

INTEGRITY

Update

Fall
2014



Mill District Trolley Barn
Ready for Occupancy

Page 3

Integrity's Passive House: A new standard of energy efficiency



“The goal is to live without burning fossil fuels; to power our lives off of solar PV that fits on the roof of the home, and even provide the electricity for an electric car.”

—Alexi Arango, homeowner

At Integrity, we are completing our first “passive house” with a number of energy-efficient features that will drastically reduce energy consumption. Designation as a passive house requires adherence to strict principles of capturing and retaining heat energy, rather than relying on active heating systems.

Super-insulated passive houses utilize heat from the sun, as well as the home’s appliances and occupants. This 1360-square-foot, three-bedroom home features R55 insulated walls, R96 attic insulation, an R38 insulated concrete thermal mass floor, R6 triple pane windows, a heat recovery ventilation system, drain water heat recovery, and LED lighting. Projected to use one-eighth

the energy of a typical home, this will be the first certified passive house in the Pioneer Valley and one of only a few in Massachusetts. Homeowner Alexi Arango, a physics professor at Mount Holyoke College, was looking to build a house that would minimize his carbon footprint. “I wanted the home to make a bold statement about how far energy efficiency can go. The passive-house standard was the most aggressive I could find for extreme energy efficiency,” Arango said. Alexi chose a passive house plan designed by GO Logic because he wanted the home to be more than just energy efficient. He wanted it to be a beautiful building and GO Logic offered a number of fantastic home designs. The Maine-based architectural firm specializes in passive house design for cold climates. With roughly 25 successful projects in some of the coldest parts of the country, their designs are a smart option for

New England homeowners.

GO Logic’s proprietary design uses structural insulated panels (SIPs) outside of a dense-pack cellulose wall. These eight-inch-thick panels are preconfigured and precut according to the architect’s specifications, then shipped to the construction site to be installed. They feature fewer seams, limiting air infiltration while eliminating thermal bridging. This is key to creating a tighter envelope.

“The Arango house is the tightest house I have ever blower-door tested—and I’ve tested over 1,000 new homes. This level of air-tightness was achieved through a combination of great design and excellent attention to detail during the construction process,” comments

SIP panels were hoisted into place with a lull.



continued on page 2



Mark Newey, building science specialist at the Center for EcoTechnology. The most recent blower-door test he performed on the house registered 0.38 air changes per hour, well below the passive-house standard of 0.6 AC/hour. (A typical new home in Massachusetts has 5.0 air changes per hour, and a typical older home has 10.0.) Due to the tight envelope, passive houses require mechanical ventilation systems. The Arango house has a heat/energy recovery ventilator that helps keep heat in while continually exchanging the indoor air to assure proper air quality.

Passive houses use only 10% of the energy for space heating that a standard built, code-compliant house uses. The only mechanical heating units in the Arango

house are small, air-source heat pumps. According to Mark Newey's calculations, this house should cost less than \$300/year to heat and cool. Alexi plans to install photovoltaic (PV) panels, enabling him to generate his own electricity and make this a net-zero home. "The goal is to live without burning fossil fuels; to power our lives off of solar PV that fits on the roof of the home, and even provide the electricity for an electric car," said Alexi.

Passive houses are generally sited solar-south to ensure maximum solar gain. Alexi Arango's Amherst home is oriented a few degrees off of solar-south to maximize a beautiful view of the Holyoke Range. This was one of the many details worked out between the homeowner, architect Todd Boyd, and Integrity project manager Kyle Belanger. "Passive houses have precise specifications that have to be met in order to reach their very specific goals. With so many factors that can affect the outcome, clear communication and a commitment from everyone involved is crucial," commented Kyle.

"I chose Integrity because I wanted an experienced builder with an established reputation and an interest in pushing the boundaries of energy efficient building. The whole Integrity crew was great to work with. Carpenter Don Byler deserves special mention for building the house so tight. Our amazing "air changes" number is the best that



Top left: The first floor features an open layout. The kitchen and dining area is set up for maximum efficiency for meal preparation and clean-up. Top right: The view of the Holyoke Range from one of the second story windows. Above: The heat/energy recovery ventilation system.

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James Martula
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William Torres Jr.
Chris Varilly

RESOURCES

Alexi's blog:

potwinepassive.blogspot.com

GO Logic:

www.gologic.us

Integrity:

www.integbuild.com

Information about passive houses:

www.passivehouse.us

www.phaus.org

www.passivehouseacademy.com

Energy saving ideas and information about home energy efficiency, assessments, rebates and incentives:

www.cetonline.org

www.masssave.com

www.energystar.gov

www.energysavers.gov

[www.energy.gov/eere/buildings/](http://www.energy.gov/eere/buildings/residential-buildings-integration)

[residential-buildings-integration](http://www.energy.gov/eere/buildings/residential-buildings-integration)

www.buildingscience.com

GO Logic has ever achieved with a new builder,” commented Alexi.

Integrity co-owner Heidi Flanders responded, “We’re always looking for ways to improve a home’s thermal envelope for remodeling projects as well as new construction. Building this passive house gave us the opportunity to work with new materials and systems. It was a great experience for our crew. We gained a lot of knowledge implementing energy-saving strategies that we’ll be able to apply to future projects. Building codes have become more stringent. New and remodeled buildings in most towns are now required to have blower-door tests and meet the new building tightness standard of 3.0 ac/hour. We have always been committed to energy conservation, and a project like this is one of many ways to achieve what we feel is a good standard for living in our environment.”

The Arango house supports Alexi’s commitment to living without fossil fuels and is an excellent example of GO Logic’s design ingenuity and expertise. Integrity is proud to have been part of this innovative project. ■

Whole House Energy Upgrades



If you are looking for ways to reduce your energy consumption, Integrity can assess your house and provide suggestions to increase the energy efficiency of your home. Call Integrity at **549-7919** to schedule a **FREE CONSULTATION**.



Mill District Trolley Barn Ready for Occupancy

Integrity is completing construction of the Trolley Barn, the first phase of a master plan to revitalize North Amherst’s old sawmill and drying yard as the Mill District, “an Eats, Arts, and Entertainment Destination.” Conceived by Cinda Jones, president of WD Cowls, Inc., Land Company, the plan includes a 12,000 sf mixed-use building, designed by Kuhn Riddle Architects to look like an old trolley barn. The first floor offers commercial space that could house a specialty store, a copy shop, or a day spa, and even a restaurant or two. (One has recently signed on!) The upper floors house four 2,000 sf luxury four-bedroom apartments with granite counter tops, hardwood cabinets, and private baths.

Integrity is pleased to be teaming up with WD Cowls and Kuhn Riddle again for the next Mill District project—the renovation of the Cow Palace across the street from the Trolley Barn. (A preliminary Kuhn Riddle rendering is featured below.) Atkins Farm Country Market will be opening a new store in this renovated 2,400 sf space next August. “We are thrilled to welcome Atkins to our neighborhood. It’s great working on a project that’s bringing businesses into the North Amherst area, so close to where we work and live,” commented Anna Novey Cook, Integrity co-owner and project manager. Read more about the Mill District development at www.TheMillDistrictNA.com. ■

For leasing inquiries, contact Patrick Kamins of Kamins Real Estate at pdk.kaminsre@comcast.net (413-253-2515) or Micki Sanderson of Jones Real Estate at mickisanderson@jonesrealtors.com (413-265-0061).

Integrity’s Staff “Addition”

Congratulations to...



Matt and Allison Garriss on the arrival of their son Joseph Alan. Born on August 7, 2014, at 1:42 P.M., the baby was 9 pounds 10.7 ounces and 21 inches long.



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COMMUNITY CORNER

Integrity lent a few experienced hands to Pioneer Valley Habitat for Humanity.

Integrity employees Joshua Frankhouser (second from left) and Dave Perusse (right), pictured with Bill Noel and Habitat Executive Director Megan McDonough, spent a day placing the roof trusses and attaching sheathing on the fifth Habitat home to go up on Garfield Avenue in Florence. To volunteer or get more information about Pioneer Valley Habitat for Humanity, visit www.pvhabitat.org.



Investing in our community has always been one of Integrity's core values. Here are a few of the many community organizations and events we have supported this year.



Integrity sponsored the United Way of Hampshire County's 2014 Annual Celebration and Luncheon

The event took place May 28 at the Hadley Farms Meeting House. Campaign co-chairs Peter Jessop and Bill Grinnell presented awards to local businesses that led the way in corporate giving. Pictured above, Mark Marshall (former Integrity client) and Pamela Korenewsky accept the Workplace Champion Award for Amherst College, while Peter Jessop looks on. To learn more, visit www.unitedwayhampshirecounty.org.

Integrity Tees Off for Charity

On July 21, Integrity foursome Peter Jessop, Heidi Flanders, Don Byler, and Kyle Belanger participated in the Amherst Area Chamber of Commerce Annual Golf Tournament. Proceeds from the event fund the Business Education Program, supporting internships and scholarships. Integrity teed off again this month for the Golf for Health Tournament benefiting Cooley Dickinson Hospital and the E. W. Martin Memorial Golf Tournament.

