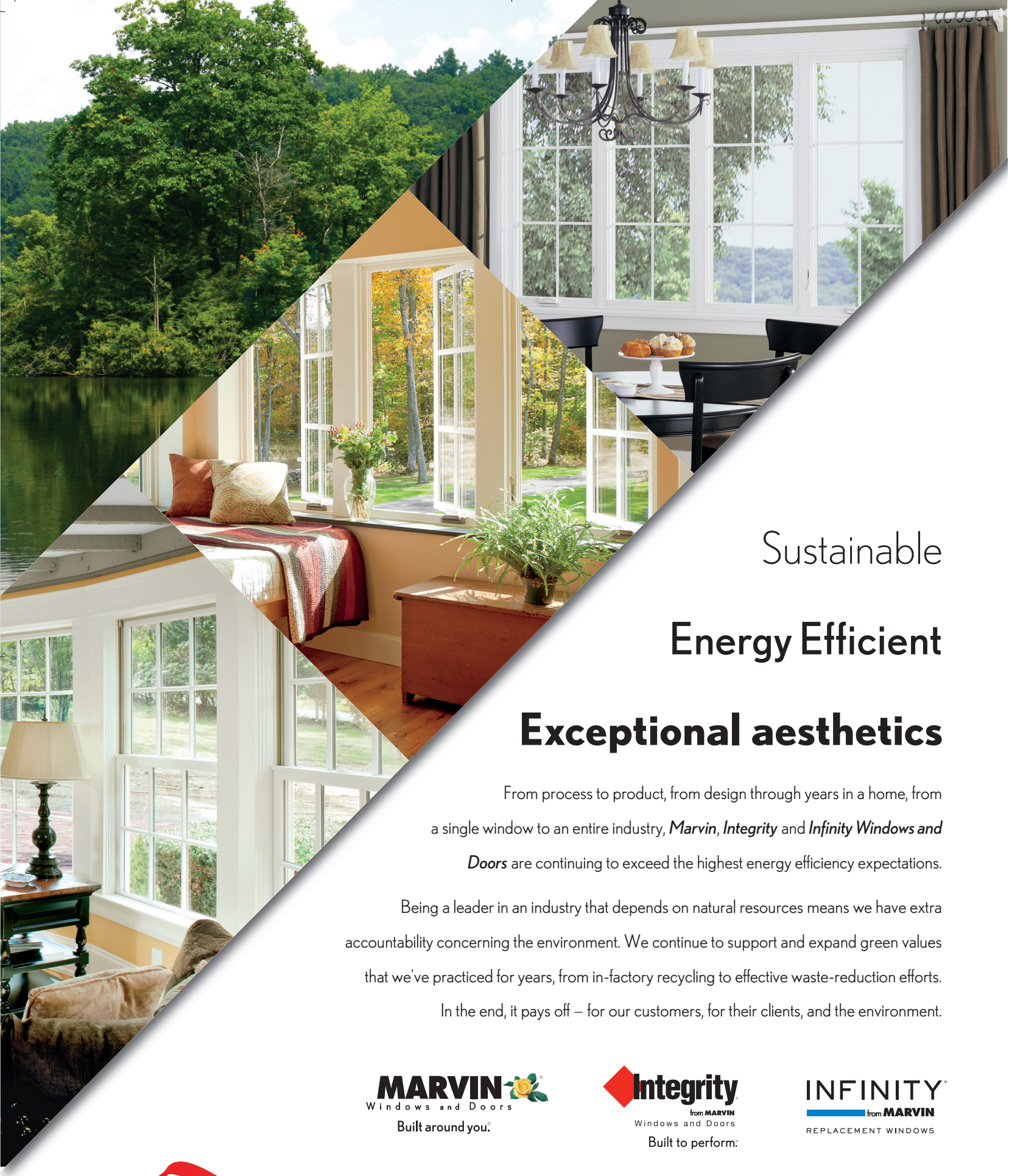
vol. 30, no. 2 | fall 2011

NORTHEASTSUN

THE MAGAZINE OF THE NORTHEAST SUSTAINABLE ENERGY ASSOCIATION

2011 Sustainable Green Pages Directory Inside



Sustainable

Energy Efficient

Exceptional aesthetics

From process to product, from design through years in a home, from a single window to an entire industry, ***Marvin***, ***Integrity*** and ***Infinity Windows and Doors*** are continuing to exceed the highest energy efficiency expectations.

Being a leader in an industry that depends on natural resources means we have extra accountability concerning the environment. We continue to support and expand green values that we've practiced for years, from in-factory recycling to effective waste-reduction efforts. In the end, it pays off – for our customers, for their clients, and the environment.

MARVIN Windows and Doors
Built around you.®

Integrity from MARVIN Windows and Doors
Built to perform.®

INFINITY from MARVIN
REPLACEMENT WINDOWS

Call **800.394.8800** to request a **FREE USB** band loaded with case studies on projects ranging from ***Green*** to ***New Construction*** to ***Commercial***.

Pinnacle Window Solutions

Solar Barn | Photograph by Trent Bell
Designed and constructed by Caleb Johnson Architects

SERIOUS MATERIALS

PINNACLE
pin • na • cle \`pi-ni-kuhl (noun)
1. an upright architectural member generally ending in small spire and used especially in Gothic construction to give weight especially to a buttress
2. the highest point of achievement

Pinnacle Window Solutions is a Maine-based window distributor specializing in high-performance and locally made products. We work with both architects and clients throughout New England to provide custom, energy-efficient windows and doors for every application—from traditional to modern, residential to commercial.

FOCUSED ON HIGH-PERFORMING AND LOCALLY MADE PRODUCTS

82 LITCHFIELD RD | HALLOWELL
207.588.6590
PINNACLEWINDOWSOLUTIONS.NET

High tilt angles.

Low ballast weights.

Two of the many reasons why SolarDock is the best racking system for the Northeast.

Call today to learn all of the reasons you should use SolarDock.

Contact Dan O'Brien at:

dobrien@solardock.com

(302) 225-8703

vol. 30, no. 2 | fall 2011

NORTHEAST**SUN**





From the Executive Director 5
Turning goals into reality

Editorial: Building NESEA 7
How can NESEA reach more people?
By James Petersen

Zero Net Energy Building Award 9
Five projects up the ante on sustainability in the Northeast
By Hope Strode

Green Buildings Open House 2011 15
This year, a bigger, more diverse, and even more inspiring GBOH
By Sally Pick

Embracing the Triple Bottom Line 22
Babson College moves sustainability to its core
By Dallase Scott

How Did We Do? Monitoring House Performance 26
An innovative Massachusetts house is built for living—and learning
By Allison Page and Ruth von Goeler

An Accidential Introduction to Whole Systems Thinking 32
Conversations from around the WSiA Campfire
By Mitch Anthony

Facilitating Wind Energy Siting: A List of Dos and Don'ts 36
The Consensus Building Institute gathers the experts and collects their advice
By Lawrence E. Susskind and Patrick Field

Good-bye, K–12 39
Moving forward, NESEA leaves its education programs behind
By Jennifer Marrapese

Book reviews 41
Worth your time: Doug McKenzie-Mohr demystifies sustainable behavior, Larry Waits aces solar basics

2011 Sustainable Green Pages 49

On the cover
Putney, VT: the Putney School's new zero net energy field house. Zero net energy was not only the energy-efficient choice, but also the cost-efficient one. Story starts on page 9.

About NESEA and the *Northeast Sun*
The Northeast Sustainable Energy Association (NESEA) is the region's leading organization of professionals working in sustainable energy, whole systems thinking, and clean technology. We advance the adoption of sustainable energy in the built environment through this magazine (distributed to NESEA members), our annual BuildingEnergy conference and trade show, professional workshops, our annual Green Buildings Open House, and more. A *Northeast Sun* subscription is $55/year, which includes NESEA membership.

SECURE THE ENERGY FUTURE OF YOUR HOME

Sustainable sources of energy are now more affordable than ever for the average homeowner. With many options on the market, combined with the rebates and incentives available, there is a system for every budget. Sandri Energy strives to be the energy company of the future, offering traditional Home Comfort Solutions, as well as, **Solar Options, Geothermal Systems, High-Efficiency Wood Pellet Boilers, and Premium Pellet Fuel.** We want to help you make a choice that meets your needs!

Solar Hot Water Systems

- **Significant reduction in energy bill & carbon footprint**
- **Can offset 60-70% of total hot water usage**

Wood Pellet Boiler Systems

- **Pellet fuel is an abundant, local and sustainable fuel source**
- **Pellet boilers have comparable or better efficiency than an oil boiler**

Geothermal Systems

- **Geothermal systems use 25-50% less electricity than conventional heating or cooling systems**
- **Few moving parts, making for a reliable and durable system that can heat and cool your home throughout the year**

Sandri

400 CHAPMAN ST, GREENFIELD, MA
800.628.1900 or 413.772.2121
WWW.SANDRI.COM

Visit Us October 1 for NESEA'S Green Building Open House. See Our 49kw PV Array & Our OkoFEN Wood Pellet Boiler and Solar Thermal System!

Publisher and Editor in Chief
Jennifer Marrapese

Editorial Committee
Mary Biddle
Joel Gordes
Jo Lee
Jennifer Marrapese

Editors
Laura MacKay
Mitch Anthony

Copy Editor
Laura MacKay

Design
Susan Lapointe

Advertising
Jenny Spencer

Contributing Photographer
Matthew Cavanaugh

NESEA Staff
Mary Biddle
Taryn Harriman
Rayna Heldt
Jennifer Marrapese
Travis Niles
Janet Nokes
Michelle Rose
Jennifer Spencer
Jessica Van Steensburg

Northeast Sustainable Energy Association
50 Miles Street, Greenfield, MA 01301
413-774-6051 (ph), 413-774-6053 (f)
www.nesea.org

Printed on recycled paper
using soy-based inks.

Turning Goals into Reality

Planning becomes action

As I write this letter, a little more than a year has passed since NESEA's board of directors approved our 2010 strategic plan. We set several goals in that plan, including:

- Identify like-minded organizations (in some instances, competitors) and collaborate with them to further our respective missions

- Integrate all of our programs more completely and set metrics for each program to gauge how well it is delivering on NESEA's mission to advance the adoption of sustainable energy practices in the built environment

- Review the role of membership and chapters in meeting our mission

We have done all of these things and more:

- We welcomed dozens of emerging professionals into our community. At least five of them landed jobs as a direct result of their involvement with NESEA, and several joined our BuildingEnergy planning committee, and our community.

- We collaborated with the German Consulate and the Upper Austria Trade Commission to bring BE conference attendees cutting-edge products and information from Europe. This relationship will continue to provide our attendees with information on emerging technologies and practice in the coming years.

- The Boston Society of Architects invited us to deliver a track of seminars at their Build Boston conference in November. It's a great opportunity for us to get the good work of the NESEA community in front of a broader, more mainstream audience, and for that audience, which is clamoring for more information on sustainability, to sample some very high-quality sessions.

- We discovered a few new ideas that are part of our emerging brand. Like vetting data through what is becoming known as "the NESEA smackdown"—an opportunity for members of our community to give each other unvarnished feedback on the ideas being presented and the conclusions being drawn.

- We achieved new clarity with respect to our programs.

Newfound clarity brings program changes

Regarding that newfound clarity, in some instances, it has spurred us to expand to serve new sectors. For example, we are creating new BE tracks to serve the health care and higher education communities. And we are adding more commercial buildings to our Green Buildings Open House tour to ensure that peer-to-peer conversations aren't limited to residential customers. In other instances, this clarity has led to the elimination of programs—our K-12 programs, for example (see page 39). Although these programs provided excellent tools and

continued on page 45

Editorial: Building NESEA

By James Petersen

There was a specific day many years ago when I discovered that I was a whole-systems thinker. I was attending a boiler training sponsored by a boiler manufacturer. I had been hoping to learn a thing or two about boilers, but I had also braced myself to be bored. I had quite a different experience.

It was not that I discovered a love of boilers on that day (or since). Rather, I was struck that the boiler manufacturer did not talk about boilers alone. He presented case studies in which he had investigated whole heating systems, made upgrades, and analyzed the energy use improvements. He sparked in me clarity as to the job of a mechanical engineer: to focus on the whole building, not just the mechanical system. A broader understanding of one's responsibility is necessary if sustainability is to be achieved. Values crystallized, I soon delighted in my discovery of the BuildingEnergy conference and NESEA.

For more than 35 years, NESEA, through BE and other programs, has provided a platform for cross-disciplinary education and for connecting building energy practitioners committed to sustainability. Even in challenging economic times, BE and the Green Buildings Open House have remained strong. NESEA has earned a reputation for delivering quality content toward its mission of advancing sustainable energy practices in the built environment. To advance our mission, we now we must find the best way to leverage the goodwill we've accumulated.

I recently had the honor of representing NESEA on a four-day visit to Hamburg, Germany—part of NESEA's growing international sharing of ideas. Our delegation was treated to an overview of the European Green Capital 2011, its sustainability accomplishments, and its audacious plans for the future. During a conversation with an architect, a structural engineer, and a mechanical engineer, I wondered whether I was meeting only Hamburg's sustainability champions. The really good Hamburgers (as people from Hamburg call themselves—my kids simply can't believe it). Was there a mainstream of holdouts? The answer was that building codes had become much more stringent over the last 15 years, essentially forcing practitioners to produce more sustainable processes and results. Also, the cost of energy is high in Germany, which likely encouraged higher standards.

There are differences between Hamburg and the Northeast that make promoting sustainability more challenging here. For now at least, our sustainability champions are a self-selecting bunch. And NESEA needs to reach every individual who is inclined to self-select. Here's how we do it:

1. NESEA needs to make more practitioners aware of its existence. You can help by getting the word out to coworkers and colleagues. Let them know that NESEA is a welcoming organization, a great way to learn, and a great way to meet new colleagues and collaborators.

2. NESEA needs to maintain high-quality content that practitioners can incorporate immediately. Consider being on the BE planning committee, submitting a presentation, or making your building a part of the Green Buildings Open House. The GBOH is not just about single-family homes anymore, and we will be linking it more closely to BE.

3. NESEA needs to reach more practitioners working in more sectors. BE12 is targeting campuses and health care sectors in addition to single and multifamily buildings. Please do what you can do to help link NESEA and underserved sectors.

4. NESEA needs you! NESEA is proud of the influence it has had, but to increase our influence, we need your energy, your talents, and of course your financial support.

Whether you are already involved in NESEA (thank you) or ready to become involved, please do not hesitate to contact me with questions and ideas.

James Petersen
Chair, NESEA Board of Directors
james@petersenengineering.com

James Petersen is a mechanical engineer and the founder of Petersen Engineering (www.petersenengineering.com). All of his firm's projects reflect his commitment to integrated design with a goal of significantly elevating building performance. For the past five years, James has also been a BE educational session track chair.

Zero Net Energy Building Award

Five projects up the ante on sustainability in the Northeast

By Hope Strode

Sustainable design has come to mean many things: LEED, recycled countertops, bicycle racks, energy efficient appliances … But all that is just the tip of the iceberg. Fueled by the research and practice of countless NESEA members, a deeper understanding of the role of energy in sustainability is spurring the industry to raise the bar to "zero net energy."

When NESEA unveiled its Zero Net Energy Building Award—with its $10,000 prize—in 2007, none of the entrants met the rigorous requirements. Besides proving zero net energy use via at least a year of performance data, buildings must demonstrate affordability, replicability, reliability, and comfort. The 2010 applicant pool illustrates the strides being made. Each of the five entrants here—a Quaker social hall, two new houses, a residential deep energy retrofit, and a recreational field house—have demonstrated zero net energy in the unique and challenging Northeast climate.

The Camden Friends' new social hall echoes the refinement and simplicity of the adjacent historic meetinghouse.

Winner
Camden Friends Social Hall

Camden, DE: A new building adjacent to the1805 Camden Friends Meetinghouse.

Vision

Revision Architecture's new social hall at the Camden Friends Meetinghouse was intended to serve the administrative and social needs of the congregation while respecting the refinement and simplicity of the adjacent historic meetinghouse.

Design

The new social hall is sited to take advantage of passive heating, ventilation, and daylighting. With its small, stepping volumes, it takes a backseat to the existing meetinghouse and also invites daylight in. High clerestory windows bring balanced light into the main gathering space. Operable windows catch the prevailing wind for cooling and ventilation. The catering kitchen and other support spaces occupy the northern edge of the building, and the social hall, the south side. Large glazed openings are concentrated on the south elevation to allow for passive solar gain to the social hall. Supplemental heat, when needed, comes from a closed-loop ground-source heat pump powered by a 12 kW PV array.

Exceeding the predicted energy model in energy reduction, the envelope is detailed to minimize thermal bridging in the walls and roof. An aggressive insulation strategy includes a layer of rigid foam over the insulated 2x6 walls that creates a nearly uninterrupted skin around the exterior. Structural insulated panels (SIPs) used at the roof allow for overhangs that shade windows with minimal thermal bridging.

In the building's first year of operation, the PV array on the south-facing roofs produced almost enough energy to power the entire complex. When left to power only the social hall building, it provides 150 percent of the annual energy usage.

Livermore Residence

Gloucester, MA: An existing 1970s suburban ranch house with extremely poor energy specifications.

Vision

After working in the field of energy efficiency for over 20 years, John Livermore decided it was time to "walk the walk." His house had extremely poor envelope performance. Single-glazed windows, an extremely leaky building envelope (3,400cfm50), and poorly insulated walls, roof, chimney, and foundation contributed to approximately 9.4 tons of carbon emissions annually.

Understanding the urgency of reducing carbon emissions by 2030, Livermore began a deep energy retrofit (DER) of his home. It was a way to take responsibility for his own family's carbon footprint, and also to demonstrate how existing houses in our neighborhoods can be improved on a budget of $50,000.

Design

Livermore and energy engineer Marc Rosenbaum modeled the existing house using REM/Rate software. They discussed several scenarios for building envelope and systems, eventually settling on the Larson truss approach to minimize thermal bridging and allow for 5 inches of closed-cell foam (R-30) over the exterior walls. The attic was insulated with cellulose to achieve R-76, plus a radiant barrier to reduce summer heat gain. They wrapped the chimney in Roxul mineral wool to achieve R-10 and insulated the basement walls and slab using rigid insulation. Windows are triple-pane, low-E, argon insulated fiberglass. Air leakage before the DER was 3,400cfm50, and after, just 500cfm50.

A 4.3 kW photovoltaic system produces 186 percent of the home's electricity needs, and a small Danish woodstove heats the house. The carbon emissions generated by burning wood are offset by the overproduction of the PV system. Electricity demands are reduced with energy-efficient lighting and appliances, programmable exhaust fans, and a three-panel solar hot water system that provides 70 percent of the family's hot water needs.

Livermore and Rosenbaum reduced the home's carbon footprint by 100 percent—and did it in a way that is affordable and replicable for the average suburban home owner.

The blower-door setup at the Livermore home.

The Moomaw house, west elevation.

Moomaw Residence

Williamstown, MA: A new 2,200-square-foot residence with a 460-square-foot guesthouse on a 14-acre site comprising woods and fields.

Vision

When the Moomaws hired Bruce Coldham of Coldham and Hartman Architects in Amherst, MA, they brought to the table a vision of a house that would tread lightly on the earth, be highly energy-efficient, and respect the 19th-century agrarian vernacular.

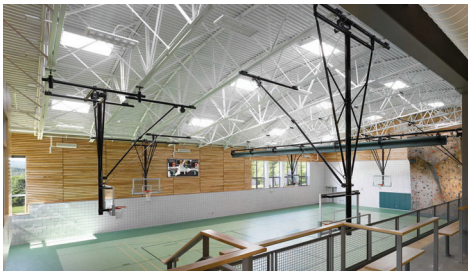
Design

The Moomaws wanted an elegant, livable house that provided live/work space and could accommodate numerous visitors throughout the year. Coldham proposed separating the main living space and the guest space to reduce heating demands. The resulting guesthouse runs at lower temperatures during the winter months when it is not

in use, while providing more privacy to visiting friends and family. A woodstove quickly brings it up to temperature when guests arrive.

The building envelope starts with a Larson truss system with cellulose insulation, which resulted in R-43 walls. The roof is R-43 to R-60 cellulose and foil-faced rigid insulation. Windows are triple-pane, low-E argon with high solar heat gain except on the north facade, and doors are tight triple-locking fiberglass (R-7).

The house is optimally sited for passive solar gain, with more than 50 percent of the window area on the south facade. Windows are placed on at least two sides of every room for balanced daylighting and also have overhangs sized to minimize solar gain during the summer. The house is passively ventilated and has no air-conditioning. A 2.8-ton ground-source heat pump captures heat through 1,350 feet of horizontal loops; heat is distributed through radiant floors. A powerpipe system captures heat from shower drain water to preheat incoming water. A 7.3 kW PV system provides 100 percent of energy needs.



Clockwise from left: The Moomaw's stairwell; in the Putney School field house, plenty of daylight for yoga; triple-glazed skylights bring daylight into the gym.

Putney Field House

Putney, VT: A new 17,500-square-foot field house and central gathering space for students of Putney School, whose campus is a collection of academic buildings on a working 500-acre farm.

Vision

The Putney School came to William Maclay of Maclay Architects with an aggressive vision for sustainability in a new field house that would support the school's sports programs. The design team responded by modeling five options—a base model, a high-performance model, a microload model, a carbon-neutral building, and a zero net energy model.

Construction costs ranged from $3.5 million for the base model to $5 million for the net zero model, with annual operating costs from $22,500 to $1,200, respectively. Consistent with the sustainability goals of the school, the net-zero option won: the up-front investments in the superinsulated envelope, superior energy systems, and renewable energy would provide a dependable, low-cost operating model.

Design

The field house includes a gym, rock-climbing wall, and ski-waxing room. In the gathering spaces above are locker rooms, flex space used for wellness and conditioning, and bleachers overlooking the gym. Clerestory windows bring balanced daylight to the gym space, and triple-glazed skylight monitors enhance the distribution of daylight. Operable high and low windows allow for cross-ventilation of the gym and support spaces.

Careful installation of the superinsulated building envelope and extensive air sealing led to the low tested air leakage rate of 1,625cfm50. The 17 inches of dense-pack cellulose insulation in a double-stud wall contribute to R-45 above-grade walls and minimize thermal bridging. Triple-glazed windows, R-20 insulation at the foundation walls and slab, and an R-60 roof reduce the heating load.

The design team considered ground-source and air-source mechanical systems. With cost as the determining factor, they selected the air-source heat pump system. An energy-recovery ventilator and variable-volume ventilation systems provide ventilation to the gym. And 100 percent of the energy use is offset by 36.8 kW of solar tracking collectors, installed in a nearby field.

Shepler Residence

New Paltz, NY: A new 3,000-square-foot, three-story private residence. It's the first residence in Green Acres (www.greenacresnewpaltz.com), a planned 25-home zero net energy community by Greenhill Contracting.

Vision

After 10 years in the industry, builder and developer Anthony Aebi went on a family vacation to Switzerland and returned with a desire to eradicate the "throwaway" construction practices commonly seen here. He wanted to find a more durable (centuries, not

decades), affordable, and efficient alternative. Today, he is committed to zero net energy. Of the seven houses he's completed at Green Acres, five are occupied and on their way to net zero.

Design

The success of the Shepler residence as a zero net energy home comes from its balance of livability, off-the-shelf building techniques and systems, and cost. The well-insulated envelope and tight air sealing reduce the load on the systems. A closed-loop ground-source heat pump provides heating and cooling, and a 10 kW PV array on the roof generates electricity. Even with high-end comfort features, Green Acres' zero net energy homes are being built at an average of $147/square foot.

Careful attention was given to the envelope to ensure durability and ease of construction, making this house a model for other builders. The walls are insulated concrete form (ICF), achieving an R-21 and exceptional air sealing. The slab is insulated from the ground with two layers of rigid insulation (R-20), and the roof has 14 inches of open-cell foam. Triple-glazed, krypton-filled windows are placed to allow for winter solar gain.

The house was designed for an 8 kW PV system, but David Shepler installed a 10 kW system to provide power for a future plug-in electric vehicle.

The Shepler residence is the first of 25 planned for Green Acres, a zero net energy community in New Paltz, NY. The home's 10 kW PV system provides enough power for both household needs and a future plug-in electric vehicle. Triple-glazed, krypton-filled windows are placed for solar gain in winter.

Hope Strode is an associate at Maryann Thompson Architects in Cambridge, MA, and a member of NESEA's board of directors. She was a member of the 2011 Zero Net Energy Building Award advisory committee.

Green Buildings Open House 2011

This year, a bigger, more diverse, and even more inspiring GBOH

By Sally Pick

On Saturday, October 1, more than 500 green homes and businesses in the Northeast will open their doors to visitors to share what they've learned and inspire others to follow their lead. This year's tour includes more locations that have undergone deep energy retrofits, are built to be net zero energy users, or have achieved LEED standards. You'll also find more commercial, educational, and multifamily residential properties in the lineup. Here's a sneak preview of just three of the inspiring buildings that are moving our communities toward sustainability (see one more on page 26). Go to www.nesea.org/greenbuildings for more information and to plan your own Green Buildings Open House tour.

After DER: During a renovation to add space, the owners of this Quincy, MA, house took advantage of National Grid's deep energy retrofit pilot program to radically reduce their energy consumption. Turn the page for "before."

Quincy, MA

A Deep Energy Retrofit Transforms a 1903 Bungalow

For architect Henry MacLean, principal of Timeless Architecture, designing an expansion and deep energy retrofit (DER) of a Quincy, MA, home was an opportunity to apply his expertise in energy efficiency and renewable energy. There was plenty of room for improvement to the 1903 bungalow, and improve he did: the renovated home is far more comfortable and will use 85 percent less fossil fuel than average.

When the owners initiated a renovation to add space for their family of five, they had not planned extensive energy improvements. However, MacLean learned of National Grid's DER pilot program, which seeks to improve energy use by 50 percent compared to a code-built house, and shared the concepts with them.

> The renovated home will use 85 percent less fossil fuel than the average home of its size in the region.

They decided to move forward, says one of the owners, "due in equal parts to the DER financial assistance given, the fact that it was an ideal time since we had new construction underway, and it would make the home efficient for the foreseeable future, attractive as we look toward our later years."

While tapping National Grid's maximum DER incentive of $42,000 for homes over 2,500 square feet (this one is 3,560 square feet), the owners are also participating in Affordable Comfort Inc.'s (ACI) North American Thousand Home Challenge, which provides an additional $10,000 if the home demonstrates 70 to 90 percent reductions in energy use through retrofits. For this house, ACI set a threshold of 11,000 kWh per year of total energy use, requiring a year of energy monitoring to validate actual consumption (including gas and electricity for heating, cooling, hot water, and other energy demands,

Architect/project coordinator: Henry P. MacLean, Principal, AIA, LEED AP, Timeless Architecture

Builder: Grifcon Contracting

DER and energy consultants: Building Science Corporation and Drew Gillett, PE

Energy monitoring: PowerHouse Dynamics and Solar Wave Energy Inc.

Before DER: This 1903 bungalow offered plenty of room for improvements. See "after" on page 15.

with credit given for energy generated by photovoltaics and solar hot water). A typical Boston-area home of this size uses roughly 73,000 kWh per year. Assuming that the house meets its annual usage as projected by energy modeling, it will use 85 percent less fossil fuel than the average home of its size in this region.

Building Science Corporation, which, along with the US Department of Energy's Building America Program, has a technical partnership with National Grid, provided energy consulting. It kept the project on track with the energy efficiency guidelines spelled out by National Grid. Most of the builders and contractors for this project had minimal experience with green building. While training was necessary, says McLean, what was most important was to have builders who were willing to learn and "committed to quality control."

The project added square footage within the footprint of the original bungalow, expanding 34 percent (50 percent is the limit with this DER program) to include a new second floor, an attic for home office space, and a renovated basement. The second floor was previously a dormitory-style attic bedroom for the children; the renovated house has five bedrooms.

The insulation meets National Grid's targeted R-values for DERs: roof R-60, above-grade walls R-40, below-grade walls R-20, and basement flooring R-10. By sealing extensive air leaks, the builders achieved an 85 percent reduction in air-exchange rates. A heat recovery ventilator brings fresh air into this tight home while recycling heat from the stale air before it is exhausted. Triple-glazed windows meet the target, with an R-5 value (0.2 U-factor).

A smart boiler, 96 percent efficient, heats the house, tapping the solar hot water system first before calling for gas for both heat and hot water use. The house has two radiant floor heating loops, one in the basement slab and another on the first floor. The rest of the house is heated with a hydro-air system with water preheated by the boiler and circulated through ducts.

Green Building Highlights

- Roof insulation: 10 inches of Icynene spray foam with 4 inches of rigid polyisocyanurate (polyiso) foam board added to exterior (R-60)
- Above-grade wall insulation: Two layers of 2-inch rigid polyiso foam board with staggered seams added to exterior over 2x4 walls filled with Icynene spray foam (R-40)
- Basement walls: Closed cell Icynene spray foam insulation (R-24)
- Paradigm windows (R-5/U-factor 0.2)
- 96%-efficient Phoenix Evolution boiler that integrates solar radiant heating and an air-handling system
- Carrier air-to-air heat pump for air-conditioning and efficient heating during milder weather
- Lifebreath heat recovery ventilator with 88% efficient heat recovery
- Alteris Renewables 6.25 kW PV array
- Velux solar domestic hot water
- Accepted into ACI Thousand Home Challenge to meet maximum, actual energy use goals
- Home Energy Rating System (HERS) score of 26

In the summer, an air-to-air heat pump cools the space using electricity powered by the PV system, and in the spring and fall, it heats the house on cool days, switching back to the more efficient boiler for higher heating demands.

With full southern exposure on the roof, the 6.25 kW PV system provides a great deal of electricity, offsetting much of the home's consumption. The PV and solar hot water systems will cover about 50 percent of the energy use, likely allowing the project to meet the Thousand Home Challenge criteria. To make their large PV system affordable, the owners entered into a power purchase agreement with SunRun. SunRun installed and will maintain the solar panels for an up-front cost of $1,000, while guaranteeing the owners a flat electricity rate of 11 cents/kWh for 20 years. Assuming that half of the energy load is electric, the payback will be less than 18 months.

Despite all the home's bells and whistles, the owners say, "the most remarkable thing is that there is nothing remarkable about our house in everyday use. It's just consistently comfortable."

Buffalo, NY

A Model for Sustainable Urban Revitalization

A net zero home in Buffalo's West Side offers a glimpse of a larger vision coming to fruition within a "green development zone" in this neighborhood—one of the country's most impoverished. Since 2008, the nonprofit People United for Sustainable Housing (PUSH) has been working with community members to plan the redevelopment of a 25-block area, developing a model for sustainable urban revitalization.

Together with the Massachusetts Avenue Project, a nonprofit urban agriculture and youth enterprise organization, PUSH Buffalo is making this green development zone (GDZ) a reality. They are showing what triple-bottom-line urban development looks like, with economic growth, equity, and environmental sustainability interwoven throughout the project. The GDZ features job training in green building techniques for neighborhood youth and unemployed adults, development of affordable green housing, and urban gardening and farming to promote food security.

The PUSH Buffalo project trained locals in green building techniques.

For their vision and the successes to date of this ongoing project, PUSH Buffalo was one of three winners of Ashoka Changemakers' global competition *Sustainable Urban Housing: Collaborating for Liveable and Inclusive Cities.* Among its many accomplishments in the GDZ, PUSH Buffalo has already completed six units of housing with such green features as high insulation, on-demand hot water, and radiant floor heating, and has converted 15 vacant lots into pilot rain and food gardens.

> PUSH Buffalo is showing what triple-bottom-line urban development looks like, with economic growth, equity, and sustainability interwoven throughout.

Within the GDZ, at 10 Winter Street, is the home that (according to computer modeling) will operate as a net zero energy user: a three-bedroom farm-style house built in the 1880s. To retrofit this 1,300-square-foot house, PUSH Buffalo

Owner/general manager: PUSH Buffalo

Architect: Kevin Connors, Eco-Logic Studio

Engineer: Geothermal-Watts Architecture and Engineering

Builder: PUSH Buffalo with subcontractors, in-kind labor, and green-job trainees

is working alongside trainees from the community, subcontractors, and building professionals donating in-kind labor. The Western New York Sustainable Energy Association has already honored PUSH Buffalo for the home's use of energy-efficient building methods and technologies.

PUSH Buffalo views the retrofitted home as a demonstration project and an opportunity to train disadvantaged youth and out-of-work adults in green building skills. In keeping with this goal, people from the neighborhood built 60 to 70 percent of the home. Project manager Clarke Gocker sees this initiative as "part of an ambitious grassroots community organizing project."

To attain net zero, significant energy improvements were made to the building, starting with insulation.The builders blew 4 inches of dense-packed cellulose insulation into the balloon frame walls and installed an additional 3 inches of polyiso board over the studs, achieving an R-value of 30. The attic has loose-fill cellulose, providing an R-value of 50. An Energy Star–qualified standing seam metal roof reflects the sun in the summer, keeping the home cooler on hot days. The appliances also meet Energy Star standards.

A geothermal system with a ground loop buried in the neighboring vacant lot provides the house and basement with radiant-floor heating. Fiberglass batting and a radiant barrier hold the heat in the flooring. Basement walls are insulated with 1-inch expanded polystyrene and fiberglass batting. The rim joists and transitions between both the first and second floor were spray-foamed for insulation and air-sealing purposes.

Once the final touches are in place, PUSH Buffalo will rent the home to income-qualified tenants, likely first recruiting from among their members. They will work with the tenants to develop an energy- and water-use plan. From start to integration into the community's growing green zone, this home showcases sustainable development in its largest sense, adding an affordable home with minimal utility costs, building the home with work from neighbors who receive training in green jobs, and enhancing the community by developing a model for energy-efficient, sustainably powered housing.

Green Building Highlights

- Attic insulation: loose fill cellulose insulation (R-50)
- Wall insulation: dense-packed cellulose with 3 inches polyiso board over studs (R-30)
- Dual-pane Pella windows (U-factor 0.29)
- Geothermal heating with two zones of radiant floor heat
- Energy Star–qualified reflective standing-seam metal roofing
- 4.65 kW PV
- Evacuated-tube solar hot-water system to preheat water, feeding into tankless water heater
- Energy recovery ventilator
- Winner of Ashoka Changemakers' global competition, *Sustainable Urban Housing: Collaborating for Liveable and Inclusive Cities,* for Green Development Zone project.
- Honored for net zero home by Western New York Sustainable Energy Association

Falmouth, ME

A 1970s Solar Home Gets Updated to Net Zero

Home owners Claudia King and Lindsey Tweed appreciated the 1975 passive solar design of their house in Falmouth, ME. But when the sun went down in the winter, the poorly insulated, poorly air-sealed building did not stay warm. The result was an uncomfortable space with high energy bills. Rather than tear down the dated building, they decided to embark on an

The National Grid DER Program Wants You

The National Grid deep energy retrofit program is looking for more participants. Most single and many multifamily residential buildings in Massachusetts and Rhode Island are eligible to apply—National Grid wants to showcase a variety of home types and sizes. The Massachusetts program runs through 2012, while Rhode Island's may end this year. Homes currently in the DER program include a Habitat for Humanity building in Williamstown, MA, and moderate-income veteran housing in Haverhill, MA. For more information, go to www.powerofaction.com/der.

extensive renovation with the goal of achieving zero net energy. Says Richard Lo of Kaplan Thompson Architects, project manager for the retrofit, "The performance of the house was their most important priority; it had to be sustainable as well as beautiful."

Renovating the house instead of tearing it down was of course the sustainable choice, but there were other advantages. The existing footprint of the building, near a pond, was grandfathered, while a new house would have had to comply with current pond setbacks. By leaving the main house in place, the owners were able to keep it close to the pond and open it to water views. They were also able to preserve the post and beam construction and other desirable features. They did move a guesthouse next to the main house, using a portion of the smaller building to replace the garage. The new configuration reduces the combined footprint and improves groundwater flow—water and silt used to pour into the basement after heavy rains. In addition, many materials removed for the renovation were reused, such as slate tile and interior details. The builders also used off-cuts for interior finishes, such as kitchen counters. For the exterior shingles, boards, and porches, the owners sourced locally harvested cedar.

The owners of this Falmouth, ME, home got to net zero while preserving the building's original post and beam construction. See "before" on page 21.

> This retrofit is providing the builders with an important learning experience that they will apply to future jobs.

To get to net zero, King and Tweed are significantly lowering their energy demands with a tightly insulated and air-sealed shell, extremely efficient mechanicals and low-energy LED lights throughout, and large photovoltaic and solar hot-water systems.

The formerly wet, uninsulated basement is now insulated to R-20 using rigid mineral wool insulation outside the existing walls. This type of insulation is impervious to rot and does not absorb moisture, helping to prevent water from entering the basement. Between that and the improved site drainage, the basement is now a conditioned space used for mechanicals.

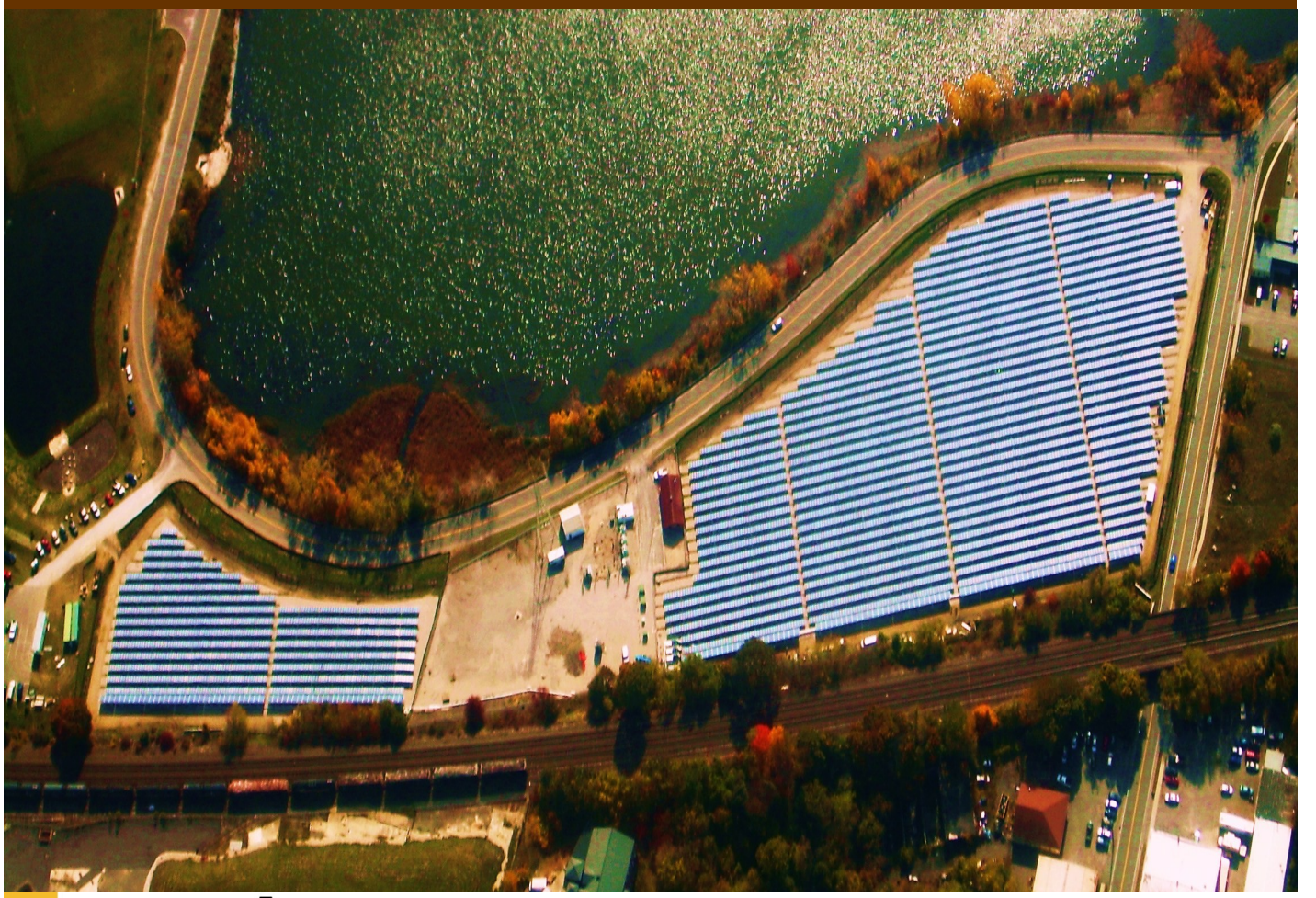
The builders added two layers of 2-inch polyiso foam insulation to the exterior walls, for a total R-value of 40; they offset the joints of the boards both vertically and horizontally for added tightness. The outside polyiso board is manufactured with an attached layer of oriented strand board, which acts as a nail base for the cladding. Preserving the exposed post and beam construction, builders installed polyiso board under the exterior of the roof and dense-packed the cathedral ceiling with cellulose insulation, for a total R-value of 60.

All windows are Serious brand fiberglass windows, which perform better than double-glazed windows. Plastic film is suspended within the

Brownfields Go GREEN

www.americancapitalenergy.com

866-307-5370



AMERICAN CAPITAL ENERGY

We know solar

We design, engineer, build “utility scale” solar projects

……from the ground up!

Owners: Claudia King and Lindsey Tweed

Project manager: Richard Lo, Architectural Designer, Kaplan Thompson Architects

Principal in charge: Phil Kaplan, Principal, AIA, LEED AP, Kaplan Thompson Architects

Builders: Kolbert Construction

Lighting design: Greg Day, DayMatero studio

Landscape design: Ann Kearsley Design

The original home, designed as a passive solar house in 1975, built up heat on sunny winter days only to release it quickly due to poor insulation and air sealing.

glass layers, which allows for three gas cavities. While not technically triple-glazed windows, they offer R-values of 5.9 and 9.1, depending on the window type—as good or better than heavier triple-glazed products.

Because of the post and beam construction, installing air-to-air heat pumps involved some creative thinking. The solution devised is a mini-split heat pump system with one air-to-air heat exchanger outside and five handling units inside to distribute heat throughout the house. There is a woodstove for supplemental heat.

Most of the 7 kWs of photovoltaic panels will sit on the roof of a new tower, which houses mechanical space at the bottom and an office/spare bedroom above. To accommodate PV in several locations on the roof with varied sun exposure, each module is connected to its own microinverter for maximum efficiency (with a single inverter, the output is reduced if there is shading on any of the interconnected modules). King and Tweed have left the large and easily accessible garage roof available for the possible installation of PV to power an electric car.

King and Tweed have also planned a sustainable landscape, which will be installed when the interior finish work and exterior are completed. The land will feature locally grown, native species, a new bio-swale for filtering and controlling storm water runoff, and restored natural groundwater patterns.

This retrofit is providing the builders with an important learning experience that they will apply to future jobs. Dan Kolbert of Kolbert Construction noted that, while they had experience with energy-efficient building, it was their first time taking an existing house

continued on page 45

Embracing the Triple Bottom Line

On campus and in the classroom, Babson College moves sustainability to its core

By Dallase Scott

Babson College, a business school located in Wellesley, MA, is transforming itself into a leader in sustainable operations and the teaching of sustainable business practices. A suburban location creates certain constraints and challenges as the college pursues improvements to campus infrastructure and operations. But Babson's greatest opportunity to advance the cause of sustainability lies in its core mission: educating future business leaders. Babson has brought the triple bottom line—people, profit, planet—into the core of its teaching.

This article takes a look at Babson's progress and examines four key factors in the college's success: strong leadership, strategic facilitation, thoughtful planning, and a willingness to act and experiment.

For RecycleMania, a national college and university recycling competition, Babson students dressed up as sports fans, stationed themselves at the recycling bins, and cheered when people threw things in.

Leadership

In October 2008, just three months into his tenure as president of Babson, Leonard Schlesinger established a new direction for the college by signing the American College and University Presidents Climate Commitment, which committed the college to charting a course to climate neutrality. In May of 2009, the college further demonstrated its commitment to sustainability with the release of Babson Strategy Version 2.1, which emphasizes the integration of sustainable practices and principles into an entrepreneurial education.

Babson took another step in April of 2010, demonstrating its entrepreneurial approach to sustainability by engaging GreenerU Inc. to establish and run a "sustainability office." GreenerU provides sustainability expertise through holistic campus engagement and energy projects, financing assistance, and mechanical and equipment installations.

To better understand its strengths and weaknesses vis-à-vis sustainability, Babson also became a charter member of the American Association of Sustainability in Higher Education's (AASHE) Sustainability Tracking and Rating System (STARS). The college completed the STARS process in January 2011, receiving a STARS Silver rating. The score is serving as a guideline for the new Sustainability Office as it works to increase cross-campus collaboration.

Facilitation

Much of the Sustainability Office team's work has centered on improving campus infrastructure while engaging the people who work, learn, and live in it every day. The team works closely with Babson stakeholders to find optimal solutions for improving the buildings and grounds while reducing deferred maintenance. With the college's Facilities Management Group, it is identifying and implementing improvements geared to reining in energy and water use. It is also collaborating with students, faculty, and staff to craft fun and engaging programs aimed at changing energy, water, and waste behaviors.

The office has also become a one-stop shop for sustainability communication and organizing on campus. The program manager—trained in facilitation, conflict resolution, and behavior change—works with the many

campus organizations interested in sustainability, mentors student groups, and facilitates a group of Babson employees (Babson Eco Leaders) interested in greening their workplace and increasing awareness of the college's commitment to sustainability.

Student engagement is a priority. The office has improved coordination among student environmental groups, especially between the graduate and undergraduate populations. The Babson Eco Reps program runs a 12-hour workshop series that trains students to become effective agents of environmental change. These representatives learn how to educate their peers on environmental issues and encourage them to live in a more eco-friendly way. The goal is to institutionalize sustainability. To that end, the Eco Reps designed a sustainability class for the First Year Seminar (FYS) curriculum that will help new Babson students understand how their behaviors can make a positive impact on campus and in the world. The class was approved by the first-year dean and becomes an official part of the FYS curriculum this fall.

Babson College student Eco Reps have a brainstorming session.

Employee Eco Leaders review ways to green their office and engage their coworkers.

Planning

Before it established the Sustainability Office, GreenerU conducted an energy audit of the entire campus to identify efficiency opportunities. This audit formed much of the core of Babson's Sustainability and Climate Action Plan. This thoughtful, achievable plan sequences the work of improving energy efficiency over several years.

The plan's objectives in the area of commuting and car travel are necessarily modest. Babson will continue to investigate opportunities for reducing greenhouse gas emissions from commuting, but the focus will be on the development of a videoconferencing infrastructure that will reduce the need for travel. Less modest is the objective—bucking the trend of continual growth in the built environment—to actually shrink the campus over time via smart planning and more efficient space use. This goal is now being explored in much greater depth and detail in an ongoing master planning process.

An official "Thinking Green at Babson" T-shirt changes hands at Babson's Sustainability Fair.

Action

Thoughtful planning is valuable only if backed up by action. Babson prides itself on its reputation as a leader in teaching entrepreneurship, and its focus on entrepreneurial thought and action informs all major initiatives, as emphasized by the college motto, "Action trumps everything." Babson has demonstrated a willingness to act and experiment even as plans are being formed, and then to redirect its actions to align with its plans once they are in place.

The college's approach to energy and water efficiency mixes conventional energy efficiency measures such as fluorescent lighting upgrades, variable frequency drives, and high-efficiency boilers with more innovative approaches, including the following:

- ***Occupancy-based control of HVAC systems.*** Babson has taken a step beyond conventional scheduling of HVAC equipment via the building automation system to include

occupancy sensor control of spaces used intermittently, such as classrooms and conference rooms. This significantly reduces fan energy and the energy required to heat and cool ventilation air by better matching use of the HVAC systems to use of the space.

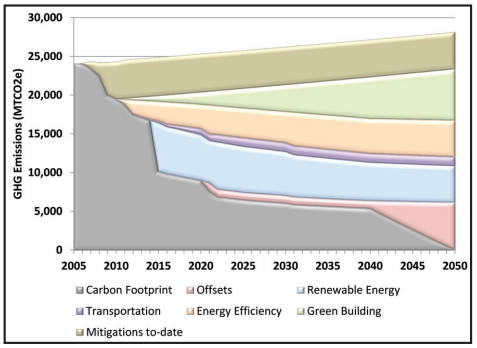
• ***Heat and water recovery from ice at ice rink.*** Like many skating rinks, Babson's used to dump the ice shavings in a pile outside the rink after each resurfacing. Now, an ice recovery pit uses heat from the ice-making chiller's condenser loop to melt the ice—thus cooling the condenser water and reducing cooling tower energy. The melted ice is then used for cooling tower make-up water, further reducing cooling tower energy and water use.

• ***LED lighting.*** Babson has been experimenting with LED lighting for several years and is far ahead of most colleges in implementing this technology. Babson has used LED lighting in classrooms, conference rooms, and outdoors.

GreenerU has been working with Babson to bring process innovation to the delivery of energy efficiency. An example of this is the Babson Executive Conference Center (BECC) project. During the 2010 implementation of a major energy efficiency upgrade to the building, occupants—both managers and hourly workers—took part in a workshop that informed them about the efficiency projects happening in their building and about how they as individuals could create pro-environment change in the workplace. This process yielded constructive ideas from occupants on additional energy efficiency opportunities, as well as feedback on aspects of the new building control sequences that were out of sync with the use of the building. As a result, control sequences were modified. This collaborative process created greater user buy-in to the changes, which in turn should help deliver energy savings from the project.

Babson's Sustainability Fair introduced the college's new Sustainability Office, showcasing the sustainable options and successes of students and local businesses in a fun carnival atmosphere.

Babson's Facilities Management Group has been very willing to innovate, especially with regard to energy efficiency. The college, after all, produces many entrepreneurs who go on to create businesses in the green technology arena. They engaged ThinkLite, a lighting services company started by current Babson undergraduates, to upgrade campus parking deck lighting. ThinkLite identified an opportunity to retrofit 100-watt metal halide fixtures with induction lighting technology. This approach reduced lighting wattage dramatically, provided greater control of the lighting, and reduced maintenance costs—all for significantly less than it would have cost to replace the fixtures with new induction or LED fixtures.



Carbon neutral by 2050: this graph shows how Babson plans get there.

Babson has also engaged with companies that grew out of academic work at Babson. One such company is Skynja, a consumer-demand response company working to reduce electric demand by automating the shifting of computer charging and other time-flexible activities to off-peak times. Another is Down to Earth Waste Solutions. Founded and run by a recent Babson graduate, this early-stage waste recycling and vermicomposting company was recently used as the waste vendor at the popular Babson Energy and Environmental Conference.

This constant drive to improve campus operations has resulted in a more than 13 percent decrease in energy consumption since 2005. Babson is targeting another 14 percent decrease by 2015, through efficiency and behavior-change initiatives.

In many ways it would be easier to invest in smart buildings that turn off all our lights for us, separate our trash and our recyclables, and conserve water without our having to think about it. However, to make the practice of sustainability sustainable, it is imperative to engage the occupants of those buildings. This is especially true when the occupants are business students who are developing habits that will follow them into their lives and careers.

In a short time, Babson has made great strides in establishing itself as a true leader in sustainability. As Babson deepens its focus on sustainability, it is not only reducing waste and emissions from campus operations, but also producing future business leaders with a much stronger emphasis on people, planet, and profit.

Dallase Scott is leading GreenerU's delivery of sustainability services at Babson College, where she serves as sustainability coordinator. She has a diverse background in psychology and urban/environmental planning. Previously, she developed and taught a Tufts University course designed to foster effective environmental activism. As a Peace Corps volunteer, she spent two years in the Caribbean teaching environmental education classes with a focus on behavioral change.

How Did We Do? Monitoring House Performance

An innovative Massachusetts house is built for living and, more important, learning

By Allison Page and Ruth von Goeler

It is an exciting time for green designers and builders—one of invention and innovation. The industry knows more than ever about how to build high-performance, energy-efficient buildings. Yet we need to know more: The higher the performance goals, the more thoroughly we need to understand and integrate interdependent approaches and systems.

So while applying whole systems thinking is an exciting process, it can be confusing and challenging for project developers. Much is changing in the way buildings are built, and there is debate about how best to meet project goals. One thing for certain is that green building innovation constantly provides opportunities for learning through observation, feedback, and adjustment.

This reality is what motivated David Rosenmiller of Riverstone Development to set up robust systems for monitoring the innovative features in a new Williamsburg, MA, house that pushes the envelope on many aspects of green building. It is the first of five to six houses planned for the sustainable neighborhood Riverstone is developing at Two Pond Farm. This first house—which Rosenmiller's family lives in—had to not only meet high energy- and health-performance standards, but also create a doable path for developing future homes. In addition,

This high-performance home sacrificed little in terms of aesthetics, comfort, or usability.

Alvin-San Photography

Riverstone wanted to show that a high-performance home did not have to sacrifice anything in terms of market appeal factors, such as aesthetics, comfort, and usability.

Energy goals and design

The bottom-line energy goal was to create a home whose consumption would be 80 percent below standard for a new house, and that would be comfortable year-round without burning fossil fuels for heating or cooling. Although the usual square footage of a superefficient home would not accommodate all the functional goals—adaptable to single-floor living, space for a future in-law unit, a guest room, and work, studio, and playroom spaces—Sarah Susanka's "not so big" scale would. Could this three-floor, 3,300-square-foot home be kept comfortable year-round without a central heating system?

Riverstone brought in architect Mary Kraus of Kraus Fitch Architects to design the house, and South Mountain Company energy engineer Marc Rosenbaum, PE, to conduct energy modeling. Initial modeling showed that if Riverstone built the envelope

carefully, they could create a house on the desired scale at less than 19,000 Btu per hour peak heating load. That would be low enough to dispense with a central heating and cooling system and rely instead on two small point-source heaters.

Recommendations included these proven strategies:

- Build an airtight infiltration barrier to Passive House standards
- Create a high R-value envelope with minimal thermal bridging
- Provide energy recovery ventilation
- Install solar thermal collectors for DHW and a solar electric array sized to cover the roof and most of the estimated loads
- Heat using a minimum of locally sourced, renewable biomass fuel
- Install seasonally adjustable awnings on south-facing windows to eliminate most of the cooling load and site so western windows are shaded by a grove of trees

In addition, a number of more experimental strategies were undertaken to see if performance could be enhanced, including:

- Use multiple, aesthetically pleasing strategies to integrate thermal mass into the living space, including two innovative ones: over 1,000 "upcycled" water-filled plastic jugs, hung from floor joists and placed on trusses above a slatted ceiling, and a water-filled glass block interior window wall
- Build internal, closeable vents between rooms to maintain thermal comfort throughout with passive air flow
- Provide active heat recirculation using the ventilation ductwork as a backup if needed
- Install exhaust-only summer ventilation for major heat-producing appliances
- Bury a pair of ground-loop pipes around the foundation, connected to a fan coil heat exchanger in the incoming fresh-air duct, to precondition air entering the ERV

By incorporating these recommendations, it was anticipated that the heating load might be met by the equivalent of less than one cord of wood, and the need for cooling eliminated.

Testing and Monitoring

As design proceeded, it became clear that there was not necessarily a way to definitively predict the effectiveness of some of the building strategies.

The glass wall is filled with water in a novel attempt to add thermal mass.

While modeling approximated performance, some key aspects of it could not be addressed with the level of confidence needed. The best way to get some answers seemed to be to build prototypes of some of the innovative components and establish a monitoring scheme. The process of building and occupying the house generated further questions that called for data gathering.

Mike Duclos of DEAP Energy Group has been helpful to Riverstone in designing a monitoring protocol. David Rosenmiller, having a personal interest in improving the operation of this particular house and a business interest in applying its lessons to other homes, is actively involved in the monitoring process. Detailed logs are being kept of all unusual situations and of the various experiments being run. The monitoring plan takes advantage of the fact that the whole house is wired to an Ethernet network (to avoid EMFs, wireless equipment was not used in the house). Most loggers are connected to the network so that data can be viewed graphically in real time, archived on a central computer, and easily downloaded for analysis.

At this point, the house and monitoring system are very new. But here are the questions we're working on answering in six areas, and preliminary results and analyses so far:

1. Passive air circulation

Questions: Will passive air circulation suffice in a house of this size, on three floors, given a sufficiently robust envelope and no central heating system? Will there be sufficient warm-air circulation to provide thermal comfort in exterior rooms when doors need to be closed? Will this comfort be sufficient for the ill, elderly, or infants? How effectively do small point-source heaters, some passive solar gain, and a

Jen Luck, Kraus Fitch Architects

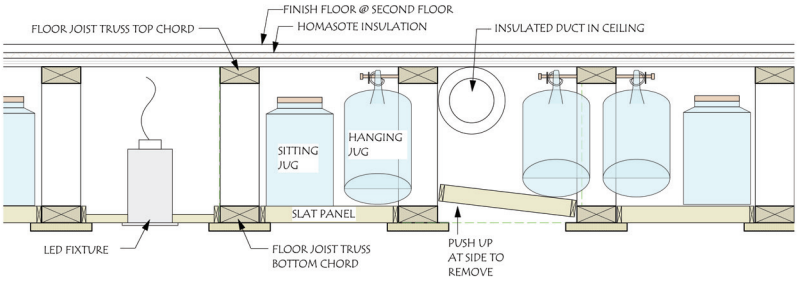
system of passive vents and transoms provide even thermal comfort in a house this size?

To answer these questions, a limited set of Onset Hobo loggers have been deployed to measure temperature and RH throughout the house. In various scenarios, loggers will be moved from one location to another and different sensor inputs applied based on the season. For instance, loggers will be installed in rooms with heat sources or solar gain, and in cold north-side ones to test for distribution in the winter.

Early data show that under non-optimal operation, winter overnight bedroom and bathroom temperatures were maintained at or above 65 degrees (F) by keeping the doors open. Keeping a door open would not necessarily work for everyone or in every situation. Vents in the door transoms and a matching low louvered opening beside the doors are being enhanced by widening the louver spacing to increase passive air flow in hopes of maintaining temperatures in these rooms when privacy is needed. In case monitoring shows that to be insufficient, a warm-air recirculation fan within the ventilation system will also be tested to see if it efficiently balances comfort.

Louvers between rooms aid passive air circulation.

A peek behind the ceiling slats.



THERMAL MASS IN CEILING STRUCTURE: CROSS SECTION

Over one thousand "upcycled" gallon jugs were re-purposed to hold water as thermal mass within the ceiling structure. Warm air moves through slatted wooden ceiling panels attached to structural web trusses. The weight of the thermal mass and panels is distributed between the top and bottom chords of the trusses.

The thermal mass absorbs heat from the air when the rooms below are warm, and releases the heat when the rooms are cool, reducing temperature fluctuations for a more comfortable indoor environment throughout the year.

Other winter results show that while the pellet stove maintained adequate temperatures throughout the house during nighttime operation, it was not able to raise them in the morning, and it tended to overheat the room it was in. As a result of early monitoring, a deflector will be added to the pellet stove to direct heated air toward a vent between floors.

Diagram by Kraus Fitch Architects

2. Thermal mass

Question: After installing a good thermal envelope and achieving Passive House–level air infiltration rates, would a fourfold increase in thermal mass in fact reduce the annual heating load an additional 60 percent, as modeled?

That's a 6.4 kW PV array on the roof.

Modeling illustrated how effective thermal mass would be in reaching project goals: assuming a supertight, superinsulated envelope, increasing the mass from a standard 7,500 Btu/F to nearly 30,000 Btu/F would reduce the annual heating load by 60 percent. It is a challenge to separate the impact of added thermal mass from that of the normal thermal mass of the house. Additional detailed modeling will likely be needed. Monitoring will focus on the most significant thermal mass: the 1,000-plus water-filled plastic jugs hidden above the slatted ceiling. Using Hobo loggers, the temperature of jugs both near a sunny window and on a more shady side of the house will be tracked to examine how temperatures change over daily cycles relative to those of room air. From this data, calculations will estimate the total Btu's absorbed and released and how efficiently this thermal mass is regulating room air temperatures.

3. Ground loop pump

Questions: Will a newly minted fan coil heat exchanger (designed and built by Conservation Technologies) connected to glycol-filled ground loop pipes be successful in preconditioning air entering the ERV? Will it improve comfort in summer by reducing the incoming fresh-air temperature and humidity, and in winter by raising the temperature of air going into the ERV, sufficiently that subsequent ventilation air feels comfortable? Can it help eliminate the need for preheating air into the ERV at low ambient temperatures and improve the efficiency of the ventilation system?

Sensors connected to an Onset U30 data logger will monitor the temperature of the end of the ground loop pipe, as well as capture the outside air temperature and RH of the outside ventilation air intake, and of the air inside the duct after it leaves the fan coil but before entering the ERV. By showing the differential in these temperatures and RHs, we hope to learn whether this atypical precooling/dehumidification and preheating strategy is effective.

4. Electricity use

Questions: Which appliances and equipment are using the most electricity, and how can settings and use be adjusted to minimize demand?

Household electricity use is difficult to accurately project, because occupants' behavior is hard to predict. Even with detailed research on every new appliance (which in this case are significantly better than Energy Star standards), it is not until occupancy that electricity use can be fully analyzed through monitoring and optimized to reduce the load.

Once total household use, PV production, and net purchase/sale of electricity to the grid are isolated, it will be easier to determine whether a target 80 percent reduction has been met. With early data suggesting that it has not, key circuits and appliances will be monitored for use via a Powerhouse Dynamics eMonitor, which will provide a tremendous amount of data about how much individual appliances and equipment are drawing and about changes needed to reduce this load. Real-time viewing of circuit-by-circuit electrical use provides an additional opportunity for reducing electrical load by potentially changing occupant behavior.

Two layers of polyiso board were added to the exterior of the home, with the seams of each layer of polyiso staggered both vertically and horizontally. The outside polyiso board is manufactured with an OSB nail base.

5. Solar production

Question: How well do the PV panels and solar thermal collectors meet the electrical and domestic hot water loads?

An Ethernet-connected SMA Webbox monitors the PV production, a Resol DL2 monitor captures data from the solar hot water system, and an Onset Silicon Pyranometer measures solar radiation. The data these systems are eliciting will clarify respective solar PV and solar thermal system performance. This technology allowed remote monitoring of an inverter to see whether it was functioning as intended.

6. Indoor air quality

Question: Given the supertight shell, how much will the ERV have to run to maintain appropriate CO_2 and humidity levels?

Jen Luck, Kraus Fitch Architects

Key Green Design Goals

- Target energy consumption—reduction of 80% below standard new home
- Healthy built environment—no toxic materials and low EMFs
- Local and sustainably sourced materials
- Beautiful and durable
- Supports working at home
- Adaptable to aging in place and an in-law apartment

Details

Envelope:

- R-42 walls
- R-66 roof
- R-25 under slab
- Air sealing (caulk, tape, foam)
- Blower-door test plus resealing prior to wall close-in
- R-5.3 triple-glazed, insulated fiberglass windows
- R-5 triple-glazed doors
- 0.61 SHGC = on all south-side glazing
- Awning on south windows for summer
- West windows are shaded by trees

HVAC systems:

- No central heating system
- Point-source heaters = 1 pellet stove and 1 woodstove
- ERV plus ground loop pipes and a heat exchanger to prewarm/precool air
- Warm-air recirculation fan in ventilation system
- Major appliance heat exhaust fan (for summer use)

Solar:

- Passive solar gain: Over 50% of windows on south; glazing = 12% of floor area
- 6.4 kW PV system
- Solar domestic hot water (with electric backup)

Thermal mass:

- Over 1,000 "upcycled" water-filled plastic gallon jugs hidden above a wooden slat ceiling
- Dyed-concrete slab
- Window wall of water-filled glass blocks
- Extra-thick plaster walls to help regulate both temperature and humidity

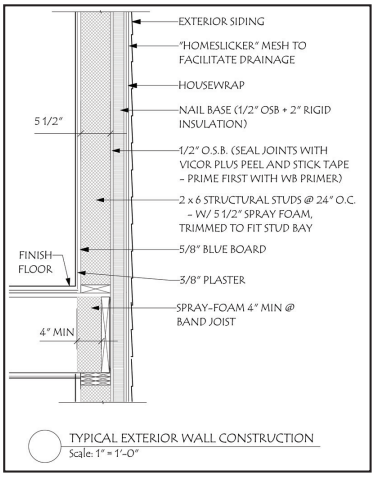
Results

Blower-door test (final) = 342 cfm@50 pascals

HERS rating = 22

Energy Star = Certified

LEED target = Platinum



GBOH

This house and the sustainable neighborhood of Two Pond Farm will be on NESEA's October 1 Green Buildings Open House tour. Owner/developer David Rosenmiller will be on hand to answer questions. Go to www.NESEA.org/greenbuildings to learn more.

A portable CO_2 monitor and Onset Hobo temp/RH data loggers will continue to be used to track CO_2 and RH levels in key rooms. Visual displays on monitors allow occupants to learn how much and when the ERV needs to run. Early indications are that optimal ERV operation—to maintain CO_2 levels below 1,000 ppm in closed, occupied rooms and the kitchen, without using excess electricity—is up to half of the time.

Stay tuned

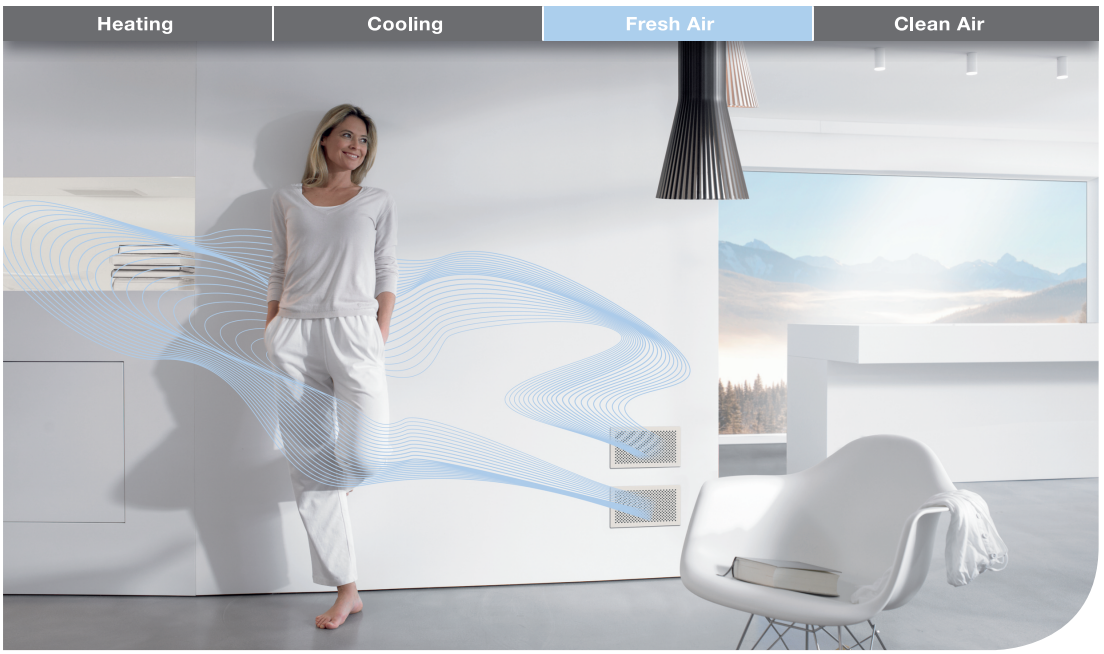
How will the house as lived in perform compared with the house as designed and modeled? Rosenmiller and his family moved into the house in October 2010, but it is still a work in progress. Over the winter, heating required one-third cord of wood and less than a ton of pellets, equivalent to about 22 MBtu's. The actual heat use was 70 percent less than the 75 MBtu's of the base case building from the modeling. While this was slightly more fuel than predicted, it was not adjusted for a colder-than-average winter and a colder actual location than the model accounted for. Moreover, the specified exterior doors and the fan coil heat exchanger had not yet been installed.

Some performance issues have already been identified and are being corrected—repairs made, equipment settings adjusted, and the family's behavior modified. All of which leaves Riverstone confident that the target reduction of 80 percent will be met.

As the house runs through the seasons and results trickle in, further adjustments will be made to optimize its performance. More important, Riverstone will glean new knowledge that will benefit future Two Pond Farm houses and the greater building community.

Allison Page is a green building project wrangler based in Montague, MA. Ruth von Goeler is a sustainable living and building consultant based in Northampton, MA. Both consult with Riverstone Development.

www.letthesunpayyourelectricbill.com



You can't see it. You can't hear it. You just enjoy it.

Comfortable indoor ventilation by Zehnder.

always
around you

zehnder

Zehnder America, Inc • 540 Portsmouth Avenue · Greenland, NH 03840
T (888)778-6701 • www.zehnderamerica.com

An Accidental Introduction to Whole Systems Thinking

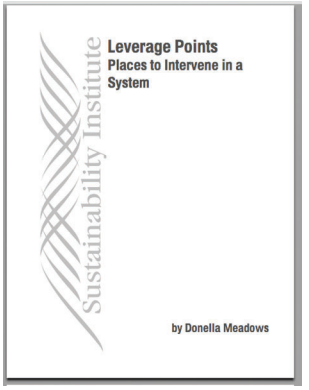
Conversations from around the WSiA campfire

BuildingEnergy's Whole Systems in Action track is different. Every year, each of the BE conference tracks is co-created by a group of volunteer topic experts. Typically, a group comes together for the several months it takes to design and manage a track and then dissolves. Not so for Whole Systems in Action (WSiA). In 2004, the WSiA collaborative came together and stayed together. They have built an outpost beyond the physical and calendar boundaries of BE, growing into a community of practice where NESEA members with larger-scale questions can go to muse.

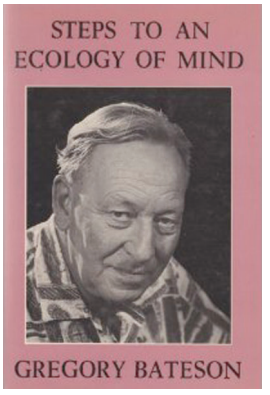
At NESEA's Basecamp account, the WSiA collaborative has an ongoing digital campfire that they've been gathering around for years to share and consider ideas. After the June meeting of the BE12 planning committee in New Haven, CT, Jamie Wolf, a founding collaborative member, started the thread excerpted here. It's a fascinating discussion of the ideas that matter, between old friends and new voices who care deeply about each other and the world we make. It's also a case study of how groups learn.

Rather inadvertently, the discussion yielded a primer on whole systems thinking, one that I thought was worth capturing. Sipping from the fire hose, I have scooped from the thread only the references and resources related to this vital topic. Much more of the thread is posted at the NESEA blog. —Mitch Anthony

From: Jamie Wolf
Date: Thu, 2 Jun, at 7:41pm
I'm back from today's BE12 planning meeting with some provocations ... Are we focusing this track on the questions that are the most significant and meaningful to the community we are engaged to serve? Or are we pursuing our own parochial interests?



Mitch Anthony/Thu, 2 Jun, at 8:55pm
When Paul Eldrenkamp presented some of his ideas about the BE12 workshops, they felt VITAL. Specifically I was struck by his suggestion that we revisit **Donella Meadows's "Leverage Points: Places to Intervene in a System."** He (Paul) made a really compelling yet simple case that these thoughts/ideas have the power to influence virtually everything we do in life, from how we design buildings to how we design our daily activities.



Jamie Wolf/Fri, 3 Jun, at 7:36am
I'm looking at Amelia's recent invitation to more fully explore **Gregory Bateson** too. An introduction to the thinking and guidance of these and other leaders in systems thinking might be a useful point of entry.

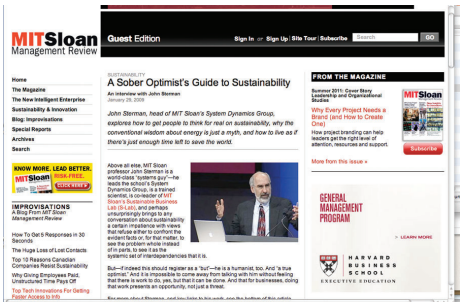
John Abrams/Fri, 3 Jun, at 7:48am
I think one area we should be looking to is "building the new economy" (expanding on the very successful **Chris Martenson** session last year). Every single person at BE is going to be affected by the success, or lack of success, of efforts to march toward an economy built for people. Much of our economic policy is based on gross national product, which gives us tremendously faulty messages.

There is interesting work being done with the genuine progress indicator (GPI) and living wealth indicators by **The New Economy Working Group.** Their website says that their agenda is to

"Advance the transition from growth in GDP as the measure and goal of economic activity to improvements in human, social, and environmental health as the proper measure and goal." This may be a direction to explore which would advance whole systems thinking and have broad appeal at BE.

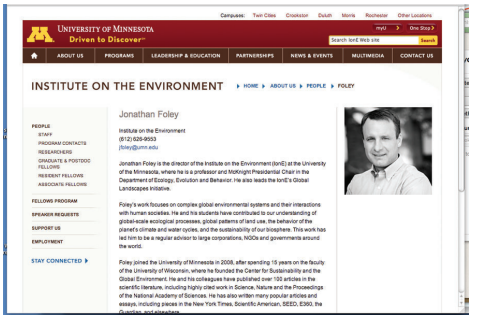
David Foley/Fri, 3 Jun, at 10:37am

To paraphrase Bateson, how do we make the track "a difference that makes a difference"?



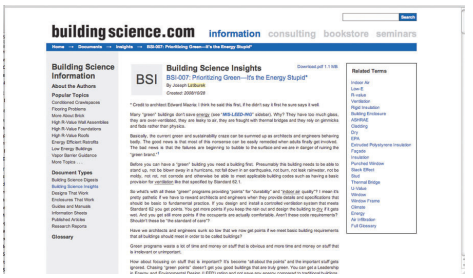
Dana's (Donella's nickname) "Leverage Points" essay really resonates with many people, but I'm not sure all of them grasp its practical implications. She is teaching us how to be more effective. Tweaking parameters is puny, reorienting goals is profound. Buffers add resilience but will be overwhelmed by unchecked exponential growth (reinforcing feedback loops). It's not an essay, it's an instruction manual.

We can USE this stuff. Jamie mentions the fellow from MIT at BuildingEnergy 2004. That was **John Sterman,** head of the Systems Dynamics Group at MIT's Sloan School. We were both students of Dana's, and we've remained dear friends. He puts "big-picture, systems thinking" into practical action every day. He has shown hundreds of companies why their personnel procedures aren't working, why R&D projects always seem to run over schedule, why deferred maintenance is both hardwired into company policy and killing company performance, why suppressing forest fires leads to worse forest fires, and on and on. He has had a significant influence on recent climate-change debate, including being the guy who originated the whole "carbon bathtub" analogy you've likely heard of.

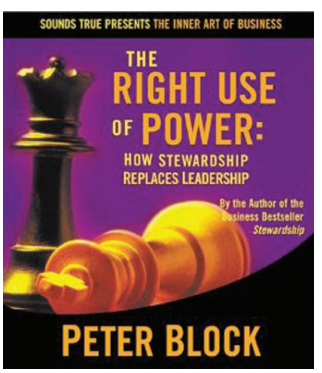


My brother, **Jon Foley,** does similar work. He's an earth-systems scientist and directs the Institute on the Environment at the University of Minnesota. He's actively working to figure out how to feed 9 billion people without trashing the planet. He's also looking at how and which kinds of biofuels do or don't make sense. He's working on large renewable-energy systems (mainly wind) in the Upper Midwest, better cookstoves in developing countries, better mapping of freshwater resources, and a host of other projects. In all this work, he's guided by the kind of whole systems thinking we're championing.

Amelia's friend **Tyler Volk** uses similar thinking to better understand the biogeochemical cycles of the planet, with implications for sustainability. He also searches for the "metapatterns" we can use as a kind of Rosetta Stone to decipher complex systems: borders, sheets, tubes, spheres, arrows, and similar. Interesting academically perhaps, but incredibly cool when we start putting these ideas to practical use.



Although I doubt he'd say so, **Joe Lstiburek** is guided by whole systems thinking. It enables him to understand complex systems and have profound practical impacts. To have a flow, we need a driving force and a path. We need a source and sink. Flow is from hot to cold, wet to dry. Flow will happen if the barrier is not continuous. From that, we can understand ice dams, mold contamination, energy waste, mechanical system failure—all the practical stuff, informed by the big picture stuff. No schism. Whole. Systems. in Action.

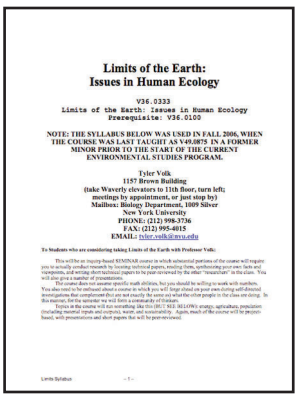


Randy Anway/Fri, 3 Jun, at 2:07pm

If you ask me, it is VITAL to update some of our mental models and to keep them updated. There's a lot going on here, and asking the questions of which ones and how are full of passion and compassion. These are not technical questions; they are ADAPTIVE questions. **Peter Block's** book *The Right Use of Power* touches on some of the issues here.

Amelia Amon/Sun, 5 Jun, at 4:23pm

David, glad you're back. I see Jon Foley was the concluding quote in today's ***NY Times*** **article, "A Warming Planet Struggles to Feed Itself."**



Limits of the Earth:
Issues in Human Ecology

V36.0333
Limits of the Earth: Issues in Human Ecology
Prerequisite: V36.0100

NOTE: THE SYLLABUS BELOW WAS USED IN FALL 2006, WHEN THE COURSE WAS LAST TAUGHT AS V49.0875 IN A FORMER MINOR PRIOR TO THE START OF THE CURRENT ENVIRONMENTAL STUDIES PROGRAM.

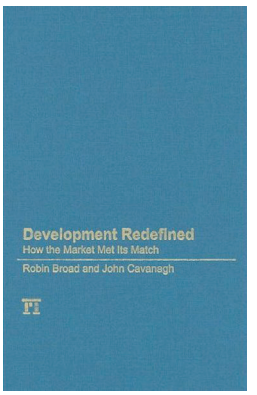
Tyler Volk
1157 Brown Building
(take Waverly elevators to 11th floor, turn left;
meetings by appointment, or just stop by)
Mailbox: Biology Department, 1009 Silver
New York University
PHONE: (212) 998-3736
FAX: (212) 995-4015
EMAIL: tyler.volk@nyu.edu

Tyler Volk would be able to speak along with Jon on 2 possible themes: "Limits to the earth," which he has been developing with his students to envision how the world's projected 10 billion can live at Japanese/European standards (equal or better quality of life than Americans, with less energy use). Tyler is also working on a more comprehensive book on metapatterns, which David mentioned in his post.

John Abrams/Tue, 7 Jun, at 7:45am

I was at the **Slow Living Summit** in Brattleboro VT last weekend. This inspiring and lively gathering was organized in part by Alex and Jerelyn Wilson. I caught most of a session that may be a great fit for WSiA. It was called Visioning Resilient New England: the Economic Future. The two participants were **Terry Mollner of the Trusteeship Institute** and **John Cavanagh of the Institute for Policy Studies.**

Terry is founder, chair, and executive director of Trusteeship Institute Inc. (www.trusteeship.org), a think tank and consulting firm founded in 1973 based on the economic theories of Mahatma Gandhi. It focuses on the development of socially responsible businesses and Gandhi's theory of "trusteeship."



John Cavanagh is the coauthor of 10 books and numerous articles on the global economy, including *Development Redefined: How the Market Met Its Match* (2008, Paradigm Publishers), written with Robin Broad. The Institute for Policy Studies (www.ips-dc.org/) strengthens social movements with independent research, visionary thinking, and links to the grassroots, scholars, and elected officials. They "empower people to build healthy and democratic societies in communities, the U.S., and the world.

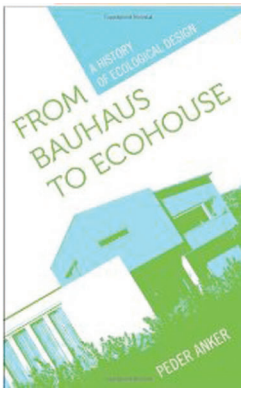
Their session was about the new economy—where it needs to lead and how we can take it there. Terry is all passion and engagement (he's a wonderful guy who's been at this stuff a long time), and John has a deep well of knowledge to share. Said Jerelyn, "I think Terry & John would be a great team to follow up on Chris M & David O at NESEA—very dynamic session, and an excellent combo."

The other session I loved was a presentation by two people from a company called **Carbon Harvest Energy.** I went because Alex told me beforehand that "in 30 years of studying sustainability systems

this is the most exciting thing I've seen anytime, anywhere." Methane is 20–25 times as potent a greenhouse gas as CO_2. It comes from natural gas, from cows, from coal mining, from manure management, and other places. And a lot of it comes from landfills, which is the current domain of Carbon Harvest. In some landfills methane is already used to make electricity (at about 40% efficiency). Carbon Harvest captures the waste heat (bringing the efficiency up to about 80%) and uses it to heat greenhouses where fish are raised aquaponically. The waste from the fish is combined with sunlight in the greenhouses to grow vegetables hydroponically and algae to feed the fish and make biofuels. Almost a closed loop. The work of the New Alchemists in the real world. They are building their first plant currently in Brattleboro VT and have contracts in Lebanon NH, Keene NH, and Sullivan County.

Amelia Amon/Wed, 8 Jun, at 2:04pm

I liked both of John Abrams's ideas, particularly on methane (speaking of cows). I recently saw a presentation on the **Specht Harpman Zerohouse:** www.zerohouse .net. They claim to have an off-the-shelf household anaerobic digester for energy production. Interesting, if not potentially explosive.



Amelia Amon/Thu, 23 Jun, at 12:09pm

I just read ***From Bauhaus to Ecohouse,*** by Peder Anker. Anker documents the Bauhaus designers' interest in science, particularly biology/ecology, & how it influenced their humanist approach to living with nature. He implies that things went wrong when Buckminster Fuller, the *Whole Earth Review,* New Alchemy, & Biosphere 2 took up "cabin ecology" (controlled ecosystems) or "spaceship earth" concepts, taking eco-design out of the realm of mainstream architecture. He's

continued on page 46

Facilitating Wind Energy Siting: A List of Dos and Don'ts

By Lawrence E. Susskind and Patrick Field

The Consensus Building Institute (CBI) and Raab Associates, Ltd., with support from the US Department of Energy, brought together more than 100 wind developers, state regulators, environmentalists, local officials, and technical experts to share ideas about how to site wind energy facilities.

The "Facilitating Wind Energy Siting" workshop, held at Harvard Law School, Cambridge, MA, in March 2011, enabled advocates, opponents, and experts to engage in three days of constructive discussion about the "right way" and the "wrong way" to go about siting wind energy facilities. Recognizing that it can be extremely difficult to win approval to build even a single wind turbine in an unpopulated area, the workshop surfaced a practical list of "dos and don'ts":

Here's what not to do:

• Don't tout the national or global benefits of wind energy when people care about how decisions affect them locally. Greenhouse gas reductions and increased independence from foreign oil sound good in the abstract, but they don't offset adverse local effects.

• Don't surprise people and announce plans to build something without giving everyone in the area a chance to say whether and how a project should be built. It's better to have several siting choices ready to go, rather than just one.

• Don't build wind turbines too close to the nearest abutters. Adequate buffers make for good neighbors.

• Don't tell people that wind farms will be so quiet they won't hear anything. Human perception of noise is a complex and idiosyncratic phenomenon.

• Don't be afraid to talk about the ways in which the profits from a wind energy plant might be shared with the community. Joint ventures are easier to negotiate than hostile takeovers, and some of the public may see land development for energy as the latter.

• Don't presume that 100 percent of the people in an area will accept a proposed wind energy facility just because it meets all federal, state, and local guidelines. Some people don't like change of any kind, regardless of the benefits that might be created. Some might view themselves as particularly adversely affected (a vista disrupted, nighttime sleep disturbed, etc.).

• Don't assume the media will necessarily cover the "whole" story and present all viewpoints. A few angry, upset, media-savvy citizens on a mission can dominate the narrative and drown out a large majority of the silent public.

Here are some things to do:

• Do find a way to involve all the relevant stakeholders in discussions about when, where, and how to build and operate wind plants. Consider using a skilled, neutral facilitator without an agenda to manage these conversations.

• Do consider contingent agreements, for instance, consider an insurance policy to compensate those who live near a proposed facility for any measurable decline in property values caused by the wind development. It is possible to buy "property value insurance" to ensure that no one suffers any losses.

• Do realize that everyone reacts differently to noise and visual impacts. That doesn't mean they are wrong or crazy. It does mean they have different opinions, views, and experiences.

• Do engage in joint fact finding so that all sides have a chance to frame the questions that they want to have answered. Let them help select experts they trust to provide good technical advice. Avoid the "dueling experts syndrome," which will be great for well-paid consultants, but won't necessarily produce credible, trusted information.

•Do realize that hundreds of wind farms have been built across America (and in other parts of the world) and that past experience can be instructive, both in the positive and the negative. One small, failed development can affect the public's view across an entire region.

• Do realize that there are risks and benefits associated with any technology, and that the job of elected and appointed officials is to reduce risk and ensure that benefits are shared, not to gloss over the negative impacts and assert that there are no risks.

• Do encourage states to involve the public in formulating state wind policies. Battles over specific sites and projects do not add up to general

policies about where, when, and how to encourage the construction of wind energy plants. Pre-approval of certain kinds of sites, setback and noise requirements, aesthetic and environmental protection rules, community benefit agreements, and monitoring provisions can help to avoid the need to address each of these questions over and over again at every site.

In our view, the traditional "town meeting" or "hearings" approach to energy facility siting rarely leads to informed agreement. Stakeholders learn little at raucous public meetings other than who is mad, to what degree, and at whom. Local media are often not willing or able to interpret and disseminate critical background information that would allow people to make informed decisions.

To encourage reasoned debate and non-partisan information sharing, communities—citizens, town officials, elected officials, agencies—need to engage in carefully managed problem solving. Professionally facilitated stakeholder engagement, involving professional intermediaries chosen by the stakeholders, ensures an even playing field where such informal problem solving is possible. Robust public engagement should take advantage of all the communication tools of the modern age (the web, Facebook, Twitter, YouTube etc.).

We feel that the **"Facility Siting Credo"** summarizes the best way to ensure a fair, efficient, and wise outcome in wind energy siting. The Credo, prepared by the MIT-Harvard Public Disputes Program, has been carefully tested in hundreds of siting disputes. **"New Models for Consensus Building and Acceleration of Large-Scale Energy Infrastructure Projects,"** co-authored with Jonathan Raab of Raab Associates, describes in greater detail how to apply six principles for using consensus building when siting large-scale energy infrastructure.

Wind siting is certainly hard to do—but it's no harder to do right, than it is to do it wrong.

This article first appeared on the website of the Consensus Building Institute (cbuilding .org/).

Lawrence Susskind founded the Consensus Building Institute, where he is chief knowledge officer. A faculty member at MIT for 35 years, he is the Ford Professor of Urban and Environmental Planning and directs the graduate program in Environmental Policy and Planning.

Patrick Field is managing director of the Consensus Building Institute and associate director of the MIT–Harvard Public Disputes Program. He has helped thousands of stakeholders reach agreement on natural-resource, land-use, water, and air issues.

Good-bye, K-12

Moving forward, NESEA leaves K-12 behind

In April, the NESEA Board of Directors decided to eliminate our K-12 education programs. Although this was a difficult decision, we are confident that it will ultimately make NESEA stronger.

Clockwise from left: Teachers review the concept of convection; students show off their model wind turbines; competitors line up solar cars at the 2011 Northeast Junior Solar Sprint Championship.

Staying on mission

As many of you know, NESEA's mission is to advance the adoption of sustainable energy practices in the built environment. We do this by connecting professionals to each other, to ideas, and to consumers. For many years, there had been confusion about how NESEA's K-12 programs fit within this mission. Certainly, these energy-efficiency and renewable-energy programs educated professionals—teachers—and connected them to each other and to new ideas. Yet despite our best efforts, we never effectively integrated these programs, or their attendees, into the rest of what NESEA does. We could not get educators to join NESEA. We could not persuade educators and our community of practitioners—architects, builders, engineers, contractors, policymakers, investors, and others—to network with each other, to share ideas and information, in order to advance sustainability in the built environment.

In addition, we discovered that much of the work our K-12 department did is being done elsewhere. Most of the states within NESEA's territory followed our early lead in teacher training and launched statewide energy-efficiency education programs. Increasingly, we believe, this landscape will be adequately covered.

None of this is to say that our K-12 programs were anything but excellent. Classroom teachers and nonformal educators have long given our curricular units and our educator workshops rave reviews. We can be proud of the curricula we developed, and of the excellent manner in which our staff and partners delivered it over the years.

— Jennifer Marrapese, executive director

Our curriculum lives on

We are committed to continuing to make NESEA's K-12 resources widely available:

- All NESEA K-12 curricular units and lessons available for free download at EnergyTeachers.org.
- Hitchcock Center for the Environment (www.hitchcockcenter.org), in Amherst, MA, has taken possession of all Energy Thinking for Massachusetts and Solar Sense workshop materials.
- Clean Energy for a Clean Environment program materials and the "Clean Green Power" and "Wind Wisdom" patches are available through the Girl Scouts of Central and Western Massachusetts (www.gscwm.org).
- The Junior Solar Sprint program will continue to be facilitated at the local and state levels. The National Renewable Energy Lab (www.nrel.gov) has a listing of all state and area JSS coordinators and also hosts JSS curriculum materials online.
- Heliotronics (www.heliotronics.com) and Kid Wind (learn.kidwind.org) will house the *Wind Wisdom for School Power ... Naturally* curricular units on their websites.
- X-Prize Fuel Our Future Now will house our original Cars of Tomorrow curricular unit at its website (fuelourfuturenow.com).
- *Wind Wisdom for School Power ... Naturally* curricular units are available for free download at SchoolPowerNaturally.org.

matthewcavanaugh.photoshelter.com/portfolio

A thank-you to our sponsors

Many, many thanks to our K-12 program sponsors. In recent years, they have included the following:

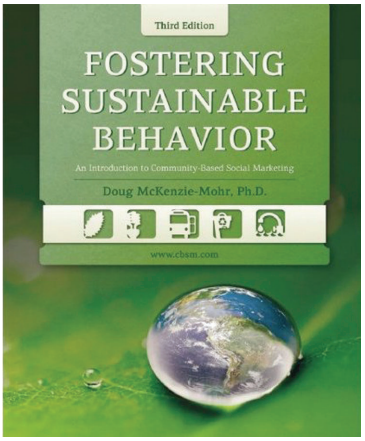
- Western Massachusetts Electric Company, for our Clean Energy for a Clean Environment program
- New York State Energy Research and Development Authority (NYSERDA), for our program *New York Solar Sails: Expansion of Solar and Wind Energy Education for School Power ... Naturally*
- The US Army Educational Outreach Program (AEOP), for our Junior Solar Sprint program and Northeast Regional Championship
- Solar Wave, for our BuildingEnergy Educators' Summit
- The Lydia B. Stokes Foundation, for our K-12 marketing efforts
- Pitsco Education, for providing JSS education kits to teachers at JSS teacher workshops
- Edmund Scientific, Fuel Cell Store, Kid Wind, and Solar Made for donating prizes for the JSS Championship

Thank you, Arianna and Susan

Arianna Grindrod (left) and Susan Reyes at the 2008 JSS Championship.

We extend our heartfelt thanks to Education Director Arianna Grindrod and Science Educator Susan Reyes for their dedication and hard work. Over the last several years, they did a wonderful job of raising NESEA's profile within the K-12 community. We will miss them and hope to collaborate with them again. We hope you enjoy this photographic tribute to them and their fine work.

Clay Turnbull



Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing

Doug McKenzie-Mohr, PhD
New Society Publishers, 2011

By Robert Leaver

This useful and provocative how-to book presents a hands-on curriculum for changing human behavior. While directed at helping people behave more sustainably by reducing their home energy use, it is well worth the time of whole systems/sustainability professionals working at a larger scale. There is gold here for us to extract. Just as NESEA has building science as the foundation, this book has "people science," or sound social psychological research, underneath it. And it effectively uses personal stories—stories do change us.

Getting people to do something new

McKenzie-Mohr, an environmental psychologist, begins by revealing his failure to reduce his own energy use. His behavior fails to change, he says, because two common change practices don't do the job alone: 1) telling people the facts and why it is important to reduce energy use, for example because we have to lower carbon emissions; and 2) citing economic self-interest. He already knew that reducing energy use was important and that he would save money if he did it. As he makes clear, you need more than facts and cost savings to get people to regularly do something new. You need facts and clear economic self-interest *and* an integrated practice for changing behavior. McKenzie-Mohr walks us through what this means for people who live in a house. His framework for individual behavior change is community-based marketing. Here's what works, he says:

- Begin by selecting the specific behaviors you want to change
- Identify the end state of the desired behavior, e.g., install and use a programmable thermostat, not just buy it
- Determine what behavior changes will have the greatest impact
- Identify the specific barriers to and benefits of changing behavior, based on research in the community
- Avoid assumptions and generalizations (in the US, the data say ...)
- Always stay local with your needs assessment and data

McKenzie-Mohr offers a number of practices to include in an integrated community-based social marketing program. Establishing norms, he says, creates a ripple effect in a community. For example, if a household does not put recycling bins on the curb alongside their garbage, the town doesn't pick up their garbage (a standard many communities now use). Also, we will start doing something differently when we see it done that way by someone we trust and respect. And to keep doing the new behavior, we need consistent visual prompts or reinforcements that "pierce the heart" and stay there.

The book is chock-full of tools for changing behavior. Take simple commitment techniques: You create momentum for change by starting with small things, small requests. People actually make a change. Once they are

in motion, it is easier to up the ante and tackle bigger changes.

How does it all apply to us?

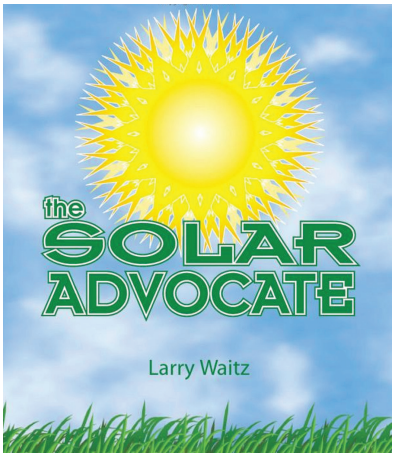
I am left with several questions. As noted earlier, *Fostering Sustainable Behavior* is written for the average person living in a house, not for builders, architects, engineers, and so on. Community-based social marketing requires mounting a campaign to motivate individual residents to learn how to change behavior. How do we as whole systems professionals change our behaviors? Who among us would organize such campaigns among residents? Among professionals? (I found no clear answer in the book as to who mounts one for residents.)

The author is Canadian. Canadians tend to be more community-minded than Americans. Can these methods work in the United States?

Can this framework and toolbox be applied at the scale where NESEA professionals have begun to work, beyond residences (but not abandoning them) to large educational institutions and hospitals? Can they be used to get large-scale developers to build things more sustainably? With planners to effect zoning and code changes? With politicians to effect public policy changes?

To work with whole systems, NESEA must ask and answer the above questions. Let's begin asking and answering these questions together. We could form a community of practice—read the book together and figure out how to apply it to our work. Our task: to craft behavioral change practices for large institutions, developers, planners, and politicians. We would build a toolbox for whole systems behavior change. Who's game? E-mail me at rleaver@newcommons.com.

Community psychologist Robert Leaver works on large-scale, whole systems change in the next economy, and on community building and network shaping. He is the convener, in Pawtucket, RI, of New Commons: Think ... Link ... Do, which guided the development of a 50-year vision plan for the island of Martha's Vineyard, MA. He is also the conference chair for BE12 and a member, for the past five years, of the Whole Systems in Action Collaborative, which creates BE's Whole Systems track.



The Solar Advocate

Larry Waitz
LDW Publishing, 2009

By Joel Gordes

Every once in a great while, a book appears that can be both educational and amusing, maybe even essential. *The Solar Advocate,* an introductory guide to solar power, fits that description. It may even border on whimsical. Not since *The Solar Cat Book,* written by Jim Augustyn in 1979, have I seen solar technology explained in such clear, everyday language that even the least technically adept among us can grasp what might otherwise be some pretty formidable information.

Augustyn used cats to demonstrate all the basic principles of solar energy. Likening their fur to heat traps, he described their natural inclination to lie in the sun to absorb its rays, and then to lie with their owner to "transfur" the stored heat. While Waitz does not depend on the cuteness of our furry friends to get the basic concepts across, his information-laden, 67-chapter book is suitable for anybody from age eight on up (although I may be underestimating what today's precocious youngsters can grasp).

Those who are in architecture and other fields that support sustainable development but who do not have technical expertise in renewable energy will learn enough lingo to sound relatively competent among their engineering brethren/sistren—some of whom can be quite condescending to mere mortals. This book is the great equalizer. I would even go so far as to suggest that policy makers, who can determine where we spend billions of dollars on energy, take advantage of it. Speaking from experience, it would not take much to intimidate the oppositions with what this book contains

In addition to the table of contents, there is a set of subdivisions called "66 Characteristics of Solar Energy," each of which has a two-page explanation not just of the characteristic, but also of details such as "types of solar thermal systems." This adds to the book's value while maintaining its simplicity. The book is also well illustrated. Diagrams, drawings, photographs, tables, and charts cover everything from pertinent astronomy basics to how many

square miles of photovoltaics it would take to power up the whole country. (Answer: just 100. Try out that little fact at your next neighborhood party.) Again, its charm is that it imparts this sometimes complex information without evoking any of the anxiety that the science-adverse among us might normally experience. You almost don't realize you're being educated.

When I got the book, my approach was to read one "characteristic" and one techie fact on the facing page each day and ponder them for a few minutes. I suggest that other readers do the same. This makes the book easily digestible if you have very little time but a desire or need to know more about the subject.

The author has set up a website (www.thesolaradvocate.com) that provides a snapshot of what is in the book. While not interactive at this point, the site could become so. It could also offer updates on technology advances and cost reductions, as well as offer whole new topics without immediately going to a second or third printing.

One such topic that I would like to see: an easy-to-understand explanation of the Renewable Portfolio Standard (RPS), which is in effect in most NESEA states, and of the Renewable Energy Certificates (RECs) that are required to meet those standards. Even at a recent NESEA planning meeting, the majority of people thought one member was for some reason speaking about "wrecks" until it was explained that RECs were commodities sold as a by-product of the generation of kilowatt-hours from renewable energy sources. RECs might become important for funding some future systems on zero net energy buildings. So there is a lot more for *The Solar Advocate* to do in demystifying such arcane but essential knowledge, even for our professional community.

Joel Gordes has been involved in energy efficiency and renewable energy for more than 35 years. He has worked with active systems and passive homes, as well as issues related to energy policy and security. He also serves on the Northeast Sun *editorial board.*

Turning Goals into Reality
from page 5

curriculum to teachers, we were never able to effectively integrate them, or their attendees, into the rest of what NESEA does. Overall, we've received incredibly positive feedback with respect to all of these initiatives. It has been an enormously gratifying year.

Having made all this progress, we can afford the luxury of thinking about how else we can connect professionals to ideas and to each other. A few of the things we're exploring:

- How to take BE on the road so that it's more than just a three-day event in Boston. This may include webinars and in-person learning opportunities.
- Using social media not to market and promote NESEA's activities, but to connect members of our community to each other.
- Transitioning the *Northeast Sun* into a peer-reviewed journal to ensure that all ideas presented in this forum have been reviewed, and in some instances challenged, by at least one recognized industry expert.

We hear you: the website sucks

The one consistent piece of negative feedback I have received over the past year has been about the NESEA website. Specific concerns vary, but the message is clear: from your perspective, the website sucks. I am thrilled to report that we are now in a position to address this. Armed with new clarity about who our members are and what we can do to help support them, we have many ideas about how to improve the site. Among them:

- Create an online forum in which members of our community can share best practices—what works and what doesn't
- Create a more valuable and robust resource library
- Redesign the Sustainable Green Pages to give users better information about the listed practitioners and their credentials
- Celebrate and make more visible the important work that our members, sponsors, and other partners are doing to advance sustainable energy practices

Of course, we want and need your feedback. How do you envision using a website to connect with other NESEA members? What information would you like to be able to access? How can we improve the NESEA website? We will be convening focus groups among our various stakeholders—members, exhibitors, sponsors, conference attendees, and others—to learn more about their needs. Please e-mail me with your thoughts on these questions, or if you'd like to be included in a focus group, at jmarrapese@nesea.org. Alternatively, join the conversation by "liking" NESEA on our Facebook page, or connecting with us on LinkedIn.

— Jennifer J. Marrapese, executive director

Green Buildings Open House 2011
from page 21

to net zero. In the process, he says, "We figured things out that we'll be using in the next five to ten years."

Green Building Highlights

- Wall insulation: 2 layers of 2-inch polyiso rigid foam board placed on exterior walls, with joints offset vertically and horizontally, and cavity of wood framing dense-packed with cellulose (R-40)
- Roof insulation: 2 layers of 2-inch polyiso rigid foam board above roof sheathing and dense-packed cellulose within cathedral ceiling framing (R-60)
- Serious brand fiberglass windows (R-5.9 to R-9.1)
- High-performance Drewexim doors with R-values up to 5.8
- Conergy 7.05 kW PV array
- Fujitsu Halcyon Hybrid Flex mini-split air-to-air heat pump
- Lifebreath heat recovery ventilator
- Designed to meet ACI's Thousand Home Challenge

Sally Pick's consulting firm, SJP Environmental Consulting, LLC, offers a range of services for green building and environmental nonprofits, businesses, and associations, including writing, managing projects and collaborations, and directing community-based public education and outreach initiatives. Sally is a NESEA member and local organizer for NESEA's Green Buildings Open House tour. Her western Massachusetts home, built in 1856, will be on the tour again this year with new energy improvements.

An Accidental Introduction to Whole Systems Thinking
from page 35

a young guy, so has a different perspective than many NESEAites who, well, were there. It might be interesting to have him debate, because I think what really disturbs him about that period was the trumping of science over aesthetics.

To get a feel for his position, Google the article "Buckminster Fuller as Captain of Spaceship Earth."

Systems Thinking: A Personal Manifesto

David Foley/Fri, 3 Jun, at 10:37am

I decided to speak more at NESEA in 2001, after Dana died unexpectedly. So far, here's what I've tried to say:

- There's a very powerful tool called systems thinking that can help us be more effective.
- There's a very powerful tool called Patterns and Pattern Languages that can help us be more effective.
- Process really matters—there's a huge difference between describing an end result and developing processes to generate things.
- We learn what to design and create through observation and diagnosis, using our thinking tools—what to create is what to repair.
- We can use this kind of thinking practically at many scales: how you plan neighborhoods and how I raise chickens.

That's about it. Those are my fulcrums, the points on which I place my levers. But the "whole system" would be fulcrum, lever, object we're trying to shift, and the actual exertion to do so. Problem-solving skills are kind of useless unless they're solving problems, yes?

Get Involved!

Join the NESEA chapter near you

Boston Area Solar Energy Association (BASEA)
Henry K. Vandermark
Tel: 617-242-2150
hkv@solarwave.com
www.basea.org

Cape and Islands Renewable Energy Collaborative (CIRenew)
Liz Argo
Tel: 774-722-1812
argoconsulting1@gmail.com
www.cirenew.org

GreenHome NYC
Steven Lenard
Tel: 917-846-2374
slenard@GreenHomeNYC.org
www.greenhomenyc.org

NESEA New Jersey
Beth Robinson
nesea.nj@gmail.com

Springfield Area Sustainable Energy Association - MA
Mike Kocsmiersky
Tel: 413-883-3144
mikek@spiritsolar.net
www.nesea.org/sasea

Sustainable Delaware
John Mateyko AIA
Tel: 302-645-2657
charitocw@aol.com

University of Mass Lowell Solar Energy Association
John J. Duffy
Tel: 978-934-2968
john_duffy@uml.edu
energy.caeds.eng.uml.edu

NESEA Affiliates:

Building For Social Responsibility (BSR) – VT

Maine Solar Energy Association (MESEA)

New Hampshire Sustainable Energy Association (NHSEA)

Rhode Island Solar Energy Association (RISEA)

NESEARI

Solar Energy Association of Connecticut (SEAC)

Western New York Sustainable Energy Association (WNYSEA)



SUSTAINABLE GREEN PAGES 11

ENERGY PROFESSIONALS IN THE NORTHEAST

2011 DIRECTORY

Sustainable Green Pages

The Sustainable Green Pages has two parts: 1) a listing of 52 green energy businesses by specialty and state, followed, on page 56, by 2) an alphabetical listing of all companies listed in the directory. If you already know the name of the company you want to find, go directly to the alphabetical listing for contact information. Alternatively, for example, to locate a solar panel installer in New Jersey whose name you do not know, look up the list of company names under the specialty "Photovoltaics." They will be organized by state. You can then get more information about the individual companies in the alphabetical listing.

This information is also available at www.NESEA.org, where information is updated daily.

Alternative Technologies

Public Service of New Hampshire

Canada

Matrix Energy, Inc.

CT

Philippe Campus Architect, LLC
Schneider Electric Energy Solutions

MA

Ameresco
Bone Builders
Boston Green Building
Eco+Plan Architecture, LLC
Energia
Energy & Sustainability Partners
Engineered Solutions, Inc.
Fortress Green Building Supply
Kasten & Company, Inc.
Massachusetts Clean Energy Center
New England Solar & Green Solutions
New England Sustainable Homes, Inc.
Nexamp, Inc.
Precision Decisions, LLC
RJ Franey Mechanical Services, Inc.
Spire Solar Systems
SunBug Solar
Sustainable Energy Analytics
Sustainable Retrofits

ME

Solartechnic Contractors, Inc.

MN

The Energy Conservatory

NH

Green Woodlands
GreenSource Energy Solutions, LLC
NC Electronics, Inc.
Unitil

NJ

Electrical Power Solutions, Inc.
Noveda Technologies

NY

Harmony Builders, LLC
M.J. Chojnicki Architect, PC
New York State Energy Research and Development Authority (NYSERDA)
Solar Plumbing Design
SunEnergy Americas

PA

Blue Moon Enterprises
Nova Power Group, LLC

RI

Alteris Renewables
Northeast Solar & Wind Power, LLC
Slater Technology Fund

VT

BuildingGreen, LLC
Stead Consulting
William Maclay Architects Planners

Biomass

MA

Ameresco
Caluwe Inc.—Hydro-to-Heat-Convertor
Vanasse Hangen Brustlin, Inc.

ME

FutureMetrics

NH

Optimal Energy Solutions, LLC

VT

HB Energy Solutions
Home Comfort Warehouse

Building Design/Construction

CT

BPC Green Builders, LLC
Consulting Engineering Services
Donald Watson, FAIA
New Tapestry, LLC
Partners For Architecture
Partners for Architecture
Philippe Campus Architect, LLC
Picton Brothers LLC
Sellars Lathrop Architects, LLC
Tai Soo Kim Partners
The United Illuminating Company & CT Energy Efficiency Fund
Trillium Architects
Wolfworks, Inc.

MA

Ai3 Architects, LLC
Arrowstreet, Inc.
Austin Design, Inc.
Azimuth Construction, Inc.
Bay State Design, Inc.
Bone Builders
Bonview Corporation
Boston Green Building
Bourke Builders
Brown Lindquist Fenuccio & Raber Architects, Inc.
Byggmeister, Inc.
Cape Painting & Carpentry, Inc.
Capizzi Home Improvement
CBI Consulting, Inc.
Coldham & Hartman Architects
David Whitney Architect
Dietz & Company Architects, Inc.
Dietz & Company Architects, Inc.
Eco+Plan Architecture, LLC
Energia
Engineered Solutions, Inc.
ERS-Energy Resource Solutions
EvB Design
Finegold Alexander & Associates
Fortress Green Building Supply
Geoffrey H. Richon Company, Inc.
GotSun-GoSolar.com
Gougeon & Locke
Green River Architecture
Innovative Building & Design
Ives Architects
Jamie Devol, Architect
John Fülop Associates, Architects & Planners
Kate Mitchell, Attorney-at-Law
Kraus-Fitch Architects, Inc.
Kuhn Riddle Architects, Inc.
Living Structures, Inc.
Maple Hill Architects, LLC
New England Sustainable Homes, Inc.
O'Hara Builders, Inc.
Olga Kahn
Panich + Noel Architects
Paul Huijing, Inc. Construction and Engineering
Polanik Architects
Royer Architects
Sage Builders, LLP
Salmon Falls Ecological Design
Saltonstall Architects, Inc.
Sasaki Associates
Seaside Solar Design/Builders
Southern New England Solar-Technologies LLC
Structures By Design, Inc.
The Valle Group, Inc.
Timeless Architecture
Transformations, Inc.
Treehouse Design, Inc.
Turn Key Builders, Inc.
Van Natta Co., LLC
ZeroEnergy Design

ME

G O Logic, LLC
Gendron Construction Services
Hammersaw Solar-EarthNet Energy
Kaplan Thompson Architects
Kolbert Building
Maine Passive House
Richard Renner Architects
Stewart Brecher Architects
Thomas E. Hitchins & Associates Architecture and Planning

NH

Barker Architects
BEAM Construction Associates Inc.
Brooks Post & Beam, Inc.
Building Co
Christopher P. Williams Architects, PLLC
Eco Sound Builders, LLC
Green Woodlands
Little Green Homes, LLC
Mink Hill Timber Frame Homes, Inc.
Mulberry Tree Builders, LLC
Petersen Engineering, Inc.
R.H. Irving Co., Inc.

R.L. Benton - Builder
Ridgeview Construction
Walker Design & Building
Zetland Homes, LLC

NJ
Spector Associates Architects
Torcon Energy Services

NY
Anthony J. Musso, Architect
Blue Sea Development Company
CEMBRA
Harmony Builders, LLC
In Site: Architecture
Ingersoll Painting & Construction, Inc.
Phinney Design Group
Phinney Design Group
Solar & Wind FX, Inc.
Start to Finish Design and Remodeling
Stephen Tilly, Architect

OH
Ferut Architects

PA
Bakker & Lewis Architects
Dimensional Architecture PC
Energy Opportunities, Inc.
Re:Vision Architecture

RI
Sage Architecture + Design, LLC
Siemens Industry—Building Technologies Division
Stephen Greenleaf Architect
Truth Box, Inc.
Via Builders

VT
Cushman Design Group, Inc.
Energy Balance, Inc.
Home Energy Design Services
Michael Beattie Architect
Ra Solar Company
TruexCullins Architecture and Interior Design
William Maclay Architects Planners

College/University

CT
Tai Soo Kim Partners

FL
Kenney College

MA
Arrowstreet, Inc.
CBI Consulting, Inc.
Dietz & Company Architects, Inc.
Dietz & Company Architects, Inc.
Greene Energy Consultants, LLC
Mount Wachusett Community College

ME
Stewart Brecher Architects

NH
Dartmouth College
Keene State College

NY
Hudson Valley Community College -TEC-SMART

VA
American Public University

VT
Sterling College

Communications

MA
GAIA Host Collective
SJP Environmental Consulting, LLC

NY
Northern Manhattan Improvement Corp

RI
Green Machine PR

Consultant

CT
Home Energy Technologies
New Tapestry, LLC

MA
Applied Ecologics
Argo Consulting
Brown Lindquist Fenuccio & Raber Architects, Inc.
Coppinger Builders, LLC
Energia
Geoffrey H. Richon Company, Inc.
Green River Architecture
Nexamp, Inc.
Precision Decisions, LLC
Price Sustainability Associates, Inc.
SouthPoint, LLC
Spirit Solar
US Solar Works, LLC
Van Natta Co., LLC

ME
FutureMetrics
Kolburt Building

NH
Eco Sound Builders, LLC
Mulberry Tree Builders, LLC
NC Electronics, Inc.

NY
Air Barrier Solutions, LLC
EnergyWright
Green Home Consulting, LLC
Green Home Heroes, LLC
M.J. Chojnicki Architect, PC
Northern Manhattan Improvement Corp
Phinney Design Group

PA
Re:Vision Architecture

RI
New Commons

TX
ONTILITY

VT
Energy Futures Group
Stead Consulting

Consumer Information

Canada
Public Service of New Hampshire

MA
Greener Every Day
Grenergy Solar Store, LLC
Home Energy Remedies, LLC
Infrared Diagnostic, LLC
Mass Audubon
SJP Environmental Consulting, LLC
Walden Street Web Services

NH
Bona Fide Green Goods
Build Green NH
Pinkham Building & Solar Services
The Energy Emporium

NY
National Grid
New York State Energy Research and Development Authority (NYSERDA)
Northern Manhattan Improvement Corp

VT
Energy Futures Group
Griswold Library

Domestic Water Heating

CT
Wesson Energy Inc.

MA
Alpine Solar Heat and Hot Water
Caluwe Inc. - Hydro-to-Heat-Convertor
Clean Energy Design, LLC
Cotuit Solar
Energy and Design
Grenergy Solar Store, LLC
Mass Renewables
Renewable Sales LLC
RST Thermal
Seaside Solar Design/Builders
Solar Store of Greenfield
SouthPoint, LLC
Wagner Solar, Inc.

NH
Pinkham Building & Solar Services
Seacoast Energy Alternatives, Inc. (SEA Solar Store)

NJ
Be Solar Energy

NY
ETM Solar Works
Go Solar, Inc.
Ingersoll Painting & Construction, Inc.
Renovus Energy, Inc.

VT
Integrated Solar

Educator

MA
Faulkner, Nicole
Spirit Solar

Energy Audit Services

CT
Home Energy Technologies
The United Illuminating Company & CT Energy Efficiency Fund
Wesson Energy Inc.

MA
DMI
Energy Engineering and Design, Inc.
ERS-Energy Resource Solutions
Greene Energy Consultants, LLC
Home Energy Remedies, LLC
Infrared Diagnostic, LLC
Nexamp, Inc.
NSTAR
Price Sustainability Associates, Inc.
Sustainable Energy Analytics
The Boston Solar Company

ME
Gendron Construction Services
Hammersaw Solar-EarthNet Energy
Heliotropic Technologies

NH
Adros Energy
Building Energy Technologies, LLC
GDS Associates, Inc.

NJ
Spector Associates Architects

NY
eVANHEE Clean Energy
Green Home Heroes, LLC
National Grid
Novus Engineering, PC

RI
Northeast Solar & Wind Power, LLC

VT
Home Energy Design Services
Ra Solar Company

Energy Conservation

CT
ATC Magnetics
DCS Energy
Home Energy Technologies
PAH Associates
Partners for Architecture
Schneider Electric Energy Solutions
The United Illuminating Company & CT Energy Efficiency Fund
Wesson Energy Inc.

MA
Applied Ecologics
Atlantic Weatherization, LLC
Bone Builders
Boston Green Building
Byggmeister, Inc.
Cape Painting & Carpentry, Inc.
Coldham & Hartman Architects
Coneco Energy
Dietz & Company Architects, Inc.
Dietz & Company Architects, Inc.
DMI
Eco+Plan Architecture, LLC
Energy and Design
FLIR Systems
Fortress Green Building Supply
GAIA Host Collective
Gougeon & Locke
Green River Architecture
Greene Energy Consultants, LLC
Infrared Diagnostic, LLC
Jamie Devol, Architect
John Fülop Associates, Architects & Planners
Kraus-Fitch Architects, Inc.
Living Structures, Inc.
Maple Hill Architects, LLC
National Fiber
New England Solar & Green Solutions
O'Hara Builders, Inc.
Panich + Noel Architects
Polanik Architects
Precision Decisions, LLC
Price Sustainability Associates, Inc.
Royer Architects
Sage Builders, LLP
Solar Installation, LLC
SolarFlair Energy, Inc.
Sustainable Energy Analytics
Timeless Architecture
US Solar Works, LLC

ME
Kaplan Thompson Architects
Maine Passive House
Stewart Brecher Architects

NH
Bona Fide Green Goods
Christopher P. Williams Architects, PLLC
Eco Sound Builders, LLC
Petersen Engineering, Inc.
Polar Solar
R.L. Benton - Builder
Reno Engineering and Light Design
Solar Components Corporation
Unitil

NJ
Spector Associates Architects
Torcon Energy Services

NY
Green Home Consulting, LLC
Green Home Heroes, LLC
Start to Finish Design and Remodeling

PA
Bakker & Lewis Architects
Energy Opportunities, Inc.

RI
Heartwood Group, Inc.
Siemens Industry - Building Technologies Division
Stephen Greenleaf Architect
Truth Box, Inc.

VT
BuildingGreen, LLC
Energy Balance, Inc.
Home Energy Design Services
Michael Beattie Architect
Window Quilt

Energy Education

MA
Applied Ecologics
Massachusetts Clean Energy Center

PA
Energy Opportunities, Inc.

VT
BuildingGreen, LLC
Energy Balance, Inc.

Energy Monitoring

MA
DMI
Energy Engineering and Design, Inc
Solectria Renewables LLC

NJ
Noveda Technologies

RI
Siemens Industry - Building Technologies Division

Engineering Services

MA
Coneco Energy
Energy Engineering and Design, Inc
Engineered Solutions, Inc.
October Engineering Associates, LLC
RJ Franey Mechanical Services, Inc.

VT
Stead Consulting

Environmental Education

MA
Applied Ecologics
Greener Every Day
Ives Architects
Mass Audubon
Recycled Paper Printing
SJP Environmental Consulting, LLC
Walden Street Web Services

ME
Ferry Beach Ecology School

PA
ACI (Affordable Comfort, Inc.)
Energy Opportunities, Inc.
Re:Vision Architecture

VT
BuildingGreen, LLC
Energy Balance, Inc.
Sterling College

Finance/CPA

MA
Boston Community Capital
Sungage

NY
Konrad Advising, LLC

RI
Slater Technology Fund

Geothermal

CT
Consulting Engineering Services

MA
Bonview Corporation
Coneco Energy
GeoSun Design
New England Renewable Energy Systems
Nexamp, Inc.
Renewable Sales LLC

NH
Adros Energy
Bill Wenzel Heating & Air Conditioning, Inc.

NY
eVANHEE Clean Energy
Novus Engineering, PC

VT
Integrated Solar Applications Corp

Green Electricity

Canada
Public Service of New Hampshire

CT
DCS Energy

MA
BPVS, Berkshire Photovoltaic Services
Cape & Islands Self-Reliance Corp.
Mark Allen Electric
NSTAR
Second Generation Energy
Solar Installation, LLC
SunBug Solar

NH
GreenSource Energy Solutions, LLC
TNT Electrical Contractor, LLC
Unitil

NY
In Site: Architecture
National Grid
Solar & Wind FX, Inc.

VT
AllEarth Renewables
groSolar

Home Inspections

MA
FLIR Systems

Hydroelectric

NH
Waterline Alternative Energies LLC

I.T.

MA
GAIA Host Collective

Indoor Air Quality

MA
ERS-Energy Resource Solutions
FLIR Systems

RI
Kelly Taylor Interior Design

VT
Ra Solar Company

Insulation

MA
Atlantic Weatherization, LLC
National Fiber
Paul Huijing, Inc. Construction and Engineering
Sustainable Retrofits

ME
Gendron Construction Services

NH
Brooks Post & Beam, Inc.
Building Energy Technologies, LLC
Mink Hill Timber Frame Homes, Inc.
Ridgeview Construction

PA
Foam Form Technologies

VT
Window Quilt

Insurance

MA
D. Francis Murphy Insurance - Insurance Made Simple
Malcolm & Parsons Insurance Agency, Inc.

Interior Design

MA
Sasaki Associates

NY
Phinney Design Group

Landscape Design/Construction

MA
Austin Design, Inc.
Royer Architects
Salmon Falls Ecological Design
Sasaki Associates
Vanasse Hangen Brustlin, Inc.

NY
Anthony J. Musso, Architect
In Site: Architecture
Stephen Tilly, Architect

VT
Cushman Design Group, Inc.

Legal

MA
Kate Mitchell, Attorney-at-Law
McCauley Lyman, LLC

NH
NC Electronics, Inc.

NY
The Knoer Group, PLLC

Library

NH
Dartmouth College

VT
Griswold Library
Sterling College

Lighting Design

MA
ERS-Energy Resource Solutions
Kuhn Riddle Architects, Inc.
M.L. Schmitt, Inc.
Olga Kahn

NH
Reno Engineering and Light Design

NY
Anthony J. Musso, Architect
Novus Engineering, PC

RI
Kelly Taylor Interior Design

VT
Cushman Design Group, Inc.

Lighting Supply

MA
Fred Davis Corporation

Manufacturing

Japan
Solar Frontier Americas Inc.

CT
Schneider Electric Energy Solutions

MA
Solectria Renewables LLC
Spire Solar Systems

MN
The Energy Conservatory

NJ
Be Solar Energy
Lightway Green New Energy Co., Ltd.

NY
EnergyWright
SunEnergy Americas

PA
Foam Form Technologies

Marketing

MA
Recycled Paper Printing

RI
Green Machine PR

Other

MA
Cape & Islands Self-Reliance Corp.
Dennis K. Burke, Inc.
NSTAR

NH
R.L. Benton - Builder

NY
M.J. Chojnicki Architect, PC

PA
Craig Horowitz Woodworking
Nova Power Group, LLC

RI
Stephen Greenleaf Architect

VT
groSolar
Robert L. Spencer, AICP - Environmental Planning Consultant

Other Renewable Energy Generation

MA
Dennis K. Burke, Inc.
NSTAR

NH
R.L. Benton - Builder

NY
M.J. Chojnicki Architect, PC

PA
Nova Power Group, LLC

RI
Stephen Greenleaf Architect

VT
groSolar
Robert L. Spencer, AICP - Environmental Planning Consultant

Other Transportation Technologies/ Services

MA
Cape & Islands Self-Reliance Corp.
Dennis K. Burke, Inc.

Photography

MA
Matthew Cavanaugh Photography

Photovoltaics

Canada
Matrix Energy, Inc.

CA
Solar Frontier Americas Inc.

CT
Consulting Engineering Services
DCS Energy
Sunlight Solar Energy, Inc.

MA
Ai3 Architects, LLC
Ameresco
Arrowstreet, Inc.
Bonview Corporation
BPVS, Berkshire Photovoltaic Services
Cape & Islands Self-Reliance Corp.
Clean Energy Design, LLC
Cotuit Solar
D. Francis Murphy Insurance - Insurance Made Simple
Energy and Design
Frontier Energy Solutions
GotSun-GoSolar.com
Grenergy Solar Store, LLC
M.L. Schmitt, Inc.
Maple Hill Architects, LLC
Mark Allen Electric
Mass Renewables
NEO Virtus Engineering, Inc.
New England Breeze, LLC
New England Renewable Energy Systems
New England Solar & Green Solutions
Nexamp, Inc.
Nexamp, Inc.
NorthEast Solar Design Associates
Precision Decisions, LLC
PV Squared
Renewable Sales LLC
Second Generation Energy
Solar Installation, LLC
Solar Store of Greenfield
SolarFlair Energy, Inc.
Solectria Renewables LLC
Southern New England Solar-Technologies LLC
SouthPoint, LLC
Spire Solar Systems
SunBug Solar
Sungage
The Boston Solar Company
Transformations, Inc.
Turn Key Builders, Inc.

Wagner Solar, Inc.
Walden Street Web Services

ME
Heliotropic Technologies

NH
Adros Energy
GreenSource Energy Solutions, LLC
Polar Solar
Seacoast Energy Alternatives, Inc. (SEA Solar Store)
Shift Energy, LLC
Solar Components Corporation
Solar Source- A Division of The Melanson Co. Inc.
The Energy Emporium
TNT Electrical Contractor, LLC
Walker Design & Building
Waterline Alternative Energies LLC

NJ
Electrical Power Solutions, Inc.
Lightway Green New Energy Co., Ltd.

NY
A-Best Energy Power
ETM Solar Works
eVANHEE Clean Energy
Go Solar, Inc.
Renovus Energy, Inc.
Solar & Wind FX, Inc.
SunEnergy Americas
Upstate Solar, LLC

PA
Blue Moon Enterprises

RI
Alteris Renewables
Heartwood Group, Inc.
Newport Solar
North East Green Initiative, LLC
rTerra LLC
Washington County Regional Planning Council

TX
ONTILITY

VT
AllEarth Renewables
groSolar
HB Energy Solutions
Home Comfort Warehouse
Integrated Solar
Integrated Solar Applications Corp

Public Policy

CT
PAH Associates

MA
Mass Audubon
Vanasse Hangen Brustlin, Inc.

NY
The Knoer Group, PLLC

VT
Energy Futures Group

Public Relations

RI
Green Machine PR

Publishing

MA
Recycled Paper Printing

Radiant Heating

MA
CalorIQue LLC
Express Plumbing
GeoSun Design
NorthEast Solar Design Associates

ME
Solartechnic Contractors, Inc.

NH
Optimal Energy Solutions, LLC

NY
Ingersoll Painting & Construction, Inc.

Real Estate

MA
EcoRealty

NH
Build Green NH

RI
Truth Box, Inc.

Remodeling

CT
Philippe Campus Architect, LLC
Picton Brothers LLC
Wolfworks, Inc.

MA
Austin Design, Inc.
Azimuth Construction, Inc.
Bay State Design, Inc.
Bourke Builders
Byggmeister, Inc.
Cape Painting & Carpentry, Inc.
Capizzi Home Improvement
Coldham & Hartman Architects
David Whitney Architect
EvB Design
Geoffrey H. Richon Company, Inc.
Gougeon & Locke
Greener Every Day
Innovative Building & Design
Jamie Devol, Architect
John Fülop Associates, Architects & Planners
Kraus-Fitch Architects, Inc.
Kuhn Riddle Architects, Inc.
Living Structures, Inc.
O'Hara Builders, Inc.
Olga Kahn
Panich + Noel Architects
Paul Huijing, Inc. Construction and Engineering
Polanik Architects
Sage Builders, LLP
Seaside Solar Design/Builders
The Valle Group, Inc.
Timeless Architecture
Turn Key Builders, Inc.

ME
Maine Passive House
Thomas E. Hitchins & Associates Architecture and Planning

NH
Brooks Post & Beam, Inc.
Build Green NH
Building Co
Christopher P. Williams Architects, PLLC
Little Green Homes, LLC
Mink Hill Timber Frame Homes, Inc.
Pinkham Building & Solar Services
R.H. Irving Co., Inc.
Ridgeview Construction
Zetland Homes, LLC

NY
Anthony J. Musso, Architect
Green Home Consulting, LLC
Harmony Builders, LLC
Ingersoll Painting & Construction, Inc.
Phinney Design Group
Start to Finish Design and Remodeling
Stephen Tilly, Architect

PA
Bakker & Lewis Architects

RI
Kelly Taylor Interior Design

VT
Michael Beattie Architect

Research

Japan
Solar Frontier Americas Inc.

CT
New Tapestry, LLC
PAH Associates

MA
Bay State Design, Inc.

ME
FutureMetrics
Kaplan Thompson Architects

NH
Green Woodlands

NY
New York State Energy Research and Development Authority (NYSERDA)
Phinney Design Group

VT
Robert L. Spencer, AICP—Environmental Planning Consultant
William Maclay Architects Planners

Retail

MA
Kasten & Company, Inc.

NH
Bona Fide Green Goods

NY
Upstate Solar, LLC

PA
Foam Form Technologies

Roofing

MA
Capizzi Home Improvement
CBI Consulting, Inc.
Coppinger Builders, LLC

NH
Building Co
Solar Source- A Division of The Melanson Co. Inc.

Social Services

MA
Boston Community Capital

NY
Northern Manhattan Improvement Corp

Solar Hot Water

MA
Alpine Solar Heat and Hot Water
Express Plumbing
GotSun-GoSolar.com
New England Breeze, LLC
NorthEast Solar Design Associates
PV Squared
Second Generation Energy
SolarFlair Energy, Inc.

Southern New England Solar-Technologies LLC
Spirit Solar

ME
Hammersaw Solar- EarthNet Energy
Heliotropic Technologies
Solartechnic Contractors, Inc.

NH
Polar Solar
Shift Energy, LLC
Solar Components Corporation
Solar Source- A Division of The Melanson Co. Inc.
The Energy Emporium

NJ
Be Solar Energy

NY
A-Best Energy Power
Solar Plumbing Design

PA
Blue Moon Enterprises

RI
North East Green Initiative, LLC
Northeast Solar & Wind Power, LLC

TX
ONTILITY

VT
HB Energy Solutions
Home Comfort Warehouse

Space Heating/Cooling

Canada
Matrix Energy, Inc.

CT
BBT Mechanical Services, LLC

MA
Alpine Solar Heat and Hot Water
Caluwe Inc. - Hydro-to-Heat-Convertor
Express Plumbing
F.A.I. Mechanical Contractors
GeoSun Design
Innovative Building & Design
RJ Franey Mechanical Services, Inc.
RST Thermal
Seaside Solar Design/Builders
Solar Store of Greenfield
Wagner Solar, Inc.

NH
Optimal Energy Solutions, LLC
Petersen Engineering, Inc.
Shift Energy, LLC

NY
Upstate Solar, LLC

VT
Integrated Solar

Translation

MA
Petra Schweitzer Translations

Wind

CT
A.W. Hastings Co. - Integrity Windows and Doors

MA
Ai3 Architects, LLC
Atlantic Weatherization, LLC
Boston Green Building
Cape & Islands Self-Reliance Corp.
CBI Consulting, Inc.
Clean Energy Design, LLC
Cotuit Solar
D. Francis Murphy Insurance - Insurance Made Simple
Frontier Energy Solutions
New England Renewable Energy Systems
PV Squared
Vanasse Hangen Brustlin, Inc.

NH
Building Energy Technologies, LLC
Historic Window & Door Corp.
Seacoast Energy Alternatives, Inc. (SEA Solar Store)
TNT Electrical Contractor, LLC
Waterline Alternative Energies LLC

NY
A-Best Energy Power
CEMBRA
ETM Solar Works
Go Solar, Inc.
Renovus Energy, Inc.

RI
Alteris Renewables
Heartwood Group, Inc.
rTerra LLC
Washington County Regional Planning Council

VT
AllEarth Renewables
Integrated Solar Applications Corp
Window Quilt

Windows

CT
A.W. Hastings Co. - Integrity Windows and Doors

MA
Atlantic Weatherization, LLC
Boston Green Building
CBI Consulting, Inc.
Frontier Energy Solutions

NH
Building Energy Technologies, LLC Historic Window & Door Corp.

NY
CEMBRA

VT
Window Quilt

Workforce Development

MA
Massachusetts Clean Energy Center

A-Best Energy Power

Bar, Arie
375 Pearsall Avenue
Cedarhurst, NY 11516
Tel: 516-568-7785
Fax: 516-596-7434
info@a-bestenergypower.com
www.abestenergy.com
Description: *Solar sales & installations. NY Metropolitan area, Long Island and NJ, licensed electrical contractor, NYSERDA approved installer. Contact an office near you in New York 718-766-5025; New Jersey 201-777-2374*
Specialties: *Photovoltaics, Solar Hot Water, Wind*

A.W. Hastings Co. — Integrity Windows and Doors

Jackson, Bill
2 Pearson Way
Enfield, CT 06082
Tel: 860-394-3428
bjackson@awhastings.com
www.awhastings.com
Description: *For over twenty five years A.W. Hastings & Co. has been a distributor for Marvin Windows & Doors, supplying quality window & door products to the industry throughout the northeast.*
Specialties: *Windows*

ACI (Affordable Comfort, Inc.)

Fazio, Amy
32 Church Street
Suite 204
Waynesburg, PA 15370
Tel: 800-344-4866
Fax: 724-627-5226
afazio@affordablecomfort.org
www.affordablecomfort.org

Description: *ACI Home Performance Conferences teach building science principles and provide networking to create energy efficient, comfortable, healthy, safe, durable homes. Visit our website.*
Specialties: *Environmental Education*

Adros Energy

Currier, Matt
10 Northern Boulevard
Amherst, NH 03031
Tel: 603-880-6007
Fax: 603-880-6015
info@adrosenergy.com
www.adrosenergy.com
Description: *Adros Energy is a leading supplier of alternative energy systems and specialist in BPI certified energy audits and RESNET HERS rating. We are experts in Solar, Geothermal and Wind power technology. We educate residential and commercial consumers on how to harvest renewable energy to reduce, or even eliminate, soaring heating/cooling and electric bills. Adros Energy sells and installs high quality, custom, Solar, Geothermal and Wind systems to meet each consumer's budget and clean energy goals. We simplify the often complex process of converting to green energy and help you get the many incentives available to reduce your system costs. Customer satisfaction drives every aspect of the company's operation to assure customers receive superb service and high value from their system.*
Specialties: *Energy Audit Services, Geothermal, Photovoltaics*

Ai3 Architects, LLC

Jordan, James
286 Boston Post Road
Boston, MA 01778
Tel: 508-358-0790
Fax: 508-358-0791
jordan@ai3architects.com
www.ai-3.com
Description: *Designers of educational facilities.*
Specialties: *Building Design/Construction, Photovoltaics, Wind*

Air Barrier Solutions, LLC

Harmon, Larry
257 Middle Road
Crown Point, NY 12928
Tel: 877 226-2641
Fax: 518-597-3218
lharmon@airbarriersolutions.com
www.airbarriersolutions.com
Specialties: *Consultant*

AllEarth Renewables

Bijur, Anne
94 Harvest Lane
Williston, VT 05495
Tel: 802-872-9600
abijur@allearthrenewables.com
www.allearthrenewables.com
Description: *AllEarth Renewables, formerly Earth Turbines, Inc., Vermont's only manufacturer of residential wind turbines and the AllSun Tracker dual-axis solar system, provides grid-connected renewable energy systems that lessen dependence on fossil fuels and reduce greenhouse gas emissions. Our goal is to offer turnkey solutions that harness the power of the wind and sun for homes and businesses.*
Specialties: *Green Electricity, Photovoltaics, Wind*

Alpine Solar Heat and Hot Water

Besnoff, Stu
189 North Street
Windsor, MA 01270
Tel: 413-684-3950
stu@alpinesolarheat.com
www.alpinesolarheat.com
Description: *Evacuated tube solar hot water collectors for sale. Visit and see: operational domestic hot water, whole house heating, and swimming pool heating systems. Affordable Prices!*
Specialties: *Domestic Water Heating, Solar Hot Water, Space Heating/Cooling*

Alteris Renewables

Chew, Robert
28 Wolcott Street
Providence, RI 02908
Tel: 800-339-7804
Fax: 401-396-9902
info@alterisinc.com
www.alterisinc.com
Description: *Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for home and business. Serving RI.*
Specialties: *Alternative Technologies, Photovoltaics, Wind*

Ameresco

Morrison, Robert
16 October Road
Sudbury, MA 01776
Tel: 508-561-7553
robert.l.morrison@comcast.net
www.ameresco.com
Description: *Ameresco delivers comprehensive energy management solutions that drive energy efficiency, leverage renewable energy and achieve profitability and sustainability goals.*
Specialties: *Alternative Technologies, Biomass, Photovoltaics*

American Public University

Sehring, Tatiana
10110 Battleview Parkway
Suite # 114
Bristow, VA 20110
Tel: 703-965-0016
Fax: 703-367-9180
tsehring@apus.edu
www.apu.apus.edu
Specialties: *College/University*

Anthony J. Musso, Architect

Musso, Anthony
181 Main Street
Cold Spring Harbor, NY 11724
Tel: 631-367-8626
Fax: 631-367-4276
ajmusso@aol.com
Description: *An architectural firm practicing architecture, interior architecture, landscape design and sustainable design, "The architecture for today, respects the past; while solving our contemporary needs in a responsible sensible, design."*
Specialties: *Building Design/Construction, Landscape Design/Construction, Lighting Design, Remodeling*

Applied Ecologics

Eggleton, David
28 Rich Road
Woburn, MA 01801-5808
Tel: 781-721-2881
dse@appliedecologics.com
Description: *-permacultural Meaningful Makeovers - individuals thru communities*
-focus on the 1000 Home Challange
-focus on Whole is Beautiful (renewed campaign for balance)
Specialties: *Consultant, Energy Conservation, Environmental Education*

Argo Consulting

Argo, Liz
7 Arena Drive
Orleans, MA 02653
Tel: 774-772-1812
argoproductions@gmail.com
www.argoconsultingservices.com
Description: *Argo Consulting provides marketing strategy, outreach coordination, and project development services for renewable energy projects.*
Specialties: *Consultant*

Arrowstreet, Inc.

Batchelor, James
212 Elm Street
Somerville, MA 02144
Tel: 617-623-5555
Fax: 617-625-4646
batchelor@arrowstreet.com
www.arrowstreet.com
Description: *Arrowstreet is a 150-person, multi-disciplinary firm providing architecture, planning, interiors, and graphic design services. The award-winning firm designed the first platinum LEED certified*

building in Boston.
Specialties: *Building Design/ Construction, College/University, Photovoltaics*

ATC Magnetics
Malley, Walter
991 Main Street
Suite 3c
East Hartford, CT 06108
Tel: 360-434-1432
waltmalley@teamatc.net
Description: *ATC Magnetics provides energy reducing permanent magnetic couplings to business and industry. Our couplings separate the motor from the load and transmit the tourque across a 1/16" air gap. This results in a substatial reduction in inrush or demand current. We have fixed gap, delayed start (Conveyors) torque limiting, and adjustable speed to 4000 HP.*
Specialties: *Energy Conservation*

Atlantic Weatherization, LLC
Palm, Eric
61R Jefferson Avenue
Salem, MA 01970
Tel: 978-744-8143
Fax: 978-745-2200
tpalm01@comcast.net
Description: *Atlantic Weatherization, LLC has been providing energy conservation services for 24 years. We are a BPI certified, EPA and Mass Lead-Safe Certified contractor. In addition, we are an authorized Honeywell and NGRID/NSTAR Contractor, as well as a participating contractor for Massachusetts DHCD agencies.*

We specialize in all energy conservation services: insulation (cellulose and fiberglass), airsealing, roofing, window/door replacement, and all misc. conservation measures.
Specialties: *Energy Conservation, Insulation, Windows*

Austin Design, Inc.
Austin, Bill
16 Call Road
Colrain, MA 01340
Tel: 413-624-9669
Fax: 413-624-9635
office@austindesign.biz
www.austindesign.biz
Description: *Austin Design, Inc. provides architectural design services for homes, businesses and communities. We advocate a team approach among client, builder and architect that encourages the sharing of expertise and a passion for good design.*
Specialties: *Building Design/ Construction, Landscape Design/ Construction, Remodeling*

Azimuth Construction, Inc.
Simon, Marc
195 High Street
Ipswich, MA 01938
Tel: 978-356-7501
azimuth5@verizon.net
www.azimuthconstruction.com
Description: *Residential general contractor specializing in energy efficient construction and remodeling for over 20 years. Recently completed first Energy Star certified solar home in Ipswich.*
Specialties: *Building Design/Construction, Remodeling*

Bakker & Lewis Architects
Bakker, Margaret
Lewis, Robert
243 Jackson Road
Shavertown, PA 18708
Tel: 570-675-8843
mbakker@bakker-lewis.com
www.bakker-lewis.com
Description: *We are a small architectural firm specializing in designing new and retrofitting existing buildings which are both responsive to individual needs and that contribute to a greener environment.*
Specialties: *Building Design/ Construction, Energy Conservation, Remodeling*

Barker Architects
Barker, Kyle
2 Kennedy Street
Concord, NH 03301
Tel: 603-225-3160
kyle@barkerarchitects.com
http://www.barkerarchitects.com/service.html
Description: *Barker Architects, PLLC is an architectural firm specializing in socially responsible and sustainable design.*
Specialties: *Building Design/ Construction*

Bay State Design, Inc.
Govalet, Gordon
241 Boston Post Road West
Marlborough, MA 01752
Tel: 508-229-4142
gordon.govalet@maxtontech.com
www.baystatedesign.com
Description: *Founded in March of 1985, Bay State Design Inc., provides comprehensive, professional architectural and engineering design services ranging from site selection through construction administration.*
The firm's in-house staff includes over 30 Engineers, Architects, Project Managers, CAD Designers and Graphics Design personnel. Our Architectural Department provides Project Management, Space Planning and Design for public, institutional and commercial clients. Our Structural Engineers are registered in all New England States and are well versed in analysis and modification of existing structures. Our Graphic Design staff specializes in Photosimulation presentations for zoning and historic submittals.
At BSD, quality control is paramount. Our in-house Quality Assurance Process utilizes experienced professionals in each major discipline to review all major projects and coordinate the work of our outside consultants. Our clients are encouraged to participate in these Project Reviews.
Specialties: *Building Design/Construction, Remodeling, Research*

BBT Mechanical Services, LLC
Miller, Chris
22 Wapping Wood Road
Ellington, CT 06029-3917
Tel: 860-209-9917
Fax: 860-896-5830
bbtmechanical@snet.net
Specialties: *Space Heating/Cooling*

Be Solar Energy
Behmoaras, Mike
263 Veterans Boulevard
Carlstadt, NJ 07072
Tel: 201-933-7200
Fax: 201-933-2700
mike@besolarenergy.com
www.besolarenergy.com
Description: *OE and private label Manufacturer of SolarThermal FlatPlate Collectors and systems of hot water, space, and pool heating in homes, hotels, schools, and wherever hot water is used.*
Specialties: *Domestic Water Heating, Manufacturing, Solar Hot Water*

BEAM Construction Associates Inc.
Butcher, Robert
PO Box 101
North Sandwich, NH 03259
Tel: 603-284-6187
Fax: 603-284-7048
rdesigns@lr.net
Description: *BEAM Construction Associates, Inc. is a Design/ Build Co. that offers complete site & building design, architectural drafting, master craftsmanship, & project mgmt. services.*
Specialties: *Building Design/Construction*

Bill Wenzel Heating & Air Conditioning, Inc.
Wenzel, Bill
37 Scenic Vista Way
Merrimack, NH 03054
Tel: 603-429-8082
Fax: 603-429-6393
bill@billwenzelgeo.com
www.billwenzelgeo.com
Description: *Geothermal installation specialists with over 14 years experience in geothermal and over 30 years experience in heating and air conditioning.*
Specialties: *Geothermal*

Blue Moon Enterprises
Mellinger, Steve
218D W Main Street #D
Leola, PA 17540-2223
Tel: 717-656-2299
bluemoon@bmesolar.com
www.bmesolar.com
Description: *We are Solar System designers that work with Home Comfort specialists that allow us to bring a total home experience of Renewable and Sustainable living to our clientele.*
Specialties: *Solar Hot Water, Photovoltaics, Alternative Technologies*

Blue Sea Development Company
Bluestone, Les
164 Main Street
Huntington, NY 11743
Tel: 631-923-0081 x2
Fax: 631-923-0083
les.bluestone@blueseadev.com
Description: *Blue Sea Development Company/Blue Sea Construction Company is an affordable housing developer/general contractor working primarily in the New York City metropolitan area.*
Specialties: *Building Design/ Construction*

Bona Fide Green Goods
de Moulpied, Deborah
35 South Main Street
Concord, NH 03301
Tel: 603-224-9700
Fax: 603-224-9700
info@bonafidegreengoods.com
www.bonafidegreengoods.com
Description: *Bona Fide is an online green store dedicated to the highest standards in eco-criteria and social responsibility with the lowest impact to the earth and its inhabitants.*
Specialties: *Consumer Information, Energy Conservation, Retail*

Bone Builders
Bone, James
42 Newmarch Street
Ipswich, MA 01938-2440
Tel: 978-857-6800
jbonebldrs@verizon.net
www.jbonebuilders.com
Specialties: *Alternative Technologies, Building Design/Construction, Energy Conservation*

Bonview Corporation
Bonfiglioli, Stephen
237 Thompson Street
Middleborough, MA 02346
Tel: 508-946-4944
Fax: 508-946-4944
bonfiglioli15@verizon.net
www.meadowbrookefarm.com
Description: *Thirty years' experience with residential energy efficient design and construction. Energy Star builder; walls to R40, ceilings to R60. Experience with solar, ground source heat pumps and whole house ventilation.*
Specialties: *Building Design/Construction, Geothermal, Photovoltaics*

Boston Community Capital
Jones, DeWitt (Dick)
56 Warren Street
Boston, MA 02119
Tel: 617-427-3580
Fax: 617-427-9300
djones@bostoncommunitycapital.org
www.bostoncommunitycapital.org
Specialties: *Finance/CPA, Social Services*

Boston Green Building
Butler, Brian
49 Dartmouth Street
Somerville, MA 02145
Tel: 617-718-0208
Fax: 617-202-3783
info@bostongreenbuilding.com
www.bostongreenbuilding.com
Description: *Boston Green Building provides ecologically-oriented construction and remodeling services throughout the Greater Boston area.*
Specialties: *Building Design/Construction, Energy Conservation, Windows, Alternative Technologies*

Bourke Builders
Bourke, Paul
77 Long Hill Road
Leverett, MA 01054
Tel: 413-548-9214
Fax: 413-548-9214
paul@bourkebuilders.net
www.bourkebuilders.net
Description: *Passionate in our dedication to energy efficient, green building for over 25 years, Bourke Builders offers design-build services for Hampshire and Franklin counties of Western MA.*
Specialties: *Building Design/Construction, Remodeling*

BPC Green Builders, LLC
Trolle, Michael
523 Danbury Road
Wilton, CT 06897-2233
Tel: 203-563-9909
Fax: 203-563-9912
info@bpcgreenbuilders.com
www.bpcgreenbuilders.com
Description: *Green building for new and existing homes based on residential building science and other sustainability considerations. Award-winning builder with ten years experience building high performance, green homes.*
Specialties: *Building Design/Construction*

BPVS, Berkshire Photovoltaic Services
Kilfoyle, Christopher Derby
46 Howland Avenue
Adams, MA 01220
Tel: 413-743-0152
Fax: 413-743-4827
info@bpvs.com
www.bpvs.com
Description: *Since 1985, the highest quality design and installation of efficient and durable photovoltaic systems featuring Schott solar modules.*
Specialties: *Green Electricity, Photovoltaics*

Brooks Post & Beam, Inc.
Freeman, Paul
208 Pettingill Hill Road
Lyndeborough, NH 03082
Tel: 603-654-3210
Fax: 530-654-7376
paul@spbrooks.com
www.brookspostandbeam.com
Description: *Brooks Post & Beam has been building energy efficient, sustainable homes throughout New England for over 40 years. We have been building homes, barns and commercial buildings sustainably for decades.*

We are a small company focused on improving our quality and efficiency year after year. We operate a sustainable business model by returning profits to our employees through medical benefits, bonuses, paid time off, and profit sharing. Maintaining an experienced professional workforce has been our key to success. Limiting growth by focusing on a select number of projects per year maintains our quality control and prevents us from over extending our resources in lean times.

Please visit our web site to see how our unique joinery system facilitates the use of smaller timbers for a more elegant framing style without sacrificing joinery strength or littering the frame with steel brackets. We use 1" oak pegged, mortise and tenon joinery and locally harvested timbers. Our enclosure system consists of an uninterrupted layer of foam insulation detailed to eliminate thermal bridging and minimize air infiltration.
Specialties: *Building Design/Construction, Insulation, Remodeling*

Brown Lindquist Fenuccio & Raber Architects, Inc.
Fenuccio, Richard
203 Willow Street
Suite A
Yarmouthport, MA 02675
Tel: 502-362-8382
Fax: 502-362-2828
rick@capearchitects.com
www.capearchitects.com
Description: *Brown Lindquist Fenuccio & Raber Architects, Inc. is a diversified architectural firm located in historic Yarmouthport, Massachusetts. We provide comprehensive architectural and consulting services to a wide range of Commercial, Civic and Residential clients. Because of our depth of experience and location, we are capable of serving clients on many building types throughout Cape Cod, Southeastern Massachusetts and the Greater Boston Area. Founded in 1969, our firm has developed a solid client base in both the private and public sectors by adhering to a commitment to client service and several basic principles: We provide creative Design Solutions & Problem Solving to meet our Clientís needs.*
We support our Clients throughout the Design, Permitting and Construction Processes. We develop the highest quality Technical Documentation for each Project. We maintain Continuous Communication with our Clients and other Project Team Members. We provide continuous Project Management and Budget Assessments throughout all project phases. We believe that sites and buildings should be developed in an Environmentally Responsible manner.
Specialties: *Building Design/Construction, Consultant*

Build Green NH
Fischer, Elizabeth
119 Airport Road
Concord, NH 03301
Tel: 603-228-0351
erfischer@buildgreennh.com
www.buildgreennh.com
Description: *Build Green NH works to promote, educate and support the practice of green building and remodeling in New Hampshire.*
Specialties: *Consumer Information, Real Estate, Remodeling*

Building Co
Grinnell, Greg
P.O. Box 191
Eaton, NH 03832
Tel: 603-387-2278
grinnellassociatesnorth@gmail.com
www.grinnellassociatesnorth.com
Description: *I have been in business in the trades in Mount Washington Valley, NH for 24 years. We build complete homes to additions to remodeling.*
Specialties: *Building Design/Construction, Remodeling, Roofing*

Building Energy Technologies, LLC
LaTourette, Donald
8 Oakmont Drive
Concord, NH 03301
Tel: 603-724-7849
Fax: 603-369-6468
dlatourette@bldenergytech.com
Specialties: *Windows, Insulation, Energy Audit Services*

BuildingGreen, LLC
Wilson, Jerelyn
122 Birge Street
Suite 30
Brattleboro, VT 05301
Tel: 802-257-7300 x102
Fax: 802-257-7304
jerelyn@buildinggreen.com
www.buildinggreen.com
Description: *BuildingGreen provides building industry professionals with well-researched information on environmentally sound building practices and green products both in print and online.*
Specialties: *Alternative Technologies, Energy Conservation, Environmental Education*

Byggmeister, Inc.
Eldrenkamp, Paul
667 Sawmill Brook Parkway
Newton, MA 02459
Tel: 617-527-7871
Fax: 617-527-7872
paul@byggmeister.com
www.byggmeister.com
Description: *Byggmeister is a residential design-build firm working in metropolitan Boston and focusing on high-performance design and construction. We define a "high performance" home as one that requires a minimum amount of energy to heat, cool, light, and maintain over time. Byggmeister provides certified Passive House consulting and HERS ratings and is on the qualified contractors list for National Grid's deep energy retrofit program. In addition to design-build remodeling, we provide detailed energy audits and work with homeowners to develop master plans for incremental deep energy retrofits that can be implemented over a period of several years.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

CalorIQue LLC
Paliwoda, Irena
2380 Cranberry Highway
West Wareham, MA 02576
Tel: 508-291-4224
Fax: 508-291-2299
i.paliwoda@calorique.com
www.calorique.com
Description: *Calorique is the global leader in manufacturing low cost, energy efficient radiant heat elements for a wide range of uses. As the technology developed globally for alternative renewable energy and efficient use of that energy, Calorique developed a flexible electric radiant heating film that maximizes the efficient conductive properties of our carbon elements. Today, the Calorique flexible electric radiant heat system continues to be a superior, energy efficient, low cost alternative for eco friendly homes and facilities in the US as well as for use in countries around the world where renewable energy targets are being implemented.*
Specialties: *Radiant Heating*

Caluwe Inc. – Hydro-to-Heat-Convertor
Caluwe, Marc
9 Wheatland Street
Burlington, MA 01803
Tel: 781-306-8583
marc@hydro-to-heat-convertor.com
www.hydro-to-heat-convertor.com
Description: *Heat your whole house and more with a Hydro-to-Heat-Convertor an energy efficient and heat recovering hydronic wood stove or fireplace insert.The Hydro-to-Heat-Convertor is basically a hydronic wood stove or fire place insert which generates cosy radiant and convection heat. Most of the valuable energy is recovered via the internal heat recovery system that allows water to be circulated to a central heating system. The Hydro-to-Heat-Convertor; can work stand-alone or in combination with an existing central heating system, warm water boiler or solar hot water system. The Hydro-to-Heat-Convertor has a 4-staged combustion system with catalytic combuster afterburn what results in ultra clean combustion of cord wood.*
The Hydro-to-Heat-Convertor uses an thermostatic firing control device or aquastat to adjust combustion air supply in relation to the desired, pre-set, water outlet temperature, and as such automatically adapts to the type of fuel being used and the varying heat consumption of your home's central heating system.
Specialties: *Biomass, Domestic Water Heating, Space Heating/Cooling*

Cape & Islands Self-Reliance Corp.
Amsler, Megan
23A Edgerton Drive
North Falmouth, MA 02556
Tel: 508-563-6633
Fax: 508-563-1123
reliance@reliance.org
www.reliance.org
Specialties: *Green Electricity, Other Transportation Technologies/Services, Photovoltaics, Wind*

Cape Painting & Carpentry, Inc.
Kroll, Peter
24 Bay Road
P.O. Box 39
North Falmouth, MA 02556-0039
Tel: 508-563-9393
Fax: 508-563-9399
pmarshallk@aol.com
www.capecarpentry.com
Description: *An established renovation, restoration and custom home building contractor that has incorporated sustainable and green practices for over 30 years. Employee owned.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Capizzi Home Improvement
Capizzi, Thomas
1645 Newtown Road
Cotuit, MA 02635
Tel: 508-428-9518
Fax: 508-428-1547
chi@capecod.net
www.capizzihome.com
Description: *A remodeling and restoration company specializing in energy efficient room additions, 2nd stories, sunrooms, kitchens, bathrooms, siding, roofing, insulation and full-service home improvements.*
Specialties: *Building Design/Construction, Remodeling, Roofing*

CBI Consulting, Inc.
Teller, Michael
250 Dorchester Avenue
Boston, MA 02127
Tel: 617-268-8977
Fax: 617-464-2971
mteller@cbi1984.com
www.cbiconsultinginc.com
Description: *Sustainable design of building repair technologies. Building envelope evaluation and design. Historical renovation. Green roofs, plaza decks, masonry, concrete, windows, natural stone restoration and repair.*
Specialties: *Building Design/Construction, College/University, Roofing, Windows*

CEMBRA
Sandbichler, Thomas
68 Hosking Lane
Ne York, NY 12404
Tel: 212-334-3370
Fax: 845-626-1242
info@cembra.us
www.cembra.us
Description: *Cembra Inc. is a New York based design company specialized in flexible design strategies. We are a trade partner of the Austrian windows and doors manufacturer RIEDER KG.*
Specialties: *Building Design/Construction, Windows*

Christopher P. Williams Architects, PLLC
Williams, Christopher
P.O. Box 703
4 Stevens Avenue
Meredith, NH 03253
Tel: 603-279-6513
Fax: 603-279-5666
info@cpwarchitects.com
www.cpwarchitects.com
Description: *Specializing in sustainable building practices that conserve natural resources and incorporate green building techniques to safeguard the ecosystem and lower building costs.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Clean Energy Design, LLC

Wineman, Thomas
P.O. Box 1954
North Falmouth, MA 02556
Tel: 508-563-6990
Fax: 508-428-0370
info@cleanenergydesign.com
www.cleanenergydesign.com
Description: *With over a dozen years of experience in designing high performance, high quality renewable energy systems, Clean Energy Design can provide the best, most cost effective systems for your clean energy needs. We maintain an insightful and comprehensive approach balancing clean energy solutions with recommendations on energy efficiency. Our company specializes in integrating larger solar thermal systems with radiant floor and space heating. With our extensive research and hands on experience we are able to provide our clients with the most innovative, integrated systems.*
Specialties: *Domestic Water Heating, Photovoltaics, Wind*

Coldham & Hartman Architects

Hartman, Thomas
155 Pine Street
Amherst, MA 01002
Tel: 413-549-3616
Fax: 413-549-6802
tom@coldhamandhartman.com
www.coldhamandhartman.com
Description: *Coldham & Hartman Architects provides full service professional design for institutional, commercial and residential clients committed to making green buildings throughout the Northeast. C&H is dedicated to upgrading the existing structures of the Northeast for a changing energy climate by providing Deep Energy Retrofit design and master plan services. www.coldhamandhartman.com/DER*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Coneco Energy

McGonigle, Michael
4 First Street
Bridgewater, MA 02324
Tel: 508-443-5011
Fax: 508-443-5013
mmcgonigle@coneco.com
www.coneco.com
Description: *Established in 1989, Coneco Engineers & Scientists, Incorporated was founded on the premise that providing innovative and cost effective management and design solutions is the most successful way to achieve the goals of our residential, commercial, industrial, and municipal clients. As we've built our professional consulting and engineering practice over the past 2 decades which has grown to exceed 40 professionals, we've remained committed to our founding principle. Dedicating ourselves to understanding regulatory changes and technological advances, this commitment enables us to meet the ever changing needs of our clients and their projects.*
Specialties: *Geothermal, Energy Conservation, Engineering Services*

Consulting Engineering Services

Smith, Delbert
811 Middle Street
Middletown, CT 06457
Tel: 860-632-1682
dsmith@cesct.com
www.cesct.com
Description: *CES provides exceptional MEP Engineeering, Commissioning, CA and Sustainable Design services. CES has an outstanding record of providing high caliber service to 100s of clients.*
Specialties: *Building Design/Construction, Geothermal, Photovoltaics*

Coppinger Builders, LLC

Coppinger, Lise & Tim
151B North Leverett Road
Leverett, MA 01054
Tel: 413-367-9137
lcopp@crocker.com
Description: *We are a local, worker owned manufacturer/installer of standing seam metal roofing - an energy efficient, sustainable, recycled/recyclable, 80+ years roofing system. We also consult on roof insulation/ventilation as well as design.*
Specialties: *Roofing, Consultant*

Cotuit Solar

Geyser, Conrad
P.O. Box 89
64 Old Shore Road
Cotuit, MA 02635
Tel: 508-428-8442
Fax: 508-428-8441
conradg@cape.com
www.cotuitsolar.com
Description: *Solar thermal, photovoltaics, wind and wastewater alternative engineering, installation and serivce. In business since 1988.*
Specialties: *Domestic Water Heating, Photovoltaics, Wind*

Craig Horowitz Woodworking

Horowitz, Craig
1011 Fairview Drive
York, PA 17403-3609
Tel: 717-848-1726
Specialties: *Other*

Cushman Design Group, Inc.

Cushman, Milford
P.O. Box 655
100 Mountain Road
Stowe, VT 05672
Tel: 802-253-2169
Fax: 802-253-2160
info@cushmandesign.com
www.cushmandesign.com
Description: *Offering personalized residential design services for those who value elegant design, natural materials and environmental consciousness in their home.*
Specialties: *Building Design/Construction, Landscape Design/Construction, Lighting Design*

D. Francis Murphy Insurance—Insurance Made Simple

Ware, RWCS, Michael
200 Main Street
Marlborough, MA 01752
Tel: 508-787-5124
Fax: 508-485-3168
mware@dfmurphy.com
www.dfmurphy.com
Description: *Facilitate Renewable Energy Insurance & Bonding Products for Mfg, Contracting, PPA's, and End User/Property Hosts, & Municipalities for Solar, Wind, Geo, & Hydro.*

Lines of coverage include: General Liability, Professional Liability, Property, Builders Risk, Commercial Auto, Umbrella/Excess Liability, Workers Compensation, Employer Practices Liability, Cyber Liability, Directors & Officers Liability, Executive & Key Man Life Insurance, & Group Benefits.

Unique & Very Competitive Builders Risk Program for PPA's which is then converted to Property Insurance once the PPA is Commissioned. BR Coverage includes Hard & Soft Cost, Hot Testing, & Delay in Completion. Property includes Speical Form, Equipment Breakdown, & Loss of Income
Specialties: *Insurance, Photovoltaics, Wind*

Dartmouth College

Baker-Berry Library
6025 Baker-Berry Library
Hanover, NH 03755-3560
Tel: 603-646-2236
Specialties: *Library, College/University*

David Whitney Architect

Whitney, David
49 Linden Street
Arlington, MA 02476
Tel: 781-643-0758
Fax: 413-832-8052
mail@davidwhitney.com
www.davidwhitney.com
Description: *I am a residential architect concerned about energy use and environmental impact. My projects range from additions and renovations to new home construction. You can see images and descriptions and more information at my website.*
Specialties: *Building Design/Construction, Remodeling*

DCS Energy

Bradway, Craig
P.O. Box 320
South Glastonbury, CT 06073
Tel: 860-657-0675
Fax: 866-403-6517
support@dcsenergy.com
www.dcsenergy.com
Description: *DCS Energy provides low cost PV solar systems for the home and business owner. Our solar plans include a unique purchase plan and SPPA. Check us out at www.DCSenergy.com.*
Specialties: *Energy Conservation, Green Electricity, Photovoltaics*

Dennis K. Burke, Inc.

Burke, Ed
P.O. Box 6069
284 Eastern Avenue
Chelsea, MA 02150
Tel: 617-884-7800
Fax: 617-884-7638
ed.burke@burkeoil.com
www.burkeoil.com
Description: *One of New England's largest suppliers of diesel fuels, gasoline and motor oil products. DKB was the state's first supplier to offer biodiesel and E85 at the pump.*
Specialties: *Other Renewable Energy Generation, Other Transportation Technologies/Services*

Dietz & Company Architects, Inc.
Sternick, Marc
17 Hampden Street
Springfield, MA 01103
Tel: 413-733-6798
Fax: 413-732-4385
marcs@dietzarch.com
www.dietzandcompany architects.com
Description: *The largest full service architectural firm in Springfield, with four LEED AP architects we are committed to thoughtful, sustainable and contextually appropriate designs.*
Specialties: *Building Design/Construction, College/University, Energy Conservation*

Dietz & Company Architects, Inc.
Benoit, Krista
17 Hampden Street
Springfield, MA 01103
Tel: 413-733-6798
Fax: 413-732-4385
kristab@dietzarch.com
www.dietzandcompanyarchitects.com
Description: *The largest full service architectural firm in Springfield, with four LEED AP architects we are committed to thoughtful, sustainable and contextually appropriate designs.*
Specialties: *Building Design/Construction, College/University, Energy Conservation*

Dimensional Architecture PC
Deye, Sylvia
P.O. Box 18
Geigertown, PA 19523-0018
Tel: 610-775-7105
Fax: 610-775-4015
ruralda@verizon.net
Description: *Architecture - variety of design genres - from the East to the West, Large - Small, Public - Private, Retail, Resorts, Schools, Homes, New Construction, Renovations and Preservation.*
Specialties: *Building Design/Construction*

DMI
Stevens, Alec
35 Walnut Street
Wellesley, MA 02481
Tel: 718-431-1100 x11
astevens@dmiinc.com
www.dmiinc.com
Description: *DMI specializes in providing expert consulting and engineering services to improve energy efficiency and operation of commercial, industrial, institutional, and large-scale residential facilities. DMI has established itself as one of the most respected energy engineering firms in New England with unsurpassed attention to detail and quality.*
Specialties: *Energy Audit Services, Energy Conservation, Energy Monitoring*

Donald Watson, FAIA
Watson, FAIA, Donald
54 Larkspur Drive
Trumbull, CT 06611
Tel: 203-459-0332
lakesidedj@aol.com
www.donaldwatson.com
Description: *Architect with specialization in green design of residences, nature centers and museums.*
Specialties: *Building Design/Construction*

Eco Sound Builders, LLC
Korpi, Ethan
P.O. Box 55
Portsmouth, NH 03802
Tel: 603-986-8467
ekorpi.ecosound@gmail.com
www.ecosoundbuilders.com
Description: *We are driven to build homes with individuality and environmental responsibility. We seek to create high performance homes for the next generation of efficient energy use.*
Specialties: *Building Design/Construction, Consultant, Energy Conservation*

Eco+Plan Architecture, LLC
Baum, Scott
574 Bernardston Road
Greenfield, MA 01301-2265
Tel: 413-773-7559
sbaum@ecoplanarchitecture.com
www.ecoplanarchitecture.com
Description: *Eco+Plan specializes in creating affordable, superinsulated and zero energy homes. These homes are both energy and resource efficient, utilizing advanced building techniques and local natural resources.*

Eco+Plan has extensive experience with various alternative building systems. Through optimizing your building system and your approach to construction Eco+Plan can maximize your construction dollar. We are designing superinsulated buildings today that cost less to construct than conventional non-superinsulated buildings.

Eco+Plan's services are available to the northern United States and Canada. 3-D modeling software is used to show design progress and to facilitate discussion. Online design updates that contain sketch views, plans, photorealistic renderings, and virtual walk-throughs make remote design effective and exciting.
Specialties: *Alternative Technologies, Building Design/Construction, Energy Conservation*

EcoRealty
Hopkins, Dave
P.O. Box 3007
Amherst, MA 01004
Tel: 413-259-9800
Fax: 413-625-6638
dave@ecorealty.org
www.ecorealty.org
Description: *EcoRealty is an environmentally friendly buyer brokerage with a special interest in green building, farming, and living local economies.*
Specialties: *Real Estate*

Electrical Power Solutions, Inc.
Struck, Dorianne
306 Route 94
Vernon, NJ 07462
Tel: 973-764-9636
dorianne@eps-electric.com
www.eps-electric.com
Description: *Electrical Power Solutions (EPS) is at the forefront of societal advances by embracing the power of the sun. Focusing on renewable energy resources; EPS is driven by giving it's customers an opportunity to be involved in the green revolution.*
Financial Assistance and Installation
From beginning to end EPS will provide you with an evaluation of your current utility costs, analyze residential or commercial building location and ultimately supply financial assistance and installation.
Specialties: *Photovoltaics, Alternative Technologies*

Energia
Rossmassler, Tom
242 Suffolk Street
Holyoke, MA 01040
Tel: 413-322-3111
tomr@energiaus.com
Specialties: *Building Design/Construction, Consultant, Alternative Technologies*

Energy & Sustainability Partners
Braman, James
19 Upland Road
Arlington, MA 02474
Tel: 617-584-4288
jamie.braman@espgreen.com
Specialties: *Alternative Technologies*

Energy and Design
Talmage, Peter
31 East Street
Northfield, MA 01360
Tel: 413-498-4411
Fax: 413-498-4411
ptalmage@yahoo.com
Description: *Comprehensives design service for solar electric and solar thermal systems. High efficiency building design and all aspects of energy conservation. 30 years of experience.*
Specialties: *Energy Conservation, Photovoltaics, Domestic Water Heating*

Energy Balance, Inc.
Shapiro, Andrew
160 White Rock Drive, #1
Montpelier, VT 05602-9455
Tel: 802-229-5676
andy@energybalance.us
Description: *Andy works as Energy Balance, Inc., on high performance building design and the Vermont Energy Education Program.*
Specialties: *Building Design/Construction, Energy Conservation, Environmental Education*

Energy Engineering and Design, Inc.
Ward, David
65 Main Street
Framingham, MA 01702
Tel: 508-405-1946
info@energyengineeringinc.com
www.energyengineeringinc.com
Description: *EE&D has the ability to develop a customized facility improvement program that fits your individual needs in the most cost effective way.*
Specialties: *Engineering Services, Energy Monitoring, Energy Audit Services*

Energy Futures Group

Faesy, Richard
P.O. Box 587
Hinesburg, VT 05461
Tel: 802-482-5001
Fax: 802-329-2143
rfaesy@energyfuturesgroup.com
www.energyfuturesgroup.com
Description: *Energy Futures Group (EFG) is a consulting firm that provides clients specialized expertise on energy efficiency markets, programs and policies. It was founded in April 2010 by Chris Neme, Richard Faesy and Glenn Reed, each of whom has more than 20 years experience in the energy efficiency industry.*

We bring to our work a unique combination of technical, economic, program and policy expertise. EFG is currently working with a range of clients including consumer advocates, government agencies, environmental groups, other consultants and utilities in more than 10 states and provinces. During the course of their careers, EFG principals have worked in more than 30 states and provinces, as well as several countries in Europe and Asia.
Specialties: *Public Policy, Consultant, Consumer Information*

Energy Opportunities, Inc.

Sheffer, Marcus
1200 East Camping Area Road
Wellsville, PA 17365-9783
Tel: 717-292-2636
sheffer@sevengroup.com
www.sevengroup.com
Description: *Energy Opportunities provides services focused on energy issues and the interface of nature and human enterprises. Founded in 1993, EO is also a part of 7group, LLC.*
Specialties: *Building Design/Construction, Energy Conservation, Environmental Education*

EnergyWright

Sherman, Dale
3832 Pompey Center Road
Manlius, NY 13104
Tel: 315-632-0103
dsherman@energywright.com
http://www.energywright.com
Description: *EnergyWright makes tools for energy education.*
Specialties: *Consultant, Manufacturing*

Engineered Solutions, Inc.

Quinlan, Ed
6 Union Street
Natick, MA 01760
Tel: 508-647-9200
equinlan@engsolutions.com
www.engsolutions.com
Description: *Engineered Solutions Inc. is a Mechanical/Electrical consulting engineering firm that specializes in building infrastructure analysis and design with heavy emphasis on Energy Efficiency and Green Design. Our experienced hands-on team offers high quality, customized engineering services to clients in the Greater Boston area.*

ESI's successful approach is client focused, with direct personal involvement by its two founding principals, who are supported by a dedicated, experienced staff of senior level project engineers and support staff. Over the past 20 years, ESI has relied on repeat clients and word of mouth references for a vast majority of our work.

Our emphasis on Energy Efficiency and Green Design is not a recent development. Starting with their post graduate education and throughout their careers, the founding Principals of the firm (Rick Dirienzo and Ed Quinlan) have embraced sustainable design as a fundamental engineering concept.

Maintaining the highest level of service to our clients has been the key to our success.
Specialties: *Engineering Services, Building Design/Construction, Alternative Technologies*

ERS-Energy Resource Solutions

Epstein, Gary
13 Railroad Square
Suite 504
Haverhill, MA 01832
Tel: 978-521-2550
Fax: 978-521-4588
info@ers-inc.com
www.ers-inc.com
Description: *ERS assists customers solve energy and resource problems in a cost-effective manner. Expertise includes implementing better approaches for facility energy systems; designing or enhancing efficiency programs; developing more environmentally friendly processes.*
Specialties: *Building Design/Construction, Energy Audit Services, Indoor Air Quality, Lighting Design*

ETM Solar Works

Canough, Gay
1001 Union Center Maine Highway
Endicott, NY 13760-4915
Tel: 607-785-6499
Fax: 607-786-3388
info@etmsolar.com
www.etmsolar.com
Description: *Design and installation of solar energy systems; residential & commercial.*
Specialties: *Domestic Water Heating, Photovoltaics, Wind*

eVANHEE Clean Energy

Neale, David
6355 Dean Parkway
Ontario, NY 14519
Tel: 585-545-4096
Fax: 585-545-4099
contact@evanhee.com
www.evanhee.com
Description: *For over 30 years the most respected installer of geothermal heating and cooling systems and over 15 years of SolarPV installation experience in Western and Central NY state. We engineer/design clean energy systems for residential & commercial heating, cooling and air quality systems (including radiant floor and ducted air). We employ IGSHPA certified geothermal installers, and as a GeoPro Master dealer with WaterFurnace renewable energy, have fully factory trained technicians. We are a SunPower authorized dealer and installer and our team has been responsible for the design of over 200 solarPV systems in NY state. We are certified Velux Solar hot water system installers. We install and service Winspire VAWT residential/small wind. We are a BPI accredited contractor and part of the NY Energy Star home performance program for Buffalo, Rochester, Syracuse, Oswego, Utica, Corning and Binghamton.*
Specialties: *Energy Audit Services, Geothermal, Photovoltaics*

EvB Design

vanBeuzekom, Edrick
33 1/2 Union Square
Somerville, MA 02143
Tel: 617-623-2222
edrick@evbdesign.com
www.evbdesign.com
Description: *EvB Design provides architectural services for custom designed energy efficient housing.*
Specialties: *Building Design/Construction, Remodeling*

Express Plumbing

Wendolowski, Mark
P.O. Box 965
Easthampton, MA 01027
Tel: 413-626-3862
mwendolowski@comcast.net
www.expressplumbingservice.net
Description: *Express Plumbing is a full service plumbing, heating and solar firm serving residential and comercial accounts in Western MA, Northern CT and Southern VT.*
Specialties: *Radiant Heating, Solar Hot Water, Space Heating/Cooling*

F.A.I. Mechanical Contractors

Iadarola, Frank
Box 1113
12 Depot Street
East Douglas, MA 01516
Tel: 508-476-1722
franki3@verizon.net
Specialties: *Space Heating/Cooling*

Faulkner, Nicole

10 Belmore Terrace #1
Jamaica Plain, MA 02130
Tel: 617 522 5887
nicafaulkner@earthlink.net
Specialties: *Educator*

Ferry Beach Ecology School

Dumsch, Andrew
8 Morris Avenue
Building 1
Saco, ME 04072
Tel: 207-283-9951
Fax: 207-283-4465
drew@fbes.org
www.fbes.org
Specialties: *Environmental Education*

Ferut Architects

Ferut, Joseph
401 Broad Street
Suite 200
Elyria, OH 44035
Tel: 440-323-9930
Fax: 440-323-9930
jfarchitects@alltel.net
Specialties: *Building Design/Construction*

Finegold Alexander & Associates

Berry, Rebecca
77 N. Washington St.
Boston, MA 02114
Tel: 617-227-9272
Fax: 617-227-5582
rberry@faainc.com

Description: *Sharing a collective sense of what is possible, we design projects that achieve or exceed client expectations, are environmentally responsible and are integrated into their context. We believe good design is the result of an interactive and iterative process involving all stakeholders. Rooted in Boston, our historic environment inspired our leadership role in historic preservation and adaptive use while shaping our thoughtful and innovative design philosophy.*

The connection between old and new, historic and modern, has intrigued us since our founding. It informs our work in the reinvention of historic buildings, the creation of an addition to an existing building or the design of a new structure in an established neighborhood. We thrive on the complex, we seek exciting and innovative solutions, and we delight in the recognition that something worthwhile has been accomplished for our clients.
Specialties: *Building Design/Construction*

FLIR Systems
O'Toole, Tom
25 Esquire Road
North Billerica, MA 01862
Tel: 978-901-8301
tom.otoole@flir.com
www.goinfrared.com
Description: *Thermal imaging is a non-invasive, cost-efficient technology used to diagnose energy efficiency issues in buildings. Infrared inspection quickly detects electrical, structural, and other hidden problems which can impact energy efficiency.*
Specialties: *Energy Conservation, Home Inspections, Indoor Air Quality*

Foam Form Technologies
Jones, Richard
1875 Church Road
Malvern, PA 19355
Tel: 610-350-1700
Fax: 610-296-9087
rjones@forcineconcrete.com
www.fft-icf.com
Description: *Foam Form Technologies, LLC is a leading provider of LiteForm Technologies Insulated Concrete Form (I.C.F.) building systems.*
Specialties: *Insulation, Retail, Manufacturing*

Fortress Green Building Supply
Lyden, Tim
38 Faunce Corner Road
Dartmouth, MA 02747
Tel: 508-971-1004
fortressgreenbuildingsupply@comcast.net
fortressgreenbuildingsupply.com
Description: *Very Cost Effective "High Efficiency" Green Building Materials.*
For 60% to 80% Energy Savings just from the T-Envelope.
Products and services include: "IntegraSpec" Insulated Concrete Forms, Insul-Deck Concrete Floor/Roof System, R-Control Sips Rep, Solar Heat, Radiant-Solar systems, Passive Solar, Sips, HVRs, Windpower, PV, Green Build Project Management, Contractor/Builder EZ-Green Program, Contractors ICF Hands on Training/Certification Program, Homeowner-DIY-Building (ICFs Solar, SIPs) Programs, Co-Build Programs, Non-Profit Habitat & Municipal Building Barn-Raising & Volunteer Programs, Green Building Optimum Options Analysis, Green Design & Building Consulting, Teaching Green Building at U-Mass Dartmouth, +GBClasses. Remember,, Minimum Code Green is like Minimum Wage. ,,Go for the Best,, you & the Environment can't afford not to.
Specialties: *Alternative Technologies, Building Design/Construction, Energy Conservation*

Fred Davis Corporation
Davis, Fred
120 North Meadows Road
Medfield, MA 02052
Tel: 800-497-2970
fred@freddaviscorp.com
www.freddaviscorp.com
Description: *Leading national independent wholesaler of all efficient lighting products. Fred: former NESEA boardmember; worked on national lamp efficiency standards; chaired first conference on lighting and energy, 1987 (a NESEA conference).*
Specialties: *Lighting Supply*

Frontier Energy Solutions
McInerney, Conor
39 Siasconset Drive
Sagamore Beach, MA 02562
Tel: 774-413-5157
lifeisgood919@gmail.com
www.frontierenergysolutionsllc.com
Description: *We serve New England, providing energy consultation, renewable energy system installation and building performance enhancements to residential and commercial properties.*
Specialties: *Wind, Photovoltaics, Windows*

FutureMetrics
Strauss, William
8 Garden Way
Albany Township, ME 04217
Tel: 207-824-7428
williamstrauss@futuremetrics.com
www.futuremetrics.com
Description: *FutureMetrics is the leading US consultant for economic impact studies for renewable energy projects. We quantify economic growth, jobs creation, and tax revenue generation.*
Specialties: *Biomass, Consultant, Research*

G O Logic, LLC
Gibson, Alan
163 Moosehead Trail
Waldo, ME 04915
Tel: 207-722-3079
agibson@gologichomes.com
Specialties: *Building Design/Construction*

GAIA Host Collective
Strader, Charles
P.O. Box 622
Greenfield, MA 01302
Tel: 800-672-8060 x803
sales@gaiahost.coop
www.gaiahost.coop
Description: *GAIA Host provides secure and reliable Internet Hosting services as a worker-owned cooperative. We focus on efficient IT infrastructure and open source applications.*
Specialties: *Communications, Energy Conservation, I.T.*

GDS Associates, Inc.
Bennett, Bruce
1181 Elm Street
Suite 205
Manchester, NH 03101
Tel: 603-656-0336
Fax: 603-656-0301
bruce.bennett@gdsassociates.com
www.gdsassociates.com/services/rees.html
Specialties: *Energy Audit Services*

Gendron Construction Services
Gendron, George
427 Cider Hill Road
York, ME 03909
Tel: 207-337-1336
Fax: 207-363-1727
gconstruct@maine.rr.com
www.gendronconstruction.com
Description: *Renovation and new construction emphasizing energy efficiency. "Maine Home Performance With Energy Star" energy auditor. Retrofit insulation and weatherization.*
Specialties: *Building Design/Construction, Energy Audit Services, Insulation*

Geoffrey H. Richon Company, Inc.
Richon, Tobias
19 Duncan Street
Gloucester, MA 01930
Tel: 978-283-6063
tsrichon@ghrichon.com
www.ghrichon.com
Description: *The Geoffrey H. Richon Company specializes in delivering high quality construction, remodeling and consulting services to Cape Ann and Essex County. Our experience is based on over 35 years in residential construction and remodeling. Through a whole-system approach to design and construction, we provide our clients with a high level of energy efficiency, comfort and durability for their projects.*
Specialties: *Building Design/Construction, Consultant, Remodeling*

GeoSun Design
Baker, Richard
P.O. Box 148
Turners Falls, MA 01376
Tel: 413-253-5777
rich@geosundesign.com
www.geosundesign.com
Description: *Our firm specializes in the design, installation and service of geothermal hvacr energy systems for residential, commercial, and municipal applications. At GeoSun Design we are dedicated to helping you learn about geothermal energy systems and how they can help you achieve your goals. We can help you eliminate your use of gas and oil for space conditioning.*
IGSHPA # 18863-0209
Specialties: *Geothermal, Radiant Heating, Space Heating/Cooling*

Go Solar, Inc.
Minnick, Gary
272 Main Road (Route 25)
Riverhead, NY 11901
Tel: 631-727-2224
Fax: 631-779-3344
gary@gosolar.com
www.gosolar.com
Description: *Full service renewable energy systems designer and installer. Design and install solar electric, solar hot water, solar pool heating, and wind energy systems. We also provide training and distribute products.*
Specialties: *Domestic Water Heating, Photovoltaics, Wind*

GotSun-GoSolar.com
Bennett, Ronald
22 Reservoir Street
Seekonk, MA 02771
Tel: 401-663-2532
rabconstructioncorp@hotmail.com
www.gotsun-gosolar.com
Description: *Our mission is to promote renewable energy in MA/S. New England by providing products & services that conserve natural resources, reduce dependence on oil, & save our clients money.*
Specialties: *Photovoltaics, Solar Hot Water, Building Design/Construction*

Gougeon & Locke
Locke, Jim
26 South Street
Williamsburg, MA 01096
Tel: 413-268-9323
Fax: 413-268-0354
glbuild@verizon.net
Description: *This company is ready for any residential challenge after thirty-five years of fair dealing, careful craftsmanship, and ongoing education and enthusiasm.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Green Home Consulting, LLC
Martin, Judith
411 Theodore Fremd Avenue
Suite 206
Rye, NY 10580
Tel: 914-967-2956
Fax: 914-967-2956
info@greenhomeswestchester.com
www.greenhomeswestchester.com
Description: *Green home renov./construction in Westchester Co, NY & Fairfield Co, CT, incl research, sourcing & project mgmt. Work with owners of existing homes to improve energy efficiency.*
Specialties: *Consultant, Energy Conservation, Remodeling*

Green Home Heroes, LLC
Astorina, David
95 Candor Hill
Candor, NY 13743
Tel: 607-379-9739
dave@greenhomeheroes.com
greenhomeheroes.com
Description: *Green Home Heroes, LLC is a BPI (Building Performance Institute) Accredited Gold Star Contractor.*

Our consulting services help homeowners understand the current condition of their home, and help navigate the choices available in renewable energy, and home energy improvement. We help make your home safer, more comfortable, and efficient.

Green Home Heroes works with best of breed partners for air-sealing and insulation, HVAC and renewable energy systems.

David Astorina is a BPI Certified Building Analyst and instructor, Level II Certified Thermographer, and member of various builders associations and trade associations.
Specialties: *Consultant, Energy Audit Services, Energy Conservation*

Green Machine PR
Lee, Jo
197 Ivy Street
Providence, RI 02906
Tel: 401-338-5445
jo@greenmachinepr.com
www.greenmachinepr.com
Specialties: *Communications, Public Relations, Marketing*

Green River Architecture
Pulfer, AIA, Donald
4 Forest Row
Great Barrington, MA 01230
Tel: 413-528-1108
donruth2@verizon.net
Description: *The art of building always is an act of renovation; even the unbuilt landscape provides a context which requires understanding, acknowledgment and respect. Meaning in modern architecture resides in the successful synthesis of ideas about place, tradition, technology, and modern needs.*

Green River Architecture has a rich background in renovation and restoration. We listen closely to our client's voice and respond flexibly as our understanding develops. Balancing the program, the budget, construction techniques, energy and the environment, we work to produce an appropriate and beautiful fit between desire and reality. Attention to our clients' needs and respect for the specifics of context are the first principles of our practice.
Specialties: *Building Design/Construction, Consultant, Energy Conservation*

Green Woodlands
Green, Robert
P.O. Box 330
Lyme, NH 03768
Tel: 603-643-3136
Fax: 603-285-0578
bgreen@webspoc.com
Specialties: *Research, Building Design/Construction, Alternative Technologies*

Greene Energy Consultants, LLC
Greenbaum, Scott
40 Damon Road
Scituate, MA 02066
Fax: 781-545-1843
sgreenbaum@earthlink.net
www.greeneenergyconsultants.com
Description: *Sustainable energy project development and implementation specialist (ie Commissioning) for commercial, institutional, multi-family, alternative power generation and co-gen.*
Specialties: *College/University, Energy Audit Services, Energy Conservation*

Greener Every Day
White, Rachel
124 Hagen Road
Newton, MA 02459
Tel: 617-905-6925
rachel@greenereveryday consulting.com
www.greenereveryday consulting.com
Description: *Greener Every Day provides green home and lifestyle consulting to help consumers make eco-friendly choices, and sustainability consulting services to help residential design and construction firms implement and leverage green building goals and practices. We also provide educational programs on green living for businesses & community groups.*
Specialties: *Consumer Information, Environmental Education, Remodeling*

GreenSource Energy Solutions, LLC
Gamble, James
22 Pleasant Street
Concord, NH 03301
Tel: 603-856-8035
james@gessolarstore.com
www.gessolarstore.com
Description: *Design, sales and installation of renewable energy solutions including solar electricity and solar hot water systems, plus a full line of conservation and high-efficiency products.*
Specialties: *Alternative Technologies, Green Electricity, Photovoltaics*

Grenergy Solar Store, LLC
Torrico, Brian
520 Sheffield Plain Road,
Route 7 Sheffield, MA 01257
Tel: 413-229-0049
info@grenergysolarstore.com
www.grenergysolarstore.com
Description: *Full service retail store offering renewable energy generating technologies, installation services, generators, and consumer education all under one roof.*
Specialties: *Consumer Information, Domestic Water Heating, Photovoltaics*

Griswold Library
1 Brennan Circle
Poultney, VT 05764
Specialties: *Library, Consumer Information*

groSolar
Martin, Dawn
601 Old River Road
Suite 3
White River Junction, VT 05001
Tel: 802-359-6512
Fax: 802-295-4417
dawn.martin@grosolar.com
www.grosolar.com
Description: *groSolar is a leading North American distributor and installer of solar energy systems for residential and commercial installations. Founded in 1998, groSolar is a mission driven company dedicated to providing high value products, systems and services that deliver peace of mind through solar energy systems and whole energy appreciation.*

Jeff Wolfe, groSolar's founder, knew early on what he was destined

to do. In high school he experienced the Energy Crisis of 1973 first-hand. He decided at that point to dedicate his life's work to renewable energy production and energy efficiency, advocacy and development. Jeff and his wife, Dori, both engineering graduates from Cornell, have developed groSolar to lead the solar industry in innovation and sound business practice.
Today, with warehouses across the United States and Canada, groSolar has the broadest solar distribution network in North America. groSolar also serves all major United States solar markets with either a company-owned installation office or a dealer-partner installation office.
Specialties: *Green Electricity, Other Renewable Energy Generation, Photovoltaics*

Hammersaw Solar–EarthNet Energy

Hellier, Ted
37 Hawthorne Lane
South Portland, ME 04106
Tel: 207-799-9222
hammersawsolar@maine.rr.com
www.hammersawsolar.com
Description: *Hammersaw Solar is the regional distributor for EarthNet Energy, a manufacturer of solar hot water collectors. These collectors are manufactured in Chambersburg, Pa. Combined with the Vaughn Manufacturing solar water heater, these evacuated tube collectors are capable of providing large quantities of solar hot water in Northern climates.*
Working with a number of highly specialized associates to customize your energy saving implementations, Hammersaw Solar is able to provide its customers with a wide range of solutions. We can help you by "Building Energy Solutions".
Specialties: *Building Design/Construction, Energy Audit Services, Solar Hot Water*

Harmony Builders, LLC

Roberts, Wyatt
P.O. Box 64
Phoenicia, NY 12464
Tel: 845-679-8200
Fax: 845-679-8205
queries@harmonybuilders.com
www.harmonybuilders.com
Description: *Professional building and remodeling firm in Catskill Mountain–Hudson River region of New York. We specialize in the construction of architect-designed, one-of-a-kind projects and we provide schematic design and pre-construction consulting services on energy-optimized, durable building assemblies. Building efficiency and performance in today's challenging environment is of particular importance to us and, we believe, an integral part of modern craftsmanship. Our experienced staff, our dedication to craft, and our enduring relationships with the area's best tradespeople and suppliers combine to ensure that our finished projects, large or small, will inspire stewardship for generations to come.*
Specialties: *Alternative Technologies, Building Design/Construction, Remodeling*

HB Energy Solutions

Sidd, Mitch
132 Bridge Street
Springfield, VT 05156
Tel: 802-885-2300
Fax: 802-885-4040
mitch@hbenergy.com
Specialties: *Biomass, Photovoltaics, Solar Hot Water*

Heartwood Group, Inc.

Unger, Fred
165 Evergreen Street
Providence, RI 02906
Tel: 401-861-1650
unger@hrtwd.com
www.heartwoodsolutions.com
Description: *Our company was founded in 1983 to create environmentally responsible buildings. Today we provide consulting and development services in the renewable energy and building industries.*
We have managed the development and operations for one of the largest owners of solar electric systems in New England, coordinated the design and federal permitting of a 3.3 MW wind project, and developed numerous innovative real estate projects.
In 2004, we founded an information technology company in the energy industry that was merged with a competitor to create the nation's leading provider of remote monitoring of renewable energy projects.
As consultants, we have helped leading firms grow their businesses and have teamed with some of the best architectural, design, engineering, construction, contracting, environmental, legal, permitting, financial and other specialists in the country on previous successful efforts and view our role as team builders and project managers as a critical part of the service we provide.
Specialties: *Energy Conservation, Photovoltaics, Wind*

Heliotropic Technologies

Mayhew, Michael
60 Campbell Street
Boothbay Harbor, ME 04538-0018
Tel: 207-633-1061
coolsolarguy@yahoo.com
www.heliotropictech.com
Description: *Heliotropic Technologies is a renewable energy systems and professional energy engineering business that would like to be your energy partner.*
Specialties: *Energy Audit Services, Photovoltaics, Solar Hot Water*

Historic Window & Door Corp.

Pelletier, Richard
P.O. Box 138
Alstead Business Park
Alstead, NH 03602
Tel: 603-935-2918
Specialties: *Windows*

Home Comfort Warehouse

Mathewson, William
54 Bridge Street
White River JCT, VT 05001
Tel: 802-295-8778
Fax: 802-295-5211
info@homecomfortwarehouse.com
Description: *Home Comfort Warehouse provides design and installation of both solar hot water and photovoltaic systems. Customers can visit our showroom and watch on a big screen TV just how much electricity our photovoltaic system is currently generating. We offer individual custom solar site evaluations and have over 50 bimass wood and pellet appliances on display in our downtown White River Junction Vermont showroom.*
Specialties: *Biomass, Photovoltaics, Solar Hot Water*

Home Energy Design Services

Schunk, RA LEED AP BPI, Michael
P.O. Box 181
Thetford, VT 05074
Tel: 802-785-2574
homenergydesignservices@gmail.com
Description: *Energy Design Services. Providing design and build strategies around energy saving and energy producing technologies for new and existing homes.*
Offering Home Energy Audits with weatherization and insulation services eligible for Efficiency Vermont and NHSaves rebate programs.
Registered Architect, LEED AP, BPI Certified Building Analysis/Bldg. Shell Specialist.
Specialties: *Building Design/Construction, Energy Audit Services, Energy Conservation*

Home Energy Remedies, LLC

Cole, Russell
74 Pond Street
Douglas, MA 01516-2030
Tel: 508-476-0032
Fax: 508-476-1958
russ@homeenergyremedies.com
www.homeenergyremedies.com
Description: *An unbiased and logical approach to cutting home energy costs. I analyze the home's efficiency to help the owner create a plan that will address current needs and future plans.*
Specialties: *Consumer Information, Energy Audit Services*

Home Energy Technologies

Harding, Peter
P.O. Box 364
Chester, CT 06412
Tel: 877-800-6440
peter@homeenergytechnologies.com
www.homeenergytechnologies.com
Description: *Home Energy Technologies offers HERS ratings, ENERGY STAR & NGBS certification, home energy audits and other energy diagnostic services throughout Connecticut and adjoining areas.*
Specialties: *Consultant, Energy Audit Services, Energy Conservation*

Hudson Valley Community College—TEC-SMART

Hill, Penny
345 Hermes Road
Malta, NY 12020
Tel: 518-629-7075
p.hill@hvcc.edu
Specialties: *College/University*

In Site: Architecture
Yapicioglu, Ali, Hauser, Rick
Rochester - Perry - Geneva
Suite 202
Perry, NY 14530
Tel: 585-237-2614
Fax: 585-237-3679
rick@insitearch.com
www.insitearch.com
Description: *WNY/Finger Lakes region. We create innovative, site-specific solutions to every project, marrying our interest in sustainable principles to clients' own priorities.*
Specialties: *Building Design/Construction, Green Electricity, Landscape Design/Construction*

Infrared Diagnostic, LLC
Lund, Flemming
9 Elaine Road
Sudbury, MA 01776
Tel: 978-440-9900
Fax: 978-440-9902
info@infrareddiagnostic.com
www.infrareddiagnostic.com
Description: *Infrared energy audit, Duct Blaster and Blower Door testing. Certified Infrared Thermographer, RESNET/HERS Rater. Provide consulting to builders, home owners to reduce energy.*
Specialties: *Consumer Information, Energy Audit Services, Energy Conservation*

Ingersoll Painting & Construction, Inc.
Ingersoll, Jeff
1890 Niagara Street
Buffalo, NY 14207
Tel: 716-877-6502
Fax: 716-877-5900
jingersoll@ingersollpainting.com
www.ingersollpainting.com
Description: *Solar hot water, painting and remodeling services.*
Specialties: *Building Design/Construction, Domestic Water Heating, Remodeling, Radiant Heating*

Innovative Building & Design
Clement, Henry
54 Porter Street
Granby, MA 01033
Tel: 413-552-9771
Fax: 413-467-3162
henry@gogtt.net
Description: *We are a residential general contracting firm which has been designing and building energy efficient homes for 25 years utilizing a wide range of sustainable technologies.*
Specialties: *Building Design/Construction, Remodeling, Space Heating/Cooling*

Integrated Solar Applications Corp.
Cay, Andrew
121 Spring Tree Road
Brattleboro, VT 05301
Tel: 802-257-7493
Fax: 802-257-7447
info@isasolar.com
www.isasolar.com
Description: *Integrated Solar specializes in the design, service, and installation of renewable energy systems, including solar thermal hydronic, photovoltaic, small wind, micro-hydro, biomass and hybrid systems.*
Specialties: *Domestic Water Heating, Photovoltaics, Space Heating/Cooling*

Integrated Solar Applications Corp.
Chapin, Kyra
121 Spring Tree Road
Brattleboro, VT 05301
Tel: 802-257-7493
info@isasolar.com
www.isasolar.com
Description: *Integrated Solar Applications Corp offers the following system technologies: Solar, Thermal Small Wind, Biomass, Photovoltaic, Geothermal*
Specialties: *Geothermal, Wind, Photovoltaics*

Ives Architects
Ives, Gerard
1 Dartmouth Place
Boston, MA 02116
Tel: 617-266-1899
ivesarch@verizon.net
Description: *NEW New England Design Homes, Visitor Centers, Educational Facilities Awards For Sustainable Design, Renewables Planning, Feasibility, 3D Design and Construction Phase Services*
Specialties: *Building Design/Construction, Environmental Education*

Jamie Devol, Architect
Devol, AIA, Jamie
7 Dix Terrace
Winchester, MA 01890
Tel: 781-721-7574
jdevol_aia@msn.com
www.jamiedevol.com
Description: *I optimize passive strategies; create efficient plans; specify green materials; and incorporate energy-saving technology. Stewardship/Renovations/Additions/New Construction.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

John Fülop Associates, Architects & Planners
Fülop, John
103 East Alford Road
West Stockbridge, MA 01266
Tel: 413-232-7122, 212-219-2121
john@fulopassociates.com
www.fulopassociates.com
Description: *John Fülop Associates, Architects provides design services for all building types, creating aesthetically pleasing, economic "green" architecture throughout the Northeast.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Kaplan Thompson Architects
Thompson, Jesse
424 Fore Street
Portland, ME 04101
Tel: 207-842-2888
Fax: 207-842-2828
info@kaplanthompson.com
www.kaplanthompson.com
Description: *Our mission is to bring beautiful, sustainable and attainable buildings to the world. From your home to your business, we can design the sustainable building you have been looking for.*
Specialties: *Building Design/Construction, Energy Conservation, Research*

Kasten & Company, Inc.
Kasten, Robert
904 Stony Hill Road
Wilbraham, MA 01095
Tel: 413-636-1497
Fax: 978-738-9522
robert@kastencompany.com
Specialties: *Alternative Technologies, Retail*

Kate Mitchell, Attorney-at-Law
Mitchell, Kate
P.O. Box 160
761 Main Street
West Barnstable, MA 02668
Tel: 508-362-1369
Fax: 508-362-1368
katemitchell@comcast.net
www.katemitchellattorney.com
Description: *Cape & Islands law firm with focus on construction, land use and environmental issues; serves as owner's representative in residential construction, emphasis on "partnering," energy efficient building practices.*
Specialties: *Building Design/Construction, Legal*

Keene State College
Mason Library
P.O. Box 3201
229 Main Street
Keene, NH 03435-0001
www.keene.edu
Specialties: *College/University*

Kelly Taylor Interior Design
Taylor, Kelly
460 Harris Avenue
Unit 104
Providence, RI 02909
Tel: 401-437-6363
Fax: 401-273-9559
ktaylor@ktid.net
Description: *Residential and commercial interior design firm experienced with new construction, renovations, adaptive re-use, and sustainable materials/systems.*
Specialties: *Indoor Air Quality, Lighting Design, Remodeling*

Kenney College
Kenney, Matthew
13078 SW 132nd Ct
Miami, FL 33186
Tel: 888-275-2156
matthew@kenneymba.com
Specialties: *College/University*

Kolbert Building
Kolbert, Dan
90 Gray Street
Portland, ME 04102
Tel: 207-799-8799
dan@kolbertbuilding.com
Description: *Our team's decades in home construction & renovation include a strong focus on energy efficiency & sustainable design. We have significant experience with LEED for Homes.*
Specialties: *Building Design/Construction, Consultant*

Konrad Advising, LLC
Konrad, Tom
121 N Quaker Hill Road
Pawling, NY 12564
Tel: 845-493-0312
tom@tomkonrad.com
www.altenergystocks.com
Description: *Are your investments helping to solve the problems of peak oil and climate change, or are*

they part of the problem? I help individuals and institutions use their money to help deal with and profit from the pressing problems fossil fuel depletion and greenhouse gas emissions, without taking on unnecessary risk.

I also do freelance writing on the intersection of clean energy and finance.

Specialties: *Finance/CPA*

Kraus-Fitch Architects, Inc.

Fitch, Laura
110 Pulpit Hill Road
Amherst, MA 01002
Tel: 413-549-5799
Fax: 413-549-7918
lfitch@krausfitch.com
www.krausfitch.com

Description: *Kraus-Fitch Architects was established in 2000 with the mission of working on environmentally and socially relevant projects. KFA remained at the forefront of the green design movement from this time, and also enjoys a specialty in programming and design of cohousing communities.*

Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Kuhn Riddle Architects, Inc.

Riddle, Christopher
28 Amity Street
Suite 2B
Amherst, MA 01002
Tel: 413-259-1630
Fax: 413-259-1621
criddle@kuhnriddle.com
www.kuhnriddle.com

Description: *Architectural and Interior Design - LEED Accredited Professionals*

Specialties: *Building Design/Construction, Lighting Design, Remodeling*

Lightway Green New Energy Co., Ltd.

Sien, William
33 Wood Avenue South
Suite 600
Iselin, NJ 08830
Tel: 626-703-6247
w.sien@lightwaysolarusa.com

Description: *Lightway is a vertically integrated solar panel manufacturer with local offices in Iselin, New Jersey. With 300 MW of manufacturing capacity, we are able to pass along our economies of scale cost savings to our customers. We offer quality, high powered UL/CEC certified panels through our local warehouse in New Jersey. Lightway also has developed partnerships within the financing sector that can help our customers get their projects off the ground through PPA providers/owners. Call us to learn more.*

Specialties: *Manufacturing, Photovoltaics*

Little Green Homes, LLC

Redmond, Chris
909 Islington Street, #5
Portsmouth, NH 03801
Tel: 603-283-6906
Fax: 603-319-4552
chris@littlegreenhomes.com
www.littlegreenhomes.com

Description: *Little Green Homes, LLC is a residential design-build company focusing on healthy, durable and energy efficient new homes and renovation/addition projects.*

Specialties: *Building Design/Construction, Remodeling*

Living Structures, Inc.

Caplan, Gregory
93 Sedgwick Street
Jamaica Plain, MA 02130
Tel: 617-721-7770
Fax: 617-524-5954
caplan@livingstructures.net
www.livingstructures.net

Description: *Living Structures is dedicated to providing earth-friendly building services. We are offering whole building renovation in the form of Deep Energy Reftrofits.*

Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

M.J. Chojnicki Architect, PC

Chojnicki, Michael
58 Skyview Drive
Callicoon, NY 12723
Tel: 845-887-4181
mchojnicki33@gmail.com

Description: *architecture, planning and design studio of Catskill Region and NE Pennsylvania.Focus/direction is on sustainable design-new and renovations,alternative energy and adaptive reuse*

Specialties: *Alternative Technologies, Consultant, Other Renewable Energy Generation*

M.L. Schmitt, Inc.

Noyes, David
P.O. Box 2070
371 Taylor Street
Springfield, MA 01101
Tel: 413-733-7868
Fax: 413-731-8819
servicecall@mlschmittelectric.com
www.mlschmittelectric.com

Specialties: *Lighting Design, Photovoltaics*

Maine Passive House

Kruse, Jesper
278 Rowe Hill Road
Greenwood, ME 04255
Tel: 207-890-3874
jesper@mainepassivehouse.com
www.mainepassivehouse.com

Description: *We build and design extremely energy efficient buildings. As a Certified Passive House Consultant we do energy calculations using the PHPP software.*

Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Malcolm & Parsons Insurance Agency, Inc.

Parsons, David
770 Washington Street
P.O. Box 527
Stoughton, MA 02072-0527
Tel: 1-800-FORTIFY (367-8439)
Fax: 781-344-1425
dlp@malcolmandparsons.com
www.malcolmandparsons.com

Description: *Guaranteed insurance and bonding provided to environmental, green, emerging technology, and building professionals throughout MA, RI, and NH. We make your insurance easy!*

Specialties: *Insurance*

Maple Hill Architects, LLC

Sacra, Doug
55 Glezen Lane
Wayland, MA 01778-1605
Tel: 508-358-1615
doug@maplehillarchitects.com
www.maplehillarchitects.com

Description: *Maple Hill Architects is a full service design firm specializing in "green" design work in a variety of project types including educational, religious, and residential.*

Specialties: *Building Design/Construction, Energy Conservation, Photovoltaics*

Mark Allen Electric

Allen, Mark
P.O. Box 1395
Arlington, MA 02474-0022
Tel: 617-852-6056
info@markallenelectric.com
www.markallenelectric.com

Description: *NABCEP Certified Solar PV Installer™, Mark Allen offers solar PV site evaluation, design, install, and repair. Mark Allen is a Master Electrician in the Greater Boston area.*

Specialties: *Green Electricity, Photovoltaics*

Mass Audubon

Poor, Bancroft
208 South Great Road
Lincoln, MA 01773
Tel: 781-259-2110
Fax: 781-259-8899
bpoor@massaudubon.org

Specialties: *Environmental Education, Public Policy, Consumer Information*

Mass Renewables

Kelley, Mike
P.O. Box 472
Village Station
Medway, MA 02053
Tel: 508-533-7671
mkelley@massrenewables.net

Description: *Photovoltaic and Solar hot water design and installation*

Specialties: *Domestic Water Heating, Photovoltaics*

Massachusetts Clean Energy Center

Campbell, Marybeth
55 Summer Street
9th Floor
Boston, MA 02110
Tel: 617-315-9305
mcampbell@masscec.com
www.masscec.com

Description: *Massachusetts is leading the way in innovative and comprehensive energy reform that will make clean energy a centerpiece of the Commonwealths economic future. The Green Jobs Act of 2008 created the Massachusetts Clean Energy Center (MassCEC) to accelerate job growth and economic development in the states clean energy industry. This new quasi-public agency serves as a clearinghouse and support center for the clean energy sector, making direct investments in new and existing companies, providing assistance to enable companies to access capital and other vital resources for growth, and promoting training programs to build a strong clean energy workforce that capitalizes on the job*

opportunities created by a vital new industry.

MassCEC is committed to leveraging Massachusetts outstanding resources in academic research, technology entrepreneurship, and workforce skills to accelerate growth of the clean energy industry. The result of these efforts will be new technologies, new companies, and a workforce ready to roll up its sleeves to ensure Massachusetts' place as a national clean energy hub.

Specialties: *Alternative Technologies, Workforce Development, Energy Education*

Matrix Energy, Inc.

Wilkinson, Brian
296 Labrosse Avenue
Pointe-Claire, QC H9R-5L8
Canada
Tel: 514-630-5630
Fax: 514-426-9123
bwilkinson@matrixenergy.com
www.matrixenergy.com

Description: *With over 125 solar air heating projects to its credit, Matrix Energy has supplied over 400,000 ft2 of solar fresh air heating collector area since 1990. These systems provided 2,331,000 CFM of ventilation air saving over 28,748 mWh in energy costs while reducing total CO2 emissions by over 7608 tonnes annually.*

MatrixAir™ TR
Designed for new construction or retrofits this patent-pending, unglazed transpired solar air heating collector resembles conventional exterior metal siding. Recommended for solar air heating systems with total fresh air flow needs of at least 3000 CFM. The transpired solar air collectors require the use of an air outlet below the mid point of the collector.

MatrixAir™ BP
Ideally suited for new construction with collector heights ranging from 12 - 24 ft, this backpass solar air collector performs to within 99% of the performance of our transpired solar air heating collector thanks to our unique, modular, patent-pending design. Backpass (BP) solar air heating systems are well suited to upper wall-mounted fresh air inlets prescribed by ASHRAE 62.1

MatrixAir™ DT, Roof Mounted Solar Air Collector
With operating efficiency of up to 89%, this modular transpired collector will deliver up to 250 CFM per module and may be connected in a combination of series and parallel configurations to address a wide variety of roof layouts or CFM requirements.

Specialties: *Alternative Technologies, Photovoltaics, Space Heating/Cooling*

Matthew Cavanaugh Photography

Cavanaugh, Matthew
40 Garfield Street
Greenfield, MA 01301

Specialties: *Photography*

McCauley Lyman, LLC

Winans, Jill
10 Speen Street
Third Floor
Framingham, MA 01701
Tel: 508-665-5802
Fax: 508-665-5858
jillwinans@mccauleylyman.com
www.mccauleylyman.com

Description: *McCauley Lyman advises people about energy and business law and represents them in business-related transactions. We have a particular focus on the energy industry, including energy regulatory agencies, and have done a great deal of work with all aspects of developing, financing and operating independent energy projects. We help people negotiate letters of intent and contracts, arrange financings, buy and sell businesses and their assets, resolve disputes, and do the myriad other things business people (and government officials who deal with business people) need to get done in order to accomplish their business objectives.*

We also welcome assignments as arbitrators and mediators.

McCauley Lyman lawyers stay focused on achieving our clients' goals. We understand the need for timeliness, cost control, and practicality. We make very sure that we are always part of the solution (and not otherwise). We keep perspective on each task as it relates to the client's overall objectives.

We are sensitive to our responsibilities as law counselors as well as advocates. We take great care to ensure that our advice is clear and that our clients understand our reasons in giving it. Clients don't always want to follow our advice and, when they make a different decision, we accept it and follow through on it. (Our clients don't make illegal or unethical decisions.)

As outside counsel, our clients expect us to perform at the highest level, and we do.

Specialties: *Legal*

Michael Beattie Architect

Beattie, Michael
P.O. Box 1010
Middletown Springs, VT 05757
Tel: 802-235-2468
mbeattie@vermontel.net
https://sites.google.com/site/vermontgreenhome/

Description: *MBA uses a personalized and collaborative process for new and renovated design projects, using energy+materials conservation, renewables, responsive siting and healthy interiors.*

Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Mink Hill Timber Frame Homes, Inc

Whitehead, Kyle
285 Davis Road
Bradford, NH 03221
Tel: 603-938-6219
minkhilltimberframes@gmail.com
www.minkhilltimberframes.com

Description: *Building sustainable, high performance timber frame homes since 1995. Hand crafted timber framing is coupled with our personal focus on the Arch details and energy performance*

Specialties: *Building Design/Construction, Insulation, Remodeling*

Mount Wachusett Community College

Walsh, John
444 Green Street
Gardner, MA 01440
Tel: 978-630-9194
Fax: 978-630-9554
jdwalsh@mwcc.mass.edu
www.mwcc.edu

Specialties: *College/University*

Mulberry Tree Builders, LLC

Liscord, Paul
24 Old Amherst Road
Mont Vernon, NH 03057
Tel: 603-673-2603
Fax: 603-673-2603call first
pliscord@aol.com

Specialties: *Building Design/Construction, Consultant*

National Fiber

Hoch, Chris
50 Depot Street
Belchertown, MA 01007-9619
Tel: 413-283-8747
chris@nationalfiber.com
www.nationalfiber.com

Description: *Cellulose is the only green, affordable, high-performance insulation. It is the only insulation in numerous award-winning zero net energy homes. Ideal for retrofit or new construction.*

Specialties: *Energy Conservation, Insulation*

National Grid

Cantello, Paul
1 Metrotech Center 13th Floor
Brooklyn, NY 11201
Tel: 718-403-6963
Fax: 315-424-2166
paul.cantello@us.ngrid.com
www.nationalgridus.com

Description: *National Grid (LSE: NG.; NYSE:NGG) is an international electricity and gas company and one of the largest investor-owned energy companies in the world. Our core business is the delivery of electricity and natural gas. We are committed to serving customers well, delivering energy safely and reliably, and keeping costs low.*

Our vision is the long term aspiration for National Grid—what we want to be in the future:
"We, at National Grid, will be the foremost international electricity and gas company, delivering unparalleled safety, reliability and efficiency, vital to the wellbeing of our customers and communities."

"We are committed to being an innovative leader in energy management and to safeguarding our global environment for future generations."

Specialties: *Green Electricity, Consumer Information, Energy Audit Services*

NC Electronics, Inc.

Ionescu, Cristian
14 Massasoit Road
Nashua, NH 03063-1310
Tel: 603-889-1938
Fax: 603-889-1938
insq@advanced-engineering.com
www.advanced-engineering.com

Description: *NC Electronics, Inc. provides services as a technical consultant, product design consultant or litigation consultant, in areas involving energy efficiency and*

renewable energy technologies.
Specialties: *Legal, Alternative Technologies, Consultant*

NEO Virtus Engineering, Inc.
Bing, James
410 Great Road, B-6
Littleton, MA 01460
Tel: 978-952-2444
Fax: 978-952-6434
jbing@neovirtus.com
www.neovirtus.com
Specialties: *Photovoltaics*

New Commons
Leaver, Robert
545 Pawtucket Avenue
Suite 106A
Pawtucket, RI 02860
Tel: 401-475-6762
Fax: 401-475-6742
rleaver@newcommons.com
Description: *New Commons is a whole new kind of think tank which helps clients move from thought to action by helping them build a network and then mobilize that network to get the job done.*
Specialties: *Consultant*

New England Breeze, LLC
Durrenberger, Mark
7 Santos Drive
Hudson, MA 01749
Tel: 978-567-9463
Fax: 866-903-1651
mark@newenglandbreeze.com
newenglandbreeze.com
Description: *New England Breeze Solar, LLC is a turn-key installer of residential and commercial Solar Systems including Photovoltaics and solar hot water. In business since 2006, we have installed over 70 systems. Our customers like our personal service and attention to detail with our quality installations. Let us help you save the planet with Sunshine and Breezes!*
Specialties: *Photovoltaics, Solar Hot Water*

New England Renewable Energy Systems
Malloy, Edward
41 Parks Drive
Sherborn, MA 01770
Tel: 508-308-0119
Fax: 508-760-5381
edward.malloy@nerenewable.com
www.nerenewable.com
Description: *We are here to deliver you the highest quality HVAC and renewable energy systems, for the lowest, most predictable energy costs possible.*

New England Renewable Energy Systems has a single mission to serve our customers by enabling the lowest most predictable energy costs possible and in many cases an off-grid, zero-carbon energy status for residential and commercial applications in Boston Massachusetts, on Cape Cod and all of New England.

Importantly, our world-class, seasoned staff understands the same renewable technology solution is not necessarily appropriate for every circumstance and more often an integration of technologies is the most valuable, effective, and community sensitive.
Specialties: *Geothermal, Photovoltaics, Wind*

New England Solar & Green Solutions
Guntlow, Andrew
55 North Street
Williamstown, MA 01267
Tel: 413-458-4966
Fax: 413-458-2712
andrewg@nesolarandgreen.com
www.nesolarandgreen.com
Description: *Specializing in renewable energy & energy conservation, we offer extensive design & construction experience & use the latest products & techniques to ensure the highest standards.*
Specialties: *Alternative Technologies, Energy Conservation, Photovoltaics*

New England Sustainable Homes, Inc.
Ouellet, David
139 Butman Road
Lowell, MA 01852
Tel: 978-337-0776
deo@newenglandsustainablehomes.com
newenglandsustainablehomes.com
Specialties: *Building Design/Construction, Alternative Technologies*

New Tapestry, LLC
Anway, Randall
P>O. Box 4066
Old Lyme, CT 06371-1815
Tel: 203-623-3156
randy@new-tapestry.com
www.new-tapestry.com
Description: *New Tapestry, LLC offers design-oriented support for ecologically and community-minded clients. Principal Randall Anway is a Registered Architect (CT and NY, NCARB).*
Specialties: *Building Design/Construction, Consultant, Research*

New York State Energy Research and Development Authority (NYSERDA)
17 Columbia Circle
Albany, NY 12203-6399
Tel: 1-866-NYSERDA
Fax: 518-862-1091
info@nyserda.org
www.nyserda.org
Description: *NYSERDA offers objective information and analysis, innovative programs, technical expertise, and funding to help New York businesses and residents increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect our environment and create clean-energy jobs. A public benefit corporation, NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.*

NYSERDA strives to facilitate change through the widespread development & use of innovative technologies to improve the State's energy, economic, & environmental well-being. NYSERDA is committed to public service, striving to be a model of efficiency and effectiveness, while remaining flexible & responsive to its customers' needs. NYSERDA's programs & services provide a vehicle for the State to work collaboratively with businesses, academia, industry, the federal government, environmental community, public interest groups, and energy market participants. Through these collaborations, NYSERDA seeks to develop a diversified energy supply portfolio, improve market mechanisms, & facilitate the introduction & adoption of advanced technologies that will help New Yorkers plan for & respond to uncertainties in the energy markets.

To learn more about NYSERDA programs and funding opportunities visit www.nyserda.org.
Specialties: *Alternative Technologies, Consumer Information, Research*

Newport Solar
Sabetti, Doug
14 Vernon Avenue
Newport, RI 02840
Tel: 401-787-5682
doug@newportsolarri.com
www.newportsolarri.com
Description: *Newport Solar is a full service provider of solar energy systems specializing in the design and installation of solar electric systems.*
Specialties: *Photovoltaics*

Nexamp, Inc.
Dahl, Emily
21 High Street, Suite 209
North Andover, MA 01845
Tel: 978-688-2700
edahl@nexamp.com
www.nexamp.com
Description: *Nexamp is a leading provider of renewable power and clean energy solutions. The company has delivered over 300 successful energy projects ranging from utility-scale solar photovoltaic installations to comprehensive clean energy master plans. With a unique combination of energy project finance, design, construction, and operations experience, coupled with expertise in technologies, markets, and policy, Nexamp makes clean energy simple and profitable for our clients and partners.*
Specialties: Photovoltaics, Consultant, Alternative Technologies

Nexamp, Inc.
McClintock, Scott
21 High Street
Suite 209
North Andover, MA 01845
Tel: 978-688-2700
Fax: 978-416-2525
smclintock@nexamp.com
www.nexamp.com
Description: Nexamp provides clean energy services & solutions for business & government in the Northeast: energy assessments; solar, geothermal, efficient lighting, wind, & more.
Specialties: *Energy Audit Services, Geothermal, Photovoltaics*

North East Green Initiative, LLC

Warren, Matt
3 Garfield Avenue
Rumford, RI 02916
Tel: 401-699-7369
matt@northeastgreen.net
www.northeastgreen.net
Specialties: *Photovoltaics, Solar Hot Water*

Northeast Solar & Wind Power, LLC

Buonomano, Vito
68 Dorrance Street #169
Providence, RI 02903
Tel: 401-228-1900
info@neastsolar.com
http://www.neastsolar.com
Description: *Northeast Solar, East Greenwich, Rhode Island: offering your home/business Solar Systems to provide you with renewable energy.*
Specialties: *Alternative Technologies, Energy Audit Services, Solar Hot Water*

NorthEast Solar Design Associates

Bronner, Ann
136 Elm Street
Hatfield, MA 01038
Tel: 413-247-6045
info@northeastsolar.biz
www.northeastsolar.biz
Description: *NorthEast Solar —formerly Green in Green Inc.—provides professional design and turnkey installation of commercial, municipal, residential and "village" solar electric and solar hot water systems using the latest in state-of-the-art design and installation methods. We use a whole systems design approach - balancing the technical and economic tradeoffs with the non-technical needs of the client to ensure you get the very best system possible.*

Our design wisdom and installation experience stems from over 28 years serving homeowners, businesses, non-profits & NGOs, government agencies, and sustainability projects all over the world. Our long term relationships with several suppliers in the industry ensure us a steady supply of solar modules and allows us to choose the very best components to match the needs of the project. And our site survey crew, design crew and installation crew work closely together so that our design savvy is carried through every stage of the installation. Our primary design driver is the customer. We look forward to working with you!
Specialties: *Photovoltaics, Radiant Heating, Solar Hot Water*

Northern Manhattan Improvement Corp

Rieber, Daniel
76 Wadsworth Avenue
New York, NY 10023
Tel: 212-822-8340
danrieber@nmic.org
Description: *NMIC is a community-based, nonprofit organization founded in 1979 that serves Washington Heights and Inwood, in upper Manhattan. Beginning with two people operating on a small start-up grant, we have grown over the past 30 years to over 100 staff members, working to stabilize the community and help residents build a better life. We achieve this by preserving affordable housing through legal services, community organizing, and building weatherization; by promoting economic self-sufficiency through adult education and workforce development; and by stabilizing families through social services, health education, and domestic violence intervention. From its inception, NMIC has worked hard to empower our community's poorest residents through education, training, organizing, and support.*
Specialties: *Consultant, Communications, Consumer Information, Social Services*

Nova Power Group, LLC

Smith, Susan
150 North Radnor Chester Road
Suite F200
Radnor, PA 19087
Tel: 800-264-3461
Fax: 800-264-3461
info@novapowergroup.com
www.novapowergroup.com
Description: *Nova Power Group, llc. utilizes innovative approaches to financial structuring and provides multiple options for solar power installations. We provide you with a partner that has the experience in financial structuring options for your projects.*

Nova Power Group focuses on Alternative Energy installations that are in the 250kW to 5mW range. We serve the middle market commercial, non-profit and government sector entities. We are not limited to but focus on East Coast, Mid-Atlantic locations. Nova Power Group will provide financial structuring options for all facets of your Alternative Energy projects—Solar PV, Wind, Bio-Fuels.
Specialties: *Alternative Technologies, Other Renewable Energy Generation*

Noveda Technologies

Rao, Govi
31 Tannery Road
Branchburg, NJ 08876
Tel: 908-534-8855
jduke@noveda.com
www.noveda.com
Description: *Noveda Technologies is the award-winning global leader in real-time, Web-based monitoring for conventional and renewable energy systems. Our products and services enable you to lower energy costs, reduce carbon footprint and enhance occupant comfort in your buildings.*
Specialties: *Energy Monitoring, Alternative Technologies*

Novus Engineering, PC

Dana, Dawn
25 Delaware Avenue
Delmar, NY 12054-1504
Tel: 518-439-8235
Fax: 518-439-8592
ddana@novusengineering.com
www.novusengineering.com
Description: *Novus Engineering is a multi-disciplinary engineering consulting firm, focusing on energy-consuming systems. We also provide comprehensive environmental compliance services.*
Specialties: *Energy Audit Services, Geothermal, Lighting Design*

NSTAR

1 NSTAR Way, SW360
Westwood, MA 02090
Tel: 800-592-2000
Fax: 781-441-8855
roseann.brusco@nstar.com
www.nstar.com
Description: *NSTAR is the largest Massachusetts-based, investor-owned electric and gas utility, with revenues of approximately $3.3 billion and assets totaling approximately $8.3 billion. NSTAR transmits and delivers electricity and gas to 1.1 million electric customers in 81 communities and nearly 300,000 gas customers in 51 communities. NSTAR employs more than 3,200 employees in its regulated business. NSTAR is committed to conducting its business in a way that least impacts the environment. We're always looking for new and different ways to meet that commitment. It's all part of our mission of delivering great service to our customers. At NSTAR we're proud of our two decade tradition of offering our customers energy efficiency programs, and moving to further demonstrate our commitment to deliver great service by providing customers with information and tools to help them take part in improving our environment.*

In the past five years alone, NSTAR's Energy Efficiency programs have helped customers save 6.5 million therms of natural gas and 800,000 megawatt hours of electricity. This is the equivalent of reducing carbon dioxide emissions by half a million tons. Such programs are available to both electric and gas customers, and designed to not only save on your monthly energy bill, but also help the environment.
Specialties: *Energy Audit Services, Green Electricity, Other Renewable Energy Generation*

O'Hara Builders, Inc.

O'Hara, Brendan
21 Candle Pine Circle
East Falmouth, MA 02536
Tel: 508-457-1688
Fax: 508-457-1688
oharabldrs@comcast.net
www.oharabuilders.com
Description: *Specializing in energy efficient custom remodeling, O'Hara Builders provides total client satisfaction. We provide full sustainable construction services in the Boston and upper Cape Cod areas.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

October Engineering Associates, LLC

Morrison, Robert
16 October Road
Sudbury, MA 01776
Tel: 508-561-7553
rlm@octoberengineering.com
Specialties: *Engineering Services*

Olga Kahn
Kahn, Olga
30 Marsh View
Wellfleet, MA 02667-6948
Tel: 508-349-0997
Fax: by appt
olgakahn@comcast.net
Description: *Architectural services, owner's rep, construction supervision. Specializing in reuse of existing structures; modular construction. Arch Lic #7382 & CSL #86402. SOMWBA-certified.*
Specialties: *Building Design/Construction, Lighting Design, Remodeling*

ONTILITY
Eiben, Nicole
3403 N Sam Houston Parkway W
Suite 300
Houston, TX 77086
Tel: 281-854-1400
nicole.eiben@ontility.com
www.ontility.com
Description: *ONTILITY Services - Professional development & certification training; stocking warehouse at competitive prices; full range of support, financial and counsultive services.*
Specialties: *Consultant, Photovoltaics, Solar Hot Water*

Optimal Energy Solutions, LLC
Spindler, Henry
64 Peg Shop Road
Keene, NH 03431
Tel: 603-283-0366
Fax: 603-283-0366
hcs@optimalenergysolutions.net
Description: *Comprehensive building system analysis and design, including: building envelope, high-efficiency HVAC (esp. hydronic), customized control systems and renewable energy.*
Specialties: *Biomass, Radiant Heating, Space Heating/Cooling*

PAH Associates
Horowitz, Paul
9 Quorn Hunt Road
Simsbury, CT 06092
Tel: 860-658-9506
pahorowitz@earthlink.net
Description: *Provides management and regulatory consulting services to institutions, businesses, and individuals to support their consideration and implementation of energy efficiency, renewables, green electricity purchases, and overall sustainable strategies.*
Specialties: *Energy Conservation, Public Policy, Research*

Panich + Noel Architects
Panich, David
1153 Grove Street
Framingham, MA 01701
Tel: 740-591-9901
dpanich@pnarch.com
pnarch.com
Description: *David Panich, AIA, LEED AP is a registered architect with experience on a wide variety of project types. He specializes in sustainable and energy efficient designs.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Partners For Architecture
Grasso, Stephen
48 Union Street
Stamford, CT 06906
Tel: 203-708-0047
Fax: 203-348-4165
studio@pfarch.net
www.pfarch.net
Description: *Full service architectural firm providing healthy, sustainable and low energy design solutions in commercial and residential construction. Principals: Kevin Davignon and Rainer Schrom, LEED AP*
Specialties: *Building Design/Construction*

Partners for Architecture
Grasso, Stephen
48 Union Street
Bldg. 1
Stamford, CT 06906
Tel: 203-708-0047
Fax: 203-348-4165
lagrasso@pfarch.net
www.pfarch.net
Description: *After a combined 75 years of working for many successful organizations, Partners For Architecture Inc. was inaugurated in 1999 with the dedication to establish an architectural firm that provides comprehensive and environmentally sensitive architectural services.*

The very foundation of Partners for Architecture is the desire to create a built environment that is respectful to its surroundings and does not view our planets resources as 'being there for the taking'. From a conference table built from scrap steel to an office space exposing beautiful natural materials previously hidden by our societys habits, the environment is not something we talk about, it is something about which we care passionately and reinforce in our own office space.

Beyond the environment, our 'workshop' is one which eliminates the common "chain of commands" found in large firms, our organization is known for a fresh, uncomplicated and straight-forward hands-on approach, with a principal completely involved in every aspect of your project.
Specialties: *Building Design/Construction, Energy Conservation*

Paul Huijing, Inc. Construction and Engineering
Huijing, Paul
P.O. Box 516
Wilbraham, MA 01095
Tel: 413-599-4884
Fax: 413-599-4884
phinc@charter.net
www.paulhuijing.com
Description: *Paul Huijing founded Paul Huijing, Inc. Construction and Engineering with a goal of establishing a small personal construction company with time to focus on the individual needs of his clients. Paul stresses sustainable projects with lasting value. His commitment to efficiency, organization, responsiveness, and knowledge make the company unique. An organized professional approach makes life easier/less stressful for customers. Quality scheduling and construction are a powerful combination for customers. A realistic completion date enables you to accurately plan your move-in date. Keywords: Residential construction, super insulation, Energy Star, new homes, remodeling, energy conservation*
Specialties: *Building Design/Construction, Insulation, Remodeling*

Petersen Engineering, Inc.
Petersen, James, P. E.
P.O. Box 4774
Portsmouth, NH 03802
Tel: 603-436-4233
james@petersenengineering.com
www.petersenengineering.com
Description: *Petersen Engineering provides green consulting services in the areas of HVAC, plumbing, fire protection and building envelope for commercial, residential and industrial buildings.*
Specialties: *Building Design/Construction, Energy Conservation, Space Heating/Cooling*

Petra Schweitzer Translations
Schweitzer, Petra
18 Woodsia Ridge
Greenfield, MA 01301
Tel: 413-325-1875
Fax: 866-378-8230
petra@petraschweitzer.com
www.petraschweitzer.com
Description: *English to German and German to English technical document translation in the fields of Renewable Energy and Energy Efficiency.*
Specialties: *Translation*

Philippe Campus Architect, LLC
Campus, Philippe
202 South Motowese Street
Branford, CT 06405
Tel: 203-483-0468
phcarchitect@snet.net
www.geosolararchitect.com
Specialties: *Alternative Technologies, Building Design/Construction, Remodeling*

Phinney Design Group
Phinney, Michael
142 Grand Avenue
Floor 3
Saratoga Springs, NY 12866
Tel: 518-587-7120
Fax: 518-587-7250
info@phinneydesign.com
www.phinneydesign.com
Description: *Phinney Design Group (PDG) is a multi-disciplinary Architecture, Interior Design, and Green Building Consulting firm with a focus on sustainable and environmentally sensitive construction methods.*

We make it easy to be green... Through the use of LEED and NYSERDA programs our design team and consultants are leaders in assessing the potential of your project to benefit from green building design and technology. Through detailed payback analysis and life-cycle costing of building products and mechanical equipment, we can evaluate and inform owners of opportunities available to them. Keeping owners aware of emerging technology and how it may benefit both operation and maintenance costs and improve the health and attitude of the inhabitants is something we pride ourselves on.

Whether pursuing green building technology to the greatest extent

practicable or simply utilizing only the minimum "common sense" approach to green design, we can supply the necessary information to make an educated decision when investing in sustainable building practices.

PDG has worked closely with city planning officials throughout the development of various architectural projects from single family residences in historic districts to multi-use urban infill development. The firm has a long track record of designing and coordinating through construction the completion of environmentally friendly homes, commercial offices, and retail spaces. Visit us on the web @ www .phinneydesign.com.

Specialties: *Building Design/Construction, Remodeling, Research*

Phinney Design Group

Phinney, Michael
142 Grand Avenue
Saratoga Springs, NY 12866
Tel: 518-587-7120
Fax: 518-587-7250
info@phinneydesign.com
www.phinneydesign.com

Description: *Phinney Design Group is a multi-disciplinary Architecture, Interior Design and Green Building Consulting firm with a focus on sustainable and environmentally sensitive construction methods.*

Specialties: *Building Design/Construction, Interior Design, Consultant*

Picton Brothers, LLC

Picton, Jim
P.O. Box 438
10 Titus Road
Washington Depot, CT 06794
Tel: 860-868-5007
info@pictonbrothers.com
www.pictonbrothers.com

Description: *We are a construction & general contracting co. interested in progressive projects that incorporate practical & pleasing design geared to long-term sustainable use of resources.*

Specialties: *Building Design/Construction, Remodeling*

Pinkham Building & Solar Services

Pinkham, Chris
P.O. Box 1419
507 County Road
Hillsboro, NH 03244-1419
Tel: 603-464-5821
Fax: 603-464-5821
cp_info@mcttelecom.com

Description: *We design, sell, install and service Sunda Solar domestic hot water systems throughout New Hampshire. Teach the solar workforce program at Lakes Region Community College.*

Specialties: *Consumer Information, Domestic Water Heating, Remodeling*

Polanik Architects

Polanik, Gregory
6 Pine Cone Drive
East Sandwich, MA 02537
Tel: 508-833-6540
mr7b7@aol.com
www.polarch.com

Description: *Specializing in environmentally appropriate architecture, planning, & consulting, we strive to design efficient, healthy buildings that preserve the local community.*

Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Polar Solar

Smith, Cecil
151 Benton Road
North Haverhill, NH 03774
Tel: 603-787-2257
polarsolar1@yahoo.com
www.polarsolarnh.com

Description: *Polar Solar, NH will strive to offer affordable options for energy efficiency and energy independence in homes and businesses by reducing or eliminating the need for fossil fuel use through design and installation of integrated energy efficient and renewable energy systems such as: solar electricity and solar hot water, rainwater collection and storage, composting toilets and composting.*

Specialties: *Solar Hot Water, Photovoltaics, Energy Conservation*

Precision Decisions, LLC

Vreeland, Chris
P.O. Box 746
Otis, MA 01253
Tel: 413-269-4965
vreeland67@msn.com

Description: *Providing engineering services for renewable energy, conservation and green construction. We service contractors, architects and directly to industry, commercial and residential clients. Professional Engineering licensed in MA, CT, NY, RI.*

Specialties: *Alternative Technologies, Consultant, Photovoltaics, Energy Conservation*

Price Sustainability Associates, Inc.

Price, Mark
28 Walnut Street
Maynard, MA 01754
Tel: 978-760-2723
pricesustainability@me.com

Description: *PSA offers consulting for energy efficiency, and Green Building Rating Systems, including LEED for Homes, for residential and multi-family clients throughout New England.*

Specialties: *Consultant, Energy Audit Services, Energy Conservation*

Public Service of New Hampshire

Lemay, Gary
P.O. Box 330
Manchester, NH 03105-0330
Tel: 603-634-3500
lemaygs@nu.com
www.psnh.com

Specialties: *Green Electricity, Consumer Information, Alternative Technologies*

PV Squared

Stillinger, Bill
324 Wells Street
Greenfield, MA 01301
Tel: 413-772-8788
bills@pvsquared.coop
www.pvsquared.coop

Description: *PV Squared is a worker-owned cooperative dedicated to making our shared community a better place to work and live. We are based out of two offices in western Massachusetts and central Connecticut. Our organization is committed to the highest quality service for you, while providing jobs at fair wages in our community. We are eager to move toward a sustainable society by learning and adapting to new circumstances in ways that nurture and restore, rather than harm, natural systems.*

We're a local company operating year round; PV Squared is here to help you to own and maintain your renewable energy systems. We provide advice, equipment and assistance.

Specialties: *Photovoltaics, Solar Hot Water, Wind*

R.H. Irving Co., Inc.

Irving, Bob
543 West Salisbury Road
Salisbury, NH 03268
Tel: 603-648-2635
Fax: 603-648-6470
rhirving@tds.net
www.rhirvinghomebuilders.com

Description: *Over 37 years of comfortable sunny homes. High Performance, Superinsulated, homes & renos; last home HERS: 52, air change 1.6 @50 pascals. Certified Passive House Consultant*

Specialties: *Building Design/Construction, Remodeling*

R.L. Benton — Builder

Benton, Rich
154 Schoolhouse Road
Center Sandwich, NH 03227
Tel: 603-284-6860
Fax: 603-284-6860
rlbenton@cyberpine.net

Description: *Full service builder/designer for energy-efficient residential construction in the NH lakes region. Timber-framing as well as advanced hybrid construction, with expertise in solar thermal system design and installation since 1978. Our Sandwich Cabinet Shop can furnish your project as well.*

Specialties: *Building Design/Construction, Energy Conservation, Other Renewable Energy Generation*

Ra Solar Company

Vann, Jim
P.O. Box 512
Waitsfield, VT 05673-3222
Tel: 802-496-9496
yimbo98@gmavt.net

Description: *Builders of energy efficient, solar, green homes, additions, and renovations since 1978. We can provide complete design/build services to our clients. We also offer green project consulting, plans modification, and specifications writing.*

Specialties: *Building Design/Construction, Energy Audit Services, Indoor Air Quality*

Re:Vision Architecture

Kelly, Scott
133 Grape Street
Philadelphia, PA 19127
Tel: 215-482-1133
young@revisionarch.com
www.revisionarch.com

Description: *Named Best Green Architect by Philadelphia Magazine and Sustainable Design Leader by PA Environmental Council, Re:Vision*

Architecture is a deep green architecture and sustainability/LEED consulting practice that was founded in 2001 to specialize exclusively in green building projects that take less from the planet (fewer natural resources, less pollution) and give more to people (more daylight, comfort, health, beauty, prosperity).

As an early adopter of sustainable design, Re:Vision has an extensive portfolio of completed work that represents the following key services:

** Architectural design for projects that range from common sense green to cutting-edge sustainable design*
** LEED/sustainability technical consulting and management for designers, contractors, and owners*
** Green operations and maintenance implementation*
** Professional green design charrettes*
** Sustainability-related education*
** Green behavior change projects targeting building users*
** Sustainability research and policy development*
** Fundraising for Green Buildings*
** Indoor Air Quality Testing*

Behind the projects and the firm, Re:Vision is comprised of friendly people who are passionate about sustainability and community.
Specialties: *Building Design/Construction, Consultant, Environmental Education*

Recycled Paper Printing
Truesdale, Todd
12 Channel Street
Suite 603
Boston, MA 02210
Tel: 617-737-9911
todd@recycledpaper.com
Description: *Recycled Paper Printing is the nation's oldest "green" printer. Founded in 1983, we specialize in sustainable printing using certified recycled papers, soy-based inks, and 100% certified wind-energy credits. We also produce an extensive line of sustainable ad specialty items.*
Specialties: *Environmental Education, Marketing, Publishing*

Renewable Sales LLC
Price, Kevin
16 Everett Street
Holliston, MA 01746
Tel: 508-309-4437
Fax: 508-302-1070
kprice@renewablesales.com
www.renewablesales.com
Description: *Renewable Sales, LLC provides contractors with photovoltaic, solar thermal, and geothermal products for residential and commercial use.*
Specialties: *Domestic Water Heating, Geothermal, Photovoltaics*

Reno Engineering and Light Design
Reno, Victor
Reno Road
HCR32 Box 729
Marlow, NH 03456-9708
Tel: 603-446-3426
Fax: 603-446-3731
renoengineering@earthlink.net
Description: *Architectural lighting design, energy-conscious lighting, and energy conservation. Also full electrical engineering services.*
Specialties: *Energy Conservation, Lighting Design*

Renovus Energy, Inc.
Weaver, Arthur
102 Cherry Street
Ithaca, NY 14850
Tel: 607-277-1777
Fax: 607-277-1277
art@renovusenergy.com
renovusenergy.com
Description: *Design, installation of renewable energy systems, commercial and residential, solar electric, solar thermal, wind, hydro. NABCEP-certified. NYSERDA Eligible.*
Specialties: *Domestic Water Heating, Photovoltaics, Wind*

Richard Renner Architects
Renner, Richard
35 Pleasant Street
Portland, ME 04101
Tel: 207-773-9699, 508-651-2385
Fax: 207-773-9599
rrenner@rrennerarchitects.com
www.rrennerarchitects.com
Description: *Environmentally responsible design is a cornerstone of our architectural practice.*
Specialties: *Building Design/Construction*

Ridgeview Construction
Carter, Shane
43 North Road
Suite 303
Deerfield, NH 03037
Tel: 603-303-7206
scarter@ridgeview-construction.com
www.ridgeview-construction.com
Description: *How we choose to build and renovate our homes is one of the most significant ways we impact our future. Businesses and homeowners vote with every dollar they spend - to fuel the global carbon footprint or build greener homes that improve quality of life today and tomorrow.*

Ridgeview Construction goes beyond the construction phase to account for the complete Home Life Cycle. By harmonizing the intricate systems within the home and property, we minimize the impact on the environment and produce a healthier, more efficient home. Best of all, we do this using local resources and our award-winning custom design. A Ridgeview home is a beautiful, healthy, high-performance home.

Ridgeview is committed to leading the way in sustainable development practices. Through education and leading by example, we envision a future where the standards for building sustainably are no longer the exception, but the rule.
Specialties: *Building Design/Construction, Insulation, Remodeling*

RJ Franey Mechanical Services, Inc.
Franey, Robert
56-A Nicoletta's Way
Mashpee, MA 02649
Tel: 508-539-8668
Fax: 508-539-8665
rjfraney@comcast.net
www.rjfraney.com
Description: *R. J. Franey Mechanical Services is a customer focused heating and air-conditioning company that was originally started in 1996. Located in Mashpee, MA, we employ highly trained people whose goal is to make our company the best service company in Cape Cod Area.*

Our company specializes in designing, engineering, and installing complete comfort systems for owners of existing homes and buildings just like yours. We take special pride in the craftsmen we train and employ--a fact you'll notice immediately in the attitude and integrity they bring to your job site. Our entire company works hard to make your experience with us hassle-free and enjoyable. Should we make a mistake, we will do everything in our power to correct it to your satisfaction.
Specialties: *Space Heating/Cooling, Alternative Technologies, Engineering Services*

Robert L. Spencer, AICP — Environmental Planning Consultant
Spencer, Robert
15 Christine Court
Vernon, VT 05354
Tel: 978-479-1450
Fax: 802-254-9607
spencebbc@aol.com
Description: *Professional planner specializing in organic waste management & project development. Assessment of on-site & off-site recycling of food waste, manure, yard waste & biosolids.*
Specialties: *Other Renewable Energy Generation, Research*

Royer Architects
Royer, Chris
237 Tremont Street
Newton, MA 02458
Tel: 617-244-4477
chris@royerarchitects.com
www.royerarchitects.com
Description: *Environmentally sensitive residential work in the New England region is our specialty. We enjoy the collaborative process of working with a client and their contractor to bring ideas to fruition.*
Specialties: *Building Design/Construction, Energy Conservation, Landscape Design/Construction*

RST Thermal
Hickey, Mary Ellen
372 University Avenue
Westwood, MA 02090
Tel: 781-320-9910
Fax: 781-320-9906
mehickey@rstreps.com
Specialties: *Domestic Water Heating, Space Heating/Cooling*

rTerra LLC
Radeka, Mary Pat
28 Jacome Way
Middletown, RI 02842
Tel: 401-619-5290
mpradeka@rterra.com
www.rterra.com
Description: *rTerra Renewable Energy Partners is a full-service renewable energy developer that provides turn-key wind and solar energy solutions and private equity resources for businesses.*
Specialties: *Photovoltaics, Wind*

Sage Architecture + Design, LLC
Craig, Sheila
558 Mineral Spring Avenue
Pawtucket, RI 02860
Tel: 401-305-3077
sheila@sagedesign.info
Specialties: *Building Design/Construction*

Sage Builders, LLP
Kantar, Jonathan
672 Chestnut Street
Newton, MA 02468
Tel: 617-965-5272
Fax: 617-630-5272
info@sagebuilders.com
www.sagebuilders.com
Description: *Award-winning, full service Boston area residential design-build company committed to responsible design and construction practices. Experts in energy efficiency and weatherization.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Salmon Falls Ecological Design
Erslev, Kim
16 Wilde Road
Shelburne Falls, MA 01370
Tel: 413-369-4044 x1
erslev@csld.edu
Specialties: *Building Design/Construction, Landscape Design/Construction*

Saltonstall Architects, Inc.
Saltonstall, William
380 Wareham Street
Marion, MA 02738
Tel: 508-748-1043
Fax: 508-748-2330
will@saltonstallarchitects.com
www.saltonstallarchitects.com
Description: *Providing architectural services to residential, commercial and institutional clients the firm is committed to sustainable design practices; focusing on working closely with our clients to design thoughtful, innovative, healthy and energy-efficient places to live and work.*
Specialties: *Building Design/Construction*

Sasaki Associates
Elbaum, Meredith
64 Pleasant Street
Watertown, MA 02472
Tel: 617-926-3300
www.sasaki.com
Description: *Green design is good business. Understanding and addressing environmental concerns are hallmarks of the work of our firm. We advance the limits of green design with innovative, interdisciplinary design concepts through planning and urban design, landscape architecture, architecture, interior design, eco-technologies, graphic design and strategic planning.*
Specialties: *Building Design/Construction, Landscape Design/Construction, Interior Design*

Schneider Electric Energy Solutions
Ventresca, Fred
23 Yogananda Street
Sandy Hook, CT 06482
Tel: 203-788-0894
fred.ventresca@buildings.schneider-electric.com
www.schneider-electric.com
Description: *Today, energy is at the heart of everyone's concern. More than ever, the current situation compels each and every one to achieve more while using fewer resources. Have you ever dreamed of improving your bottom line while consuming less energy and without a power outage? Global specialist in energy management, Schneider Electric can help. We make energy safe, reliable, efficient, productive and green. How? Simply by making energy visible and giving you the means to act to optimize its consumption.*
Specialties: *Energy Conservation, Alternative Technologies, Manufacturing*

Seacoast Energy Alternatives, Inc. (SEA Solar Store)
Bingham, Pamela
187 New Rochester Road
Dover, NH 03820
Tel: 603-749-9550
Fax: 603-749-9551
pam@seasolarstore.com
www.seasolarstore.com
Description: *Solar store providing domestic and commercial alternative energy options plus items to improve conservation measures in the home and business. Commercial solar hot water systems for hotels, schools and industry.*
Specialties: *Domestic Water Heating, Photovoltaics, Wind*

Seaside Solar Design/Builders
Mello, Stephen
1 Farrell Court
West Wareham, MA 02576
Tel: 508-295-8214
seasidesolar@comcast.net
Description: *Work in the practice of sustainability since 1981. Providing clients affordable design and construction services and achieving successful energy efficient new homes, renovations and additions to existing buildings.*
Specialties: *Building Design/Construction, Domestic Water Heating, Remodeling, Space Heating/Cooling*

Second Generation Energy
Whitaker, Edward
11 Rosenfeld Drive
Hopedale, MA 01747
Tel: 800-653-4270
Fax: 508-275-8541
info@sgegroup.com
www.secondgenerationenergy.com
Description: *We are an experienced solar photovoltaic installer offering personalized service combined with the highest industry credentials. We also provide SREC aggregation and marketing.*
Specialties: *Green Electricity, Photovoltaics, Solar Hot Water*

Sellars Lathrop Architects, LLC
Lathrop, Ann
1 Kings Highway North
Westport, CT 06880
Tel: 203-222-0229
ann@sla-arch.com
www.sla-arch.com
Description: *Small, woman-owned firm designing upgrades, additions and renovations for 21st century living. Primary projects are residential and light commercial work in Fairfield County, CT., emphasizing energy efficiency and smart building technologies to create high quality solutions with character and style.*
Specialties: *Building Design/Construction*

Shift Energy, LLC
Dunn, Michael
88 Airport Drive, Suite 200
Rochester, NH 03867
Tel: 603-817-7103
mick@shiftnrg.com
www.shiftnrg.com
Description: *Specializing in Solar Hot Air, Solar hot Water and Project Management in ME, NH, VT, MA, CT, RI and internationally.*
Specialties: *Solar Hot Water, Photovoltaics, Space Heating/Cooling*

Siemens Industry – Building Technologies Division
Drummond, Jerry
40 Sharpe Drive
Cranston, RI 02920
Tel: 401-225-5432
Fax: 781-575-9590
jerry.drummond@siemens.com
Specialties: *Energy Monitoring, Building Design/Construction, Energy Conservation*

SJP Environmental Consulting, LLC
Pick, Sally
PO Box 303
Montague, MA 01351
Tel: 413-367-0082
sjp@crocker.com
Description: *Offering a range of services including writing (i.e. news releases, policy papers, & grants); managing projects & collaborations; and directing public education programs.*
Specialties: *Communications, Consumer Information, Environmental Education*

Slater Technology Fund
Sparkman, Thorne
3 Davol Square
Suite A301
Providence, RI 02903-4762
Tel: 401-831-6633
nancy@slaterfund.com
www.slaterfund.com
Specialties: *Finance/CPA, Alternative Technologies*

Solar & Wind FX, Inc.
Schaefer, Chris
5115 South Hill Road
Canandaigua, NY 14424
Tel: 585-229-2083
chris@solarandwindfx.com
www.solarandwindfx.com
Description: *Providing Alternative Energy education, design, sales & install for Solar, Hydro & Wind. Visit New York's only OFF-Grid Design Center, "Where Knowledge Equals Power Independence".*
Specialties: *Building Design/ Construction, Green Electricity, Photovoltaics*

Solar Components Corporation
Keller, Scott
121 Valley Street
Manchester, NH 03103
Tel: 603-668-8186
Fax: 603-668-1783
skeller@solar-components.com
www.solar-components.com
Description: *Your supply source for active and passive solar systems and components since 1973. Catalog online. Over 100 products. Retail store open M-F 8AM-4:30PM*
Specialties: *Energy Conservation, Photovoltaics, Solar Hot Water*

Solar Frontier Americas, Inc.
Rolufs, Peter
3945 Freedom Circle
Santa Clara, CA 95054
Tel: 408-916-4150
www.solar-frontier.com
Description: *Solar Frontier is the world's largest and fastest-growing manufacturer of CIS thin-film photovoltaic modules. We combine proven technology, gigawatt- scale production capacity and world-record conversion efficiencies to offer more kilowatt hours at greater dependability. Our mission is to create the most economical, ecological solar energy solutions on Earth - on the world's largest scale. We operate in the US through our Solar Frontier Americas Inc. sales office.*
Specialties: *Manufacturing, Photovoltaics, Research*

Solar Installation, LLC
Gaydou, Roger
83 Ames Street
Brockton, MA 02302
Tel: 888-376-5271
service@solarinstallco.com
www.solarinstallco.com
Description: *Solar Installation LLC is a full service solar energy consulting & installation company. We provide system design and installation along with guiding you through federal energy incentives and state rebates. We will also determine which solar components will best meet your needs and deliver maximum return on investment.*
Specialties: *Energy Conservation, Green Electricity, Photovoltaics*

Solar Plumbing Design
Baldwin, Jessica
893 Bedford Avenue
Brooklyn, NY, 11205
Tel: 917-207-2403
pipeworks100@gmail.com
ww.solarplumbingdesign.com
Description: *Solar Plumbing Design is a NABCEP certified installer fully insured & accredited small business with 13 yrs. of plumbing experience and 4 yrs. in solar thermal.*
Specialties: *Solar Hot Water, Alternative Technologies*

Solar Source– A Division of The Melanson Co., Inc.
Kondos, John
353 West Street
Keene, NH 03431
Tel: 603-352-4232
jkondos@solarsourcene.com
www.solarsourcene.com
Description: *Serving New Hampshire and Vermont with solar energy systems for homes and businesses. With 13 years experience in PV, solar water heating and many decades of roofing from 5 locations.*
Specialties: *Photovoltaics, Roofing, Solar Hot Water*

Solar Store of Greenfield
John Ward, Claire Chang
2 Fiske Avenue
Greenfield, MA 01301
Tel: 413-772-3122
info@solarstoreofgreenfield.com
www.solarstoreofgreenfield.com
Description: *We meet all your renewable energy needs:solar electric, hot water, hot air, energy conservation, biomass heating, window inserts, lighting, biodiesel, and education.*
Specialties: *Domestic Water Heating, Photovoltaics, Space Heating/ Cooling*

SolarFlair Energy, Inc.
Arner, Matthew
11 Mayhew Street
Framingham, MA 01702
Tel: 508-293-4293
Fax: 508-293-4003
info@solarflair.com
www.solarflair.com
Description: *SolarFlair is a full service solar energy firm providing solar electric (PV) and solar hot water systems for Massachusetts homes and businesses. With over 10 years of experience and hundreds of systems installed, SolarFlair will help you achieve your goals for energy savings and energy independence. See our website for more information or contact us today.*
Specialties: *Energy Conservation, Photovoltaics, Solar Hot Water*

Solartechnic Contractors, Inc.
Cole, Clayton
234 West Corinth Road
Corinth, ME 04427
Tel: 207-285-7886
c1cole@roadrunner.com
solartechniccontractors.com
Description: *Est. 1987 Design service & installation of solar thermal-radiant heat-bioheat & geothermal systems. Maxxon/Gyp-Crete applicator; Radiant Panel Association Hall of Fame inductee.*
Specialties: *Alternative Technologies, Radiant Heating, Solar Hot Water*

Solectria Renewables LLC
Wiener, Natalie
360 Merrimack Street
Bldg 9, Floor 2
Lawrence, MA 01843
Tel: 978-683-9700 x157
Fax: 978-683-9702
natalie@solren.com
www.solren.com
Description: *Solectria Renewables, LLC is the leading U.S. based PV inverter, string combiner and web-based monitoring company for residential, commercial and utility-scale solar projects. Our wide range of products includes 1.8kW to 500kW grid-tied inverters for 1kW to 2MW photovoltaic systems. Solectria Renewables is backed by over 20 years experience with inverters. All of our commercial and utility-scale PV inverters are manufactured in the USA, ARRA compliant, Ontario FIT Content Compliant and listed to UL 1741/IEEE 1547.*
We also offer string combiners and web-based monitoring systems in addition to our PV inverters. Our string combiners are capable of combining 4-30 strings with multiple fused positions. We offer a variety of web-based monitoring system options through our SolrenView monitoring system. SolrenView provides our customers with the opportunity to view their solar system performance.
Specialties: *Energy Monitoring, Manufacturing, Photovoltaics*

Southern New England Solar–Technologies LLC
Adler, Paul
30 Stonewood Lane
Chilmark, MA 02535
Tel: 508-627-0020
Fax: 508-645-2236
snes@vineyard.net
www.solarbeam.us
Description: *We are the exclusive distributors in Massachusetts, Rhode Island, and Connecticut, of what we think is the most powerful commercially available solar collector in the world, called the SolarBeam. The SolarBeam is 15 foot diameter parabolic concentrator which uses a GPS tracking system to follow the sun at all times. This solar collector will mainly be used for large commercial and industrial applications, and large residential homes. Currently it will only heat water, but a photo cell will soon be added so both hot water and electricity can be generated at the same time.*
Specialties: *Building Design/Construction, Photovoltaics, Solar Hot Water*

SouthPoint, LLC
Lastella, Michael
77 Arlington Street
Leominster, MA 01453
Tel: 978-840-4300
info@southpoint-llc.com
www.southpoint-llc.com
Description: *Provide design/installation services; specializing in solar electric systems in the New England area. Our systems are for new and existing residential and commercial applications.*
Specialties: *Consultant, Domestic Water Heating, Photovoltaics*

Spector Associates Architects

Spector, Alan
19 Fox Hill Road
Lafayette, NJ 07848
Tel: 973-702-0309
Fax: 206-333-1986
spectorarch@earthlink.net
www.spectorarch.com
Description: *Since 1974 we have provided SUSTAINABLE BUILDING SOLUTIONS—designs include energy modeling, passive solar, solar PV & hot water, geothermal, daylighting & energy recovery.*
Specialties: *Building Design/Construction, Energy Audit Services, Energy Conservation*

Spire Solar Systems

Hogan, Steve
1 Patriots Park
Bedford, MA 01730
Tel: 781-275-6000
Fax: 781-275-7470
shogan@spirecorp.com
www.spirecorp.com
Description: *Spire Corporation—Spire is the leading global solar company providing capital equipment to manufacture PV modules & cells, turnkey solar manufacturing lines and PV systems. Spire has provided innovative solar technologies for over 30 years.*
Specialties: *Alternative Technologies, Photovoltaics, Manufacturing*

Spirit Solar

Kocsmiersky, Mike
P.O. Box 80007
Springfield, MA 01138
Tel: 413-883-3144
info@spiritsolar.net
www.spiritsolar.net
Description: *Spirit Solar provides installation and service for all types of solar hot water systems, solar educational services, and third party PV system verification.*
Specialties: *Consultant, Educator, Solar Hot Water*

Start to Finish Design and Remodeling

Jacoby, Mark
22 Sterling Court
Huntington, NY 11743
Tel: 631-424-3323
Fax: 631-424-3323
str2fnsh@hotmail.com
starttofinishremodeling.com
Description: *Whole house remodels, kitchens, baths, extensions, dormers, basements, handyman services, and much more.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

Stead Consulting

Stead, Craig
P.O. Box 1000
Putney, VT 05346
Tel: 802-387-4748
cstead@sover.net
Specialties: *Engineering Services, Consultant, Alternative Technologies*

Stephen Greenleaf Architect

Greenleaf, Stephen
P.O. Box 16612
Rumford, RI 02916
Tel: 401-434-8200
Fax: 815-572-0498
stephen@sgreenleaf.com
www.sgreenleaf.com
Description: *We are a full service Architectural Firm with an interest in small projects. We assist our clients in integrating sustainable elements into their new or existing projects.*
Specialties: *Building Design/Construction, Energy Conservation, Other Renewable Energy Generation*

Stephen Tilly, Architect

Tilly, Stephen
22 Elm Street
Dobbs Ferry, NY 10522
Tel: 914-693-8898
Fax: 914-693-4235
office@stillyarchitect.com
www.stillyarchitect.com
Description: *Sustainable architecture, planning, landscape design. New construction and renovations. Green historic preservation, feasibility studies, zoning studies and adaptive reuse; all building types.*
Specialties: *Building Design/Construction, Landscape Design/Construction, Remodeling*

Sterling College

Brown Library
P.O. Box 72
Craftsbury Common, VT 05827
Specialties: *Library, College/University, Environmental Education*

Stewart Brecher Architects

Brecher, Stewart
93 Cottage Street
Suite F
Bar Harbor, ME 04609
Tel: 207-288-3747
stewart@sbrecherarchitects.com
www.sbrecherarchitects.com
Description: *A small full service architectural firm providing human centered, environmentally responsible and appropriate design since 1984. We are licensed in Maine and New Hampshire*
Specialties: *Building Design/Construction, College/University, Energy Conservation*

Structures By Design, Inc.

Ambroz, Edythe
P.O. Box 1086
Northampton, MA 01061
Tel: 413-586-1086
edy.ambroz@verizon.net
Specialties: *Building Design/Construction*

SunBug Solar

Mitter-Burke, Andrea
411a Highland Avenue
Somerville, MA 02144
Tel: 617-500-3019
Fax: 617-412-3062
andrea.mitterburke@sunbugsolar.com
www.sunbugsolar.com
Description: *SunBug is a solar energy consulting and installation company with offices in sunny Somerville, Massachusetts. We are complete solar installers, offering site analysis, system design, rebate processing, and system monitoring.*

We are professional solar installers, not general contractors, so we think several steps ahead and anticipate questions and challenges. We are certified by NABCEP, the National Board of Certified Energy Practitioners, for photovoltaic installations. We are approved for all available rebates through the Massachusetts Technology Collaborativeís Commonwealth Solar Program. All our solar installers, electricians and plumbers are licensed and fully bonded.

As a company that provides environmentally intelligent solutions to energy production, we wholeheartedly believe that green is good. We consider environmental impact in everything we do, however we are not green for the sake of being green. As a company, we make choices based on practical sustainability. We are a specific shade of green: the most cost-effective green for our customers.
Specialties: *Photovoltaics, Green Electricity, Alternative Technologies*

SunEnergy Americas

Holz, Robert
235 Harrison Street
Suite 203
Syracuse, NY 13202
Tel: 315-579-2083
robert.holz@sunenergy.eu
www.solarintegrated.com
Description: *Solar Integrated is a renowned pioneer and leader in commercial, industrial and institutional solar applications. Solar Integrated provides turnkey PV-solutions for large low-slope roofs as are common for retail outlets, logistic centers and industrial facilities as well as municipal buildings and landfill sites. As a global solar solutions provider, Solar Integrated combines various technologies to develop the best PV-system for every customers specific needs for utmost reliability, productivity, financial performance and environmental benefits.*

Today Solar Integrated is part of the Energy Conversion Devices group (ECD) an alternative energy company that also owns the PV-module manufacturer UNI-SOLARÆ. This constellation allows Solar Integrated to draw on the vast experience of UNI-SOLARs industry leading roofing material partners and their ability to produce long lasting, heavy-duty materials. The UNI-SOLAR PV-technology has been installed since more than 10 years and has been tested under severe conditions ranging from space, ocean to dessert applications.
Specialties: *Alternative Technologies, Photovoltaics, Manufacturing*

Sungage

Ross, Sara
82 Cottage Street
Amherst, MA 01002
Tel: 413-687-5129
sara@sungagellc.com
Specialties: *Finance/CPA, Photovoltaics*

Sunlight Solar Energy, Inc.

Oxman, Rachel
4 Oxford Road
Suite D8
Milford, CT 06460
Tel: 888-78-SOLAR
Fax: 541-322-1911
rachel.oxman@sunlightsolar.com
www.sunlightsolar.com
Description: *Sunlight Solar is dedicated to educating our customers, empowering them to make*

intelligent buying decisions. Our specialized installers are certified in Connecticut, Rhode Island, Massachusetts, New York, Nevada and Oregon.
Specialties: *Photovoltaics*

Sustainable Energy Analytics
Rhodin, Jeffrey
32 Lincoln Street
Lexington, MA 02421
Tel: 781-652-8282
jrhodin@seanalytics.us.com
Description: *Sustainable Energy Analytics, LLC is dedicated to helping homeowners and their agents (architects, builders, and realtors) plan and execute their move from fossil fuels to renewable energy sources, such as geothermal and solar, along the most economical path, unbiased by product or technology loyalties. We build customized energy models of our client's home allowing us to simulate the performance of the building shell (envelope) and the heating and cooling system, both current and proposed. The models give us the ability to identify the optimal steps, priorities, costs, and expected benefits. A typical objective of our clients is to fund the proposed improvements from the expected savings, resulting in no out-of-the-pocket expenses. Instead of paying the company that delivers your fuel, you pay yourself. The results of our analyses are documented in our Sustainable Energy Roadmap; so our clients can move along at their own pace. If our clients are too busy or need assistance we provide project oversight and management services to speed implementation.*
Specialties: *Alternative Technologies, Energy Audit Services, Energy Conservation*

Sustainable Retrofits
Fine, Lawrence
9 Lake Boon Drive
Hudson, MA 01749-3033
Tel: 978-562-9223
Fax: 617-277-2499
lorenzonine@earthlink.net
http://home.earthlink.net/~lorenzonine/
Specialties: *Alternative Technologies, Indoor Air Quality, Insulation*

Tai Soo Kim Partners
Iglehart, T. Whitcomb
146 Wyllys Street
Suite 1-203
Hartford, CT 06105
Tel: 860-547-1970
Fax: 860-249-0695
twiglehart@tskp.com
www.tskp.com
Description: *Seasoned group of licensed professionals dedicated to exceeding client expectations and to excellence in design, in which the essential elements entail harmony with the surrounding environment, natural lighting and energy efficiency.*
Specialties: *Building Design/Construction, College/University*

The Boston Solar Company
Strecker, Romain
10 Churchill Place
Lynn, MA 01902
Tel: 781-715-3983
romain@bostonsolar.us
Specialties: *Energy Audit Services, Photovoltaics*

The Energy Conservatory
Spevak, Frank
2801 21st Avenue S, Suite 160
Minneapolis, MN 55407
Tel: 612-827-1117
Fax: 612-827-1051
fspevak@energyconservatory.com
www.energyconservatory.com
Description: *The Energy Conservatory (TEC) manufactures precision diagnostic equipment used to solve comfort, energy use, durability and air quality problems in buildings. Our reputation for innovative design and excellent technical support have made us a leading manufacturer of performance testing tools for the building industry.*
Specialties: *Manufacturing, Alternative Technologies*

The Energy Emporium
Quirk, Kimberley
P.O. Box 351
Enfield, NH 03748
Tel: 603-632-1263
kim@energyemp.com
www.energyemp.com
Description: *The Energy Emporium is a showroom, information center and full service sales, installation and support for solar electric systems, solar hot water, wind and water turbines. We also carry composting equipment, high efficiency lighting and appliances, magazines, books, and more.*
Specialties: *Consumer Information, Photovoltaics, Solar Hot Water*

The Knoer Group, PLLC
Knoer, Robert
424 Main Street
Suite 1820
Buffalo, NY 14202
Tel: 716-332-0032
rknoer@knoergroup.com
Specialties: *Public Policy, Legal*

The United Illuminating Company & CT Energy Efficiency Fund
Burns, Patrick
P.O. Box 1564
157 Church Street MS 1-6B
New Haven, CT 06505
Tel: 203-499-3504
Fax: 203-499-2800
patrick.burns@uinet.com
www.uinet.com
Description: *The United Illuminating Company (UI) is an administrator of the Residential and Commerical & Industrial Energy Efficiency Programs through the Connecticut Energy Efficiency Fund (CEEF).*

The CEEF promotes efficient energy use, helps residents and businesses save on their electric bills, advances economic development, reduces electric demand and helps reduce air pollution. UI and CL&P administer the CEEF through conservation programs that serve residential customers, including fixed-income customers, as well as business and municipal customers. Connecticut's energy efficiency programs can be found at www.ctenergyinfo.com.
Specialties: *Building Design/Construction, Energy Audit Services, Energy Conservation*

The Valle Group, Inc.
DeMello, Julie
70 East Falmouth Highway, #3
East Falmouth, MA 02536
Tel: 508-548-1450
Fax: 508-548-1950
jad@vallegroup.com
Description: *The Valle Group sets the standard for thoughtfully-planned communities in southern New England. The company's special expertise is planning and creating communities of quality, energy-efficient homes, and building and remodeling for homeowners.*
Specialties: *Building Design/Construction, Remodeling*

Thomas E. Hitchins & Associates Architecture and Planning
Hitchins, Tom
62 Sunset Bay Drive
Steuben, ME 04680
Tel: 207-546-4232
Fax: 973-728-3216
tomhitchins@teharchitecture.com
www.teharchitecture.com
Description: *Small, sustainable architecture firm dedicated to high quality design and service. We work closely with our clients to create energy efficient designs that best fit their specific needs.*
Specialties: *Building Design/Construction, Remodeling*

Timeless Architecture
MacLean, Henry
147 School Street
Milton, MA 02186-3513
Tel: 617-696-6448
hmaclean@timearch.com
www.timearch.com
Description: *Timeless Architecture is an architectural office specializing in residential & light commercial work, focused on the integration of historic preservation and green design.*
Specialties: *Building Design/Construction, Energy Conservation, Remodeling*

TNT Electrical Contractor, LLC
Mahoney, Troy
371 White Oaks Road
Weirs Beach, NH 03246
Tel: 603-455-4217
Fax: 603-528-9489
tntelectric@metrocast.net
www.tntelectricalcontractor.com
Specialties: *Photovoltaics, Wind, Green Electricity*

Torcon Energy Services

Gerard, Robert
328 Newman Springs
Red Bank, NJ 07701
Tel: 732-704-9800
rgerard@torcon.com
www.torcon.com
Description: *Torcon delivers true expertise to customers on every project. With four decades of experience encompassing many of the largest, most technically complex facilities in the U.S., Torcon has the resources and capabilities to manage any project and staff who will take the time to learn what makes yours unique.*

Construction management services encompass a lot of moving parts that combine to deliver predictable results through strategic management and controls. As one of the nation's largest CM's, Torcon provides a comprehensive range of services that are truly state-of-the-art. We also offer alternate service delivery approaches that are customized to meet the individual needs of our clients. Regardless of your choice, you can count on Torcon to be the ultimate partner in your project's success.
Specialties: *Building Design/Construction, Energy Conservation*

Transformations, Inc.

Scott, Carter
8 Coppersmith Way
Townsend, MA 01469-4412
Tel: 978-597-0542
Fax: 978-597-0543
rcarterscott@msn.com
Description: *Transformations, Inc. is focused on creating Zero and Near Zero Energy homes including Sustainable Developments.*
Specialties: *Building Design/Construction, Photovoltaics*

Treehouse Design, Inc.

Thurman, Tim
31 Poole's Lane
Rockport, MA 01960
Tel: 978-546-8302
tim@treehousedesigninc.com
Specialties: *Building Design/Construction*

Trillium Architects

DiSalvo, Elizabeth
129 Washington Street
Norwalk, CT 06854
Tel: 203-838-5689
trilliumarchitects@gmail.com
Description: *At Trillium Architects we design Fine Green Homes. We believe that you should live in a home you cherish today and would be proud to leave your grandchildren tomorrow.*
Specialties: *Building Design/Construction*

TruexCullins Architecture and Interior Design

Weeks, Susan
209 Battery Street
Burlington, VT 05401
Tel: 802-488-8232
Fax: 802-658-6495
sweeks@truexcullins.com
www.truexcullins.com
Specialties: *Building Design/Construction*

Truth Box, Inc.

Case, Peter Gill
460 Harris Avenue Unit 104
Providence, RI 02909
Tel: 401-453-1300
pgc@truthbox.com
www.truthbox.com
Description: *This architecture and development firm is for clients who seek alternatives to wasteful building practices. We offer cost effective design solutions that help the environment and enhance design and comfort. Truth Box also offers consultation on building development and can be a versatile partner in small to mid-sized projects that generate value from thoughtful design and high energy-efficiency.*
Specialties: *Building Design/Construction, Energy Conservation, Real Estate*

Turn Key Builders, Inc.

Meehleder, Jim
50 Miles Street
Greenfield, MA 01301
Tel: 413-774-9946
Fax: 413-774-9926
turnkeybuild10@aol.com
www.turnkeybuilders.net
Description: *Quality super insulated homes, additions and photovoltaic installs. Member home builders and remodelers of Western Ma, Energy Star Building Partner.*
Specialties: *Building Design/Construction, Photovoltaics, Remodeling*

Unitil

Palma, Thomas
325 West Road
Portsmouth, NH 03801
Tel: 603-294-5172
Fax: 603-294-5272
palma@unitil.com
www.unitil.com
Description: *Unitil Corporation ("Unitil") is a public utility holding company headquartered in Hampton, New Hampshire. Unitil's principal business is the local distribution of electricity and natural gas in the states of New Hampshire, Massachusetts and Maine. Unitil is the parent company of three distribution utilities: (i) Unitil Energy Systems, Inc., which provides electric service in the southeastern seacoast and state capital regions of New Hampshire; (ii) Fitchburg Gas and Electric Light Company, which provides both electric and natural gas service in the greater Fitchburg area of north central Massachusetts; and (iii) Northern Utilities, Inc., which provides natural gas service in southeastern New Hampshire and portions of southern and central Maine. In addition, Unitil is the parent company of Granite State Gas Transmission, Inc., an interstate natural gas transmission pipeline in New Hampshire and Maine. Together, Unitil's operating utilities serve approximately 100,300 electric customers and 69,300 natural gas customers. Unitil's non-regulated business unit, Usource, also provides energy brokering and advisory services to large commercial and industrial customers in the northeastern United States. In addition, Unitil provides energy efficiency services to its customers in MA, NH, and ME.*
Specialties: *Alternative Technologies, Energy Conservation, Green Electricity*

Upstate Solar, LLC

Fitzmaurice, William
35 Broad Street
Catskill, NY 12414
Tel: 518-947-0208
upstatesolar@mhcable.com
www.upstatesolar.net
Description: *There is an abundance of free energy coming from the sun every day. With our products you can tap into this free heat & power quickly & without major modifications to your house.*
Specialties: *Photovoltaics, Space-Heating/Cooling, Retail*

US Solar Works, LLC

Fine, Pete
7 North Main Street
Attleboro, MA 02703
Tel: 508-226-8001
pete@ussolarworks.com
Specialties: *Consultant, Energy Conservation*

Van Natta Co., LLC

Van Natta, Jim
403 South Mountain Road
Northfield, MA 01360
Tel: 413-834-5329
jimvann@comcast.net
Specialties: *Building Design/Construction, Consultant*

Vanasse Hangen Brustlin, Inc.

Roy, Leo Pierre
P.O. Box 9151
101 Walnut Street
Watertown, MA 02471-9151
Tel: 617-924-1770
Fax: 617-924-2286
lroy@vhb.com
www.vhb.com
Description: *Large East Coast civil engineering firm offering planning, land development, transportation and environmental services. Specialize in environmental planning and sustainable design.*
Specialties: *Landscape Design/Construction, Public Policy, Wind, Biomass*

Via Builders

Caton, Paul
23 Townsend Street
Barrington, RI 02806
Tel: 401-525-0176
tabercaton@cox.net
Specialties: *Building Design/Construction*

Wagner Solar, Inc.

Gaebler, Joerg
485 Massachusetts Avenue
Suite 300
Cambridge, MA 02238
Tel: 617-230-5604
joerg.gaebler@wagner-solar.com
www.wagner-solar.com
Specialties: *Domestic Water Heating, Photovoltaics, Space Heating/Cooling*

Walden Street Web Services
Lapointe, Stephen
1619 Massachusetts Avenue
Cambridge, MA 02138
Tel: 617-864-0770
stephen@waldenstreet.com
www.waldenstreet.com
Description: *Walden Street offers a suite of hosted web services to support the missions of leading sustainability organizations. Applications include web-based energy monitoring and customizable solutions for search, news, and mapping.*
Specialties: *Consumer Information, Environmental Education, Photovoltaics*

Walker Design & Building
Walker, Doug
27 Aldworth Road
Harrisville, NH 03450
Tel: 603-827-3131
sunquest@myfairpoint.net
www.walkerdesignbuilding.com
Description: *Combining over 30 yrs. of quality residential construction experience and keeping abreast of the latest in building science is the foundation of our business.*
Specialties: *Building Design/Construction, Photovoltaics*

Washington County Regional Planning Council
Broadhead, Jeff
344 Main Street, Suite 202
Wakefield, RI 02879
Tel: 401-295-1784
jeffb.ri1@gmail.com
Specialties: *Photovoltaics, Wind*

Waterline Alternative Energies, LLC
Deeb, Gina
7 London Lane
Seabrook, NH 03874
Tel: 603-474-0170
waesales@waterlineae.com
www.waterlinecompanies.com
Description: *Turn-Key alternative energy solution provider, specializing in solar, wind and hydroelectric technologies for residential, commercial and municipal buildings throughout New England. The use of our own on-staff designers, electricians, and installers allows for realistic schedules, guaranteed successful project deployment and on budget projects.*
Specialties: *Hydroelectric, Photovoltaics, Wind*

Wesson Energy Inc.
Wesson, William
P.O. Box 2127
165 Railroad Hill Street
Waterbury, CT 06722-2127
Tel: 203-419-5046
Fax: 203-754-6664
wwesson@wessonenergy.com
www.wessonenergy.com
Description: *Wesson Energy is a progressive energy partner specializing in modern, high-efficiency solutions and comprehensive home comfort service. We help homeowners and businesses integrate alternative energy sources, including solar and biofuel, without compromising on comfort.*
Specialties: *Domestic Water Heating, Energy Audit Services, Energy Conservation*

William Maclay Architects Planners
Maclay, William
4509 Main Street
Waitsfield, VT 05673
Tel: 802-496-4004
Fax: 802-496-4007
wmap@wmap-aia.com
www.wmap-aia.com
Description: *WMAP is an award-winning architectural firm specializing in collaborative, integrative design incorporating energy and resource conservation, renewable energy use, optimal indoor air quality, healthy building design technology, and environmentally responsive land use planning.*
Specialties: *Alternative Technologies, Building Design/Construction, Research*

Window Quilt
Digney, Larry
22 Browne Court
Unit 105
Brattleboro, VT 05301
Tel: 802-246-4500
Fax: 802-246-4505
larry@windowquilt.com
www.windowquilt.com
Description: *Window Quilts raise the R-value of single pane windows beyond that of typical replacement windows. They raise mean radiant temperature, so rooms are comfortable at lower temps.*
Specialties: *Energy Conservation, Insulation, Windows*

Wolfworks, Inc.
Wolf, Jamie
195 West Main Street
Avon, CT 06001
Tel: 860-676-9238
jamie@homesthatfit.com
www.homesthatfit.com
Description: *We are guides. We guide a process for clients who are prepared to design and build collaboratively and responsibly. Together we create spaces that look great, work well and feel good to be in.*

We rely on building materials and energy to create a project. Our choices are guided by the opportunity to use materials and energy wisely. This means seeking solutions that make the best use of available space before constructing additional space. It means striving to use energy efficient equipment and construction strategies. It means seeking materials that are durable, safe, and resource efficient. We expect to respect what we use.

We are trained to design and build using the Passive House Planning Package to produce extraordinarily low energy buildings. We think solar is for dessert—after you eat your veggies!
Specialties: *Building Design/Construction, Remodeling*

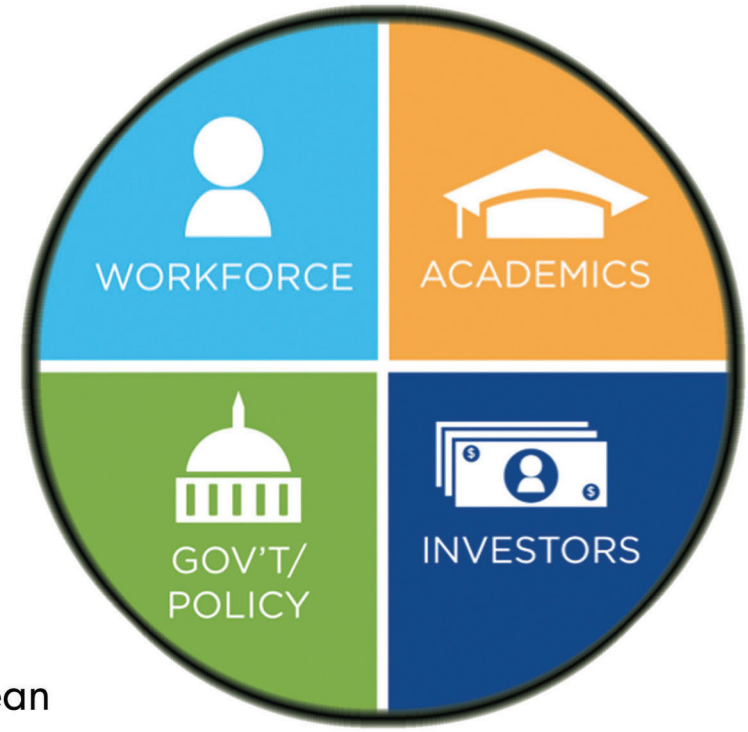
ZeroEnergy Design
Prince, Adam
348 Medford Street
Boston, MA 02129
Tel: 617-720-5002 x102
aprince@zeroenergy.com
www.zeroenergy.com
Description: *Innovative design embracing energy, environment, and lifestyle. Architecture, Mechanical Engineering, and Energy Consulting.*
Specialties: *Building Design/Construction*

Zetland Homes, LLC
Reddy, Steve
P.O. Box 146
Hopkinton, NH 03229-0146
Tel: 603-746-3556
Fax: 603-746-4513
zetlandhomesllc@comcast.net
www.zetlandhomes.com
Description: *Builder of high performance and green homes. Choice of home types: stick built and SIP; Log; TimberFrame; ICF; Modular; and Historic Reproduction.*
Specialties: *Building Design/Construction, Remodeling*

Massachusetts:

A smart place for clean energy

Massachusetts is a smart place to start or grow a clean energy business —we're home to a **vibrant community** of **visionary people** and **world-class institutions,** working together to propel clean energy technologies from the **drawing board** to the **global marketplace.**



---

tpi DELIVERING COMPOSITE SOLUTIONS

TPI Composites just opened a wind turbine blade manufacturing and test facility in Fall River. Hear TPI's story at www.MassCEC.com

---

Join the Innovation Revolution
Visit www.MassCEC.com

MASSACHUSETTS CLEAN ENERGY CENTER

Harvest the power of the Sun

Season after season,
the sun gives its light to the earth,
allowing life to bloom.

Every day a limitless crop of free,
clean energy reaches our planet.

Stiebel Eltron manufactures all the tools you need for a successful thermal solar harvest. And we've been doing so since 1976.

From our highly efficient flat plate collectors and storage tanks to our complete line of mounting hardware, pump stations, controllers, and accessories, we have it all.

Stiebel Eltron is your one stop source for thermal solar products.

SOLKIT 2 includes:

SBB 300 Plus Storage Tank

2 x SOL 25 PLUS
Flat Plate Collectors

Pump station with
SOM 6 Controller

ENERGY STAR

Because every installation is different, we have a full line of SOLKITS and mounting hardware kits available. All components and accessories are available for individual sale.
SRCC OG300 Certified

STIEBEL ELTRON
Simply the Best

TOLL FREE **800.582.8423**

www.stiebel-eltron-usa.com

New England Supplier of Advanced Fenestration Systems

European Architectural Supply

Residential and Commercial

Passive House Windows and Doors

Wood - Aluminum - PVC - AlumClad

Schuco Passive House Curtain Wall

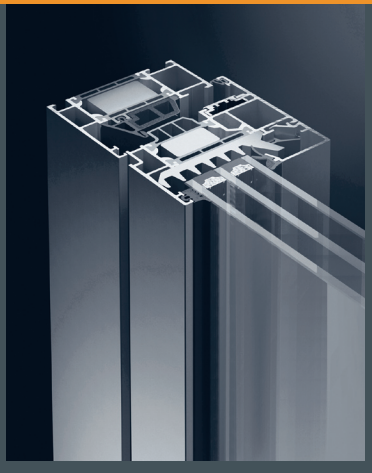
Lift-Sliding Doors up to 50ft

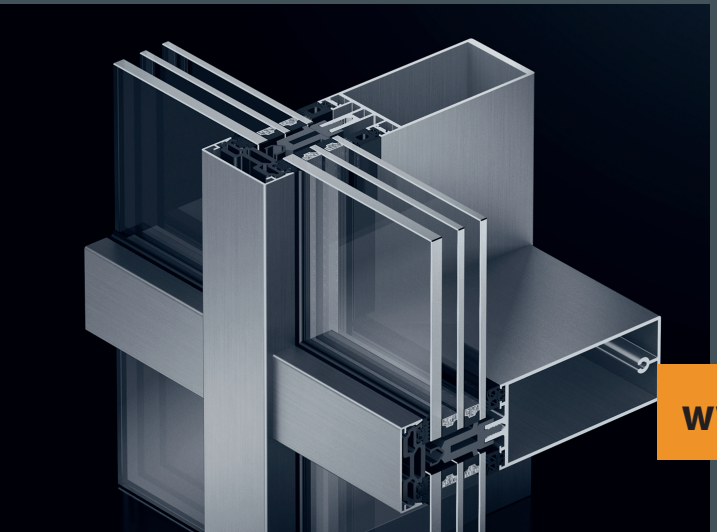
Custom LowE Glass Designs

Passive House Certified

Glass up to **R-14**

Supplier of Windows for Team Massachusetts Solar Decathlon 2011





www.FineWindows.com