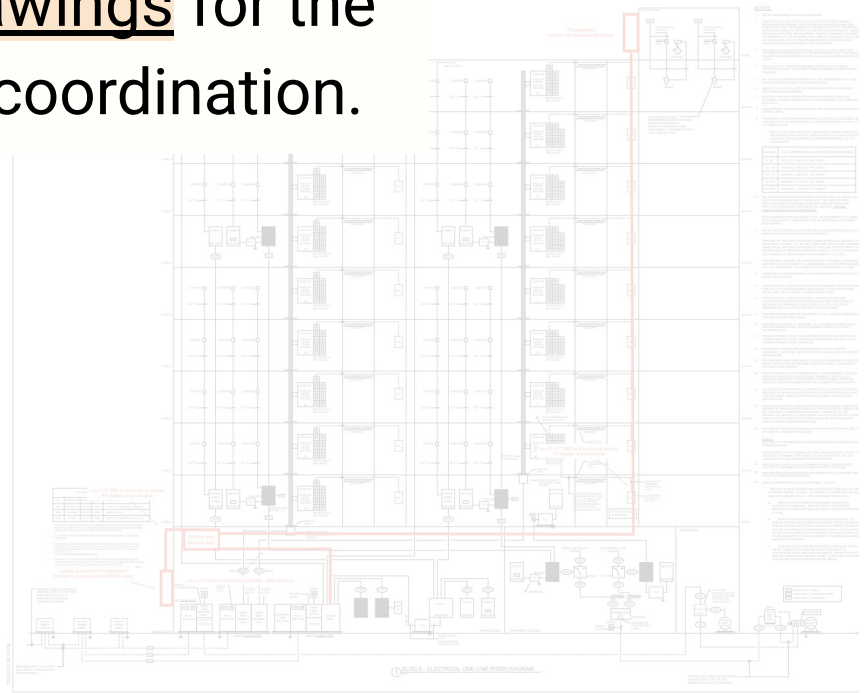
Pre Construction Solar Engineering Review

Review includes details on:

- Roof layout
- Conduit sizing & routing
- Interconnectio RRES in CT)
- Equipment dim
- Structural capa

Start taking steps to incorporate solar in mid-design drawings for the most optimal coordination.

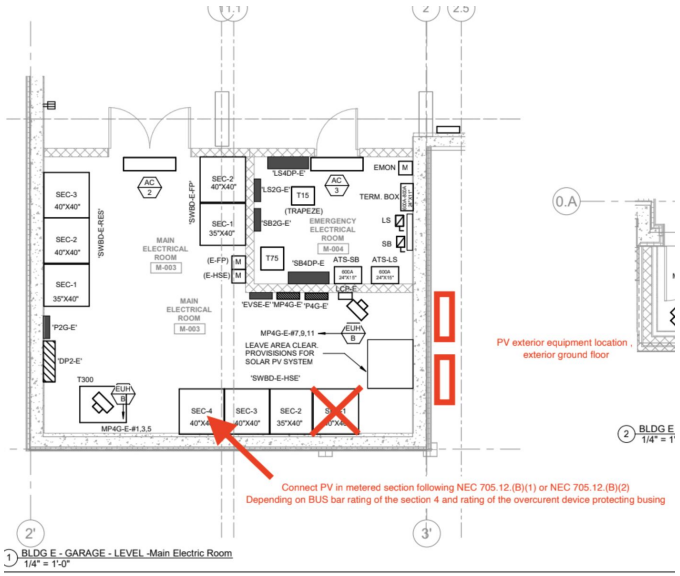


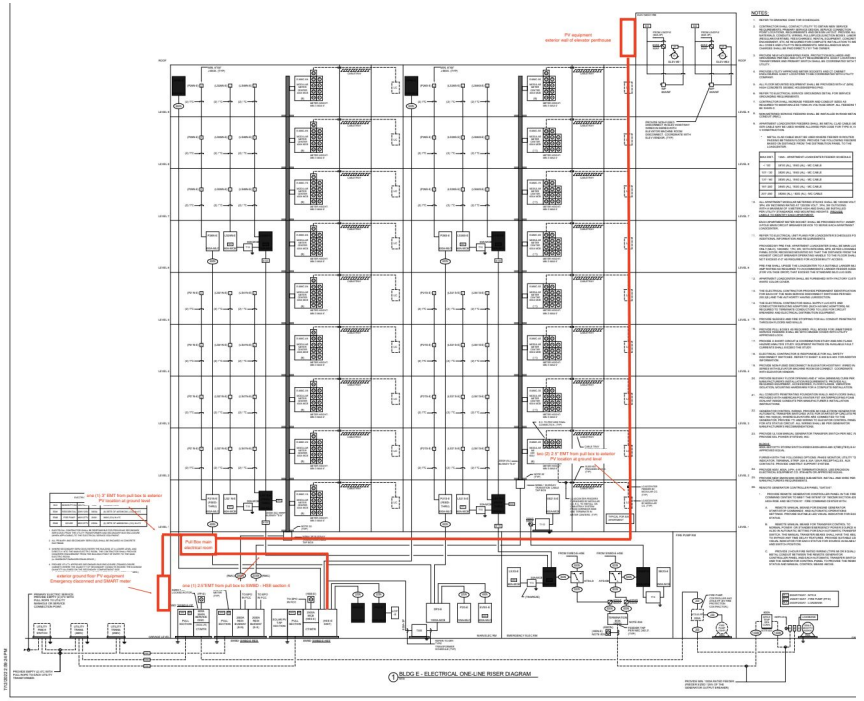


Pre Construction Solar Engineering Review

Review includes details on:

- Roof layout
- Conduit sizing & routing
- Interconnection strategy (typically Front-of-the-Meter for RRES in CT)
- Equipment dimensions & suggested locations
- Structural capacity





Structural Coordination Flat Roofs

Most flat roof solar arrays will use ballasted racking systems.

Rules of Thumb

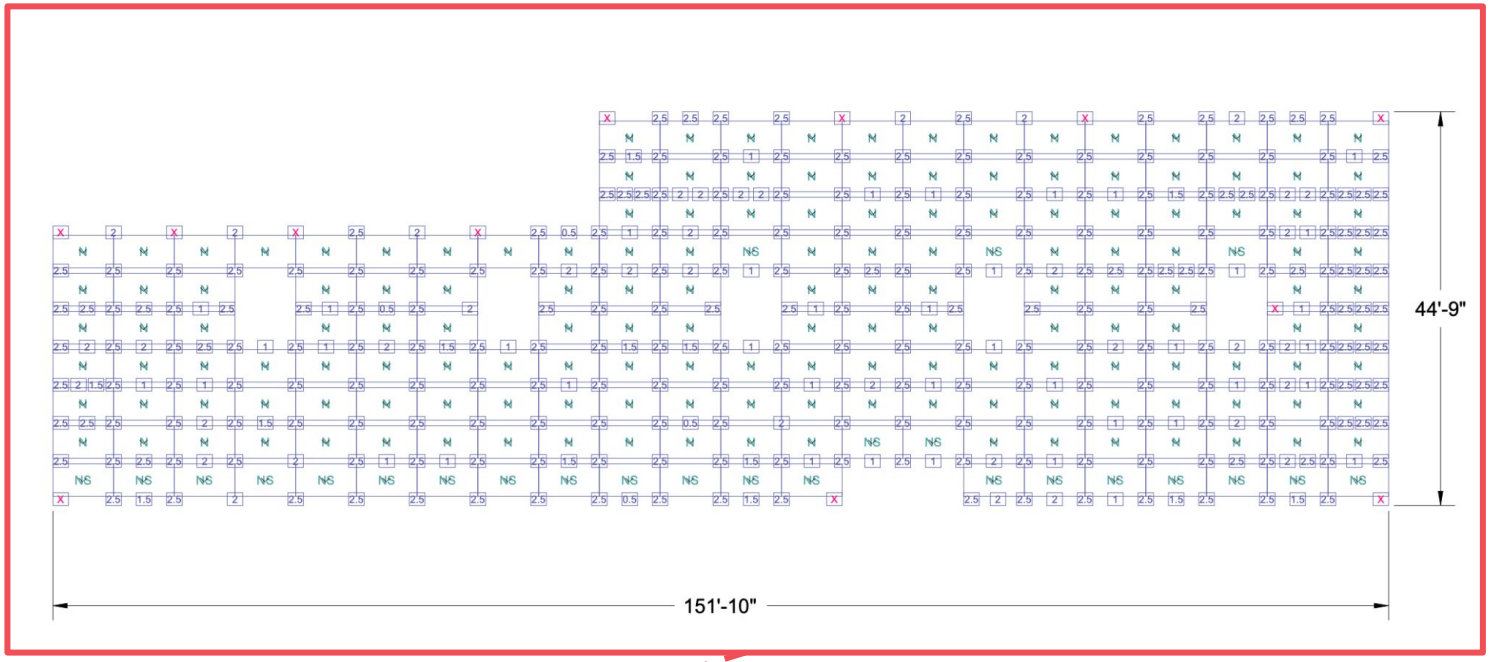
- Allow for 10-12 PSF deadload for solar PV
- Consoldiate panels close together for greater collective downforce
- Request a ballast map early

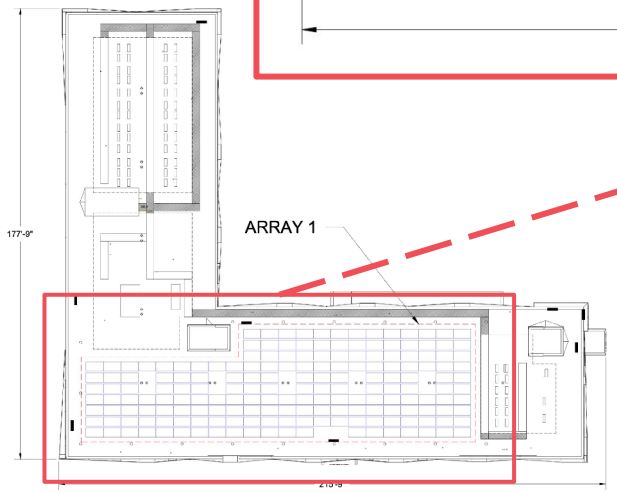
Benefits of Optimization

- Fewer mechanical attachments
- More predictable costs

Structural Coordination Flat Roofs

Example Coordination





94.12 kW DC

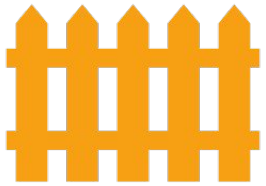
7 PSF Allowance

12 Mechanical Attachments

Underwriting & Consents

Why underwrite solar benefits?

Operational savings can increase debt service coverage ratios and borrowing capacity.



What gets underwritten early gets optimized and defended.

Underwriting Summary

Example Summary

	Metric	Projected Year 1 Benefit	Recommended for Underwriting	Additional Context
Operating Benefits	***CT RRES*** *(Reduction in OpEx)*	**$72,860**	**$61,931** *(85% of Projected)*	Utilizes site-specific production estimates. Realized as reduced utility bill costs or direct payment. Factors in 15% reduction for downtime & weather.
Capital Benefits	***Federal Tax Credit*** *(40% One-time)*	**$293,260**	-	Utilized by developer, LIHTC investor, or via 'Transferability'
	Accelerated Depreciation *(One-time)*	**$152,495**	-	Single-year depreciation. Assumes 26% corporate tax rate.

Eligible kW-DC: **230.6**
Upfront Cost: **$733,149**

Lender & Investor Consent

Third party solar agreements like PPAs typically trigger lender, investor, and state agency funding approval requirements.

Organize documentation in advance of requests (and/or work with partners like CT Green Bank or Resonant for support).

Takeaways

- **Strong Incentives:** Even without the federal tax credit, state incentives make solar a good investment. With it, it's a no-brainer.

- **Early Design Coordination:** Optimze layouts, plan for equipment, incorporate ballast map review to minimize attachments.

- **Underwrite Solar to Maxmize Benefit:** Integrating solar into DSCR calcs early & including the solar team in design review allows solar to maximize financial benefit.

Thank You!

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Karla Butterfield

Steven Winter Associates
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Who Are We?

- ✓ 120+ staff
- ✓ 8 years average tenure
- ✓ 11 years average industry experience
- ✓ 60% of staff are women and/or minorities
- ✓ 100% employee owned

Locations

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Norwalk, CT

New York, NY

Washington, DC

Sustainability Planning & Analysis

Energy Modeling, Embodied Carbon Analysis…

Green Building Certifications

LEED, Net Zero, NGBS, Fitwel, ENERGY STAR…

Building Enclosures

Envelope, Foundations, Historical Preservation…

Net Zero Energy & Carbon

Passive House, High-Performance…

Steven Winter Associates SWA

Energy Retrofits & Optimization

Audits, Feasibility Studies, Retrofit Implementation…

Building Portfolio Decarbonization

Compliance and Incentive Planning…

Building Commissioning

New Construction Retrofits, Retro-Commissioning…

Training

Operations & Maintenance Practices

Steven Winter Associates SWA

Compliance Consulting

Plan Reviews, Field Inspections, Remediation Planning…

Litigation Consulting

Inspections & Reporting, Remediation, Expert Witness…

Technical Assistance

Compliance Support, Ad Hoc Inspections…

Research

Building Science, Sustainability, Equity…

Programs & Policy

QA/QC Support, Program Development & Management…

Training

Continuing Edu., O&M, Project Handoff, Tenant Training…

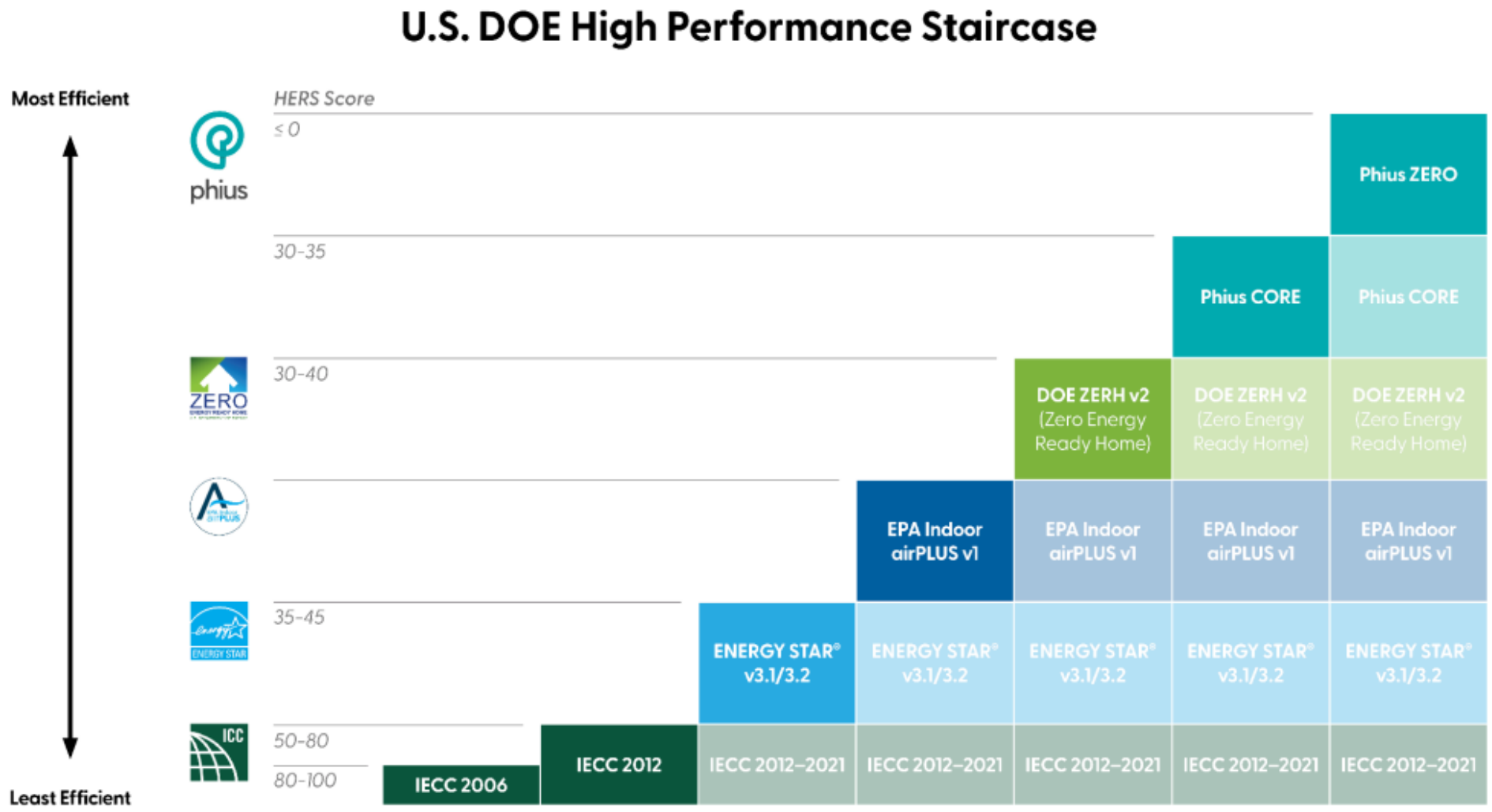
Industry Leadership

Agenda

1. Third-party Consulting and Certification
2. International Energy Conservation Code (IECC)
3. Programs and Incentives
4. Case Study

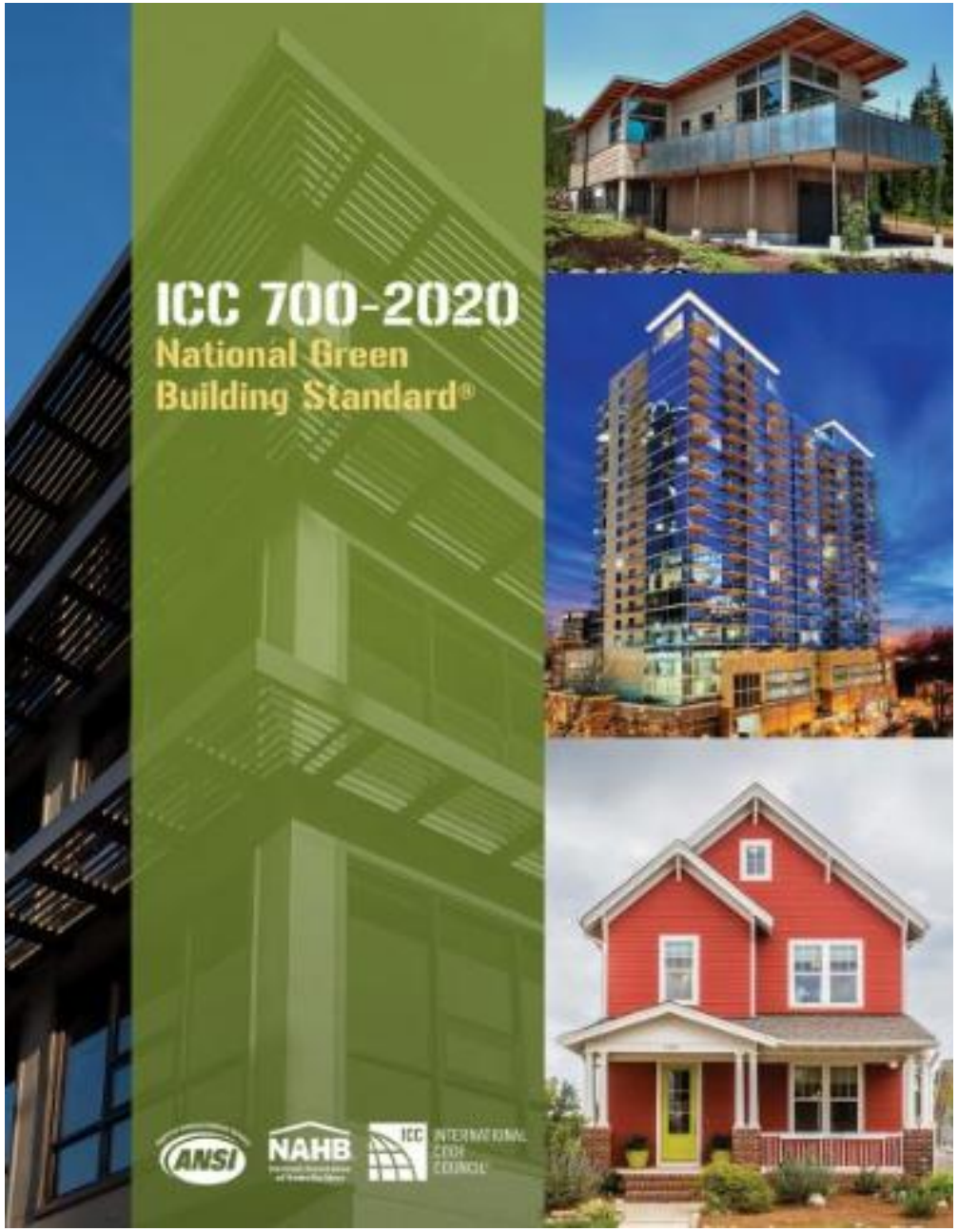
Third-party Consulting and Certification

Third-party Consulting & Certification



LEED Homes or Multifamily Midrise

1. Airtight Envelope
2. Grade 1 Insulation
3. Minimize Thermal Bridging
4. Duct Sealing
5. Mechanical Ventilation
6. Compartmentalization/air sealing

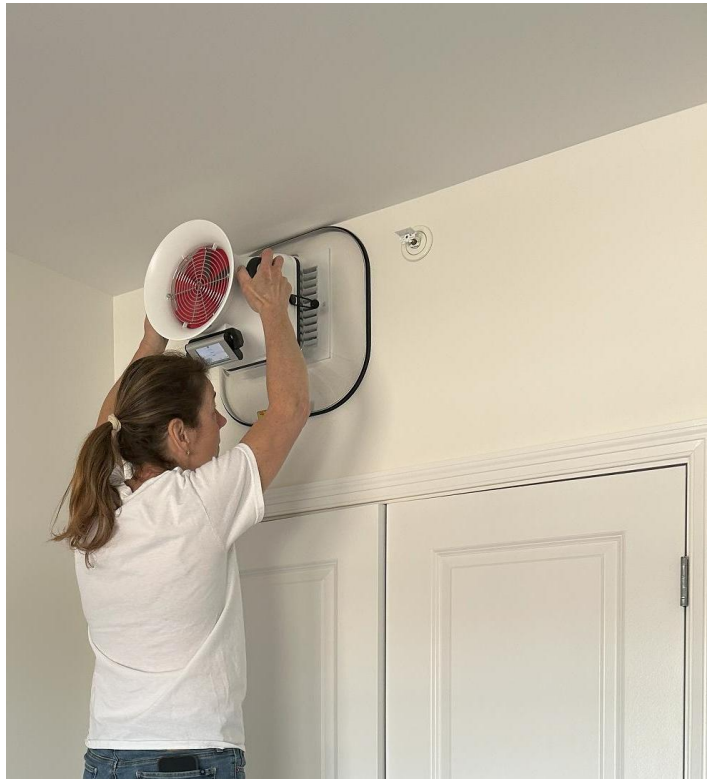


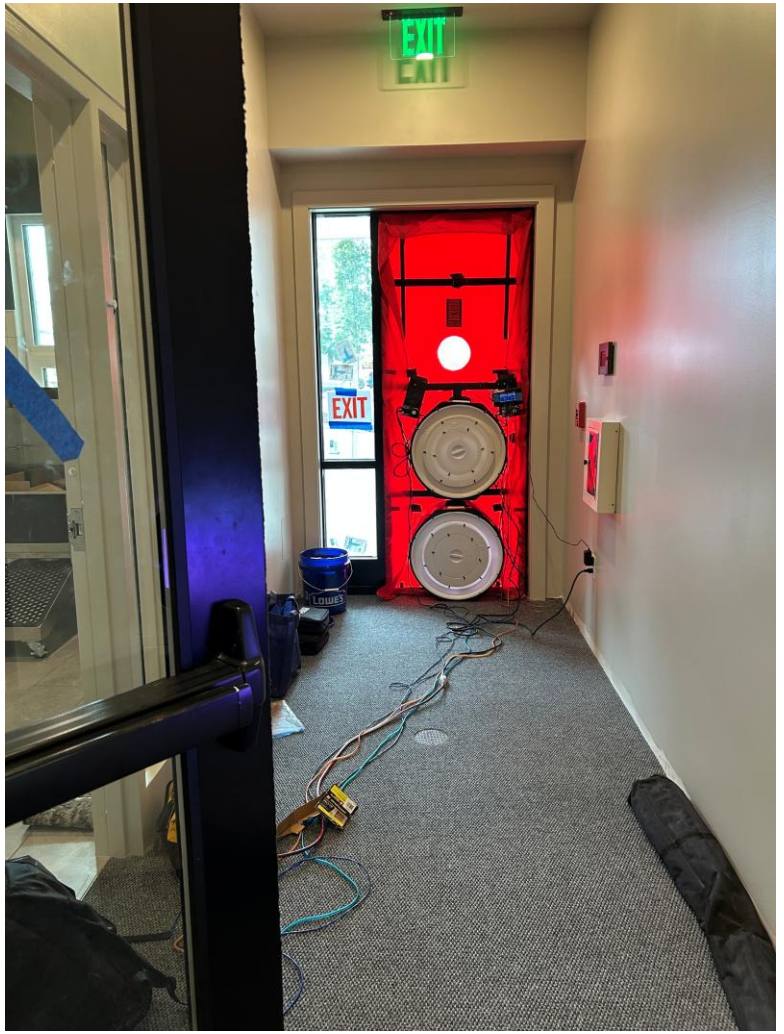
National Green Building Standard (NGBS)

IECC

2021 IECC & 2024 IECC

2021 IECC & 2024 IECC





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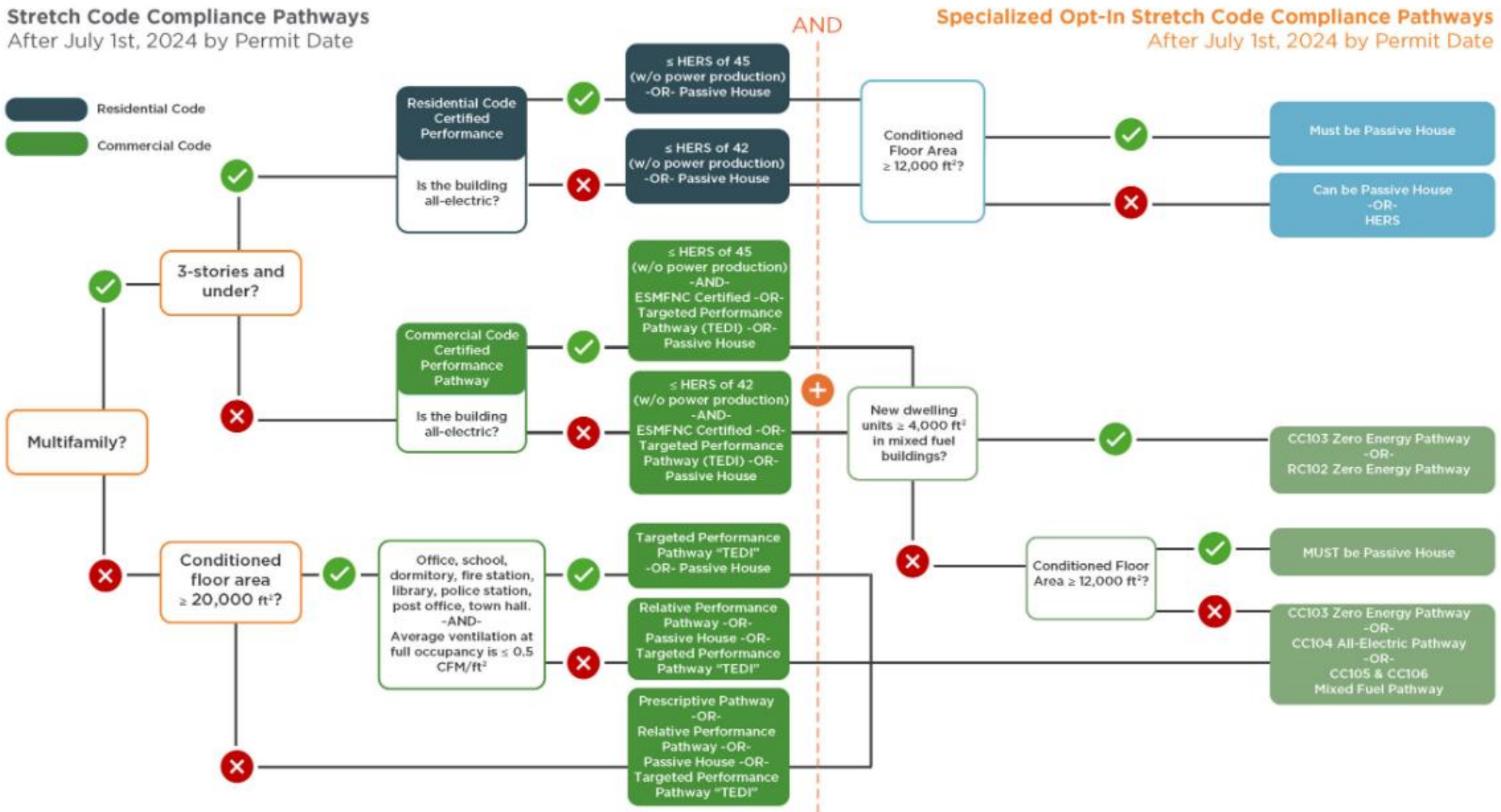

Programs & Incentives

Incentives – Programs – Third-party

energize CONNECTICUT

All-Electric Home and High-Performance Certification Bonus Incentives				
All-Electric Home Incentive				
Requirements	**Tier**	**Single Family Applicant Rebate**	**Single Family Attached Applicant Rebate**	**Multifamily Applicant Rebate**
1. Projects pursuing the All-Electric Home Incentive must be built to the specifications indicated on the All-Electric Home Specification form(s) (Pages 3–4). 2. Incentives capped at $500,000 per project (Tier 1), $750,000 per project (Tier 2) and $1,000,000 per project (Tier 3). 3. Projects meeting affordability requirements are eligible for an additional incentive for each affordable dwelling unit. Incentives are $750 for single family dwellings and $500 for single family attached and multifamily dwellings.	☐ Tier 1	$7,500	$3,000	$1,500
	☐ Tier 2	$10,000	$4,000	$2,500
	☐ Tier 3	$12,500	$5,000	$3,500
Heat Pump Adder Incentive				
Requirements		**Single Family Applicant Rebate**	**Single Family Attached Applicant Rebate**	**Multifamily Applicant Rebate**
Ground source heat pumps must meet current ENERGY STAR® certified requirements.		$250/Ton ($1,000/Unit)		$125/Ton ($500/Unit)
High-Performance Certification Rebate Chart				
Requirements	**Qualifying Criteria (Please Check All That Apply)**	**Single Family Applicant Rebate**	**Single Family Attached Applicant Rebate**	**Multifamily Applicant Rebate**
1. Additional energy modeling and design incentives are available for single family attached and multifamily Passive House projects with five or more units. Please refer to the Passive House Incentives form. 2. Must provide all proper documentation for certification. 3. Passive House certification bonus project cap is $60,000; all other certification bonus project caps are limited to $20,000. 4. Rebate is available for up to a maximum of two certifications per home. 5. All projects must provide HERS Rating documentation from HERS Rating path participation above.	☐ Passive House*	$1,000	$1,500	$1,500
	☐ Department of Energy (DOE) Efficient New Homes Program	$750	$500	$500
	☐ Leadership in Energy and Environmental Design for Homes (LEED)	$500	$250	$250
	☐ National Green Building Standard (NGBS) Silver	$500	$250	$250
	☐ ENERGY STAR Certified	$500	$250	$250

*Living Building Challenge projects will also be considered for additional incentives under Passive House incentive on a project-by-project basis. Consult with the Companies on these projects.

Incentives – Programs – Third-party

mass save
Savings through energy efficiency

Single-Family (1-4 units)			
Tier	**Base**	**ENERGY STAR**	**Passive House**
Overview	All-electric heating, water heating, cooking, and clothes drying	ENERGY STAR NextGen	Passive House
Performance Specification	≥15% savings above baseline	≥30% savings or HERS: ≤45 Infiltration: ≤1.5 ACH50 ENERGY STAR SF NH v3.2 + NextGen	Passive House certification (Phius or PHI)
Incentives	Single Fam: $7,500 2-unit: $8,750 3-unit: $10,000 4-unit: $11,250	Single Fam: $15,000 2-unit: $17,500 3-unit: $20,000 4-unit: $22,500	Single Fam: $25,000 2-unit: $30,000 3-unit: $35,000 4-unit: $40,000
Market Transformation adders*	Wi-Fi Connected Thermostat (Base tier only): $100/unit Induction Cooktop: $250/unit Split-System Heat Pump Water Heater: $750/unit ENERGY STAR v3.2 certification (Base tier only): $250/unit DOE Zero Ready certification (Base and ENERGY STAR tier): $500/unit ENERGY STAR Certified Ground-Source Heat Pump: $9,000/unit		

Incentives – Programs – Third-party

mass save
Savings through energy efficiency

Multi-Family (5+ units)			
Tier	**Base**	**ENERGY STAR**	**Passive House**
Overview	All-electric heating, cooking, and clothes drying	ENERGY STAR Multi-Family New Construction (MFNC) v1.2	Passive House
Performance Specification	Low-rise: ≥15% savings above baseline or HERS: ≤45 High-rise: Exceed baseline	ENERGY STAR MFNC v1.2	Passive House certification (Phius or PHI)
Incentives	Low-rise: $1,500/Unit High-rise: $1,000/Unit	Low-rise: $2,500/Unit High-rise: $1,750/Unit	Both: $3,750/Unit ($750 Pre-Cert, $3,000 Final Cert)
Passive House adders	$5,000 Feasibility Study Incentive Up to 75% Energy Modeling Costs ($500/Unit or $20,000/Project max)		
Market Transformation adders*	Wi-Fi Connected Thermostat: $100/Unit Induction Cooktop: $250/Unit In-Unit Heat Pump Water Heater: $250/Unit Centralized and Split-System Heat Pump Water Heater: $750/Unit ENERGY STAR Certified Ground Source Heat Pump: $1,000/Unit ENERGY STAR NextGen Certification (ENERGY STAR tier only): $250/Unit DOE Zero Energy Ready Homes Certification (ENERGY STAR tier only): $250/Unit High-rise Whole Building Infiltration Testing (Base and ENERGY STAR tier only): ASTM E779 test results - 0.4 CFM/sf @75pa: $300/Unit ASTM E779 test results - 0.25 CFM/sf @75pa: $400/Unit		

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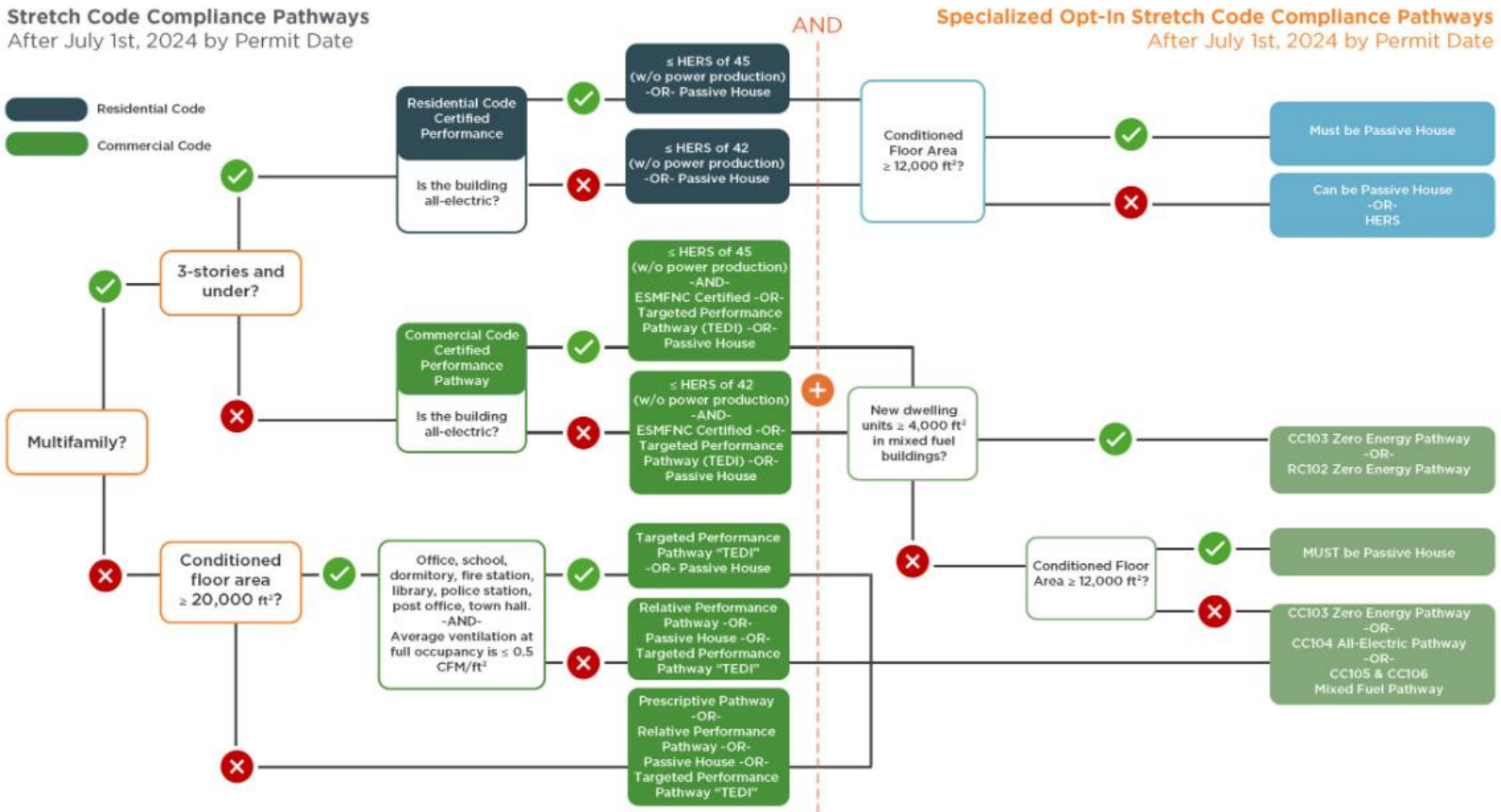


Case Study

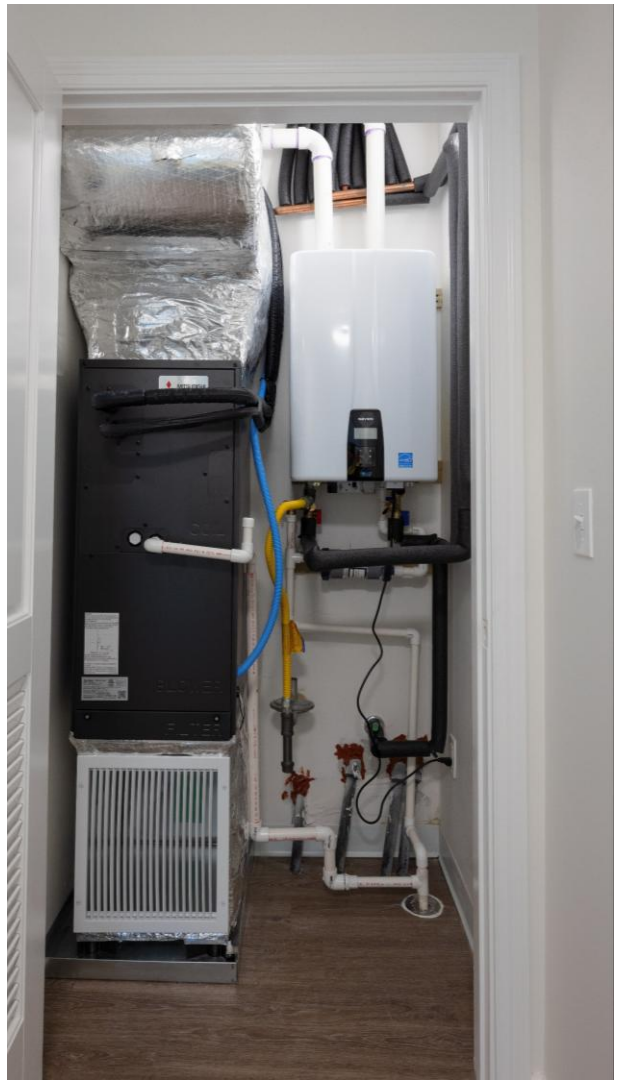
Crescent Crossings 1C

- PHIUS+ 2015
- Zero Energy Ready Homes v1
- ENERGY STAR MF v1.2
- Indoor AirPlus
- LEED v4 Gold

Crescent Crossings 1C

- R-10 footing walls
- R-10 under the slab
- R-21 cavity plus R15 continuous
- R-50 avg. roof continuous
- U 0.18, SHGC 0.16 triple pane windows

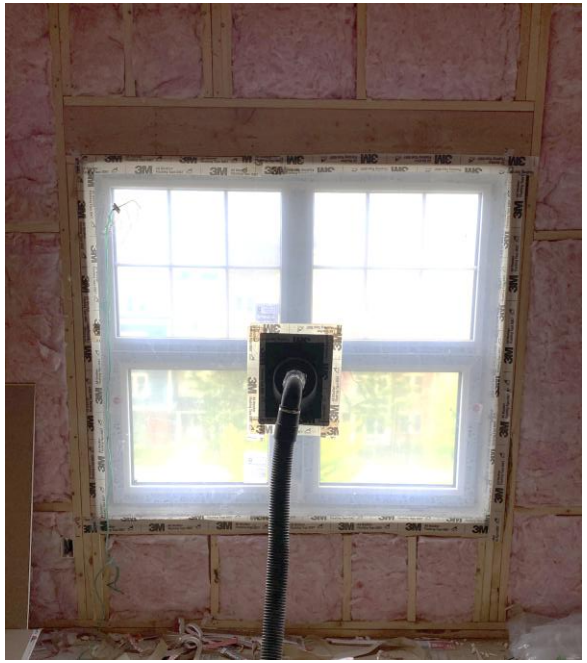
Crescent Crossings 1C



- Central ERV's
- Unitary heat pumps & instant NG water heating
- Common VRF heating and cooling
- 100% LED lighting
- ENERGY STAR appliances & HP Dryers
- 62 kW PV installation

Crescent Crossings

- Duct leakage
- Air infiltration testing compartmentalized
- Whole building blower door
- Ventilation flows, wattage
- Window tightness



Thank you

Questions?

HBRA
HOME BUILDERS & REMODELERS ASSOCIATION OF THE CONNECTICUT RIVER REGION

HBRA Multifamily Council

SECHA
SOUTHEASTERN CONNECTICUT HOUSING ALLIANCE

Questions?

HBRA
HOME BUILDERS & REMODELERS ASSOCIATION OF THE CONNECTICUT RIVER REGION

HBRA Multifamily Council

SECHA
SOUTHEASTERN CONNECTICUT HOUSING ALLIANCE

Thank you!

Next events in the SECHA Energy Affordability Series:

Norwich Area Energy Efficiency Resource Fair, April 22, 4:30 – 6:00, LEAD

Groton Area Energy Efficiency Resource Fair, April 29, 4:30 – 6:00, Thrive55

Additional info at: secogct.gov/southeastern-ct-housing-alliance

And thank you to event sponsors!

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