Buildings, Infrastructure & Housing (BIH) Working Group Meeting
Maine Climate Council (MCC)
February 12, 2024, 2-5 pm
In-person & Virtual via Zoom

In attendance:

Working group members: Michael Stoddard, Kathleen Meil, Grayson Lookner, Naomi Beal, Don McGilvery, Greg Payne, Todd Rothstein, Jesse Thompson, Chris Kessler, Ania Wright, Eben Perkins, Dale Basher, Jason Shedlock, Richard Bradstreet, Jeff Marks, Pat Stanton, Matt Pitzer, Sharon Klein, Safiya Khalid, Rozanna Patane, Scott Brown

Staff: David Plumb, Molly Siegel

Meeting Purpose:

- Review policy options for advancing clean, resilient, energy efficient new buildings
- Tour one of AVESTA's newest mixed-income developments built with energy efficient technologies
- Learn about the current status of building code adoption, trainings, and implementation
- Discuss ways to continue improving energy efficiency and renewable energy in affordable and moderate-income housing
- Explore ways to leverage new federal standards and voluntary certifications to go "above and beyond" Maine building codes

Tour of Porter Station apartment building

Highlights of the tour included:

- Laundry room – innovative design used a passive approach, supplying outside make up air for the dryer units instead of using existing conditioned air to reduce heating and electrical requirements. This type of passive make up air is done by creating a plenum wall.
- Electrical and HVAC rooms
- One-bedroom unit with packaged terminal heat pump

Welcome & Introduction

- Reducing GHG from Building sectors means changing how we heat and cool buildings. Two opportunities to do that:
    - 1) retrofit of existing buildings
    - 2) new construction
        - good design
        - most cost-effective if we get it right the first time

Case study: AVESTA Housing Projects and Data

Highlights from Todd Rothstein's Presentation: Affordable, clean, resilient, energy efficient buildings

- High performance systems often have increased up-front cost
    - The group discussed whether cost increases are due to inflation or the actual higher cost of more efficient systems
- Good envelopes reduce carbon emissions by reducing consumption of energy needed to heat/cool the building
- High volume electric hot water systems are the new frontier
- Solar arrays are a very important part of efficiency
- Battery storage coupled with solar will increase resiliency
- Geothermal is efficient but more costly than air-to-air heat pumps
- Dehumidification systems maintain constant comfort interiors
- Ventilation ductwork must be designed to minimize energy usage
- Energy modeling improves performance, but prescriptive designs are possible
- Residential builders should embrace the change in design

Future work

- Develop messaging and programs teaching all sectors to meet the 2015 standard for new construction
- Utilize existing data to implement practical construction approaches achievable by all sectors
- Support the Maine manufacturing community to produce lower carbon impactful materials
- Support the fair implementation of solar and battery storage systems for all sectors
- Using mother nature and fossil fuels in a passive manner reduces carbon emissions
- Allow affordable housing developers to separate solar from the total development cost (TDC)

Q&A

- Why is AVESTA so focused on this topic?
    - Resilience is important to AVESTA because how they approach the building will impact residents (their comfort) and the buildings resilience to weather, which were both important factors to AVESTA.
- Solar panels get thrown overboard a lot because of caps?
    - Yes, they are often thrown over if it does not fit the total cap, but there is opportunity to add solar later on if there is funding.
- It is hard but so valuable to gain info about cost
    - It would be useful if other people would collect and share their cost data for buildings like AVESTA does
- Concern about maintenance and replacement of heat pumps? How long are you able to maintain them?
    - At least 15 years lifetime with yearly maintenance (not as long as old boiler systems)
    - Efficiency Maine assumes 18 years
- Embodied carbon of heat pumps? Can we make heat pumps last longer through repairs?

Update on the current landscape of building codes in Maine:

Kim Cheslak: Portland, Maine resident who previously worked at the New Buildings Institute (NBI) and who has served on MUBEC Board and has a background in building codes

- Maine currently follows the 2015 IECC and is in the process of adopting the 2021 IECC. Codes are updated every 3 years. The states should be no more than 2 years out of line with state model code. We are currently out line and might be more out of line when the 2024 codes come out.
- Example of Maine-specific amendment to building code: dewpoint issues with insulation width
    - Prescriptive path calls for 20 (batt) + 5 (continuous insulation) --> this creates a dew point in the wall allowing water to condense in the cavity and create mold and moisture issues in wood
        - Changed to 20 +10 to resolve issue
- Residential code on energy codes is increasing / improving regarding efficiency
    - Overall energy savings with 2021 energy code compared to 2015

Sarah Curran: LD 1934, Resolve, to improve, the coordination and delivery of planning grants and technical assistance to communities in Maine

- Problem: Towns have uneven access to support planning activities and many lack planning and implementation capacity
- Focus groups and interviews with communities revealed that:
    - Communities do not know what agencies to go to
    - Need a one stop approach
    - New proposed independent office

Michael Stoddard: LD 207, Resolve, Directing the Commissioner of Public Safety to Establish a Stakeholder Group to Examine the Responsibilities, Fees and Duties of the Technical Building Codes and Standards Board

- There is a funding mechanism (fee) for funding building code trainings, but this funding mechanisms is only assessed on new commercial construction projects which is only a fraction of all new construction in the state.
- There is a significant need for more training.

From Kim in Zoom chat: Workforce at pre-college levels: there is a project I am supporting and following for the next few years that may be worth keeping up with in Pennsylvania that is one of the recent round of DOE awardees. (scroll down to PA Dept of Environmental Protection). Many others are also focused on workforce needs and gaps.

Links referenced during meeting:

- Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Maine
- Cost-Effectiveness of the 2021 IECC for Residential Buildings in Maine
- THE INTERNATIONAL ENERGY CONSERVATION CODE-RESIDENTIAL PUBLIC COMMENT DRAFT #2
- IECC COMMERCIAL PUBLIC COMMENT DRAFT #2 UPDATE

Policy Discussion

- David led a discussion about policy options to recommend to the Maine Climate Council. David reminded the group of what was written in *Maine Won't Wait*.

Existing Maine Won't Wait Actions	Potential Policy Recommendations 2024

STRATEGY B Recommendation 3 – Advance the Design and Construction of New Buildings
 	
• By 2024, develop a long-term plan to phase in modern, energy-efficient building codes to reach net-zero carbon emissions for new construction in Maine by 2035
• Enhance existing training on building codes and expand these programs to support ongoing education of contractors and code-enforcement officials
 	
STRATEGY B Recommendation 4 – Advance the Design and Promote Climate-Friendly Building Products
 	
• Develop and enhance innovation support, incentives, building codes, and marketing programs to increase the use of efficient and climate-friendly Maine forest products, including mass timber and wood-fiber insulation
	• Something(s) around spurring faster private-sector adoption of best practice and 2021 code (and beyond)
	  ○ Spreading the learning from the success in affordable housing – having all of Maine Housing's recipients share data and their learning.
	  ○ Licensing – is now finally the time?
	  ○ Increased funding for training and what successful training looks like
	  ○ Eliminating the exemptions for enforcing code.
	• Something around accelerating the 2035 net-zero target (for some or all segments)
	• Something around workforce and getting young people excited in the trades
	• Something that addresses resiliency aspects of new construction
	• Something that addresses the barriers to rooftop solar on affordable housing. Similarly, something that gets data to support rooftop solar policies such as solar-ready requirements.
	• Also, let's do a little research on district heat

- **Additional topics and issues brought up in discussion:**
  - Building Codes
    - Role in the transition from *incentivizing* efficiency / high performance to *requiring* it via codes
    - Intersection with resiliency (opportunity to address air quality, radon)
    - Net zero building codes – potential timelines and feasibility

        - Build whole home and whole buildings on heat pumps
        - Applying lessons from affordable housing to the private sector
        - Clarify that code applies statewide; we could revisit enforcement exemptions in towns with fewer than 4,000 residents
    - Training
        - Building trust in the contractor community
        - Hold contractors accountable in policy going to governor's office
        - K-12 education for future workforce
    - Solar
        - Getting more solar panels on roofs. Cost?
        - Accessibility for low income; Opportunities through Solar for All
    - More attention needed
        - Literature review on places with central district heating
        - Other buildings --> schools, hospitals, etc.
    -

Next Steps:

- Turn our discussion into policy suggestions for the Maine Climate Council
- A small group will reconvene to turn these discussion notes into policy recommendations: Google Doc to sign up