



# ACCORD Passive House

## Accord, New York

Designed by North River Architecture & Planning senior designer Peter Reynolds and principal Stephanie Bassler, the Accord Passive House is also Reynolds's home. Reflecting the region's barn vernacular architecture, the house has a 1,656-ft<sup>2</sup> finished first floor, and a 1,099-ft<sup>2</sup> unfinished second floor suitable for adding two more bedrooms and a bathroom.

The firm approached this project as a test case for a few key concepts concerning the viability of Passive House construction for single-family residential projects in its Hudson Valley region, located about 100 miles north of New York City. Most importantly, the firm feels that Passive Houses should be affordable for the broadest possible market. To achieve this, the firm wished to show that a Passive House should be designed in such a way that any competent builder should be able to construct it. North River also thinks that in order for Passive Houses to be understood as feasible and affordable, the firm's project stories, successes, and challenges should be shared with peer networks.

With Reynolds as owner/builder and general contractor, North River was able to complete this house for approximately \$220 per square foot, including energy

### Team

#### Architect

[North River Architecture & Planning](#)

#### Structural Engineer

[Kaaterskill Associates](#)

#### Mechanical Consultant

[Baukraft Engineering](#)

#### Certified Passive House/ WUFI Consultant

[Northeast Projects, LLC](#)

#### PHIUS Rater

[Spruce Mountain, Incorporated](#)

modeling, certification, and site costs. This figure, less than the cost of a typical custom home in the region, includes a generous allowance to represent added costs if a general contractor were hired to build the project.

The firm worked with subcontractors who had never before built a Passive House. According to Bassler, it didn't scour the region for high-end contractors. On the contrary, many of the subcontractors were trustworthy low bidders, which helped them achieve the project's affordability goal. No special training was provided, although the firm did spend some extra time explaining specifics like air barrier and window installation details. As the homeowner, Reynolds also spent quite a bit of time on site as a quality assurance inspector. This time was factored into the budget, as the firm takes this hands-on approach with all its clients' projects.

One other area of focus for the firm is net zero construction. This house includes a 9-kW PV system that is sized to produce as much power annually as the household will consume, with enough additional power to charge the Reynolds's electric car. The system cost of \$10,000, after tax credits and local utility rebates, is included in the \$220 per square foot budget.



Photos by Deborah DeGraffenreid Photography

### Passive House Metrics

<b>Specific space heating demand</b>	5.8 kBtu/ft <sup>2</sup> /yr	18.1 kWh/m <sup>2</sup> /yr
<b>Specific space cooling demand</b>	0.96 kBtu/ft <sup>2</sup> /yr	3.0 kWh/m <sup>2</sup> /yr
<b>Source energy use intensity (EUI)</b>	20.2 kBtu/ft <sup>2</sup> /yr	63.7 kWh/m <sup>2</sup> /yr
<b>Air changes per hour</b>	0.04 CFM <sub>50</sub> /ft <sup>2</sup> (design)	



### Products

#### Windows & Doors

[Zola](#)

#### Air/Moisture Control

[Siga](#)

[ZIP System Sheathing and Tape](#)

#### Heating & Cooling

[Fujitsu](#)

For the most part, using trades inexperienced in Passive House construction posed no significant construction challenges. Setting the insulated foundation form block system for the shallow frost-protected slab foundation on a sloped site was the trickiest part of the entire process, according to Reynolds. With this first install under its belt, North River intends to keep using these same building systems as it proceeds, refining the process with each new project, and educating its clients and peer networks along the way.