Suggested Driving Route of Sustainable Contemporary Architecture in the Pioneer Valley

Thank you for participating in the Home Tour. Feel free to pick and choose the sites as you please and tailor your day to your desires. The directions are based on the locations starting in the **morning 9 – 12:30 (Red Numbers)** in Amherst, going North at the East side of the Connecticut River and continuing in the **afternoon 12:30 – 4 (Green Numbers)** along the west side of the river. Please note that Beaver Lodge, #13 and Blu Homes #18 are open all day. We strongly recommend you consult a detailed map or use a GPS system.

In case you need assistance during your driving tour please call our **hotlines (413) 237.9115 or (413) 221.7238**.

01 is across from University Drive on the intersection of Rt 9 in Amherst. #128 Snell Street is on the right side.

01 → 02 turn right onto Snell St; turn right onto Rt 116 S; turn left on Shays St; slight right at South East Street. Destination on your left after Potwine St. 1290 South East Street →

02 → 03 return onto South East Street north for approx 3 miles. Destination on your right. 14 Stanley Street →

03 → 04 continue on Stanley St; turn right onto Rt 9; destination after the second Old Belchertown Rd sign on the right. 865 + 872 Belchertown Rd.

04 → 05 return to Stony Hill Rd (left) to the T. Turn left onto Heatherstone Rd; turn right onto. Destination at 328 Pelham/Amherst Road.

05 → 06 drive Pelham/Amherst Road east toward Amherst; turn right onto N East St; bear left on Henry St; turn left on Pine St; turn left on East Pleasant St. Destination at 982 East Pleasant Street. **Note: Concrete slab only; modular construction still at factory.**

06 → 07 return to Pine St, right turn to Bridge St and onto East Leverett Rd. Turn left on Leverett Rd. with turns into Cushman Road and bears left into Shutesbury Road. In Leverett turn left onto Depot Rd; turn right onto Long Hill Rd; turn right onto Rt 63 (Long Plain Rd) Destination at 330 Long Plain Road.

07 → 08/09 continue on Long Plain Road north; turn right on North Leverett Rd; turn left onto Chestnut Hill Road; turn right onto Laurel Hill. **Note: this private road is very narrow. Parking is very limited. Please park on the church lot on Chestnut Hill Road and walk to the Laurel Hill homes #2 and #11.**
08/09 → 10 return to North Leverett Rd, cross Rt 63 to Main St which turns into Turners Falls Rd; turn left onto Montague City Rd which turns to Cheapside St; bear right onto Deerfield St; turn left onto Petty Plain Rd. 184 Petty Plain Rd.

10 → 11 continue on Petty Plain Rd; turn right on Wisdom Way; turn sharp left on River St; turn left onto Rt 2; take the ramp to Interstate 91 north; travel to Exit 2 in Brattleboro; enter Rt 9 East (left turn onto Western Ave becomes High St); turn left onto Main St (Rt 9/5); bear right onto Putney Rd (still Rt 9/5); turn right onto North St which becomes Harris St which becomes Wantastiquet Drive. 30 Wantastiquet Drive is on the right.

11 → 12 return to Interstate 91South to Greenfield Exit 26 (Rt 2). Follow Rt 2 west for 3.6 mi. Turn right onto “To Rt. 112 North Colrain;” after 5.1 mi turn left onto Rt 112 through Colrain; turn right onto Foundry Village Rd/Adamsville Rd. Follow for approx 3.8 miles; turn right onto Stetson Brothers Rd and into first driveway on the right. 43 Stetson Bros Road is unmarked.

12 → 13 Return to Adamsville Road to Rt 112 back toward Shelburne Falls (Rt 2); follow Rt 112 by turning onto Rt 2 West for a very short while; exit Rt 2 and continue on Rt 112 to Rt 116 into Ashfield. Turn right onto Baptist Corner Rd; turn left onto Barnes Rd; Destination on the left at 719 Barnes Rd, Beaver Lodge.

13 → 14 return to Ashfield and to Rt 112; follow Rt 112 South to Rt 9 South through Williamsburg to Haydenville. Turn left onto High St which turns into Mountain St. Turn right onto Laurel Rd; Solar Circle is on the right.

14 → 15 return to Haydenville; cross Rt 9 and turn left onto South Main St/ River Rd to Leeds. Cross Audubon Rd onto Reservoir Rd; turn sharp left onto Chesterfield Rd. Destination on the right 352 Chesterfield Rd. Note: restricted parking on property. Allow for waiting time.

15 → 16 continue on Chesterfield Rd; turn right onto Spring St; turn left on Meadow St; enter Rt 9 South in Florence; follow Rt 9 past the High School; turn right onto Vernon St; turn left onto Ward Ave; 44 Ward Ave on the right.

16 → 17 continue on Ward Ave; turn left onto Washington Ave; turn right onto Rt 9 to Main St in Northampton; turn right onto Pleasant St (Rt 5); follow Rt 5 to Holyoke (Northampton Rd); turn left on Dwight St; turn right onto Nonotuck St. Destination 155 Nonotuck Street.

17 → 18 follow Nonotuck; turn left on Hampden St (Rt 141) and enter Interstate 91 South to Exit 1 onto Columbus Ave; turn left at Converse St; turn right on Dwight Rd; turn left at West Chestnut St. Destination is on the right. 330 Chestnut Street.
01 Snell Street Residence, Amherst MA; Architect: CHAOdesigns LLC; Principal Designer: Maria Chao; General Contractor: Marchekfa & Keyes, LLC; Concrete Work: Alpha Stone Concrete; Completed: July 2008; Photographer: Jeffrey Yardis

Target: GOLD LEED Certified

Design

Deciduous trees for shade in summer, solar gain in winter months  ★ Deep roof overhang on south side shades interior in summer and allows lower winter sun to warm the interior  ★ Large South facing windows for passive solar  ★ Minimal windows on North, East and West facades to reduce heat loss  ★ Site advantage of existing vegetation, solar path, prevailing breezes  ★ Concrete slab on grade is insulated along entire perimeter and underneath  ★ 4’ frost wall foundation is insulated along entire inside face  ★ All penetrations are insulated, sealed 6.5” SIP exterior walls and 8.25” SIP roof  ★ Central atrium space allows for cool air from the north-facing windows to pull in when hot air rises and moves out the highest south facing windows  ★ The whole house is open to this atrium space allowing the house to ‘breathe’  ★ Concrete floor retains heat from the daytime winter sun and slowly release it at night  ★ Concrete floor mass is cooled on summer nights with open windows

Materials

‘Cembonit’ fiber-cement siding panels and cypress siding installed with Raunscreen detail  ★ High-albedo galvalume standing seam metal roofing  ★ FSC Ipe decking  ★ Interior and exterior metal cable rail has recycled content  ★ Concrete kitchen and bathroom counters and concrete floors (all with integral colors)  ★ Porcelain tile floors and walls in bathroom wet areas  ★ Strandwoven bamboo flooring  ★ Low VOC paints, sealers and primers

Technologies

2 zoned radiant floor heat  ★ Ceiling fans  ★ Continuous running fan for air exchange  ★ Dual flush toilets, low flow shower head, kitchen sink sensor  ★ High efficiency propane boiler and indirect fired hot water tank

The owner/architect of this residence has likened it to a treehouse: It sits hidden from the road amidst tall stands of deciduous trees. The dense woodland and natural wetland neighboring the house belie its proximity to work, school, and shopping. The stylistic choices make possible certain sustainable elements integral to the working of the house, such as the central atrium space and the deep overhang on the south side of the roof. Concrete flooring on the first floor lend a dramatic sheen to the simple, crisp interior spaces while helping to warm or cool the house.
1290 Studio and Residence, Amherst MA; Architect: Sigrid Miller Pollin FAIA; Contractor: Larry Rideout, Rideout Builders; Completed: June 2007; Photography: Pater Mauss ESTO Photographs

**Design**

Minimal disturbance of existing topography ★ Lower level insulated by the earth ★ Earth berm up to studio for insulation ★ Natural cross-ventilation in main living area ★ Abundant natural light throughout the residence and studio ★ Deciduous shade-trees for west elevations ★ Roof slope for rainwater harvesting

**Materials**

Dual low-E glazing ★ Rapidly renewable bamboo flooring ★ Ground face-block with recycled granite manufactured in Central Massachusetts ★ Low maintenance metal roofing ★ High R value insulation for roof and walls

**Technologies**

Radiant floor heating system ★ Plans for photovoltaic panels integrated into the design ERV: Energy Recovery Ventilation System

The powerful organic form of this house with its roofline soaring toward the East seems to be emerging from the ground itself. The windows of the eastern façade embrace the fields and hills it faces, and focus the resident on the ever-changing light and colors of the landscape. The sculptural, plastic form is no coincidence. Sigrid Miller Pollin is also a sculptor and she plays with forms in her architecture, pulling them forward and carving them out with dramatic effects. Examples of this can be seen in the overall form of the house and studio as well as in details such as the ceiling of the living room. Instead of the flat surface we all expect with lights attached, Miller Pollin carves into the surface, hiding the lighting within a series of trapezoids and creating a complex pattern of light and shadow in this central space. Recently published in ‘21st Century Houses: 150 of the World’s Best’ by Image Publishing, this residence and studio are intimately linked with the natural world, consequently bringing the resident closer to nature and presenting a sophisticated and striking union of form and landscape.
Pioneer Valley Habitat for Humanity in Amherst; Architect: Kuhn Riddle Architects; Principal Architect: Chuck Roberts; Land Donated by Amherst College; Many other donations of materials and labor by local area contractors and suppliers. Phase two completed Spring 2009

Design

Houses arranged along an East-west axis maximizes southern orientation for solar gain and natural daylighting ★ Living spaces are arranged on the south side of the house, while circulation and utility spaces are on the north ★ Slab on grade minimizes site disruption and enhances universal design ★ Echoes of local tobacco farms and sheds with traditional board and batten and clapboard siding are expressed in new and dramatic form ★ Land donated by Amherst College in partnership with Habitat for Humanity ★ Innovated design was chosen to challenge the typical appearance of Habitat for Humanity houses ★ Super insulation and an open floor plan allow the mechanical systems to be very simple ★ Accommodate wetlands set backs

Materials

High efficiency appliances ★ Low VOC paints and finishes ★ Super insulated with 6” of cellulose and 2” rigid insulation ★ Thermal roof panels ★ Fiber cement siding for durability and sustainability

Technology

On demand electric hot water system ★ PV roof panels ★ Propane fired, high efficiency Rinnai point source heater

With two of the four planned houses completed and occupied, Kuhn Riddle, Amherst College and Pioneer Valley Habitat for Humanity are creating a refreshingly new sort of neighborhood. These houses stand out dramatically within their shared meadow with its long grasses inviting to insects, butterflies and wildlife. Regional shed and barn forms are reassembled in these structures, departing from more conventional Habitat houses with their traditional gables and dormers. Clapboard and barge-board siding provide visual contrasts and differentiate between the various parts of the houses, offering a subtle means of reading the interior from the outside. These houses are buildable and sustainable, with the simple, interlocking sheds that make up their forms lending a modern edge to an affordable and accessible building program.
04 Amherst Threesome, 865 + 872 Belchertown Rd, Amherst MA; Principal Architect: Sigrid Miller Pollin; Contractor: Larry Rideout, Rideout Builders;

Submitted to the US Green Building Council and reviewed by LEED Provider, Center for Ecological Technology for LEED Platinum

Design

Site planning with shared driveway, shared outdoor amenities ★ Low maintenance landscaping and rain garden ★ Southern orientation for passive solar gain ★ Small footprints and tight building envelopes ★ Root cellars ★ Small double height spaces that help with air circulation and create spatial interest in interior ★ Sleeping porches for naturally ventilated summer sleeping ★ Planned conservation walks through neighboring wetland areas

Materials

LED and compact fluorescent lighting ★ Low VOC paints ★ Energy star appliances ★ Superinsulation: double stud walls with high R value cellulose insulation walls and roof ★ Cement fiberboard siding ★ High efficiency fiber-glass frame windows ★ Concrete flooring for thermal mass

Technologies

High efficiency heating systems and air distribution systems from 1st level to second story on 2 homes ★ PV panels for solar hot water and plug load ★ Continuous exhaust ventilation ★ Future energy consumption monitoring by UMass BMAT students

A narrow drive snakes off the main road leading into a dense wood with small deciduous trees and tall sinuous evergreens. Within this setting are tucked two of the Amherst Threesome, modest houses carefully designed to maximize interior space and comfort. The first house features a two-story porch for transitioning between the interior and exterior and a careful balance of horizontal and vertical window bands. The second house stands tall on its site, its verticality echoing the stands of pines nearby. Irregular patterns of windows and an abbreviated gable make the most of the southern exposure and the south facing porch doubles as a carport maximizing the use of the site and leaving as much of nature left untouched as possible. The architect’s goal was to design highly efficient and affordable homes and she has done so with the sculptural ingenuity so characteristic of her work.
05 Millington Residence 328 Pelham Road, Amherst, MA 01002 Architect: Sigrid Miller Pollin FAIA, Miller Pollin Architecture, 1290 South East St Amherst MA 01002; Local Builder: Matt Murphy, Murphy Construction; Prefabrication Builder: Bensonwood Homes, Walpole, New Hampshire

Design

The single story home makes use of efficient pre fabricated building technology. Bensonwood’s pre-cut heavy timber framing, factory built wall panel and roof system allow for minimal construction waste and reduced construction schedule. The single story house has three bedrooms, two baths, an open kitchen, and a large dining living room area. A loft area serves as a home office. An east facing veranda captures morning sun. The exposed heavy timber framing gives the interior spaces and the veranda a rustic yet contemporary feel. The two car garage has a loft for additional storage. The elevated slab on grade was constructed to address the high water table in the area.

Technology

Energy recovery ventilating system(ERV) ★ concrete floors with radiant heating ★ super efficient boiler/propane gas ★ Rinnai instantaneous hot water heater for domestic hot water ★ dense pack cellulose insulation in roof and wall panels (Roof R41.5, walls R 20)

Materials

heavy timber exposed framing ★ dual glazed low e all fiberglass frame windows (low maintenance) ★ concrete locally produced kitchen countertops ★ Energy Star appliances ★ energy efficient lighting ★ Hardie Plank cement board siding and trim(durability and low maintenance) ★ asphalt shingle roof (affordable) ★ TREK decking on veranda (low maintenance)

This home is in the final stages of construction. A large stone patio with a low sitting wall, fruit trees, and an herb garden will surround the house. Plantings of native perennials and wild flowers are planned in the future.
Note: Home still under construction in the factory- you may enjoy the beautiful site and the concrete slab.

06 Mann Residence (part of a five house complex), Amherst MA; RK Studio Architecture; Principal Architect: Ray K. Mann AIA; Assistant: Matt Sutter; Structural Engineer: Leonard Morse Fortier, P.E.; Site Engineer: SVE Associates; Contractor: Chris Rice Associates;

Design

Infill development with good access to public transportation ★ Common Drive and open spaces ★ Preservation of tree buffer and public stormwater outflow for neighborhood ★ Rehabilitating a disturbed lot through ecological landscaping/permaculture ★ Retention/filtration basin ★ Passive solar heating and ventilation with solar greenhouse and courtyard ★ Daylighting with translucent wall panels ★ Rainwater harvesting for outdoor and possible indoor use ★ Cold cellar ★ Flexible living spaces and accessible Supplemental apartment ★ Designed for Aging in Place ★ Homeowners agreement that delineates and supports such things as tree cultivation and management, permaculture, use of renewable energy sources and laundry lines

Materials

Fly-ash concrete for structural slab with frost protected shallow footing ★ Locally sourced timber for framing and millwork ★ Greensip magnesium oxide SIP for wall, floor and roof panels ★ Kalwall nanogel for insulated translucent wall panels ★ Solar Innovations for windows and retractable roof window ★ Standing seam metal roof for rainwater harvesting and support of solar equipment ★ mold and moisture resistant finishes ★ Low VOC finishings

Technologies

Masonry hearth ★ High efficiency Buderus boiler ★ Solar thermal hot water ★ Solar Photovoltaic Array ★ Low flow toilets ★ Heat recovery ventilators ★ Energy efficient lighting and appliances

In 1993, Ray Mann won the Progressive Architecture Young Architects Award for her innovative approach to design and materials. Here in the house she has designed for her family as a prototype for other houses in this small development, she is exploring new materials such as Kalwall and SIP wall panels, combined with locally harvested timber, to create a home with a distinctly Japanese flavor. The Japanese aesthetic is evident in the translucent walls, interior courtyard and the greenhouse/Japanese bath. While a highly insulated roof and wall system and renewable energy sources such as solar thermal, PV panels and a wood burning hearth are important, the architect is equally concerned with establishing a sensual and functional connection between the interior and exterior. Translucent walls, a living courtyard with a retractable screened roof and large interior glass sliders are central to establishing this connection; bringing the benefits of warmth, sunshine and greenery into the lives of her family all year long.
Green Technology Design

Vintage Green integrates sustainable, environmentally responsible, low-cost energy technology into beautifully crafted custom homes.

**Direct Exchange Geothermal Heating, Cooling & Hot Water Systems**
- The most advanced & reliable geothermal heating, cooling & hot water systems available
- Heat & cool your Vintage Green Home for just a few dollars a day

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Minimal carbon footprint through the reclamation and reuse of vintage materials made available through the responsible deconstruction of retired local mills and factories.

Using historic antique flooring, reclaimed heart pine timbers and antique brick accents, Vintage Green Homes marry old-world charm with modern-day green design and technology.

Vintage Green Homes are currently being constructed on four beautifully wooded 6-20 acre lots in Leverett, Massachusetts and are available for sale. Leverett is conveniently located minutes from downtown Amherst and the University of Massachusetts.

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For more information on our Leverett, MA homes or to build a Vintage Green Home on your property or development project, please call 413-382-0295
08  Leverett House: Private Residence and Piano Studio, Leverett MA; Architect: Coldham & Hartman Architects; Principal Architect: Bruce Coldham; General Contractor and Builder: Don Teagno, Teagno Construction Inc.; Completed: Spring 2008

Design

Carefully cleared wooded site to afford worthwhile solar gain while leaving as many trees as possible ★ House sits snugly on a ledge with the garage built into the hillside ★ Strongly contemporary design ★ spacious in feel but creates a small footprint ★ the roof here is designed to look flat from the ground, but the varied rooflines converge in the center directing water down and off the back end of the house via a central gutter system.

Materials

Durisol Wall forms: insulated concrete form made from woodchips, cement, ferro-slag mineral fiber insulation plugs for extremely tight envelope ★ Polished, sealed and densified concrete floors for durability and low maintenance ★ OSB (Oriented Strand Board) a rapidly renewable resource made from small diameter, fast growing trees, for central interior walls ★ Concrete countertops

Technologies

Ground Source Heat Pump heating and cooling with radiant slab ★ Energy Recovery Ventilator: ERV

Hidden from the road by dense woodland, this residence sits on a small ledge amidst the forest. When the owners approached the architects they requested that their house do as little damage as possible to the natural environment “considering the violence it is about to undergo and has already undergone.” The residence is a study in new materials, with an adventurous use of Durisol blocks, (hollow wood and cement forms into which concrete is poured) in some places left exposed and elsewhere sheathed in an industrial steel-gray cladding. The dark and light grays are off-set by red frames around windows and doors and the wing that cantilevers out to the West. Inside, the thick Durisol walls provide deep sheltering sills around the windows. Natural daylight is softened in the clerestory where translucent Kalwall (a highly efficient material used for walls and skylights that allows light into interior spaces) lets in a muted, diffuse light and adds to the brilliant clarity of the interior spaces.
09  Carlise-Lavoie Residence, Leverett MA; RK Studio Architecture; Principal Architect: Ray K. Mann AIA; Assistant: Matt Sutter; Structural Engineer: Leonard Morse-Fortier, P.E.; Carpenter: James Smith; To Be Completed: March 2010

Design

Passive solar design (sunspace) for heating and natural ventilation ★ Rainwater harvesting for garden ★ Cold cellar for food storage ★ Ecological landscaping ★ Minimal ground disturbance of house site ★ Designed for Aging In Place with an elevator shaft, wheelchair friendly layout and living space

Materials

High-density cellulose insulation ★ High-performance windows by Loewen and Solar Innovations ★ Standing seam metal roof for rainwater harvesting and support of solar equipment

Technologies

Solar thermal for hot water ★ Radiant floor heat ★ Solar PV (for future installation) ★ High efficiency Buderus boiler ★ Low-flow toilets ★ Energy efficient lighting and appliances ★ Stuv high-efficiency, warm air-circulating fireplace

Dramatic views of Mount Greylock dominate the space in this house. Set high on a hillside to capture the expanse of the Valley’s surrounding hills and mountains; the house presents a strong connection between the interior and the natural landscape. A tight building envelope, sunspace, solar hot water and a high-efficiency fireplace provide the house with much of its heat and ultimately photovoltaics will supply much of its electricity. The triple glazed west-facing window wall has interior thermal and sunshading devices, the result of a compromise between the client’s desire for an unobstructed view and the architect’s concerns for energy efficiency. The house is designed to encourage environmental mindfulness, not only with its stunning views, but with smaller details such as extra space in the laundry room for hanging clothes out to dry or storage space for storing locally sourced root vegetables over the winter. Such elements facilitate a more sustainable lifestyle and are part of a wider shift in our cultural consciousness towards a less energy intensive lifestyle that is vital to our environmental well-being.
Wisdom Way Solar Village, Greenfield MA; Architect: Austin Design; Principal Architect: Bill Austin; Developer: Rural Development Inc.; Energy Engineering: Steven Winter Associates; Engineer: Rob Aldrich; Site Design: Joan Rockwell; Civil Engineering: Guntlow Associates; Engineer: Charles Labatt; Completed: 4 duplexes completed 1 Dec. 2009, 5 under construction

LEED Platinum Certified

Design

Southern orientation ★ Compact duplex arrangement encourages density and minimizes land use, costs and materials ★ Tight building envelope with 12” thick walls, 14” ceilings ★ Playground for children ★ Open spaces for possible community gardens, picnic area

Materials

Recycled, blown-on dry cellulose insulation ★ High efficiency windows: on North, east and west sides: U-value: 0.18, solar heat gain coefficient: 0.26, visible light transmission: 0.42; on the South side: U-value: 0.26, solar heat gain coefficient: 0.36 and visible light transmission: 0.53 ★ HardiPlank siding and panels on exterior

Technologies

87 sq ft of solar thermal panels (3 flat plate collectors) ★ 3.4 kw solar electric system producing approximately 4,000kW of electricity annually ★ On-demand tankless water heater as back up to solar ★ CFL light bulbs throughout ★ Cook stove and dryer are natural gas ★ ENERGY STAR appliances ★ No air conditioning ★ Continuous 50 cfm exhaust ventilation

Wisdom Way Solar Village has garnered a good deal of press both locally and nationally as it works to dispel the myth that low-impact housing is available only in the high end of the market. Together with Rural Development Inc, Austin Designs, Inc., is creating affordable housing with practically no heating or electricity bills. Where central heating was once considered a must, here the owners can proudly boast that their tight and cozy houses have no need of it: The sun does the work of traditional household boilers. Indeed these homes have an HERS index ranging from 7-17% which means that they use between 7 and 17% of the energy that a standard code-built home would use. They range from 2 to 4 bedrooms and offer comfort, community, and an energy bill we all covet!
Design

Passive solar layout and design ★ Emphasis on natural daylighting ★ Small size means small footprint ★ Naturalized landscape ★ In-town location for walking and biking ★ Balanced cut and fill in construction

Materials

Locally sourced materials ★ Locally crafted artistic detail fabrication

Technologies

New guest house addition has solar panels supplying hot water and radiant heating

The Parker Huber house is a small sculptural gem that invites serene contemplation of the natural world. Moving round from the compact, japanesque entryway into the main living space one is struck by the immediacy of the landscape. Three sides of the room consist of ceiling-height glazing providing views of native grasses, the hills of New Hampshire and the Connecticut River. Singer’s signature concrete and metal castings frame the floors and windows reminding us of the passage of time and our fleeting presence in this landscape. Amidst the trim lawns of its neighbors, the Huber house is reached through a stand of aspen trees whose leaves shimmer in the sunlight. One walks past a large berm, the remains of earth dug for construction and now overgrown with grasses, which encloses the house in its own native and un-treated site. The cast concrete panels of the façade, now partially covered in vines and set against the untreated cladding, are suggestive of a rugged and wild balance between the natural world and its exuberant growth and humankind’s need for comfort, contemplation, and shelter.

Design

18-unit cluster development on 14 acres of 112-acre property ★ Southern orientation for passive-solar homes and maximum solar gain ★ Small compact houses with 1,350 to 1,850 sq-ft living space ★ Upper floor is Universal Design/ADA compliant for young families and aging in place ★ Dense-packed blown-in super-insulated and air-sealed shell ★ Fewer, smaller windows on north walls than south-facing walls ★ Thick walls with 12” insulation, R-45 and ceiling R-55 ★ Edible forest gardens ★ Root cellars ★ Extensive nature trails planned ★ Preservation of existing habitat and meadows ★ Community garden & orchard

Materials

Locally harvested wood flooring trim ★ Low/no-VOC paints and finishes ★ Windows: Pella, low -e, argon-filled and triple-glazed ★ Hardi-plank siding ★ IKO Cambridge 50-year shingle roofs ★ Local Ashfield Stone or Alpha Concrete countertops

Technologies

Solar -thermal domestic hot water and radiant-floor heating installed by Northeast Solar★ VRV air-to-air HVAC systems, COP between 2.5 and 3, deep-solar heating systems with 620-gallon hot water storage tank ★ ERV ventilation systems ★ Possible micro-hydro electrical generation (pending state approval) ★ Planned community-wide PV system ★ Flat-panel & evacuated-tube solar thermal heating

The fledgling eco-village of Katywil sits on a sunny slope overlooking a forested mountain in Colrain. Each of the four houses under construction so far will have a different heating system (each experimental in its own way), which will be monitored by Steven Winter Associates to gauge performance under similar weather conditions. Residents of these cheerful, functional homes are sustainability pioneers, experimenting with their own lifestyles and pushing themselves towards sustainable living.
Beaver Lodge, Ashfield/Shelburne Falls, MA. Architect: Michel Beheshti; Designer: Landscape Historian Marie Stella. Contractor: Terry Estes
www.mariestellabeaverlodge.com

Design

Pocket doors and movable walls make space adaptable and multi-purpose ★ Natural daylighting using exterior sliding doors and interior glass partitions ★ Energy efficient rehabilitation of small existing timber frame structure with an addition whose natural materials blend into regional context ★ Edible landscape: organic vegetable, herb and fruit garden instead of front lawn ★ Environmental land art by participating artists ★ Water features such as rain chain and runnels become art objects in the landscape ★ 90% preservation of the habitat and natural vegetation in a non-disturbance zone ★ Rainwater harvesting with cistern used for garden irrigation ★ Vegetated green roof mitigates heating and cooling costs ★ Bio swales, buffer zone and rain garden designed to capture run off

Materials

Super insulated shell with 2” closed cell urethane foam and 6” to 8” recycled dense pack cellulose sprayed insulation ★ Locally sourced natural materials: hemlock siding ★ quarried mica schist floor tiles and paving stones ★ red oak flooring harvested from building footprint ★ Reclaimed, salvaged and used wood ★ Heavy emphasis on recycled materials ★ 100% water permeable paving

Technology

Photovoltaic panels ★ passive solar design with stone floor and counters as thermal storage ★ green roof ★ rainwater cistern

As a Landscape Historian and Designer, the Renaissance ideal of the harmony of art and technology influenced Stella, and drives the design of systems for her teaching-and landscape-laboratory, Beaver Lodge. Surrounded by acres of forest protected by conservation restrictions, the house overlooks a large pond thriving with wildlife. Beaver Lodge reflects its local context and provides constant intimate contact with natural systems. Shifting views inside and outside are linked with arbors, patio and deck in a transparent house that is one room wide and sited for passive solar gain and maximized daylighting. The healthy, stress-less atmosphere provides both relaxation and engagement.
SOLAR CIRCLE in HAYDENVILLE, MASSACHUSETTS

PROJECT PRINCIPALS:
Hilltown Community Development Corp. - Paul Lischetti, Project Manager
PFRA+LDa Architects LLP - Peter Frothingham RA, Partner-in-Charge
Teagno Construction Inc. – John Ferriter, Project Manager

DISTINCTION:
Solar Circle is the first renewable-energy affordable residential development in Western Massachusetts. These modest homes, each purchased for less than $150,000, consume about one-third the energy of a conventional code-compliant home over the course of a year: genuine affordability! During summer months the photovoltaic arrays serve as a 30-kilowatt electricity generator feeding power to the electrical grid, helping nearby communities meet their peak load demands of the summer air conditioning season. Several funding and housing agencies in Boston present this project at workshops as exemplary of truly sustainable residential development.

DESIGN SOLUTION:
The residences are arranged around a shared open lawn, and include a rear patio open to the surrounding woods. Each unit is oriented for maximum solar exposure, with calculated southern roof overhangs to provide optimal summer shading, induce passive ventilation, and maximize daylighting, particularly using bounce lighting from winter snow. Homes are constructed of durable and easily maintained materials, with the potential for future expansion into unfinished attics. Homes are sited to have unobstructed sunlight and views from the primary windows of the main living and bedroom spaces, as well as provide immediate access to the adjacent woods and the shared community lawn.

SUSTAINABLE ELEMENTS:
• The development consumed less than 5 acres of a 22 acre parcel,
  and is located just half a mile from public transportation,
• passive-solar heating assistance, natural daylighting, and passive ventilation,
• aggressive energy conservation,
• reduction of greenhouse gases (in both energy usage and manufacture of construction materials),
• recycled and/or rapidly renewable materials, along with low-emission or non-toxic adhesives and finishes,
• 90% reduction of construction waste.
• Carefully detailed air barriers along with panelized construction and second floor truss structures resulted in a high-performance exterior envelope at an affordable cost.
• All sub-road and foundation gravel was processed onsite from native ledge and boulders. Native saplings from remaining woods on parcel will be transplanted for use around homes for feature and privacy trees.
• Each unit has a 2.7 kW PV solar array which meets 80% of the annual electrical load. Units have generated credits for months from April to October.
Design

Residential design for two couples sharing one retirement home; the home incorporates various levels of privacy and open living spaces both inside and out nestled into the hillside, the house, maximizes magnificent views to the east of the valley while creating various intimate exterior living spaces that lead out into the landscape beyond. Roof orientations are designed for future photovoltaic installation and conduit provided for wiring. Windows are oriented to capture views and bring the outside in while maximizing daylighting as well as natural ventilation. Universal design theories were incorporated with the thought of aging in place: The first floor is accessible with minimal elevation change from interior to exterior and two locations have been framed for future elevators should the owners require them. A guest suite over the garage may be converted to a caretaker’s suite should one be required. Stone from the hillside was used to clad the exposed foundation and magnificent great room fireplace as well as create exterior stone retaining walls which further connect the built environment to the natural surroundings. Native plantings blend into the natural surroundings and minimize water intensive landscaping. A large underground cistern captures rainwater for any required landscaping, gardens, car washing, etc. with the intent of future use as a gray water system. Double piping has been installed for future conversion.

Technology

A highly efficient envelope, including R-50 roofs, R-33 exterior walls and R20 basement walls and slabs, were designed to minimize heating & cooling loads. Five wells supply a geothermal heating & cooling system including radiant floor heating throughout the first floor utilizing a highly efficient Warmboard system.

Materials


Design

House is carefully designed to maximize natural daylighting ★ Windows are arranged to carefully frame views while affording privacy from the neighbors nearby ★ Overhangs designed to afford maximum heat gain in winter, minimum heat gain in summer ★ Re-used an existing residential foundation ★ Stabilized and controlled erosion on steep slope ★ Central location in town allows for walking and biking ★ Cantilevers out to the south to better capture the views out towards the Mill River ★ Naturalized landscaping avoids carbon and water intensive lawns and gardens ★ Close collaboration between artist and client

Materials

Red cedar/concrete exterior ★ Double-glazed argon filled windows ★ Exposed post and steel construction ★ Rough plaster walls ★ Bamboo cabinetry ★ Plantation grown mahogany stairs ★ Concrete countertops ★ Soapstone sinks ★ Red birch flooring

Technology

Geothermal heat exchange for heating(radiant) and cooling (FA); ultra efficient (95.2%) natural gas, on demand boiler for domestic hot water and back up heat ★ Low-wattage halogen and fluorescent lighting ★ PV installation Spring 2010

The Cohen-Collins residence, with its crisp cubic massing and flat roof, could stand out dramatically from the houses nearby with their traditional gables, dormers and clapboard siding. But the house is so closely knit within its natural setting that it almost blends into the landscape around it. Use of raised planters on the ground and planters on the roof top further integrate the house to the site. Entering via a comparatively small entry with a gust closet, the visitor’s eye is led immediately down the central corridor of the house towards the hills and sky beyond. Even on this relatively tight suburban lot, each room has windows carefully placed to link the residents with the natural world. This careful relationship between humans and nature is characteristic of Michael Singer’s work, as are the cast aluminum and concrete insets found at the hearth with their layered twigs and geometries reminiscent of both nature’s debris on the forest floor and a buried, lost civilization. The owners of the Cohen-Collins residence were active in many of the decisions that led to this sophisticated and elegant house. The results of this collaborative effort are like a powerful work of sculpture, reminding us of the inexorable passage of time and our vital connection to the complex and fragile environment.
Stiebel Apartments, 155 Nonotuck Street, Holyoke MA; Kuhn Riddle Architects; Project Architect: Erica Rioux Gees; Completed: October 2008.

Design

Project sits on previously dilapidated site in the city ★ European approach to sustainability employs a compact volume to minimize heat loss by reducing the envelope area ★ Situated near public transportation and easy access to family-owned grocery stores and shops ★ The project has spawned revitalization of adjacent properties with owners re-investing in deferred maintenance and repairs ★ For tenants 55 and older, developing this site fulfills a need for senior housing in this residential neighborhood ★ Very walkable neighborhood in close proximity to downtown, City Hall and amenities ★ All units have balcony sized windows in the living rooms for access to the outdoors ★ All units have ground floor storage rooms for personal use “Green Roof” system

Materials:

Double stud wall construction for R-40 insulation in walls ★ R-50 insulation value in roof ★ Finish materials selected for their high performance criteria to reduce likelihood of replacement or refinishing. ★ Hardie-Plank siding for long term durability – factory finish extends life of paint ★ Rubber flooring in entry and circulation areas, reduces noise levels in these areas ★ Ceramic tile in high traffic areas

Technology

Solar hot water system provides heat for hot water and radiant floor heating ★ Building wide ventilation system with heat recovery provides fresh air to units with exhaust located in kitchen and bathrooms ★ First multi-family residential Green Roof system in Massachusetts which reduces cooling load in summer with inherent evaporative cooling through vegetation

Density is a buzzword in sustainability implying a certain amount of freedom from the automobile and the promise of revitalizing our ailing urban centers which have been hit hard by suburbia and the system of malls that we have created for ourselves. The Stiebel building has done much to revive a neighborhood in Holyoke and has shown us what the Europeans have known for years; that compact, beautifully designed, efficient apartment living provides benefits to residents such as a walkable, friendly neighborhood while at the same time lessening our impact on the earth and its systems. An apartment complex such as the Stiebel building, in its dense urban fabric, reminds us of our role as stewards of the natural environment with the same power and eloquence as a building set within a much more naturalistic setting.
Founded in 2007, Blu makes beautiful green homes suitable for a wide range of residential, commercial and institutional buyers. Blu’s breakthrough computer modeling, unique use of steel and wood and revolutionary folding technology makes beautifully designed homes more economical to ship and quicker to set up than other modern, green homes. Blu homes are healthy to live in and better for the environment because they are built with the highest green standards in mind and they are more energy efficient, quieter, better ventilated, create less waste, less destructive to the natural habitat and the open designs allow for spaces that feel larger than they are, resulting in a smaller carbon footprint.

We focus on incorporating as many recycled and renewable products as possible in our homes to be respectful to the earth’s resources. Whenever possible, we incorporate previously used materials into our houses, and our off-site factory construction also allows us to reduce waste and use less materials overall – approximately 50% to 75% less waste during construction. Finally, we choose products for durability and low maintenance – materials with longer lives mean less work for owners and less waste.

Blu homes are designed to maximize energy efficiency through a highly efficient building envelope, efficient HVAC, fixtures and appliances, and energy monitoring systems that give transparency to you on how much energy you are using. Moreover, our proprietary steel & wood hybrid framing helps make our homes “solar ready,” and we provide an overview on your future energy use and ideas on adding renewable energy sources, standard with each home.

Healthy environments are important in any live, work or play space. We design our homes to maximize the air flow and natural light that keeps spaces bright and clean, and minimize toxins like formaldehyde and VOCs in our materials. Just as importantly, our foam insulation not only helps energy efficiency but minimizes opportunities for mold growth and makes the space quieter and vibration-resistant for more peaceful living.