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Callahan reaches milestone on construction and testing for Passive House Certification at Squirrelwood Apartments

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Cambridge, MA According to Callahan Construction Managers, an exciting milestone has been achieved with the construction and testing for Passive House Certification at their Squirrelwood Apartments project, an affordable housing development.

54 Market St. is the largest new building in the Squirrelwood project and has been built to PHIUS+ 2015 standards, ensuring maximum energy efficiency and resident comfort. Passive House construction adheres to five building-science principals: Buildings are super insulated, have an airtight building envelope, have high-performance windows and doors, include energy recovery ventilation, and minimal space conditioning systems. Building green and sustainable buildings is part of Callahan Construction Managers' core business strategy.

"We are very proud of our team and partners Davis Square Architects, New Ecology, Inc., Just-A-Start, and Tierney Development Services, LLC for accomplishing these impressive results at Squirrelwood," said Patrick Callahan, president of Callahan Construction Managers. "The construction process is rigorous, but the team's attention to detail and commitment to sustainable building and the resident environment have contributed to our success in achieving this together."

The Passive House verification is a lengthy process which consists of numerous inspections and tests to confirm that the construction meets the PHIUS minimal air infiltration standards. A standard building will have three full air changes per hour, which equates to air infiltration of 3.0 air changes per hour at 50 Pascals of pressure (ACH50). A building that meets Passive House standards is expected to take 1 hour and 40 minutes to do the same air cycling, meaning it is significantly tighter at an air infiltration rate of 0.6 ACH50. 54 Market St. far exceeds Passive House standards, with one full air change taking four hours, an air infiltration rate of 0.27 ACH 50.

"New Ecology's mission is to bring the benefits of sustainable development to underserved populations, and even by those high standards, this is an impressive and rare accomplishment," said Maciej Konieczny CEM, CPHC, LEED AP, senior project manager, New Ecology. "When this project began, there were no affordable multifamily Passive House projects in Massachusetts, but working with Callahan's experienced team, a dedicated design team, and an owner that plans for a long-term investment was an example of what's possible when solving challenges collaboratively."

Squirrelwood is considered the fourth tightest multifamily building in the country and the tightest building on the East Coast (excluding duplexes). This result along with the other Passive House criteria, such as having the building super insulated, creates a more efficient building because it minimizes heat loss. In turn, that minimizes the required mechanical systems, which ultimately reduces the amount of energy the building needs to use to maintain the interior air quality. For this type of property, meeting the Passive House standard alone reduces energy consumption by an average of 60% from standard construction. At 54 Market, the building's energy reduction could be closer to 70%. In addition, with its solar panels installed, the building will be a true net zero energy building.

"We're proud to create housing in Cambridge that's not only affordable but also built to the highest quality standards. Residents will enjoy lower utility costs and a healthy, comfortable living space, while our whole community benefits from more environmentally-friendly housing," said Carl Nagy-Koehlin, executive director of Just-A-Start. "Achieving this milestone, despite the many challenges of the pandemic, truly demonstrates the power of partnership and our unwavering

commitment to affordable housing and economic opportunity.”

“The spectacular results we witnessed at Squirrelwood were the product of a full team of skilled professionals, working together towards a common, clearly communicated goal. The teams from Callahan, Davis Square Architects, New Ecology, and Just-A-Start threw themselves into the challenge, each working together to improve details, refine the execution, and shepherd the project from plans to reality. It was a pleasure to watch them work, and we are all extremely pleased with the result,” said Doug Tierney, owner’s project manager, Tierney Development Services, LLC.

“We are inspired by the dedication and hard work this team brings to Passive House and high-quality affordable housing, especially during these unprecedented times. We also commend the long list of funders for supporting rigorous goals in sustainable, affordable housing,” said Iric Rex, AIA, President, Davis Square Architects.

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