



# Boosting Efficiency and Business through Energy Codes

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# Overview



## Ratings Used for Code Compliance

-  Vermont

-  Other Northeast States

## Energy Code Compliance Rates

## Business Opportunities

-  Training

-  Exposure

-  ENERGY STAR Homes Labeling



# Rating for Code Compliance

## Vermont

 82 points = Vermont Residential Energy Code

- > Since 1998
- > MEC 95 + 10%
- > Builder self-certification

 "Certificate" completed for each new home

- > Sticker on house
- > Copy to town clerk for filing
- > Copy to State Energy Office (Dept. of Public Service)



# VT RBES Certificate

**1997 VT RESIDENTIAL BUILDING ENERGY STANDARDS CERTIFICATE**

Before completing this form, refer to instructions. Act 260 Revises to: ☐ N/A

Site: 45 Peble Lane Williston 05495  
 Address Town Zip

Electric Utility: VEC

Construction Start/Completion Date: Feb/2002  
 Month / Year Month / Year

**Project Description:** ☒ Single-family ☐ Two Homes ☐ Addition ☐ Conditioned  
☐ Multi-family Units 2 Stories 2 sq.ft.: 5109

**Foundation Type:** ☒ Basement ☐ Crawlspace ☐ Slab on grade

**Floors:** B- 0 Perimeter Slab Edge B- 0 Under Slab  
 B- 33 Over Unheated Spaces

**Walls:** B- 19 Above Grade B- 11, 2-10 Basement  
 B- 0 Crawlspace Depth/Insulation: full 2 ft.

**Ceilings:** B- 38 Flat B- 37 Sloped

**Doors:** U- 23 U- 25 Glass Doors

**Windows:** U- 35 NFRC Default Rating U- 30 NFRC Default Rating  
 (Circle rating type) U- 33 NFRC Default Rating U- 56 NFRC Default Rating  
 (otherwise)

Net window glazing (rough opening) area as a percent of gross exterior wall area: NA %

**Space Heat:** Fuel ☐ Oil ☐ Kerosene ☒ Propane ☐ Natural gas ☐ Wood  
☐ Electric Resistance ☐ Heat pump ☐ Solar ☐ Other  
 (Check all that apply.)  
 System: ☐ Boiler ☒ Furnace ☐ Space heater ☐ Stove ☐ Other  
 Circle primary fuel and system.  
 primary heat system efficiency 93% NA NA NA NA NA

**Air Conditioning:** Central A/C system efficiency NA ☐ SEER ☐ COP ☐ EER

**Domestic Hot Water:** Fuel ☐ Oil ☐ Kerosene ☒ Propane ☐ Natural gas ☐ Wood  
☐ Electric Resistance ☐ Heat Pump ☐ Solar Preheat ☐ Other  
 (Check all that apply.)  
 System: ☒ Stand Alone Tank ☐ Indirect Fired Tank ☐ Tankless Coil  
☐ On Demand ☐ Other  
 Circle primary fuel and system.  
 primary domestic hot water system efficiency 64 energy factor (EF)

**Compliance Path:** ☐ Prescriptive ☐ Performance ☒ Systems analysis

RBEScheck maximum required UA NA Your home UA NA  
 Final home energy rating 86.8 points 5 stars  
 Company Energy Rated Homes of VT Date 2/26/02

**Other Energy Features:** Energy Rating # 100 6543 VESN  
Blower Door Test: 1600 cfm 50

**The 1997 Vermont RBES meets or exceeds E.A.B.O./M.E.C. 1995 (EXCEPT FOR LOG HOMES)**

I certify to NA (owner) the premises listed above have been constructed in accordance with the 1997 Vermont Residential Energy Building Standards (RBES) created under 21 V.S.A. § 265.

Signature \_\_\_\_\_ Company \_\_\_\_\_  
 Title Name \_\_\_\_\_ Phone \_\_\_\_\_ Date \_\_\_\_\_

21 V.S.A. § 265 requires that this certification label be permanently affixed to inside electrical service panel/heating or cooling equipment nearby in a visible location, and a copy be provided to the Department of Public Service Energy Efficiency Division, 111 State Street, Denver 20, Montpelier, VT 05603-0801, and filed in the town land records.  
 NOTE: Non-compliance with RBES may result in action for damages created under 21 V.S.A. § 265.  
 This label does not specify all 1997 Vermont RBES requirements.

**Questions??** Call VT Department of Public Service: 1-800-642-3281 (in-state) or 1-800-828-4956

11/97



# Ratings for Code Compliance

## ERH-Vermont Impacts:

- ☐ Completed label provided as part of rating package

  - > Builder still has to sign, file and apply

- ☐ Many builders participate in utility RNC programs just to get code compliance handled





  - > If they comply with Vermont ENERGY STAR Homes standards, rating is free (plus incentives)

  - > 600+ participants in 2001



# Ratings for Code Compliance


## Vermont con't

-  Some builders just order ratings for code compliance and don't participate in VESH
-  It works in VT because compliance is the builder's responsibility, and they need our help
-  Homes end up better when a rating is involved in the code process
-  We can't complain about the business



# Ratings for Code Compliance

## Other Northeast States

 Massachusetts: 83 = MEC '95 compliant

- > Under-utilized
- > Building code jurisdictions don't want to lose code compliance revenue
  - \$500 - \$600+
  - Average time spent on energy code: <15 minutes
  - Communities like the revenue
- > Impacts of rating allowance on code: very little



# Ratings for Code Compliance

## ☐ New Jersey

- > MEC '95 going into effect in July 2002
- > Dept. of Community Affairs is open to allowing ratings for code compliance
  - Currently developing NJ HBA, code official and utility support
  - HERS providers would complete:
    - HERS certificate
    - Completed MEC checklist





# Ratings for Code Compliance

## ☐ NJ con't:

### > Anticipated impacts:

- Increased NJ ENERGY STAR Homes Program participation
  - Rating is free and so would be MEC checklist
  - Use code service contacts to sell builders up to ENERGY STAR
- However, need to better understand code official motivations and opportunities
- Stay tuned



# Code Compliance Rates



## Mass. BBRS Study

- 200 new homes surveyed and tested
- Less than 1/2 complied with code
- Code officials think this is great
- Utilities, BBRS, CSG and NUP consultants don't



# Code Compliance Rates

## ■ Response:

- > Working with code officials in at least 2 Mass. communities to:
  - Improve compliance rates
  - Use code involvement as stepping stone to ENERGY STAR Homes Program
  - Expanding ways for other HERS providers to play a role
  - However, outcome of this initiative is unclear given income to communities from existing system



# Code Compliance Rates




## Vermont:

- 200 new home baseline study/evaluation under way
- Looking at code compliance rates for:
  - > Builder self-certification vs.
  - > Energy ratings based



# Business Opportunities

 With a new/upgraded code come tremendous opportunities for HERS providers

-  Training

-  Exposure

-  ENERGY STAR Homes Labeling



# Business Opportunities

## Training

### Vermont:

- > Energy code in 1998 after none previously
- > 4 DOE-funded workshops
  - 3 hours
  - Dinner
  - Concern about lack of attendees
- > Lumber yards, manufacturers and suppliers stepped in
- > >800 builders trained in >dozen add'l workshops



# Business Opportunities

## ☐ Massachusetts:

- > Energy code ramped up to MEC '95
- > Enlisted supplier and lumber yard support for workshops

## ☐ New York:

- > Upgraded energy code goes into effect in 2002
- > Very successful industry-supported workshops under way



# Business Opportunities

## Code Training Content

### Use for builder education

- > Code details/how to comply
- > Building science
- > Sell ENERGY STAR Labeled Homes Program

### Use as opportunity to establish expertise and presence of trainer/HERS provider





# Business Opportunities



## Lessons Learned:

1. Builders are willing to come to trainings when the code changes
2. Manufacturers, suppliers, lumber yards and retailers are very willing to sponsor trainings knowing there will be a builder audience
3. These trainings are a great opportunity to train builders beyond code (building science and ENERGY STAR)



# Business Opportunities



## Lessons Learned con't

4. Logical trainers are qualified HERS raters/trainers
5. EPA may be interested in supporting this approach in the future



# Business Opportunities



## Available Resources:

☐ Northeast Energy Efficiency Partnerships (NEEP) (Dave Abrey, Mike DeWein, etc.)

> PowerPoint Training

> Builder guidebook

- Customizable by state
- Each chapter has local code, building science and ENERGY STAR elements by building component

> Train the trainer

☐ NY builder training brochure (.ppt)



# NY Builder Training Brochure



## Northeast States Residential Builder Training Program

### Project Overview:

The **Northeast States Residential Builder Training Program** is a complete training program for builders, designers, contractors and code officials on energy code and advanced residential construction techniques. A regional network of expert trainers will deliver the training workshops each tailored to local energy code requirements and efficiency program opportunities. The trainers deliver these workshops on demand as new codes are adopted or updated or as new efficiency programs are offered. The program can also be easily integrated with other local or national programs such as HERS, ENERGY STAR®, EEBA and Building America.

### Training Workshops:

While the primary audience will be builders, the project will also promote the workshops to designers, contractors, and code officials. The main features of the program are:

#### Benefits to Builders

- Details on Code & Advanced Construction Strategies.
- ENERGY STAR® Program Overview and Requirements
- Reduced Builder Call Backs, Liability, Moisture Problems
- Emphasis on Non-energy Benefits such as Indoor Air Quality, Added Comfort, Quieter, Etc.
- "Building As a System" Training Focus



#### Builder Field Guides:

The builder field guides are designed to present information clearly and concisely for use in the field. Like the workshops, the field guides contain features such as:

- An integrated approach to building science techniques and high-efficiency technologies.
- State-specific code compliance for both single and multi-family buildings.
- State-specific information including ENERGY STAR®, code agencies, code information, utility programs, and other efficiency programs.
- "Building As a System" Training Focus with an Emphasis on Non-energy Benefits such as Indoor Air Quality, Added Comfort, Quieter, Etc.
- Designed for builders to give to field crews or subcontractors



## Northeast States Residential Energy Efficient Construction Builder Training Program

### Marketing Strategy:

The **Northeast States Residential Builder Training Program** will partner with each state to assess their specific builder training needs and to integrate code requirements and efficiency program opportunities into the curriculum. Within each state, NEEP will work with local builders associations, manufacturers, local building suppliers and utilities to form a project team to market workshops to local builders. Local partners secure classroom space, local sponsors and market each event to the local audience. NEEP provides camera-ready marketing materials and links national sponsors to the event.

### Project Team:

A strong project team exists for this project in New York providing an example of what can be done. This unique project team includes federal and state agencies, utilities, homebuilder associations, manufacturers, lumberyards and energy efficiency organizations. The project intends to duplicate this team approach in each partner state.

#### NEW YORK PROJECT TEAM

- US DOE - Initial Project Funding
- GDS/REA - Initial Project Management
- NEEP - Project Design & Ongoing Project Management
- BCAP - Project Design & Ongoing Project Support
- NABA - Project Funding & Manufacturer Involvement
- CSG - Field Guide Development
- EEBA - Field Guide and Training Collaboration
- NY State Energy Research & Development Authority - Project Funding & Support
- NY State Builders Association - Research & Education Foundation - Pilot Trainings & Local Marketing Support
- ENERGY STAR® - Project Technical Support
- Regional Lumberyards - Local Marketing & Logistical Support



#### For More Information:

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- Jeff Forward, REA  
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# Business Opportunities

- ✎ Energy code changes provide great opportunities for:
  - ☐ Training
  - ☐ Integrating HERS into code compliance
  - ☐ Selling HERS/ENERGY STAR Labeled Home services
- ✎ Keep trying new approaches and reporting back how they can work!

