



TOWN OF WAKEFIELD

ENVIRONMENTAL SUSTAINABILITY COMMITTEE

Thursday, May 10, 2023
7:00 P.M.
Zoom Meeting

COMMITTEE MEMBERS PRESENT:

Melissa Eusden, Chair
Tiana Veldwisch, Vice Chair
Robin Greenberg, Clerk
Chris Lewis
Steffin Spears
Lillian Guinther
Christina Olivieri
Julie Smith-Galvin, Town Council rep
Eileen Colleran, School Comm. rep
Ann Waitt, DPW rep proxy
Aliza Margolis, Student Member
William Buswell, Student Member

COMMITTEE MEMBERS ABSENT:

Thomas Boettcher, WMGLD rep
Joe Conway, DPW rep
Fiona Recene, Student Member

----- TOPICS OF DISCUSSION -----

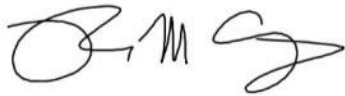
Call to Order	The meeting was called to order at 7:00 p.m by M. Eusden. The meeting is being recording.
Public Participation	No comments
School Committee Liaison Update	Eileen Colleran shared that as of January, the school food service has eliminated use of all Styrofoam trays. It is their goal to have all compostable (BPI certified) products in the future. The school's goal is to expand the food rescue program to all schools.
Specialized Opt-in Building Code	<p>Paul Raymer, Senior Adviser- Building Science from ICF, provided a DOER presentation on the Specialize Opt-In Building Code, see attached. Fifteen communities have adopted it as of early this month with varying start dates.</p> <p>Benny DeChristoforo, Wakefield Building Inspector, participated in the discussion about potential adaption in Wakefield. It was suggested that if it is considered, a HERS rater, like Paul, be available at a public meeting to answer questions about it.</p>
Approval of Minutes	R. Greenberg motion approve of the April meeting distributed. T. Veldwish second. Motion passed.



Welcome new ESC members Committee Elections	<p>Committee members introduced themselves.</p> <p>T. Veldwisch nominated M. Eusden for Chair. C. Lewis second. Motion passed.</p> <p>M. Eusden nominated T. Veldwisch for Vice Chair. J. Smith-Galvin second. Motion passed.</p> <p>M. Eusden nominated R. Greenberg for Clerk. Motion passed.</p>
Waste Reduction Subcommittee	<p>M. Eusden shared summary of the subcommittee’s work including but not limited to: organizing food rescue and composting in schools, advocating for a mandate for recycling services provided in multi-family (4+ units) buildings, and assist the town with compliance with the current Styrofoam and plastic by-laws. They are looking into a local Green Business certification. She noted that the school facilities department has composting services in their FY2023-2024 school budget. The subcommittee is participating in tomorrow’s STEAM night at the Galvin Middle School.</p>
Land Protection Subcommittee	<p>J. Smith-Galvin is the current sole member of the subcommittee. The subcommittee is looking at the town’s open and recreational spaces. The Town received funding to update the Open Space Plan. A town survey related to the effort is still open for the public to respond. They are also participating in looking at tax title land to see what could be proposed for Conservation Land protection. They are a part of Trail Steward program. Three Trail Stewards were accepted recently. In the past, they met the first Wednesday of the month.</p>
Building Efficiency Subcommittee	<p>R. Greenberg is the sole members of the subcommittee. The Wakefield Memorial High School project is creating in Design Development (DD). She is attending a MEP/Sustainability working group meeting tomorrow with the designers and OPM.</p> <p>Northeast Vocational School is scheduled to have school’s design complete in July 2023. The project has completed with the zoning review process. The project is still under review with Conservation Commission.</p>
Volunteer Coordination Subcommittee	<p>M. Eusden provided an update on prior committee member’s effort to solicit volunteers. Subcommittee leader and/or members are needed to continue the work previously done by this subcommittee.</p>
GHG Inventory Subcommittee	<p>C. Lewis provided background on the subcommittee’s prior efforts at Greenhouse Gas Inventory study. Next steps are considered on how to share the inventory, look to see how our data compares to other communities, and create a work plan to generate a town Climate Action Plan.</p>
Green Communities Subcommittee	<p>J. Smith-Galvin provided background on Wakefield as a Green Community. The town plans to spend first year’s funding on providing all LED lighting at the Town House, Fire Department space at the Public Safety Building, and Americal Center.</p>

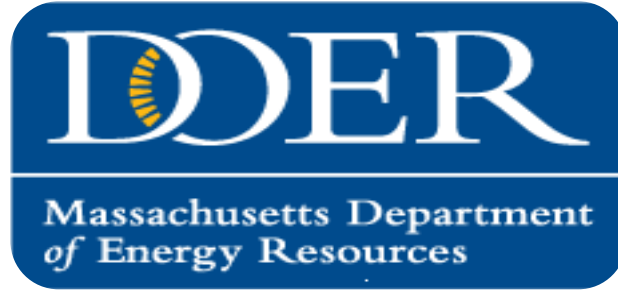
Community Education Subcommittee	T. Veldwisch shared subcommittee's focus on how we can share ideas on how to improve the community and organizing speaker series at Beebe Library. They use Facebook and an email distribution list for event announcements and news. They are hosting a field trip to the Materials Recovery Facility (MRF) on May 31 st at 4pm. WCAT will be showing some ESC slides to promote programs, ideas, etc.
Student Member Update	A. Margolis is hoping to create a Green Team at the high school next year.
DPW Liaison Update	A. Waitt shared that DPW's at home compost machine sale has ended. The Earth Machine was available at a 50% discount and forty were sold! There are currently 423 Black Earth customers in town. 18 starter kits are available for free from the DPW. She is working to see if Black Earth composting collection could be available at the Farmers Market. The Town's new water truck is in production with an unknown delivery date.
Town Council Liaison Update	J. Smith-Galvin shared that M. Eusden presented ESC recent efforts to the Town Council. The town Bike Pedestrian Plan is being finished with a public meeting in June anticipated.
WMGLD Liaison Update	Member not present
Wakefield Farmers Market	ESC having a table on July 15 th or 29 th at the Farmers Market was discussed and is supported by the committee. M. Eusden will coordinate with the Market Manager.
Festival at the Lake	DPW offered to share their table at the upcoming Festival at the Lake. J. Smith-Galvin has not talked with organizers about having it as a zero-waste event.
Next Meeting	The next regular Environmental Sustainability Committee meeting is scheduled for Thursday, June 8, 2023, at 7pm.
Committee Meeting Adjournment	J. Smith-Galvin motioned to adjoin. C. Lewis second. Meeting adjourned at 8:07 pm.

Respectfully submitted,



Robin Greenberg, Clerk

Attachments: New Specialized Energy Code presentation by DOER



New Specialized Energy Code

Presenter: Paul H Raymer (ICF)

Climate Bill Signed March 2021

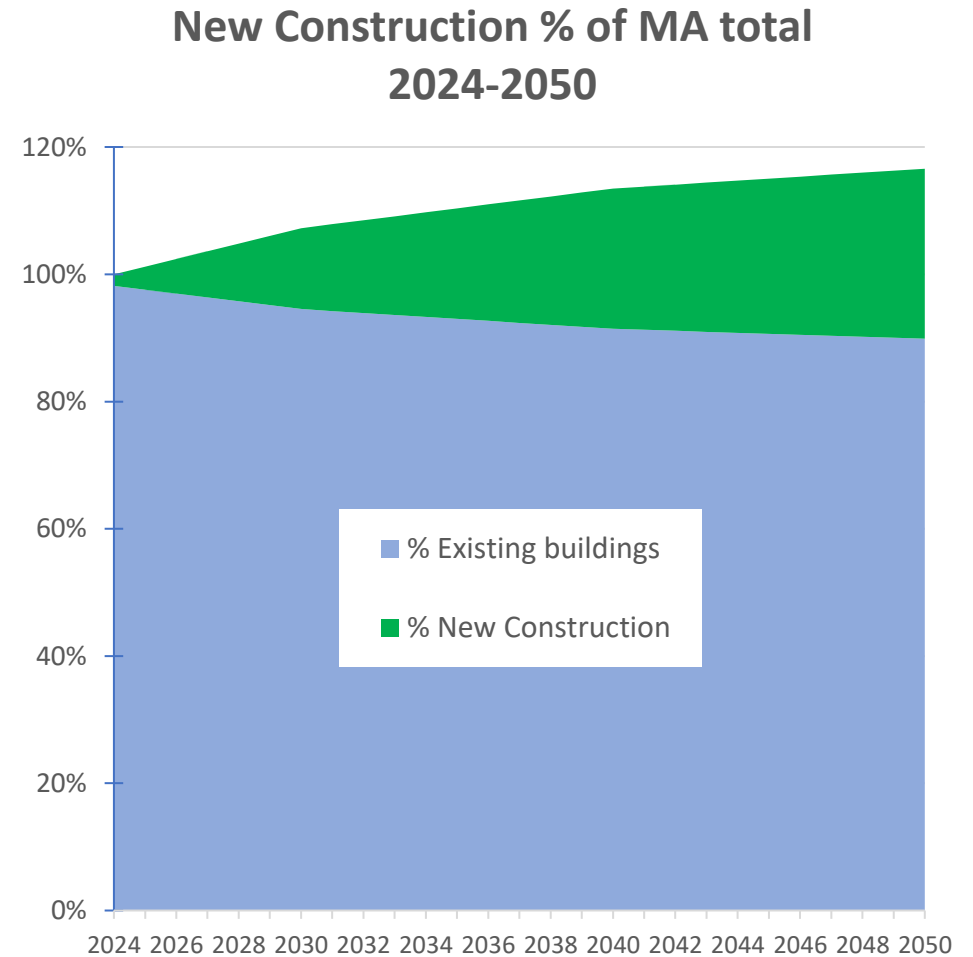


- Updates greenhouse gas emissions limits related to 2008 Global Warming Solutions Act
- Commits Massachusetts to achieve **Net Zero emissions in 2050**
- Authorizes Secretary of Energy and Environmental Affairs (EEA) to establish emissions limit no less than **50%** of the 1990 levels of Greenhouse Gas Emissions **by 2030**, and no less than **75% by 2040**.

Buildings are a key component in reaching these goals.

Role in Reducing Emissions

- Building code is the primary policy impacting new buildings.
- New buildings (built after 2023) will be ~27% of all building space by 2050;
- New buildings are easiest and cheapest to make 2050-compliant;
- New construction market drives cost reductions in building retrofits;
- 2030: Massachusetts legal limit is at least 50% reduction in GHG from 1990.



Policy Goals

- Low cost GHG emissions reductions
 - Start with Energy Efficiency
 - Apply all cost-effective measures required by 2008 Green Communities Act for Stretch code
 - Incentivize electrification of remaining heating load
 - Mitigate peak electric loads to minimize grid infrastructure costs
- Plan for future infrastructure needs
 - EV ready and Solar ready across all energy codes
 - All-Electric ready pre-wiring in the Specialized code

Stretch Code - What changed on January 1, 2023?

Only Residential Low-Rise: 1 & 2 family, Town-houses & multi-family 3 stories or less

- New construction
 - Lower HERS ratings from 55/60/65 to HERS 52/55/58
 - Energy Star 3.1 no longer an option for these homes
 - Heat or Energy recovery in balanced ventilation
 - EV ready wiring: 1x 240volt, 50-amp circuit per home
- Large Additions over 1,000 sf
- Extensive Alterations (over 50% of existing space)
 - Required to meet HERS rating of 52/55/58

Residential low-rise: New Construction –Specialized

Opt-In Specialized Code Summary

1. Pre-Wiring

Buildings using fossil fuels must pre-wire for future electrification.

2. Solar PV

Buildings using fossil fuels must install a certain amount of rooftop solar PV.

3 Exemplary Performance for Large Homes

Single-family homes > 4,000 SF must be certified Zero Energy (HERS 0 or Phius ZERO).

4 Exemplary Performance for Large Multi-Family

Multi-Family buildings >12,000 SF must use the Passive House pathway.

5 Jump on Lower HERS Ratings

Lower HERS ratings of 42/45 upon effective date of adoption (instead of July 1, 2024).

Specialized code – Requirements for Residential low-rise

Residential Low-Rise: 1 & 2 family,
Town-houses & multi-family

Key Efficiency requirements in Stretch
code



All –electric or Pre-wired for
Electrification

Solar PV on available space –
minimum size

EV ready 10% of spaces minimum (20%
for business or residential)

Residential low-rise: New Construction – Stretch vs. Specialized

New Construction				
Fuel Used	Max. HERS index (before solar credit)			
	Stretch code Jan 1, 2023	Stretch Code July 1, 2024	Specialized code under 4,000 sf	Specialized code over 4,000 sf
Mixed-fuel	HERS 52	HERS 42	HERS 42	*
Mixed-fuel & Solar	HERS 55	HERS 42	HERS 42	HERS 0
All-Electric	HERS 55	HERS 45	HERS 45	HERS 45
All-Electric & Solar	HERS 58	HERS 45	HERS 45	HERS 45

* Note: In Specialized code, mixed-fuel homes on shaded sites are allowed without solar at or below HERS 42

- Passive House options are the same between Stretch and Specialized for 3 stories or less, or less than 12,000 sf.

Residential Stretch & Specialized Code Update

- Primary Change:
 - Increase efficiency performance from HERS rating of 52/55 to **HERS 42/45**

What does meeting HERS 42 or 45 typically mean for builders?

- **Electric homes:** heat pump space and water heating; better air sealing
- **Gas homes:** triple-glazed windows, improved wall and roof insulation, better air sealing
- At HERS ratings in the 40s, heat pump homes generally become cheaper to build
- Mass Save has updated and increased builder incentives to meet HERS 45 or lower

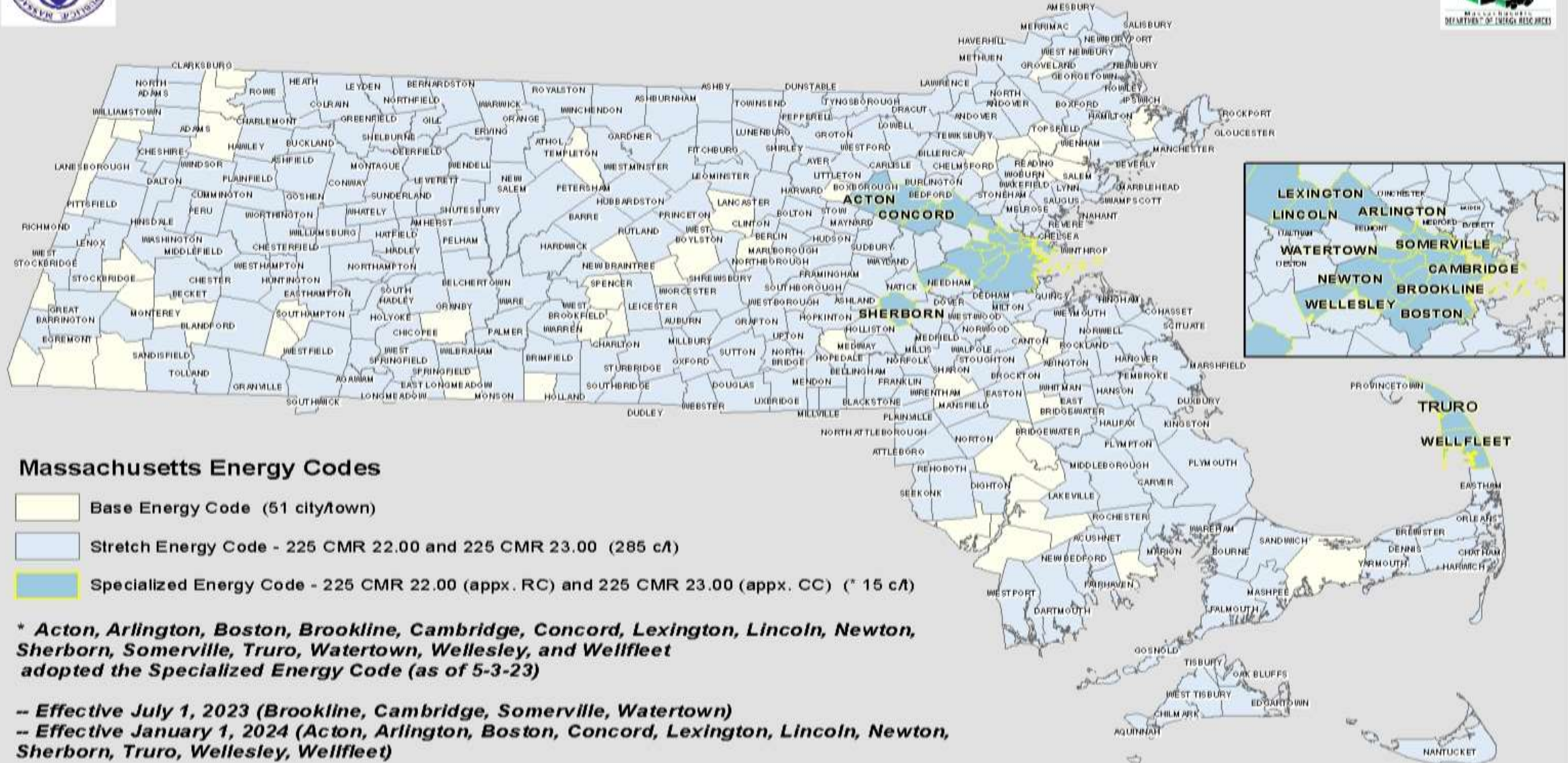
Stretch Code Adoption Benefits – Updated Stretch Code & Specialized Code

- Electric homes generally less expensive to build –
 - Heat Pump replaces both Central A/C + Furnace
 - Heating/cooling loads significantly reduced
- Federal IRA:
 - 45L tax credit: \$2,500 or \$5,000/home (aligned with HERS)
 - 179D tax credit: up to \$6/sqft for commercial & multi-family
- 179D tax credit of up to \$6/ft² commercial and multi-family projects
- Electrification = reduction of fossil fuel usage
- Decreased life-cycle costs for all buildings





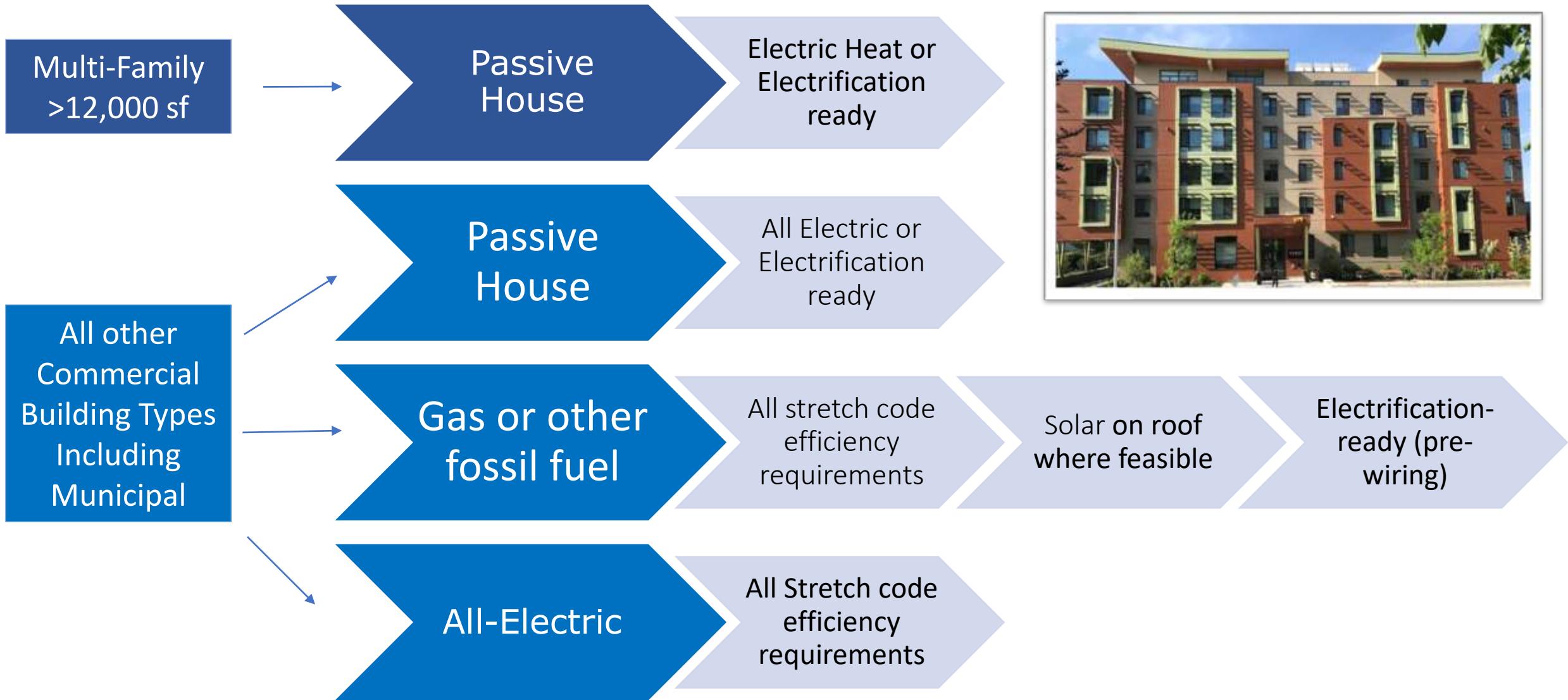
Massachusetts Building Energy Code Adoption by Municipality





Specialized
Code:
Commercial

Specialized Code - Commercial



Frequently Asked Questions

1 Does the Opt-In Specialized Code apply to existing structures?

No. Improvements to existing structures, depending on size, are regulated by the Updated Stretch Code and Base Code.

2 Will the Opt-In-Specialized Code discourage the creation of affordable housing?

No. Incentives will continue to encourage affordable housing while the Opt-In Specialized Code delivers benefits for residents.

3 Is it possible to install a gas cooktop?

Yes. This is permitted under the Mixed Fuel pathways.

4 Why adopt the Opt-In Specialized Code?

The #1 reason is that it requires pre-wiring, avoiding costly retrofits down the road and expediting electrification.

5 Why does the Opt-In Specialized Code permit fossil fuels?

It preserves market choice at a time when utility pricing is highly volatile and utility costs vary 300% among MA communities. “Net zero” definitions vary widely.

Specialized Code: Adoption process & Timeline

Specialized code adoption at the local level, similar to prior stretch code process:

- Warrant article
- Town Meeting bylaw or City Council ordinance vote
- Effective date: Jan 1, or July 1
- Recommend 6-12 months after adoption



Next Steps & Resources

Stay in touch

- Sign up for DOER energy code email updates:
<https://app.e2ma.net/app2/audience/signup/1965182/1356542/>
- Code language, case studies, detailed technical information here: <https://www.mass.gov/info-details/stretch-energy-code-development-2022>

Energy Code Training (free via Mass Save®)

- <https://www.masssave.com/en/learn/partners/energy-code-training-and-events>
- Contractor Training
- <https://www.masssave.com/en/saving/residential-rebates/passive-house-training>

Questions?

Contact DOER:

Stretchcode@mass.gov

- DOER

Paul Raymer – ICF

Paul.Raymer@ICF.com

3 Code Options

Base Code (Moving to IECC 2021)

- **51 communities**

Will be 10th Edition
MA code from BBRs:

Effective date:
Estimate Jan 2024

Stretch Code (2023 update)

- **300 communities**

Effective dates:

Residential : Jan 2023

Commercial: July 2023

Specialized Code ("Net-Zero")

- **4 communities
(to date)**

Effective date:
Jan 1st or July 1st
Recommend 6-11
months after
Town/City vote

Specialized Opt-in Code

Specialized Code ("Net-Zero")

- **4 communities**
(to date)

Effective date:
Jan 1st or July 1st
Recommend 6-11
months after
Town/City vote

Compliance requires:

- Meeting all 2023 Stretch requirements;
- Plus either:
 - All-electric: HERS 45
 - Mixed fuel: HERS 42 + Solar + wired for all-electric
 - Zero Energy: HERS 42 + Solar
- Or Passive House (Phius Zero)
- New homes over 4,000 sf must use *All- Electric* or *Zero Energy*
- Additions & Alterations – same as Stretch code

What is a HERS Rating?

Home Energy Rating System

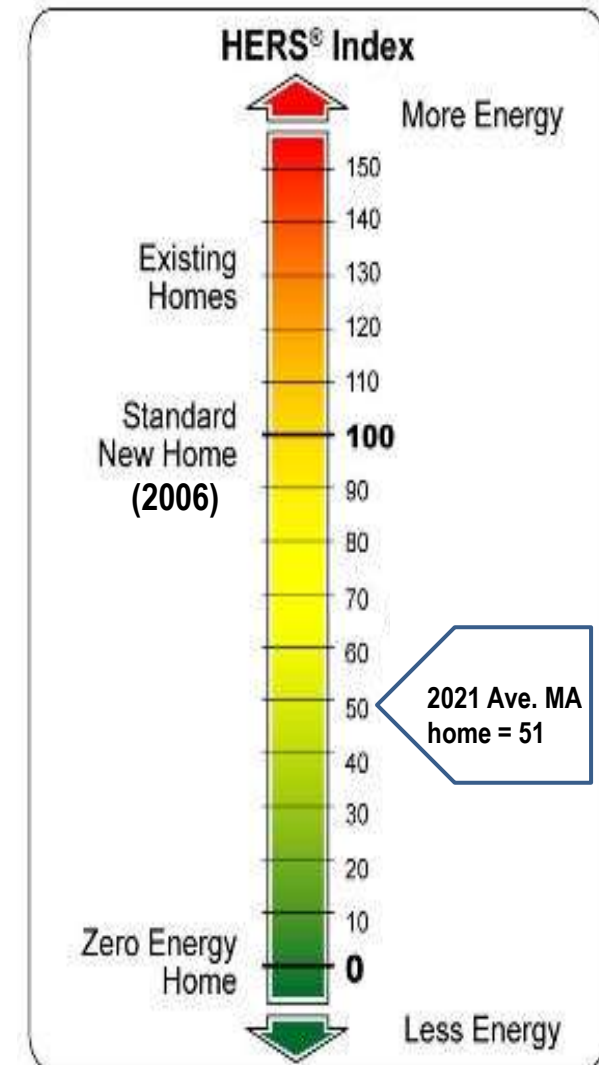
Annualized energy analysis

- Heating, cooling, water heating
- Lighting and appliances

Reference Home

- Based on IECC **2006** Code
(International Energy Conservation Code) Defined as
100 Points
- 1 percent change in consumption = 1 point

Massachusetts Average now HERS 51
Means about
49% more efficient than reference home



What is the HERS Process?

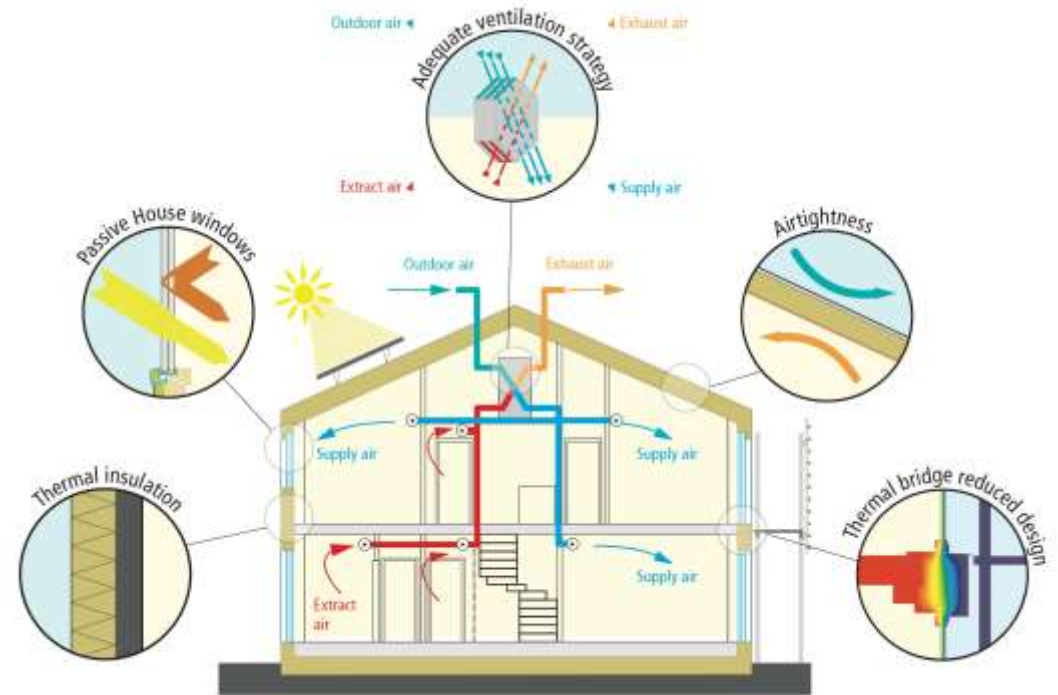
1. Review Building Plans via Computer Modeling
 - Preliminary HERS score
2. In-process inspections
 - Duct tightness test
 - Insulation inspection
3. Final inspection
 - Blower door test
4. Finalize energy model based on verified performance and equipment
5. Final HERS certificate provided to local code official



What is Passive House (PHIUS)?

Annualized energy analysis

- Highly insulated & air-tight - Maximum of 0.6 ACH₅₀;
- Primarily heated by solar and internal gains;
- Orientation and shading are key components;
- Large windows on the south façade and minimal windows on the east, west, and north sides.
- Thermal comfort must be met for all living areas
- Requires a Passive House Rater or Verifier

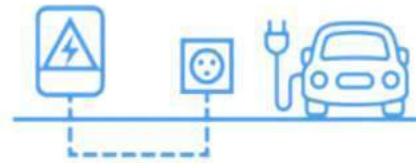


Residential: Electric Vehicle (EV) Ready

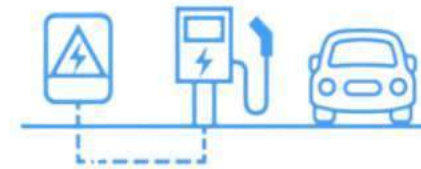
EV READINESS



EV Capable



EV Ready



EV Installed

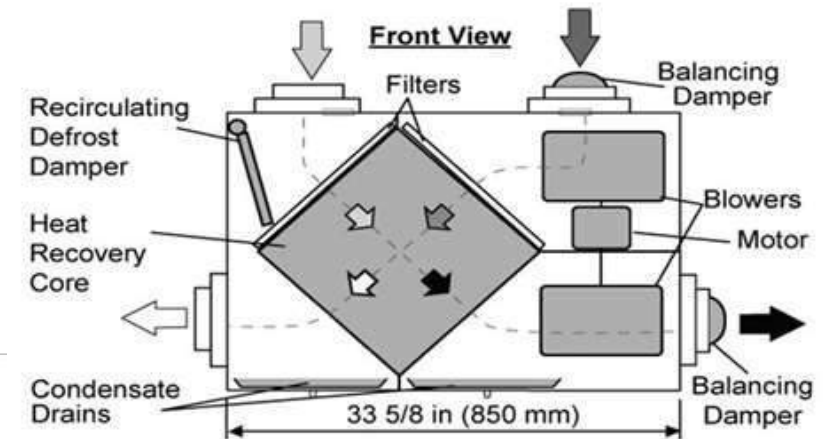
EV Capable: Designate enough space and capacity on the electrical panel for at least a 40 Amp/240V dedicated branch circuit.

EV Ready: Install a 240V grounded AC receptacle.

EVSE Installed: Install a (ENERGY STAR) EV charger. (Level 2 charging station)

Ventilation

- Meet ASHRAE 62.2 Requirements
- Heat Recovery or Energy Recovery Ventilation



Residential low-rise: Stretch code new construction

New Construction			
On-site Fuels used	Max. HERS index (before solar credit)		
	2017-2022	Jan 1, 2023	July 1, 2024
Mixed-fuel	HERS 55	HERS 52	HERS 42
Mixed-fuel & Solar	HERS 60	HERS 55	
All-Electric	HERS 60	HERS 55	HERS 45
All-Electric & Solar	HERS 65	HERS 58	

- Passive House updates from PHIUS+2018 to PHIUS Core2021, PHI unchanged
- Energy Star 3.1 option has gone away
- Heat/Energy recovery balanced ventilation
- EV ready wiring: 1x 50-amp circuit per home

Residential: HERS for Large Additions & Alterations

- Note: **Most** additions and alterations **don't** trigger these HERS ratings

Large Additions, Level III Alterations and Change of Use - Over 1,000 sf		
On-site Fuels used	Max. HERS index (before solar credit)	
	2017-2022 optional	2023 onwards required
Mixed-fuel	HERS 65	HERS 52
Mixed-fuel & Solar	HERS 70	HERS 55
All-Electric	HERS 70	HERS 55
All-Electric & Solar	HERS 75	HERS 58

What does trigger these HERS ratings?

- Additions over 1,000 sf **Or** greater than 100% of existing CFA
- Alterations over 1,000 sf **&** greater than 50% of existing CFA
 - Includes basement or attic unconditioned to conditioned space change

Specialized code – New Residential

New Construction		
	Maximum RESNET HERS rating	
On-site Fuels used	Before solar credit	After solar credit
All-Electric	HERS 45	HERS 45
Mixed-fuel & Solar	HERS 42	HERS 0<42
Mixed-fuel & shaded site	HERS 42	HERS 42
Over 4,000 sf	HERS 42	HERS 0

- Mixed-fuel requires a solar PV installation unless home site is shaded
- EV ready same as stretch code: 1x 50-amp circuit per home
- Ventilation same as stretch code: Heat/Energy recovery balanced ventilation

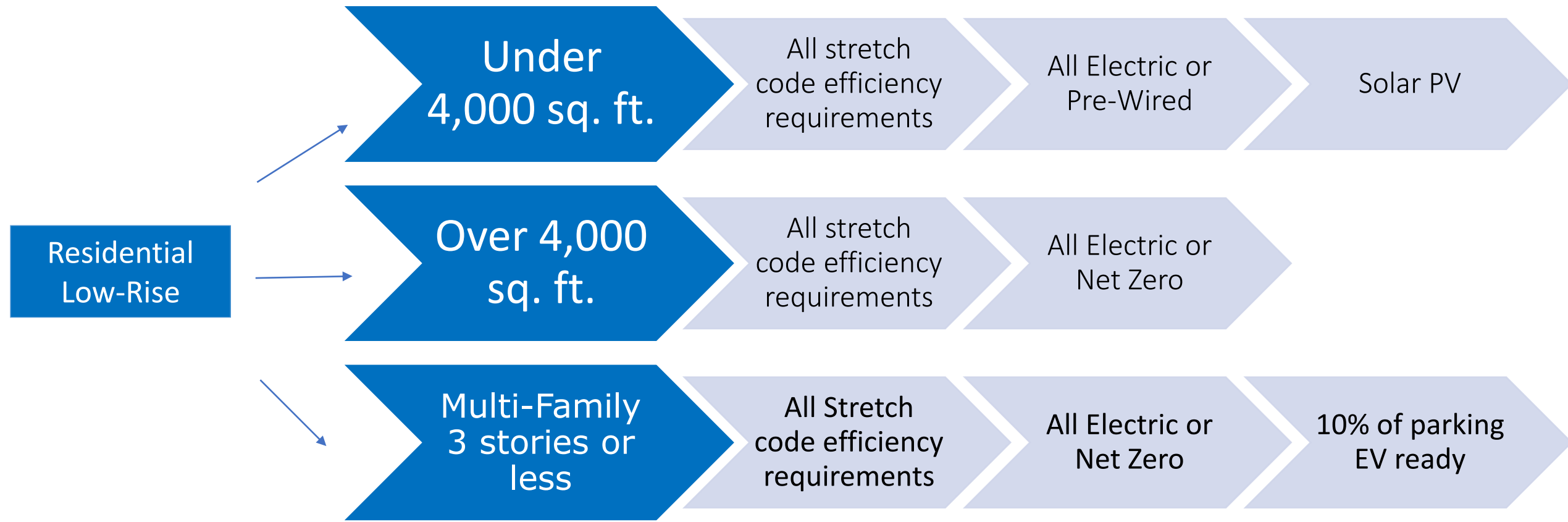
Specialized Code: Low Rise Residential



Builds on Stretch Code with 3 paths:

- ***All-Electric***: HERS 45 earlier adoption than Stretch code (July 2024)
- ***Mixed Fuel***: HERS 42 + Solar install + Wired for Electric
 - Or Passive House + Wired for Electric
- ***Zero Energy***: HERS 0 (HERS 42 + Solar)
 - Or Passive House (Phius Zero)
- New homes over 4,000 sf must use ***All-Electric*** or ***Zero Energy***
- Additions & Alterations – same as Stretch code

Specialized Code - Residential



Specialized Residential Code: Solar PV sizing

Solar required where there is a suitable solar-roof zone of 300 sq ft or more



Home Type	Solar required
All-electric	No
Passivehouse	No
Mixed-fuel <4,000 sq ft	4 kW
Mixed-fuel 4,000 sq ft +	Enough for net-zero (8+ kW)
other R-uses	0.75 W/sq ft (50% of commercial)