Zer0 Place

Building of Excellence Award Cheat Sheet

Overview

A mixed-use, four-story, zero-energy, carbon-free building currently in the late design phase of development. The design of this leading-edge project is based on high performance building principles to achieve optimal energy efficiency, long-term sustainability and exceptional resiliency. The project team's drive towards zero energy building strategies is to develop a replicable and scalable model that significantly reduces the environmental impact of new residential and commercial development throughout New York State and other cold-climate regions. And just as importantly, resilient design features have been prioritized for the project in order to provide a safe haven for the building residents given the increasing prevalence of severe weather conditions. Overall, the design of Zero Place is intended to meet and exceed the leading energy efficiency and performance standards in the New York market on a cost-competitive basis.

General Features

- 46 residential units (1- & 2-bed)
- 8,000+ sqft of prime retail space
- Mix of affordable housing and accessible units
- Public gathering space & restrooms adjacent to Empire State Trail
- Pocket park with sculpture area, sitting walls, benches and green space for gathering
- 50 bicycle racks
- 20 EV charging stations (stage 2), including electric bicycle charging ability
- Rooftop deck and herb garden
- All utilities included (electric, water, internet)
- Smart apartment features (lighting controls, door locks)
- High-efficiency appliances including washer/dryer, induction cooktop, refrigerator, washing machine

Energy Features

- Enhanced thermal enclosure
  - ICF walls
  - Triple-paned fenestration
  - High-R slab and roof assemblies
  - Air-tight construction strategy
  - Thermal bridging reduction
- High-efficiency mechanical system
  - Ground-source Heat Pump (GSHP) provides 100% heating, cooling & hot water
  - Designed with common ground loop, variable speed pump, and all ducting/distribution within building envelope
  - Unitary ERV systems for each unit with controls for CO2, humidity, and tenant-control
- Onsite solar power
  - 246 kW photovoltaic power
  - Solar awnings for south-side shading
  - LED lighting & data/controls
- Housing density & *complete streets*
  - Located near Village center
  - Onsite bus stop
  - Adjacent Empire State Trail
  - 50 bike racks & public restrooms
  - Bike lanes along streets
  - 20 EV chargers with bicycle charging

Energy Performance

- Enclosure performance (est.)
  - 37% better than code
  - Saves 169,488 kWh/yr
  - 65% tighter than NYS ECCC
- Mechanicals performance
  - Innovative GSHP design performs 15% better than conventional GSHP solutions
  - Vastly more performant than traditional fossil fuels-based systems
  - Heating – 3.4 COP
  - Cooling – 17 EER
- Solar performance (est.)
  - 296, 411 kWh/yr
  - (1,398 kWh/yr excess)
  - 84 metric tons/yr carbon offset
- Exemplary Overall Performance
  - HERS: -13 (post-solar PV) and 35 (pre-solar PV)
- Housing density & complete streets
  - Large number of tenant car trips avoided -carbon savings
  - Greater sense of community along main corridor

Resiliency

- Concrete and steel structure provide superior fire safety, disaster resistance, & tenant comfort
- Maintains 50°F with grid outage
- Seeking LEED's pilot credit of Passive Survivability

Project Team

Net-Zero Development LLC
(David Shepler, Anthony Aebi, Keith Libolt)

Architect: Dave Toder, Bolder Architecture
Engineering/Survey: Barry Medenbach, Medenbach & Eggers
Energy Consulting: Pasquale Strocchia, Integral Bldg & Design