

Rating Low-Rise Multifamily Buildings

RESNET Conference

March 2, 2004

Richard Faesy, Vermont Energy Investment Corp.

Bruce Harley, Conservation Services Group

Don Swift, MaGrann Associates

Session Objectives

- Explore the national effort to reach consensus on multifamily energy ratings
- Debate technical issues related to rating low-rise multifamily buildings
- Appreciate the importance of incorporating the total energy loads into a multifamily rating

Presenters

- Richard Faesy
 - Vermont Energy Investment Corporation
 - HERS since 1986
 - Northeast HERS Alliance, RNC Consulting
- Bruce Harley
 - Conservation Services Group
 - Technical Director, Residential Division
 - Author of “*Insulate and Weatherize*”
- Don Swift
 - MaGrann Associates
 - HERS Supervisor
 - Responsible for oversight of NJ field operations

Who is in the Audience?

- Raters of at least one rating of a low-rise (3 stories or less) multifamily building?
- Anyone with 4 stories or higher experience?
- What is interest in low-rise (3 stories and less) vs. high-rise (4+ stories)?

Session Overview

- National Update
 - History
 - Experience in the Northeast
 - New ENERGY STAR for MF Buildings Effort
- Technical Approach
 - Unit-by-unit or whole building
 - Sampling of units
 - Blower door testing
 - Mechanical systems
- Case Studies
 - MA, NJ, VT
- Discussion and questions

National Update

- HERS Technical Standards have always allowed rating up to 3 story buildings
- EPA has permitted ENERGY STAR labeling of MF buildings up to 3 stories as part of HERS
- No national guidance on rating MF buildings
- Northeast HERS Alliance section on MF ratings
- RESNET MF standards submission deferred
- Four-plus story buildings (“high rise”) have become recent national focus

High Rise Multifamily

- 2001
 - EPA realizes they have been labeling 4+ story buildings as “ENERGY STAR”
 - MA, NJ, NY, VT, WI...
 - CA, OH, others ask for permission (rather than forgiveness)
 - \$25k allocated to study issues by EPA
 - Additional funds secured by MA utilities & EVT
- 2002
 - RESNET and Affordable Comfort sessions on rating MF buildings
 - EPA issues: “benchmarking” vs. modeling
 - New EPA focus away from whole building

High Rise Multifamily

- Mid-2003
 - EPA decides that only lighting and appliances to be considered in MF ENERGY STAR label
 - ACEEE/CEE Market Transformation Symposium (DC) and New York MF Buildings Conference: EPA makes MF program announcements
 - Complete dissatisfaction by practitioners
 - CEE agrees to facilitate national dialogue to create ENERGY STAR for MF Buildings program for EPA

ENERGY STAR for Multifamily Buildings

- National committee of more than 50 people
- Five committees:
 - Framework
 - Technical Approach
 - Testing and Verification
 - Implementation
 - National Administration
- Draft proposals under development
- Negotiations with EPA currently under way
- Contact: Stephanie Jones (sjones@cee1.org)

The logo for Vermont Energy Investment Corporation (VEIC) is located on the left side of the slide. It consists of the letters 'VEIC' in a large, bold, sans-serif font, with a stylized 'V' that incorporates a mountain-like shape. The logo is white and set against a dark green background.

Bruce Harley

Multifamily Technical Approach

Arbor Gardens Apartments

Colchester, Vermont













AUG 15 2002



VEIC





VEIC























Home Energy Rating Certificate

120 Wiley Road Bldg A
Colchester, VT 05446



5 Stars

Verified Condition

Uniform Energy Rating System

1 Star	1 Star Plus	2 Stars	2 Stars Plus	3 Stars	3 Stars Plus
0-19	20-39	40-49	50-59	60-69	70-79

Energy Efficient

4 Stars	4 Stars Plus	5 Stars	5 Stars Plus
80-82	83-85	86-89	90-100

Energy Rating Points: **86.2**

General Information

Conditioned Area: 38928 sq. ft. House Type: Multi-family dwelling
Conditioned Volume: 264710 cubic ft. Foundation: Open crawl space
Bedrooms: 63

Mechanical Systems Features

Heating: Fuel-fired hydronic distribution, Natural gas, 85.0 AFUE.
Water Heating: Integrated, Natural gas, 0.78 EF.

Duct Leakage: No observable leakage.
Ventilation System: Exhaust Only: 50 cfm, 17.0 watts.
Programmable Thermostat: Heating: No Cooling: No

Building Shell Features

Ceiling Flat: R-38 Exposed Floor: R-12, R-30, R-0
Vaulted Ceiling: NA Window Type: U .32, SC .32
Above Grade Walls: R-19 Infiltration:
Foundation Walls: NA Rate: H: 0.34 C: 0.17 ACHnat
Slab: NA Method: Blower door test

Lights and Appliance Features

Interior Incandescent Fixtures: NA Clothes Dryer Fuel: Natural gas
Interior Energy Efficient Fixtures: 235 Range/Oven Fuel: Electric
Exterior Incandescent Fixtures: NA Refrigerator Efficiency: Energy Star
Exterior Energy Efficient Fixtures: 15

REM/Rate - Residential Energy Analysis and Rating Software v11.0 Vermont

This information does not constitute any warranty of energy cost or savings.

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Rating Number: 1007170

Certified Energy Rater: Karl Goetze

Date: September 26, 2002

Rating Ordered For: Homestead Design, Inc.

Estimated Annual Energy Cost

Verified Condition

Use	MMBtu	Cost	Percent
Heating	778.1	\$7384	3%
Cooling	0.0	\$0	0%
Hot Water	228.7	\$2150	1%
Lights/Appliance		\$3283	1%
Service Charges		\$226431	95%
Total		\$239248	100%

**This home meets the minimum
criteria for all of the following:**

ENERGY STAR Home*
VT Residential Energy Code*

* Compliance with criteria for this program is determined
by the rater.

Vermont ENERGY STAR Homes f
Vermont Energy Investment Corp
255 S. Champlain St. Suite 7
Burlington, VT 05401
802-658-6060
802-658-1643





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