



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 200 (enact) # _____ 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 Log Home Addition Multi-family Units Conditioned # Stories: 2 sq.ft.: 5109

Foundation Type: Basement Crawlspace Slab on grade

Floors: R- 0 Perimeter Slab Edge R- 0 Under Slab
 R- 35 Over Unheated Spaces

Walls: R- 19 Above Grade R- 11, 2-10 Basement
 R- _____ Crawlspace Depth/Insulation: full 2 ft.

Ceilings: R- 38 Flat R- 37 Sloped

Doors: U- 23 U- _____ 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: _____ %

Space Heat: Fuel Oil Kerosene Propane Natural gas Wood
 Electric Resistance Heat pump Solar Other
(Check all that apply. Circle primary fuel and system.) System: Boiler Furnace Space heater Stove Other
 primary heat system efficiency: 93% WATUE 118FF

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. Circle primary fuel and system.) System: Stand Alone Tank Indirect Fired Tank Tankless Coil
 On Demand Other
 primary domestic hot water system efficiency: 67 energy factor (EF)

Compliance Path: Prescriptive Performance Systems analysis
 RBEScheck maximum required UA _____ Your home UA _____
 Final home energy rating: 86.8 points - 5 stars
 Company: Energy Babby # 100 6543 VESN Date: 2/26/02

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

The 1997 Vermont RBES meets or exceeds CABO/IECC 1995 (EXCEPT FOR LOG HOMES)

I certify to _____ (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. § 205.

Signature _____ Company _____
Title Name Phone Date



21 V.S.A. § 205 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 Main Street, Denver 20, Montpelier, VT 05633-0201, and filed in the town land records.
 NOTE: Non-compliance with RBES may result in action for damages created under 21 V.S.A. § 206.
 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, Quiet, 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, Quiet, 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
- NAABA - 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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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!

