The Waterhouse

Danvers, Massachusetts

PROJECT SNAPSHOT

Development Type: New construction multifamily residential building, mid-rise

Completion Year: Anticipated construction to start Summer 2026 (currently in pre-construction phase)

Developer: New England Homes for the Deaf and Winn Development

Architect/Designer: Cube3

Passive House Consultant: Sustainable Comfort, Inc.

Contractor: Windover Construction

Mechanical Systems Designer: Wozny Barbar & Associates

Code Pathway: Permitted under the Base Energy Code, with compliance demonstrated via the ERI pathway but pursuing Phius CORE 2024 certification

PROJECT OVERVIEW

Co-sponsored by WinnDevelopment and the New England Homes for the Deaf, the Waterhouse is a proposed multifamily residential development in Danvers, Massachusetts, currently in the pre-construction phase, with construction anticipated to begin in summer 2026. The project will deliver approximately 116 new residential units and is being designed as an **all-electric multifamily** building pursuing Phius (Passive House) performance standard. With all 116 units designed for individuals who are deaf, deaf-blind or hard of hearing, the Waterhouse also reflects a commitment to inclusive design alongside high-performance building practices.

This multifamily project was developed using Low-Income Housing Tax Credits (LIHTC), which are administered through a state-level competitive allocation process. In Massachusetts, LIHTC-awarded developments must meet the Massachusetts Stretch Energy Code, regardless of whether the project is located in a Stretch Code community. In addition, the state's Qualified Allocation Plan awards competitive points for enhanced energy performance, including compliance with the Specialized Stretch Energy Code and Passive House certification, making higher-efficiency design strategies a key factor in project competitiveness and selection.

Architectural rendering of the proposed Waterhouse development.
Source: Built Environment Connects, "Waterhouse" project page.

Project Overview (cont.)

In addition, this project pursued grant funding through the MA Department of Energy Resources' Affordable Housing Decarbonization Grant Program, which supports decarbonization and beyond-code projects. While Passive House certification was not mandated by the Base Energy Code in Danvers, the project's adoption of Passive House standards reflects a deliberate strategy to strengthen competitiveness within the QAP scoring framework, DOER's Decarbonization Grant Program, and WinnDevelopment's long-term commitment to sustainability. The project is currently **modeled using the 2021 Phius standard.** The team is now pursuing certification under the **2024 Phius standard** and is evaluating the necessary updates to align the project with 2024 requirements prior to construction, depending on project timing and final design development.

Design & Construction Approach

At the time of permitting, the Town of Danvers followed the Base Energy Code and had not adopted the Stretch Energy Code or the Specialized Code. The project team demonstrated a strong commitment to sustainability by designing the building to Passive House standards. This decision was influenced in part by the project's status as a Low-Income Housing Tax Credit (LIHTC) funded development, where enhanced energy performance strengthens competitiveness within the state's Qualified Allocation Plan (QAP). In addition, committing to Passive House certification supported the project's ability to compete for highly competitive state grant funding from the Massachusetts Department of Energy Resources (DOER).

"As a long term owner, WinnDevelopment is also motivated to invest in high-performance design to reduce utility costs." Chris Straile, Project Manager, WinnDevelopment

Envelope

The project team engaged a dedicated **building envelope consultant** to review construction documents, supporting alignment between design intent and field execution. The exterior wall assembly is designed with **mineral wool insulation**, including rigid mineral wool board at the exterior and mineral wool batts within the wall cavity. Roof insulation is currently planned as rigid polyisocyanurate, while slab insulation is specified as extruded polystyrene (XPS).

Mechanical Systems

Heat pump mini-split systems will provide heating and cooling for residential units. Ventilation will operate through a combination of **centralized and semi-centralized systems**, with large rooftop energy recovery ventilators (ERVs) planned to serve most of the building, including the residential apartments, and smaller interior ERVs serving specific amenity common areas. **Heat pump water heating systems** will supply domestic hot water throughout the building.

Appliances and Lighting

All major appliances in the units, including in-unit washers and dryers, refrigerators, and dishwashers, will be **ENERGY STAR®** certified. Lighting throughout the building is **100% LED**.

Solar and EV Infrastructure

The building is designed to be **solar-ready**, with rooftop and electrical infrastructure in place to accommodate future photovoltaic (PV) installation. The project team is pursuing Passive House certification without relying on PV to achieve Phius CORE certification. Meeting Passive House certification without PV requires the envelope, mechanical systems, and ventilation to achieve higher performance metrics to offset the absence of on-site renewable energy.

The project's energy usage was modeled using the appliances selected and other design choices. The team noted that they were nearly at the point where PV would be required to achieve certification, but incorporated additional efficiency measures to avoid PV as a necessity. The project team has contracted with a solar engineering and construction firm and is pursuing interconnection design and approval to ensure future installation can be streamlined.

Twelve EV chargers are tentatively planned for installation on site.

Performance Results

Assembly/System	Material	Metric	Value	Notes
Walls (exterior / armor wall)	Mineral wool board	R-value	R-12	3”
Walls (cavity)	Mineral wool batt	R-value	R-21	5.5”
Roof / Ceiling	Planned as rigid polyisocyanurate	R-value	R-50	Unvented
Slab / Floor	Extruded polystyrene	R-value	R-10	2”
Windows	Triple pane	U-factor / SHGC	0.16 / 0.29	
Cooling	Heat pump mini-split systems	Seasonal Energy Efficiency Ratio (SEER)	20	Average
Heating	Ductless heat pump systems	HSPF	10.39	Average

Cost Insights

The Waterhouse project in Danvers, Massachusetts is an affordable housing development sponsored by New England Homes for the Deaf in partnership with WinnDevelopment. The development was awarded federal and state Low-Income Housing Tax Credits, along with state subsidy funds through the Massachusetts Executive Office of Housing and Livable Communities. These awards were announced as part of a statewide housing investment event held in June 2024, led by Governor Maura Healey and the former Secretary of Housing and Livable Communities, Ed Augustus in Danvers, where approximately **$227 million in combined housing tax credits and subsidy awards** were allocated to support thousands of affordable homes across Massachusetts. The Waterhouse project includes **93 income-restricted affordable units**, including **17 units restricted below 30% of Area Median Income**, aligning with the Commonwealth's deeper affordability priorities. In addition to state and federal LIHTC resources, the Town of Danvers is contributing local funding support to the project.

Outcomes & Lessons Learned

Several important lessons emerged from this project. Careful monitoring of **modeled building energy** use was critical, particularly given the proximity to requiring on-site PV to meet Phius performance targets. Engaging an **envelope consultant** was highly valuable in ensuring that design details were thoroughly reviewed and coordinated throughout the design process. Regular design reviews and clear communication among the design and development team supported effective coordination of detailing and iterative energy modeling. A multidisciplinary review process, including energy modeling, architectural design, envelope consulting, commissioning, and development oversight, helped strengthen quality control and increase confidence in achieving high-performance outcomes.

"Regular design reviews and open communication were critical for working through detailing and iterative energy modeling. Multiple teams evaluated the plans and construction documentation, including Sustainable Comfort, Cube3, Wozny Barber & Associates, WSP (commissioning agent), WinnDevelopment, and the CPCH, which provided greater confidence in achieving high-performance outcomes." Christina McPike, Vice President, WinnDevelopment

Special thanks to Britt Clark, Senior Architectural Green Building Consultant at Sustainable Comfort, Inc., and WinnCompanies' internal Energy and Sustainability department, including Chris Straile, for their insights and contributions to this case study.

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