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Reports from the Field

Architects Face Challenges to Design Passive Houses

By Jessica Sheridan, Assoc. AIA, LEEDAP

Event: PASSIVE HOUSE: TOWN & COUNTRY and Passive House 101

Location: Center for Architecture, 02.15.11

Speakers: Floris Keverling Buisman — Principal, Vital Sustainability; Dennis Wedlick, AIA — Principal, Dennis Wedlick Architects; Jeremy Shannon, AIA — Principal, Prospect Architecture

Organizer: New York Passive House



Passive House BKLYN Residence by Prospect Architecture (left), and the Hudson Passive Project by Dennis Wedlick Architects.

Photo by Adam B. Bell, courtesy prospectarchitecture.com (left); photo by Elliott Kaufman, courtesy hudsonpassiveproject.com

Although there are just five goals to achieve Passive House certification by the Passive House Institute US — health, comfort, energy reduction, affordability, and predictability — the certification process is rigorous, often involving a number of rounds of testing, field adjustments, and retesting to maximize efficiency. Whether designing for the city or the country, as described by Dennis Wedlick, AIA, and Jeremy Shannon, AIA, developing a Passive House is both challenging and extremely rewarding.

At the beginning of the discussion, Wedlick announced that, after two years, his firm's Hudson Passive Project in Claverack, NY, has officially achieved Passive House certification, making it one of just 12 such buildings in the U.S. Shannon, on the other hand, is still developing his firm's Passive House BKLYN Residence so it will achieve official certification. Although one is a spec house in Upstate NY and the other is a townhouse in Brooklyn, the architects talked about how their processes mirror each other. They are both compact in shape, incorporate air-tight construction, designed with fenestration on the two short façades only, and incorporate energy-efficient heating and cooling equipment.

One of Shannon's biggest challenges was renovating a townhouse in a landmarked neighborhood. Typically, the Passive House Institute does not permit double-hung windows as air leakage is inevitable. To keep the double-hung profile, Shannon designed the windows to have a fixed upper pane, and a tilt-and-turn lower pane. Historic leaded glass windows were preserved and incorporated as one of the triple panes in the fenestration as well, thus preserving the historic character of the façade.

For Wedlick, integrating large south-facing windows is a priority in his designs. By limiting the fenestration on the thick side walls and constructing overhangs to provide sun shading in summer and infiltration in winter, as well as providing well-constructed, air-tight frames, he was able to achieve the strict energy standards outlined by the Institute.

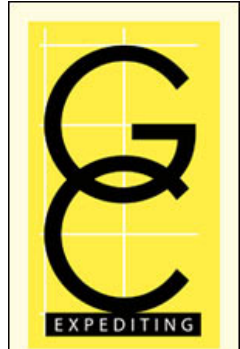
For both designers, the process of building a Passive House has been invaluable to their education as architects. By having the construction team on board early and involving them in the process, both Shannon and Wedlick found a new admiration for building and construction techniques. Whether or not their next projects are Passive Houses, they both feel that the process was well worth the time and effort involved.

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