

Cottage Homes: Lessons Learned from Irene in Vermont

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[Top Right] Sandy Carthey stands proudly on the porch of her new mobile home in Berlin. **[Top Left]** Damaged and destroyed mobile homes stand waiting to be demolished at Whalley Trailer Park in Waterbury. **[Bottom Left]** Officials stand in a new mobile home prototype, designed for increased efficiency and resilience against the elements. **[Bottom Right]** Disaster Case Management Program (DCMP) Construction Coordinators Chris Eaton and Tyler Mann, members of the Central Vermont LTRC and Southern Vermont LTRC, at work rebuilding a home in Waterville.



Remember Irene





Disaster Recovery Terminology

- LTRC – Long Term Recovery Committee
- UVS – Upper Valley Strong – our regional Long Term Recovery Committee
- “FEMA Money” – Up to \$30,200 reimbursement to homeowners for disaster damage
- VDRF – Vermont Disaster Relief Fund
- VHCB – Vermont Housing and Conservation Board
- IRO – Irene Recovery Office



What We've Been Doing



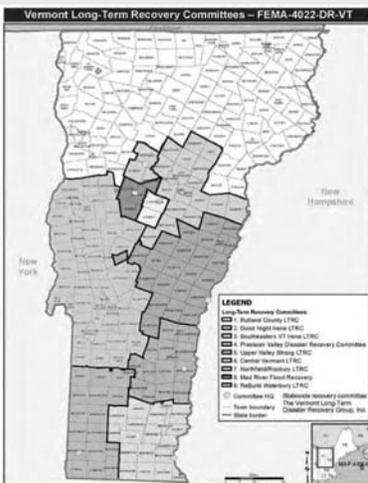
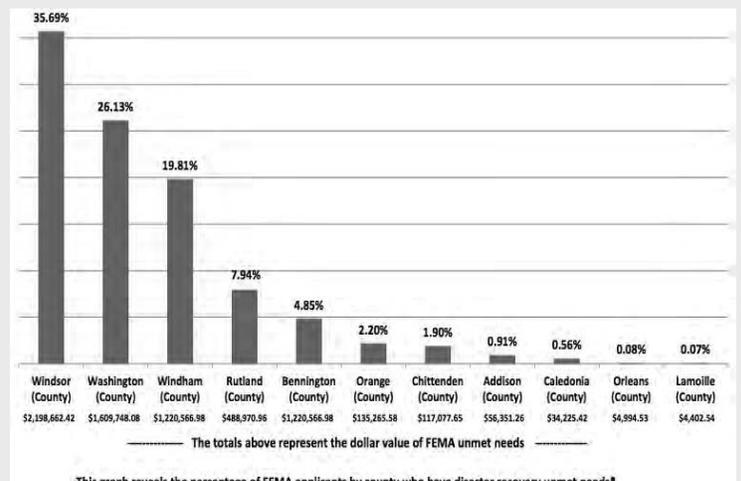
The Scope of the Damage

- Federal Aid Received:

By the first week of June 2012, FEMA had received 7252 registrations from Tropical Storm Irene and distributed nearly \$22.7 million in grants to families and individuals. The maximum grant of \$30,200 had been awarded to 220 households. In addition, the Small Business Administration has approved \$17.6 million in disaster loans from Irene for homeowners and renters.

A Long Term Recovery Committee is Formed

- Email circulated that FEMA required the formation of a LTRC for unspecified funds to flow
- A meeting was called
- NH Charitable Foundation, Granite United Way and the VT Community Foundation stepped up with funding to launch the effort
- A diverse group pulled together and got started



Some Numbers

- 1700 households in the UVS area were called by volunteers before Thanksgiving
- 500 mobile homes damaged and 250 Mobile Homes in Vermont were destroyed
- FEMA estimated 26% of the individual cases are in the UVS area
- Total amount estimated for Irene recovery is \$733 million
- Municipal, State, agricultural and business losses were also heavy.
- 225 of 251 Towns in VT reported infrastructure damage
- 500 miles of damaged or destroyed roads



Some of the “To Do” List

- Get a website up with a way to collect information from people needing help
- Get all groups interested in helping together and figure out who is going to do what
- Learn the “players” – FEMA, IRO, LTRCs, VDRF, VOADS
- Find volunteers to call 1700 people to find out what help they need
- Set up a functioning collaboration
- Find funding to support all these activities



Fema LTRC Model

- Assumes Strong County Government
- Assumes Large Faith Based Groups with volunteers and other resources (buildings, cots etc)
- Irene Happened over a large and sometimes very rural area
- Very weak County government – individual Towns are decision makers
- Least religious State in the country



**VERMONT
NATIONAL
GUARD**



Upper Valley
STRONG



Upper Valley
STRONG



**TEAM
RUBICON**
BRIDGE THE GAP



Upper Valley
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Upper Valley
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AmeriCorps NCCC

(National Civilian Community Corps)



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Lessons Learned from Irene...



Impact on Nonprofits

- Initial outpouring of both work and resources
- Distracts from core mission and fundraising
- Resources diminish quickly and donors give to disaster and subtract from usual donations
- Workload stays high
- Potential negative impact on nonprofits long term



Raising and allocating money

- Harnessing initial outpouring of giving is key
- Designing a credible, responsible system for allocating money for recovery is also key
- VT Disaster Relief Fund is a success story
- Local “panels” review cases first
- In a housing disaster, it’s expensive and this funding source made all the difference

And where are we now?

- Still working on cases
- 1000s of volunteer hours donated, hundreds of thousands of dollars of help to people impacted by Irene from VT Disaster Relief Fund, Rotary International Grant and other sources
- The easy stuff is done now, complex and expensive cases remain
- People are burned out

A Community Comes together

- Less than 15 Irene Cases Left



Case Management

- Essential, expensive, time consuming, frustrating, rewarding
- Your usual human services case managers are not equipped to deal with housing cases
- Need construction case mgmt as well
- A team approach with volunteer and resource coordinator is ideal

Outside my office window...



Construction Case Mgmt

- Essential part of recovering from a housing disaster
- People are not housing experts and need help making good decisions about repair – or moving on
- Experts help sort out what's preexisting and what's disaster related
- Some things we learned – not part of FEMA's suggestions

Volunteer and Resource Coordination

- Essential early on – works best in conjunction with construction coordinator
- FEMA model envisions large volunteer groups from other States coming in to help
- Can work but can be more trouble than it's worth
- “asks” for materials and other donations





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Local Matters

- In the response stage communities can really be on their own
- As time progresses, more outside resources may...or may not...be available...with strings.
- The power to recover effectively comes from local people and organizations
- Disasters like Lebanon bring fewer outside resources so local really matters



Communicate, Communicate, Communicate

- Radios are important in response
- Establishing these networks pre-disaster pays off – Lebanon Flooding is an example
- Communicating through media to get resources is also key
- People may act quickly and make uninformed decisions if there isn't good communication.



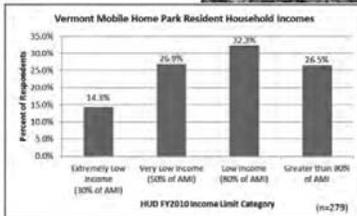
Community Connections

- In recovery, it's networks of people that can mobilize people and resources to get things done
- Managing volunteers during recovery takes expertise – it doesn't just happen like magic
- Resources and planning ahead are required to make that happen. Websites, fundraising links, shovels, email lists, etc....



HOUSEHOLD CHARACTERISTICS

- 26% of households have at least one child under age 18
Compared to: 30% statewide?
- 37% of households have at least one person over age 65
Compared to: 24% statewide?
- 41% of households reported a person with a health condition or disability that would be a concern in an emergency situation.
- 41% of respondents had a high school degree or GED
- 25% had completed a graduate, bachelor, associate, or technical degree
- 64% of households had at least one person employed
- 32% of households had at least one retired senior



This survey found that more than 40% of households surveyed reported incomes that would be considered to be "extremely low" or "very low" according to the income limit categories set by the US Department of Housing and Urban Development.

Note: Households of one person were considered in this analysis.

87% of households own their homes & 73% of those homeowners do not currently have a mortgage payment

A well coordinated recovery makes a difference to people



Manufactured Housing Innovation Project

- Grew out of disproportionate impact of Irene on mobile homes
- Looked at the issue from a number of angles
 - Financing
 - Financing
 - Legal
 - Social Awareness

Questions/ Comments?



Key Findings of Project

- Finding a way to replace older mobile homes is important for a number of reasons:
 - Public health/air quality/vulnerable populations
 - Energy efficiency
 - Disaster resilience
 - Seniors/accessibility issues
 - Financial stability



[Top] Lt. Governor Phil Scott talks of demolition and removal of flood-damaged mobile homes at Western's Mobile Home Park in Berlin. [Bottom] Shortly after Irene, the Eastern Foundation began meeting consultants from generous donors. The Foundation took on case management to help affected residents in health communities such as Jericho, and continues to work with the state and local communities to assist with the financial match to the repair of destroyed properties. Shown here is the Miller family after being moved into their new home with help from the Foundation.

Vermont Witnesses the Vulnerability of Mobile Home Parks

While mobile homes provide an affordable homeownership option for tens of thousands of Vermonters, their location and relatively low resistance to water damage meant mobile home residents were disproportionately impacted by Irene. Further, the fact that mobile home owners own the structures they live in, but not the land those structures sit on, presented a unique set of challenges in terms of recovery—challenges that were largely overcome through creative collaboration. In cooperation with the Governor's Office, the Department of Public Safety, the Vermont Disaster Relief Fund and FEMA, the Agency of Commerce & Community Development (ACCD) implemented a program to condemn destroyed mobile homes, thereby opening up an additional \$3 million in FEMA Individual Assistance benefits for mobile home residents. Lt. Governor Phil Scott assembled a team of public and private sector partners to dispose of 83 flood-damaged mobile homes—an expense not covered by FEMA or insurance—at no cost to homeowners and without using any taxpayer dollars. Looking ahead to the future, ACCD worked closely with lawmakers, the University of Vermont, and the Champlain Valley Office of Economic Opportunity's Mobile Home Program to make funds available for new financing programs and to improve the disaster resiliency of homes in mobile home parks. To learn more, visit <http://www.uvccoo.org/irene/housing/mobilehome/>

7%	Vermont's housing stock in mobile homes
18%	Water-damaged homes that were mobile homes
14	Mobile home parks flooded
14	Mobile home parks that had homes destroyed
226	Mobile homes flooded
131	Mobile homes destroyed
635	Mobile homes that received FEMA assistance

Irene Cottage Homes

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NEXUS

High Meadows Fund

Vermont Housing & Conservation Board

Roadblocks

- Legal/zoning issues with replacing mobile homes in parks with larger units or units not on a chassis
- New mobile homes don't meet VT energy codes (more on this later)
- Higher interest rates higher on mobile homes
- Affordability

Upper Valley STRONG

Irene Cottage Homes Scope of Work

Ascotney Sterling 1br Sterling 2br

Initial Scope: Develop to ENERGY STAR level

Glastenbury Mansfield

Current Scope: Develop to High Performance level

Upper Valley STRONG

Two approaches to the project

- Irene Cottages – modular homes with porches
- Davis Trailers

Upper Valley STRONG

Irene Cottage Homes Scope of Work

Ascotney Studio Sterling 1br Sterling 2br

Glastenbury 2br Mansfield 3 br

Upper Valley STRONG

Replacing Irene Damaged Mobile Homes

- Putting on the “houser” hat and doing the math:
- Up to \$30,000 from FEMA
- Up to \$25,000 from VT Disaster Relief Fund
- Rotary Funds for well/septic
- Much lower energy costs
- Starts to make it possible to help people get in better housing

Upper Valley STRONG

- **Modular design** – flexible spaces with planned expansions to accommodate growth or as resources are available



Glastbury plan with expansion

- Also...
- **Mobile home replacements:** Efficient, sustainable, economical, appreciation potential
 - **Auxiliary Homes:** infill, age-in-place
 - **Planning advantages:** Planned Unit Development (PUD), narrow or confined lots



Sterling Elevation

- **New England Appeal** – Characteristics of existing neighborhoods with symmetrical massing, materials, details, colors and finishes



Glastbury



Mansfield



Photo: J.B. Clancy/ Albert, Righter & Tittmann

Charlotte, built by Habitat to Passive House Standards

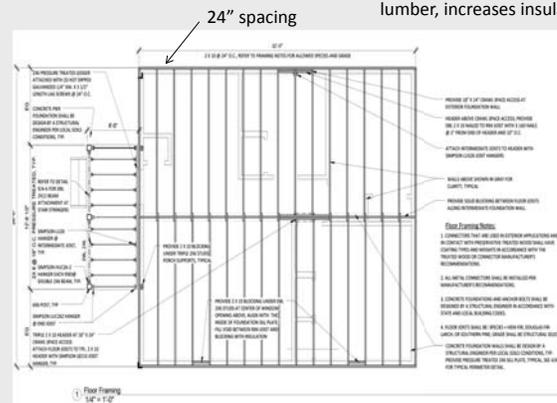
Glastbury & Mansfield:
Based on Habitat for Humanity and Passive House

- ENERGY STAR stick built
- High Performance modular

Sterling 2 BR



- **Advance framing systems** – Reduces lumber, increases insulation



Glastbury framing plan

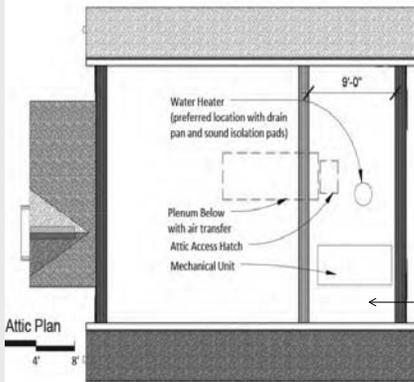
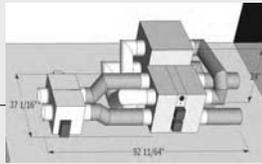
Glastenbury 2 BR

Supplemental Heater



2.5kW or 5kW Electric Duct Heater Options:
 *EM-W00212R
 2.5 kW/ 8533 Btu/h, 240V, 8" Round Element
 *EM-W00515R5
 5kW/17065 Btu/h, 240V, 8" Round Element

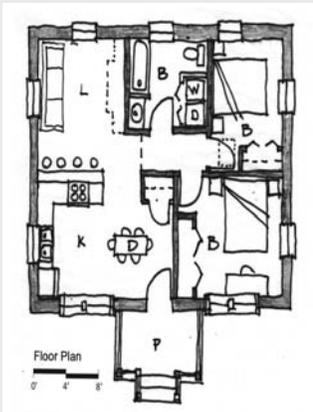
CERV Side-by-side orientation



Glastenbury



Glastenbury 2 BR, alternate plan orientation

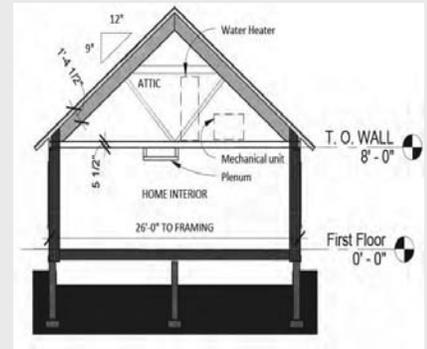


OR



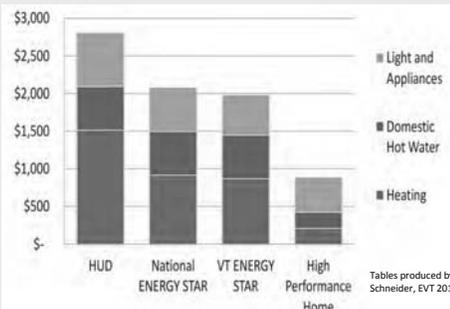
High Performance Building Envelope

- Roof R-80 flat, R-60 sloped
- Walls R-40
- Doors U-.25
- Windows U-.19
- Floor R-40
- Air Leak < 1 ACH 50



Glastenbury Annual Energy Costs Comparison

70% improved efficiency from HUD to High Performance, without PV



Annual Energy Costs

HUD \$2,808 VT ENERGY STAR \$1,983 High performance \$889

Home Purchase Price

HUD \$45,500 VT ENERGY STAR \$78,163 High performance \$98,900

Building Systems

- Heat, Vent, & Conditioning Conditioning Energy Recovery Ventilator
- Plumbing Electric tank with ambient heat pump
Low flow Fixtures
- Lights 95% of fixtures ENERGY STAR
- Appliances Consortium for Energy Efficiency (CEE) Teir III Refrigerator, Dishwasher, Clothes Washer



Estimated Construction Costs

	Ascutney	Sterling 18R	Sterling 28R	Glastenbury	Mansfield
Size (sf)	405	567	702	832	1320
Modular Unit Price	\$ 52,400	\$ 69,600	\$ 84,000	\$ 75,100	\$ 108,400
Energy Star Upgrade	\$ 300	\$ 400	\$ 400	\$ 500	\$ 1,000
Site Costs	\$ 14,300	\$ 17,300	\$ 19,800	\$ 23,500	\$ 23,500
Total	\$ 67,000	\$ 87,300	\$ 104,200	\$ 99,100	\$ 132,900
Cost/sf	\$ 165	\$ 154	\$ 148	\$ 119	\$ 101

Base Estimates are from 10/29/12 for VT Energy Star Silver Home

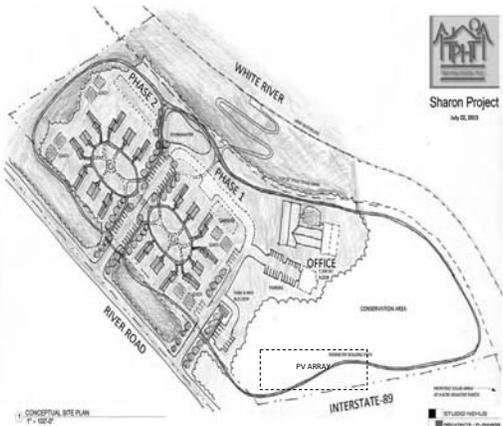
High Performance	\$ 69,000	\$ 91,700	\$ 110,700	\$ 98,900	\$ 142,900
Site Costs	\$ 14,300	\$ 17,300	\$ 19,800	\$ 23,500	\$ 23,500
Total	\$ 83,300	\$ 109,000	\$ 130,500	\$ 122,400	\$ 166,400
Cost/sf	\$ 206	\$ 192	\$ 186	\$ 147	\$ 126

High Performance estimates are based on the Glastenbury 7/24/13

Estimates do not include land acquisition, well, or septic

Ramps and Roofs

- Retained grade for ramp
- 1:20 slope – no railings
- Set close to grade - 8" min. Code



Sharon Project
July 22, 2013

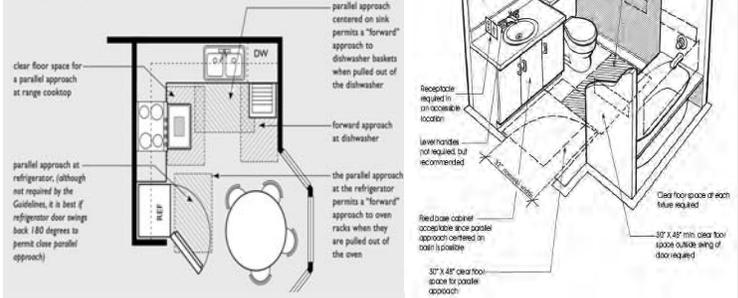
Adaptable: Kitchens and Bathrooms



Lever Handles on Faucets Are Easy for Most People to Operate



Levers



MOVIE



Preferred Building Systems

Constructed over 300 homes throughout New England (NY, VT, NH, ME, MA, RI, & CT)
Extensive work with leaders in energy efficiency

- LEED (Leadership in Energy and Environmental Design)
- Green Building Council (GBC)
- Energy Star
- Efficiency Vermont
- Passive House

Thank you!



2013 Visualizing Density Award Conceptual Neighborhood Category

- Compact, walkable design examples of what good density can look like right here
- Density and Smart Growth principles, saves upfront money:
 - Lower infrastructure costs and lower land costs
 - Lower operational costs for both the owner and the town
 - Typically more revenue than a traditional development
 - Benefits include a healthier population, more opportunities for social connections, and economic vitality



The next chapter of the story

- We hadn't thought ahead so people rebuilt – in many cases right back in harm's way
- We can build stronger, more energy efficient, affordable housing
- If we – rightly- don't put homes back, we need to find new places to put housing
- How will that tradeoff happen between ag lands, floodplains, steep slopes, wetlands etc?

