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Vermont Energy Code Collaborative Multifamily Meeting

June 10, 2021

1:00 – 3:00

ENERGY FUTURES GROUP

Cx associates LLC

Guidehouse

nbi new buildings institute

Meeting Agenda

1. Overview
2. Background and Goals of the Collaborative
   a. Introductions
   b. Multifamily topics
   c. Meeting schedule
   d. Ground rules, logistics, and use of chat
3. Balancing Housing and Energy Policy
4. Background on Multifamily Energy Codes
5. Multifamily Energy Code Structure
6. Multifamily Technical Considerations

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Background & Goals

- Not enough time to go into depth during the three-year energy code update cycle
- This is your opportunity to dive into critical topics in more depth
- Listening and gathering information to inform decisions
  - Hoping for diverse set of perspectives and opinions
- PSD is the ultimate decision-maker…
- But feedback and input are essential
- Discuss and provide multiple points of view, don't need to reach consensus

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Code Team: Who

- Lead State Agency
  - Public Service Department
    - Kelly Launder: Assistant Director
    - Keith Levenson: Energy Program Specialist
    - Barry Murphy: EM&V Program Manager
- Code Update Lead and Residential Code
  - Energy Futures Group
    - Richard Faesy, Gabrielle Stebbins & Liz Bourguet
- Commercial Code Update
  - Guidehouse Consulting
    - Keith Downes & Stu Slote
  - Cx Associates
    - Eveline Killian
- National Insights
  - New Building Institute
    - Jim Edelson & Mark Lyles

Introductions

- Name
- Business
- Town

https://pointroadgroup.com/introduce-yourself-virtually-make-strong-impressions/

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Meeting Schedule

Yellow means upcoming

- Cross Cutting
  - #1 – May 4, 11:00 – 1:00
  - #2 – June 8, 11:00 – 1:00
- C&I
  - #1 – May 11, 11:00 – 1:00
  - #2 – June 2, 2:00 – 4:00
  - #3 – June 15, 9:00 – 11:00
- Residential
  - #1 – May 13, 3:00 – 5:00
  - #2 – June 15, 3:00 – 5:00
- Multifamily
  - #1 –June 10, 1:00 – 3:00

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Ground Rules

- Respectful listening
- Limit comments to less than 2 or 3 minutes
- Give everyone a turn to say something before speaking up again
- Use the chat to ask questions/ clarifications –not for having separate discussions.
- Notes attributed
  - Own what you say or hold back from making a comment
  - Notes out for review before posting

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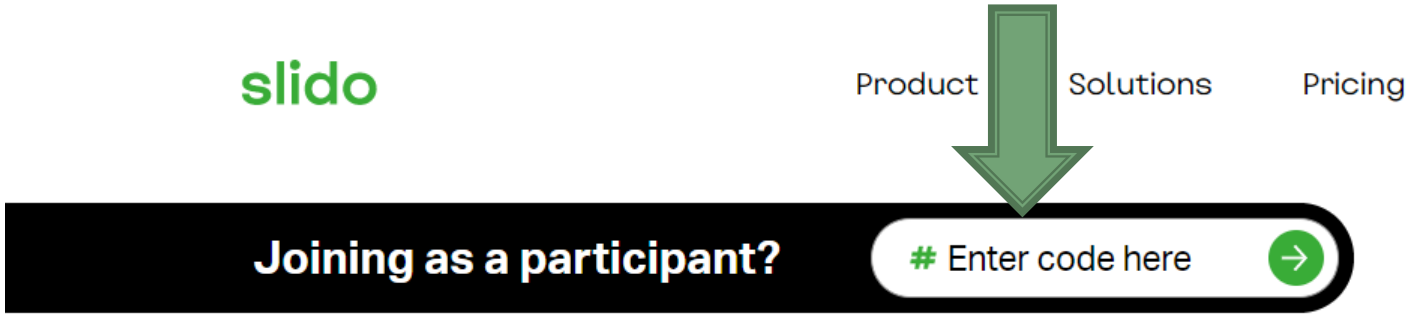
Polling

- Throughout our discussion, we will be asking you to respond to poll questions
- Before we get started, please go to https://www.sli.do/
- Enter **117316** into the field at the top of the website



- Leave this webpage open throughout our discussion
- We will let you know when it is time to answer a question

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Multifamily Topics

1. Balancing Housing and Energy Policy
2. Background on Multifamily Energy Codes
3. Multifamily Energy Code Structure
4. Multifamily Technical Considerations

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Balancing Housing and Energy Policy

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DHCD Consolidated Plan

<u>Increasing standards for energy efficiency.</u>

1. While supporting the State's energy goals, ensure a robust analysis of costs is considered in the development of State energy-efficiency standards and building codes.
2. Seek expanded and new sources of funding for energy improvements in both publicly supported and private single and multi-family housing.

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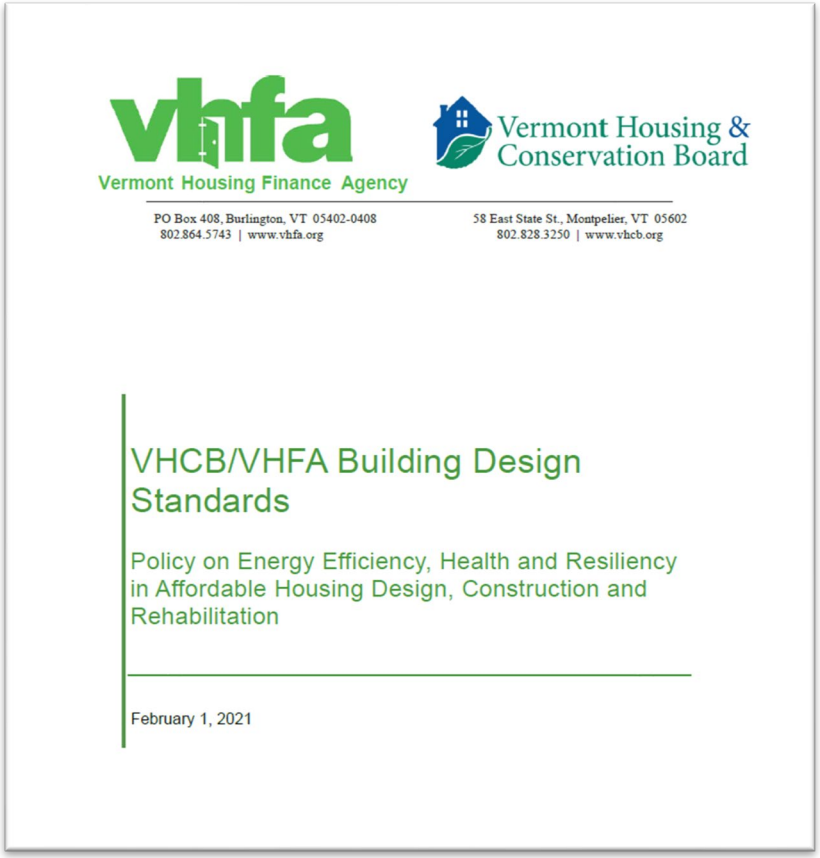
Existing Multifamily Standards

- VHCB/VHFA Design Standards
- https://vhcb.org/sites/default/files/policy/housing/vhcb-vhfa_building_design-energy_standards_2-1-2021.pdf

- EVT Multifamily Program
- https://www.efficiencyvermont.com/Media/Default/docs/trade-partners/technical-resources/MF_New_Construction_Checklist.pdf


Vermont Housing Finance Agency

Vermont Housing & Conservation Board

PO Box 408, Burlington, VT 05402-0408
802.864.5743 | www.vhfa.org

58 East State St., Montpelier, VT 05602
802.828.3250 | www.vhcb.org

VHCB/VHFA Building Design Standards

Policy on Energy Efficiency, Health and Resiliency in Affordable Housing Design, Construction and Rehabilitation

February 1, 2021

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Poll Question #1

- How should Vermont prioritize housing and energy policy for a given budget?

1. Maximize the number of housing units at 2020 code levels of energy efficiency.
2. Trade off fewer housing units built to higher energy efficiency standards (such as VHCB/VHFA).
3. Maximize energy efficiency standards while building fewer housing units.
4. Other (put in chat).

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Discussion Questions

- How should Vermont make multifamily housing both "energy efficient" and "affordable"?
- Are we better off spending scarce public funds on fewer but more efficient housing units, or more units of less efficient housing?
- How do we balance our state's energy and climate goals with the need for more housing?

Background on Multifamily Energy Codes

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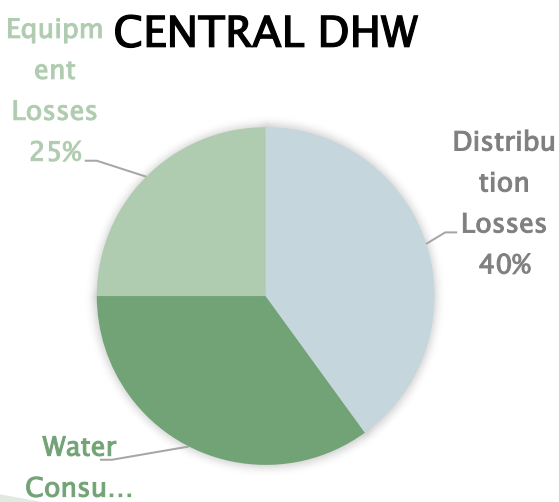
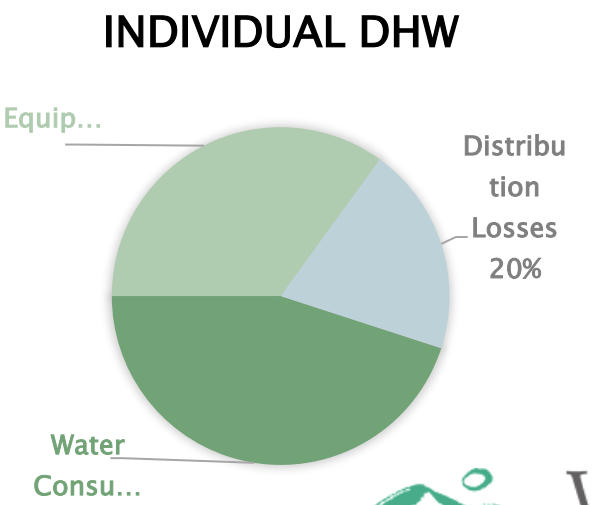
Common Multifamily Themes

- Thermal comfort/reduced heating demand
- Hot water design and distribution
- Ventilation strategy
- Central vs distributed systems





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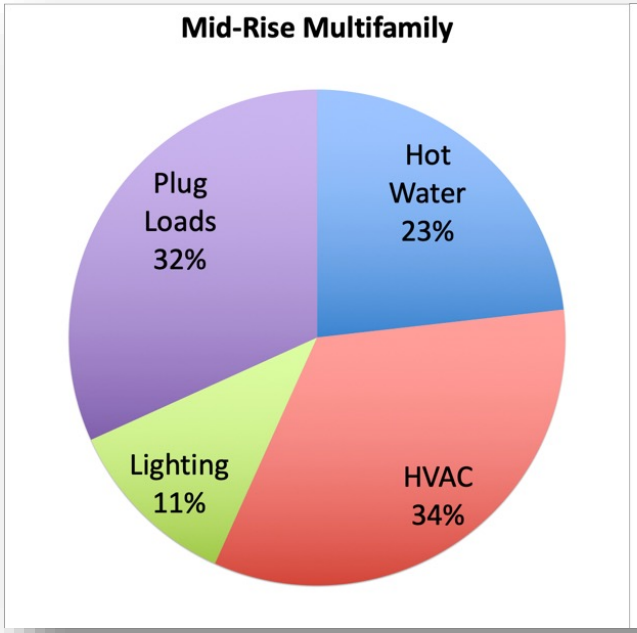
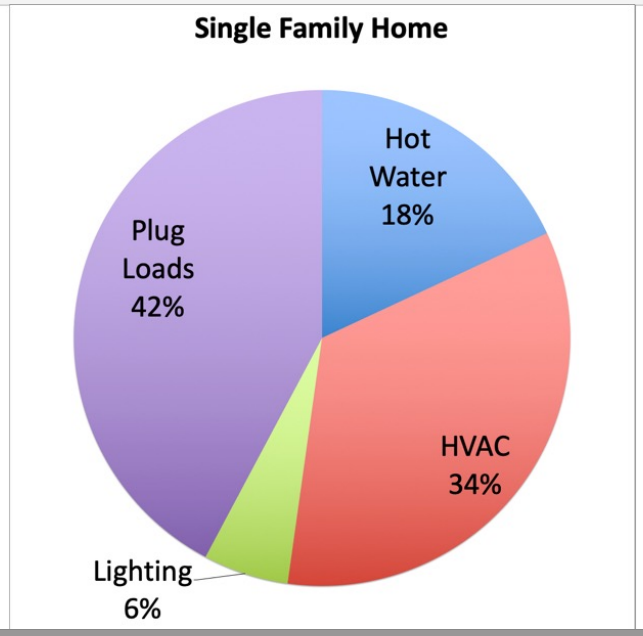
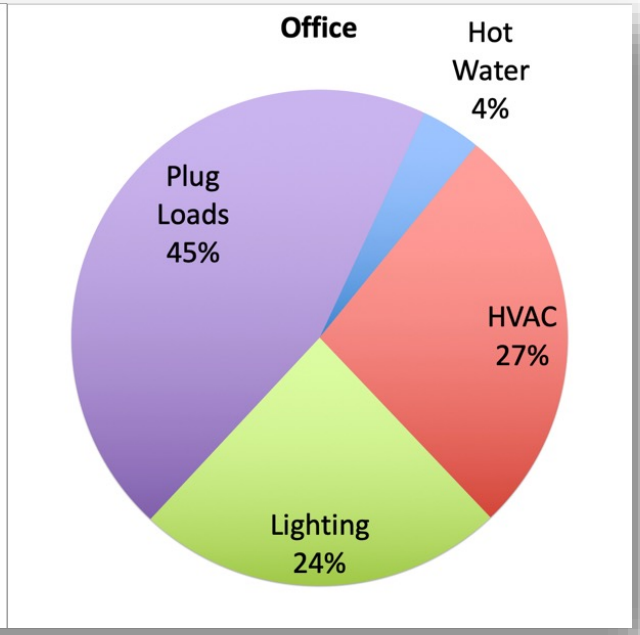
Multifamily Measures







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National Code Approaches

- IECC 2021: Group R buildings to achieve 10 additional efficiency credits. Dwelling units and sleeping units in Group R-2 buildings in Group R-2 buildings without systems serving multiple units can use ERI path
- Washington State: Scope modification stating that building areas that contain Group R sleeping units are required to comply with the commercial sections of the code, regardless of height.
- NYC: Group R-3 occupancies to meet air barrier testing and balanced ventilation or HRV/ERV requirements

TABLE C406.1(2) ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP R AND I OCCUPANCIES

SECTION	CLIMATE ZONE																
	0A & 1A	0B & 1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
C406.2.1: 5% heating efficiency improvement	NA	NA	NA	NA	1	NA	NA	1	NA	1	1	1	1	2	1	2	2
C406.2.2: 5% cooling efficiency improvement	3	3	2	2	1	1	1	1	1	NA	1	1	NA	1	1	1	NA
C406.2.3: 10% heating efficiency improvement	NA	NA	NA	NA	1	NA	NA	1	1	1	2	2	1	3	2	3	4
C406.2.4: 10% cooling efficiency improvement	5	5	4	3	2	3	1	2	2	1	1	1	1	1	1	1	1
C406.3: Reduced lighting power	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
C406.4: Enhanced digital lighting controls	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C406.5: On-site renewable energy	8	8	8	8	7	8	8	7	7	7	7	7	7	7	7	7	7
C406.6: Dedicated outdoor air system	3	4	3	3	4	2	NA	6	3	4	8	5	5	10	7	11	12
C406.7.2: Recovered or renewable water heating	10	9	11	10	13	12	15	14	14	15	14	14	16	14	15	15	15
C406.7.3: Efficient fossil fuel water heater	5	5	6	6	8	7	8	8	8	9	9	9	10	10	9	10	11
C406.7.4: Heat pump water heater	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
C406.8: Enhanced envelope performance	3	6	3	5	4	4	1	4	3	3	4	5	3	5	4	6	6
C406.9: Reduced air infiltration	6	5	3	11	6	4	NA	7	3	3	9	5	1	13	6	8	3
C406.10: Energy monitoring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C406.11: Fault detection and diagnostics system	1	1	1	1	1	1	NA	1	1	NA	1	1	NA	1	1	1	1

NA = Not Applicable.

Multifamily Code Framework

Commercial Code	Building Component	Residential Code
High Rise MF (C402)	Envelope	Low Rise MF (R402)
Common areas and Complex Systems in Dwelling units (C403 and C404)	Mechanical	Simple Systems in Dwelling Units (R403)
All Multifamily (C404)	Water Heating	
All Common Areas	Lighting	Dwelling Units
High Rise Multifamily – Additional Efficiency Points (C406)	Additional Packages	Low Rise Multifamily – Additional Efficiency Package Options (R408)

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Multifamily Energy Code Structure

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30 V.S.A. Section 51

(2) "Residential buildings" means one-family dwellings, two-family dwellings, and multi-family housing three stories or less in height.

(A) With respect to a structure that is three stories or less in height and is a mixed-use building that shares residential and commercial users, the term "residential building" shall include the living spaces in the structure and the nonliving spaces in the structure that serve only the residential users such as common hallways, laundry facilities, residential management offices, community rooms, storage rooms, and foyers.

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Vermont Stakeholder Proposal

- MF buildings 3 stories or less go through RBES
  - Follow thermal shell, ventilation, etc.
  - Retail/commercial spaces in those buildings follow CBES
- Central mechanical systems follow CBES
  - RBES has no provisions for larger central mechanical systems
  - Follow CBES
- Align CBES envelope values with RBES for 4 stories or more
- Call out MF features like steel studs in both codes
- Do better job to make sure characteristics for MF are called out in RBES (e.g., packages)

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Poll Question #2

How should Vermont's multifamily code be structured?

1. Include MF specifics throughout each relevant section in both RBES and CBES.
2. Develop new MF chapters in both RBES and CBES that are the same.
3. Create a new standalone MF handbook.
4. Other ideas (add in the chat)

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Discussion Questions

- How should Vermont's multifamily code be structured?
- Are there other approaches that other states have done that should be considered?
- What would we need to do to modify the compliance methods to make MF design and implementation work?
  - Package Plus Points
  - ResCheck and ComCheck
  - Home Energy Rating Score

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Multifamily Technical Considerations

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Technical Discussion Questions #1

- Are there specific MF measures that the RBES and CBES don't get right or need to be considered?
- Are there sections of code that relate to MF building components that need to be better addressed/ changed/ enhanced in the next code, e.g.,:
  - Are ventilation requirements right?
  - Testing requirements?
  - Envelope details?
  - Are we properly addressing hot water systems?

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Technical Discussion Questions #2

- Where does electrification of space heating and water heating fit into MF energy code?
- Is biomass an appropriate space and water heating fuel for MF buildings?
- Should electric resistance heat be allowed in very low load (<6 kBtus/sq.ft. per year) MF buildings?
- Is 4% of parking spaces for EV charging for MF buildings >10 units still the right metric?
- Other?

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What else would you like to say?

- Is there anything else we should know about MF buildings and code?
- Now that we have discussed the details of code, are there any additional comments related to the high-level policy question of balancing climate goals with the need for more housing?

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Thank you for participating!

Upcoming meetings:
Commercial & Industrial – June 15, 9:00 – 11:00
Residential – June 15, 3:00 – 5:00

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