

Efficiency Vermont

Here for all Vermonters

- Business owners
- Rental property owners
- Homeowners
- Commercial property owners
- Renters
- Community organizations
- Institutions
- Contractors, developers
- State agencies
- Municipalities

Watts New

Energy ideas to keep Vermont green

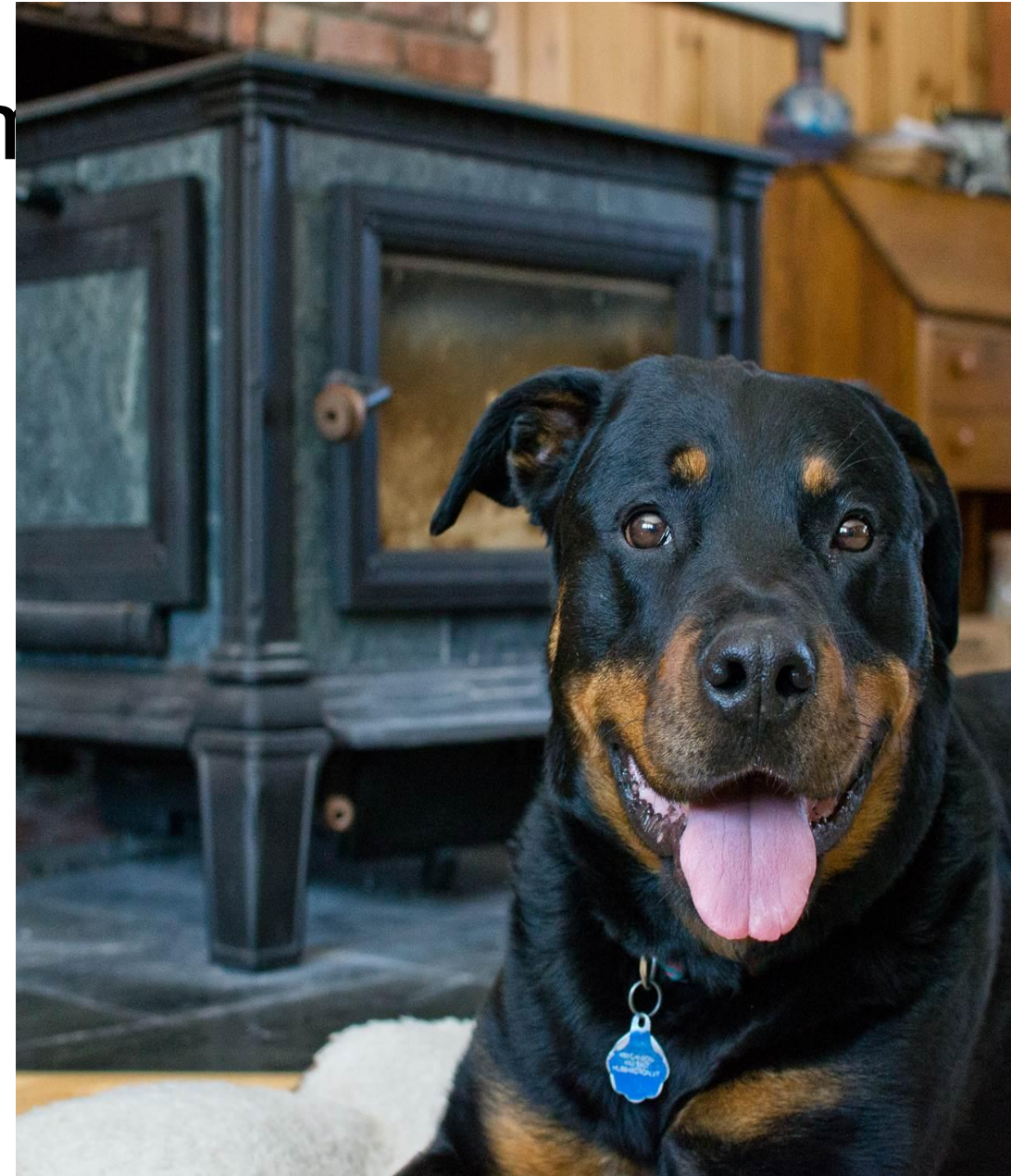


Partnering on a sustainable home renovation

When Shams purchased a fixer-upper, she embraced the opportunity to bring her values to life in her new home. Sustainability and thriftiness were top of mind, so she got a home energy assessment with an Efficiency Excellence Network contractor and then worked through the projects one by one. With advice and rebates from Efficiency Vermont, Shams made her space warmer and reduced her energy bills.

Energy Efficiency at Home

- Households spend 11% of their income on energy
 - Includes electricity, home heating and transportation
- The Health Connection
 - Environmental pollutants
 - Indoor air quality
 - Respiratory disease, childhood asthma
 - Conditions exacerbated by humidity and temperature
 - Stress



Existing Homes

Assets

- Quality construction
- Basements
- Chimneys
- Villages

Challenges

- Leaky
- Hard to insulate
- Vermiculite, lead, etc
- Moisture management
- Air quality
- Size
- Fossil fuels

Existing Homes - Fixes

Weatherization

- Building science-informed
- Well-established network of contractors
- Accessible to lower-income households
- Non-energy benefits
- Finish line?



How Much Weatherization is Enough?

- **Home Performance with ENERGY STAR**

- Prioritize safety and health
- 10% energy cost reduction

- **Zero energy home**

- Big investment in building improvements
- Decarbonize the heating and water heating
- Make your own renewable energy, typically net-metered

- **Something in between?**

- Comfort, health, safety, durability
- Able to be heated with a heat pump
- Ventilation system

Existing Homes Priorities

- Water heating
- Moisture management
- Air sealing
- Planning for the next heating system
- Right for today's households

How

- Plan ahead
- Home Performance with ENERGY STAR



New Homes

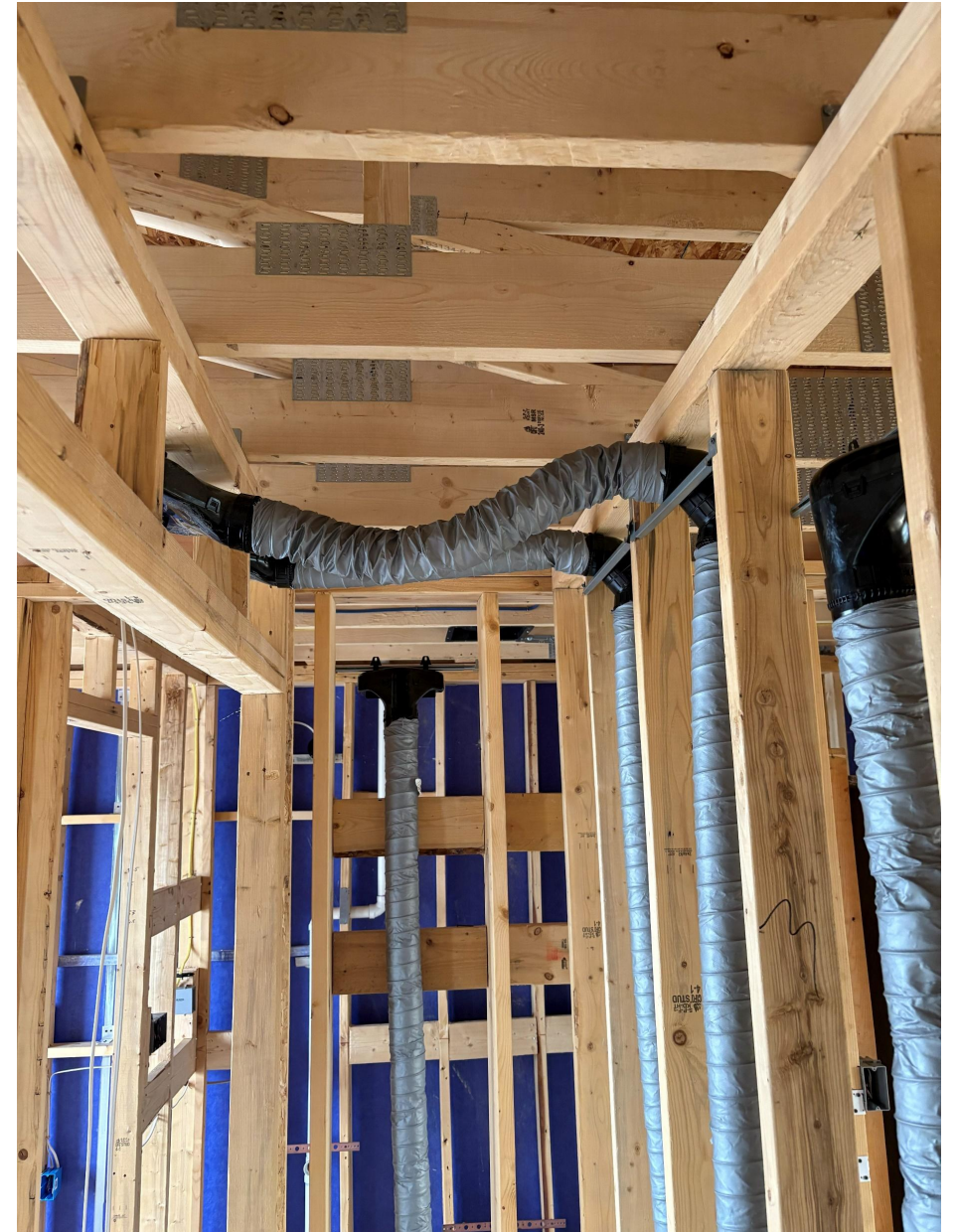
- The cost to build new efficiently is low compared to retrofits
- Amortizing improved efficiency is affordable
- The 2024 energy code is pretty good
- The stretch energy code can be adopted locally
- Clean heat standard?
- Efficiency Vermont's program provides great technical advising and incentives

Elements of an efficient home build

- Design for efficiency
- Air sealed enclosure – an exterior air barrier is easiest
- Effective insulation everywhere
 - Including the foundation and slab
- High performance windows
 - For comfort
- Mechanical ventilation
- Efficient heating and water heating
 - Homes that meet the 2024 energy code or Efficiency Vermont standard are well-matched to a heat pump

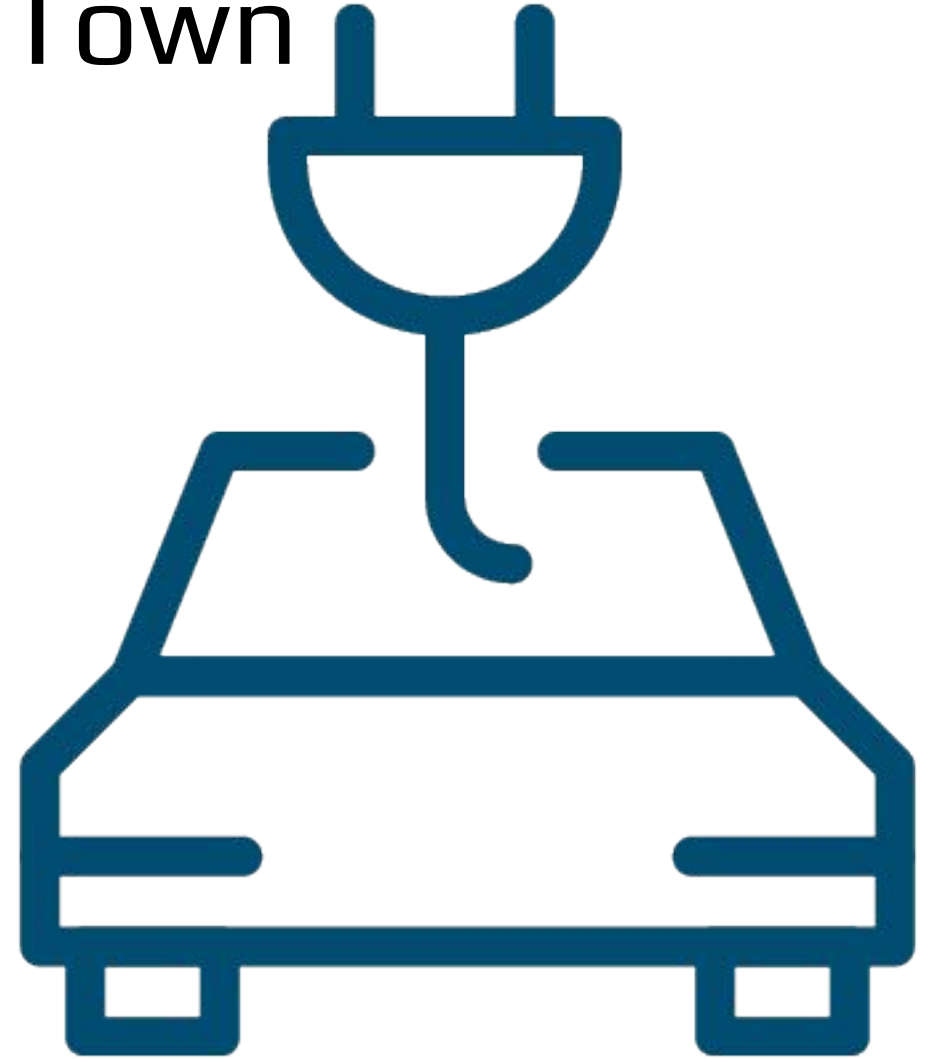
Case study of energy efficient new construction

- Set the goal
 - Get clear on priorities
 - Be specific about outcomes
 - Review each decision in light of goals
- Get help from Efficiency Vermont
 - Review construction details
 - Review mechanical design
 - Inspections and performance testing
- Verify and course correct
 - Robust oversight
 - Make sure everyone on site understands the goals and how to meet them
 - Have one person responsible for making sure the project is done right



Efficient Buildings in Your Town

- Develop local expertise
 - Weatherization for low income households
 - Financing options
 - Non-energy benefits
 - Efficiency Vermont services
- Electric car charging
 - In town center
 - At shopping
- Stretch code for new construction





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