



K. Hovnanian Northeast Division, Inc.

The Cove at
Asbury Park
Asbury Park, NJ



BUILDER PROFILE

K. Hovnanian Northeast Division, Inc.
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FEATURED HOME/DEVELOPMENT:

Project Data:

- Project name: The Cove at Asbury Park
- Location: Asbury Park, NJ
- Layout: 3 bdrm, 3.5 bath, 4 fls, 2,185 ft²
- Climate: IECC 4A, mixed-humid
- Completed: July 2022
- Category: Multifamily

Modeled Performance Data:

- HERS Index: without PV 48
- Annual Energy Costs: without PV \$1,300
- Annual Energy Cost Savings: (vs typical new homes) without PV \$1,900
- Annual Energy Savings: without PV 16,100 kWh
- Savings in the First 30 Years: without PV \$76,500

K. Hovnanian's Northeast Division joined the U.S. Department of Energy's Zero Energy Ready Home program in 2020 and the production and multifamily home builder has already certified 656 homes to the program requirements (as of December 2023). This put them at sixth on DOE's list of most DOE Zero Energy Ready certified homes and earned them a grand award in 2023 for most homes certified that year. They've also won three DOE Housing Innovation Awards—two in 2022 for a single-family home and a townhome project and this one in 2023 for a four-story townhome project.

K. Hovnanian was founded by Armenian immigrant Kevork Hovnanian in 1959 in Tom's River, New Jersey, and now builds homes in 13 states across the country including Florida, Texas, Arizona, Ohio, Georgia, Pennsylvania, Virginia, Maryland, South Carolina, West Virginia, Delaware, New Jersey, and California. Since joining the DOE program in 2020, the production and multifamily home builder has certified over 90% of their new homes in New Jersey. Along with winning the 2023 DOE grand award for most ZERH homes certified, the company's Northeast Division was also recognized with the 2023 Housing Innovation Award for their project, the Cove at Asbury Park, a multifamily community of 48 four-story town homes consisting of two models that range in size from 1,765 ft² to 2,916 ft² with 3 or 4 bedrooms, 3.5 or 4 baths, rooftop decks, and one-car garages with electric vehicle chargers.

The Cove exterior's mix of multi-grey-toned cantilevered boxes and shingle siding gives the four-story building a modern-meets-coastal vibe in this popular New Jersey shore town, but it's what's "behind the walls" that helped the project win a DOE Housing Innovation Award. The building, like every home certified through the DOE Zero Energy Ready program, met the criteria of ENERGY STAR Certified Homes Version 3.1 and the U.S. Environmental Protection Agency's Indoor airPLUS program. Builders must also meet other efficiency requirements like the hot water distribution requirements of the EPA's WaterSense program; the insulation requirements of the 2015 International Energy Conservation Code; HVAC and water heating efficiencies; third-party verified air sealing targets; installation of ENERGY



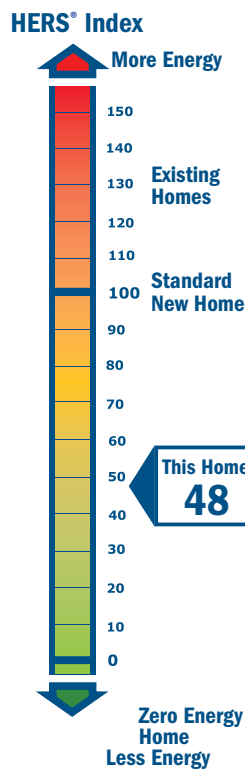
The U.S. Department of Energy invites home builders across the country to meet the extraordinary levels of excellence and quality specified in DOE's Zero Energy Ready Home program. Every DOE Zero Energy Ready Home starts with ENERGY STAR Certified Homes Version 3.0/3.1/3.2 for an energy-efficient home built on a solid foundation of building science research. Advanced technologies are designed in to give you superior construction, durability, and comfort; healthy indoor air; high-performance HVAC, lighting, and appliances; and solar-ready components for low or no utility bills in a quality home that will last for generations to come.

K. Hovnanian Northeast Division, constructed this 48-unit building in Asbury Park, New Jersey, to the high performance criteria of the DOE Zero Energy Ready Home (ZERH) program.



What makes a home a DOE ZERO ENERGY READY HOME?

- 1 **BASELINE ENERGY STAR Certified Homes Version 3.0/3.1**
- 2 **ENVELOPE** meets or exceeds 2012 IECC levels
- 3 **DUCT SYSTEM** located within the home's thermal boundary
- 4 **WATER EFFICIENCY** meets or exceeds the EPA WaterSense Section 3.3 specs
- 5 **LIGHTING AND APPLIANCES** ENERGY STAR qualified
- 6 **INDOOR AIR QUALITY** meets or exceeds the EPA Indoor airPLUS Verification Checklist
- 7 **RENEWABLE READY** meets EPA Renewable Energy-Ready Home.



STAR appliances, windows, and lighting; and ducts in conditioned space. These requirements should help homeowners achieve average annual energy savings of \$1,900 per home compared to similar town homes built to just meet code.

K. Hovnanian uses building integrated modeling to design its projects. The 3D modeled designs are provided to the builder's mechanical, electrical, and plumbing (MEP) designers to help in laying out MEP system for the homes.

For construction, the builder chose a slab-on-grade foundation that is insulated with two inches (R-10) of rigid foam on the slab edge perimeter extending down 24 inches and one inch (R-5) of rigid foam extending 24 inches horizontally under the slab edge. The walls use 2x6 wood-stud framing spaced with 24-inch on-center stud spacing for most walls and 16-inch on-center spacing in some wall sections. The walls are filled with R-19 of fiberglass batt insulation. Advanced framing techniques were used like 3-stud insulated corners and open, insulated headers to reduce the amount of framing and increase the amount of space for insulation in the walls.

The truss roof includes both gabled and flat sections. The unvented attic was filled with up to 18 inches (R-38 to R-63) of blown in cellulose. Raised-heel trusses allowed 10.125 inches of insulation over the top plates. The 0.5-inch OSB deck sheathing was covered by 15# roof felt and 30-year dimensional asphalt shingles on the sloped roofs and PVC membrane over the flat roofs. This project featured large roof-top decks above the living space for each unit. This presented a challenge to provide the proper amount of insulation while eliminating the need to vent the attic space due to structural constraints. Joe Lstiburek of Building Science Corporation helped to design an unvented hybrid roof assembly that met the insulation requirements of the energy code while controlling the amount of moisture that can condense beneath the deck. The flat roofs consisted of a coated OSB sheathing with seams taped, R-20 of rigid XPS, 0.75-inch plywood, then PVC membrane and the flooring of the rooftop decks. Careful detailing and installation of the self-adhered PVC membrane air barrier and strict adherence to the ratio of rigid insulation to the total R-value of the assembly created an attic/roof design that minimized the risk of accumulation of condensation, eliminating the need to vent the attics.

Efficient ENERGY STAR-labeled double-pane windows with insulation values of U-0.24 and solar heat gain coefficients of 0.29 help block out summer sun while keeping in winter heat. The windows included some airtight casement-style windows but most were fixed-glass with tempered glass outer panes to protect against coastal storms.



The builder used 2x6 walls with advanced framing techniques like 24-inch stud spacing, 3-stud corners, and insulated headers to reduce the amount of lumber used while adding space for the R-19 insulation. ENERGY STAR appliances, windows, and lighting add to energy savings.

K. Hovnanian conducts extensive air sealing practices to create a continuous air barrier or “pressure boundary” around the building and each unit in it, consisting of taping or sealing all the wood-to-wood seams and penetrations through floors, walls, and ceilings to prevent air movement in or out of the home. Specific strategies include applying caulk or foam at foundation sill plates; wall sill plates; band and rim joists; exterior wall and band or rim joist corners; around doors, windows, wiring, pipes, and vents; at any dropped ceilings; and any ceiling penetrations to the attic. Fire-rated sealants are installed on any electrical, plumbing, or HVAC penetrations through wall plates or vertical chases; at fireplace chases, and at cantilevered floors. Additional air sealing steps include air sealing at wall-floor joints; the garage-house walls; exposed joist areas; electrical box cutouts in walls and ceilings; and around fireplaces, plumbing pipes, A/C lines, dryer exhaust vents, junction boxes, gas lines, outside plumbing lines, and fire sprinkler heads. K. Hovnanian employs a subcontractor whose main job is to perform this air sealing. As with all homes certified to the DOE Zero Energy Ready Home criteria, K. Hovnanian’s homes are blower door tested for whole-house air tightness by a third-party energy rater. If the home or building does not meet the specified air tightness requirement, the contractor must correct the problem and pay for the cost of retesting.

To provide fresh air, each townhome is equipped with a controlled central fan with fresh air intake and timered exhaust for balanced whole-home ventilation. The outdoor air duct brings fresh air to the return side of the central high-efficiency 96 AFUE gas furnace which uses a compact zoned duct system to provide heating to the first three floors. The fourth floor of each unit is equipped with a ductless mini-split heat pump which provides high efficiency heating and cooling.

In addition to this code-compliant ventilation, the building is designed to meet all of the requirements of the U.S. Environmental Protection Agency’s Indoor airPLUS program.

The builder installs ENERGY STAR rated appliances, lighting, and ceiling fans for energy savings. A centrally located efficient tankless water heater, compact plumbing layout, and EPA WaterSense-rated plumbing fixtures add to hot water and energy savings.

To be able to offer home buyers a cost-effective product while maintaining quality, K Hovnanian has standardized many construction details. “This minimizes wasted materials and allows our trade partners to execute consistency in their respective contributions,” said Sean Neumann, vice president of operations for K. Hovnanian’s

HOME CERTIFICATIONS

ENERGY STAR Certified Homes
Version 3.1

EPA Indoor airPLUS

DOE Zero Energy Ready Home Program
- 100% Commitment



Every DOE Zero Energy Ready Home combines a building science baseline specified by ENERGY STAR Certified Homes with advanced technologies and practices from DOE’s Building America research program.



The builder consulted with Joe Lstiburek of Building Science Corporation to design an unvented roof deck that met code-required insulation levels while controlling for moisture and condensation potential beneath the deck.

replicability of our production process,” said Neumann. “Buyers see the features they want and are not bombarded with a myriad of choices. Our trade partners can offer higher quality construction since the homes feature details that can be consistently executed and delivered.”

Training and technical expertise have also been hallmarks of K. Hovnanian’s efforts to ensure consistent quality in their single- and multifamily homes. K. Hovnanian has partnered with DOE Building America researchers including Joe Lstiburek of Building Science Corporation and IBACOS, as well as the New Jersey Builders Association, for training and technical guidance. “We have comprehensive construction documents and a thorough shop drawing review process of various components of the home. Our plans incorporate many IBACOS-developed or reviewed details. We also have a complete constructability review by a third-party engineer. That same third-party engineer is then contracted to perform six inspections throughout the build process, documenting nonconforming items. Non-conforming items must be appropriately closed out with photo-documentation following the repair,” said Neumann.

Additionally, K. Hovnanian uses internal quality associates who conduct their own inspections throughout the build process, including a framing inspection, drainage plane inspection, scratch coat inspection, and quality standards inspection prior to homeowner orientation.

The builder conducts monthly targeted training sessions for their internal associates, on topics such as HVAC, moisture management, etc. They also conduct an in-house 18-month extensive classroom and field-based training program for their newer associates. In addition they also conduct various safety and technical training sessions for their subcontractors. “Our safety meetings are held once a week and our technical trainings are less frequent but are typically geared towards a specific trade and target construction practices such as buried ducts and truss bracing,” said Neumann.

Photos courtesy of K. Hovnanian Northeast Division, Inc.

Northeast Division. “Maintaining a close relationship with our energy rater ensures that our homes are computer modeled according to the “DOE Zero Energy Ready” program requirements during the design phase and are tested prior to occupancy to ensure that each home matches or exceeds the performance expectations of the DOE program.”

By identifying the features and styles that most people want in their new home and offering just those options, they’ve simplified the development of new home plans from the design process to the sale of the home. “Reducing the multitude of options we’ve historically offered has greatly increased the simplicity and

KEY FEATURES

- **Walls:** 2x6, 24” oc, R-19 total: advanced framed, R-19 fiberglass batt. 0.5” OSB sheathing, synthetic house wrap; fiber-cement siding.
- **Roof:** Gable truss roof and flat roof, 0.5-inch OSB sheathing, 15# roof felt, 30-year dimensional asphalt shingles, PVC membrane on flat roofs.
- **Attic:** Unvented (hot roof); 18” R-38 blown cellulose in gable attic; polyisocyanurate insulation board under PVC membrane on flat roof.
- **Foundation:** Slab on grade; R-5 rigid foam extends 24” horizontally at the perimeter; R-10 extends down 24” vertically at the slab edge perimeter.
- **Windows:** Double-pane, U=0.24, SHGC=0.29.
- **Air Sealing:** 4.40 ACH 50. Extensive air sealing with foam and caulk of all ceiling and wall penetrations. Fire-rated sealant on any penetrations through wall plates or between floors.
- **Ventilation:** Controlled central fan with fresh air intake and timed exhaust.
- **HVAC:** Single-stage furnace. 96 AFUE, with zone dampers for floors 1-3. Minisplit on 4th floor.
- **Hot Water:** Gas tankless, 0.93 EF, Water heater centrally located. Compact plumbing design.
- **Lighting and Appliances:** LED lighting, ENERGY STAR appliances.
- **Solar:** None.
- **Energy Management System:** Ventilation controls.
- **Other:** Contemporary townhome-style condominiums with rooftop decks a short walk from the beach and downtown that meet DOE Zero Energy Ready Home certification and 2021 IECC energy codes.