

Fall 2021

## BuildingWell

### A NOTE FROM THE PRESIDENT

Naturally occurring affordable housing (NOAH) describes housing that is affordable to low- and moderate-income (LMI) families, but not supported by government subsidy. In Mid-Atlantic cities, rowhomes comprise the bulk of this segment. In Philadelphia, approximately 60% of all housing is in rowhomes, and much of it is affordable for LMI households. Baltimore and Wilmington are similar. This stock has not been well-served by housing finance programs and tax credits, is not seen as a viable market for larger affordable housing developers, and is difficult to serve with energy efficiency programs. In many urban neighborhoods in the region, blocks of buildings deteriorate or sit abandoned amid a need for more quality, affordable homes.

NEI has launched an initiative in Philadelphia and Wilmington that seeks to catalyze redevelopment of this important, yet neglected, housing stock. We seek to transform homes into high performance, climate-ready housing, affordable for renters and buyers. This work requires partnership with neighborhood organizations, willing developers, financing entities, land banks, city governments, and grant-makers. It has the potential to create jobs, build wealth for homeowners, revitalize neighborhoods, and improve health outcomes.

In our first year, we started work on nearly 60 row homes and are ramping up quickly. While it's a drop in the bucket, it is a great start to a promising new initiative that we hope will be a model for redevelopment.

— Edward F. Connelly  
NEI President

### Carrington Way Apartments

BY MICHELLE MORAN, SENIOR ASSOCIATE; MARK STUTMAN, MID-ATLANTIC REGIONAL MANAGER; JUSTIN IOVENITTI, ENERGY ENGINEER; JOSHUA GALLOWAY, SENIOR PROJECT MANAGER

Location: Newark, DE / Size: 15 buildings comprised of 165 units / Owner: The Capital Realty Group

#### Project Background

Carrington Way is an affordable, 165-unit multifamily apartment complex located in Newark, Delaware. By 2020, the nearly 50-year-old development was showing its age and was in desperate need of upgrades. The owner, Capital Realty Group, enrolled the complex in the Energize

Delaware Affordable Multifamily Housing Program, an initiative of the Delaware Sustainable Energy Utility (DESEU). Their goal was to identify cost-effective energy and water efficiency upgrades and evaluate feasible renewable and clean energy systems, while reducing maintenance requirements.

As the technical assistance provider of the program, New Ecology, Inc. (NEI) conducted an ASHRAE level II energy audit to identify upgrade and savings opportunities, which were then implemented through the Program. Throughout the process, NEI provided project management, which included: project scoping and bidding management, contractor submittal reviews, technical assistance, construction support and oversight, and post-construction on-site staff training.

Thanks to the Energize Delaware program, the entire cost of upgrading multiple energy and water consuming systems in the apartment complex was subsidized by 40%, earning a \$495,000 rebate for the owners. The upgrade and rebate assistance through DESEU were a major factor in enabling their ability to extend the affordability status of



#### CARRINGTON WAY TOTAL SITEWIDE SAVINGS:

- 52% energy
- 32% water
- 19% utility costs

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## BEFORE



## AFTER



*BEFORE AND AFTER: Aging condensing units were replaced with exterior, wall-mounted heat pumps. The abandoned wall penetrations were fully insulated and finished with brick.*

*The subsidies for energy and water efficiency upgrades, which greatly lowered operating costs, fostered the ability to extend affordability and retain HUD status for another 20 years.*

the units, as they recently submitted a twenty-year extension to their Housing Assistance Payments Contract (HAP) contract with the US Department of Housing and Urban Development (HUD).

### Solutions and Features

- End-of-life gas-fired central boilers with domestic hot water coils were removed, and replaced with new high-efficiency air source heat pumps which distribute ducted heating and cooling via EC fan motors. The variable speed split systems achieve up to 19 SEER and 11 HSPF.
- New high-efficiency gas-fired condensing storage hot water heaters and thermostatic mixing valves were installed to serve each building with domestic hot water, and existing piping was insulated.
- Attic air sealing and insulating, along with in-unit air sealing, were performed to improve the envelope, and new bathroom exhaust fans, ducting and dampers were installed to improve indoor air quality.
- New LED lighting was installed in each unit, and occupancy controls were installed in common areas which already utilized LED fixtures.
- New ultra low-flow toilets, water-conserving aerators, and showerheads were installed throughout the residential buildings.

# WE ARE HIRING!

## New Ecology is looking to expand our team!

We have several open positions, and we are successfully working to on-board and train new hires remotely. We are currently hiring for:

- Staff Accountant (Boston)
- Senior Energy Engineer (Boston)
- Project Manager (Boston)
- Assistant Project Manager (Boston)
- HERS Rater Trainee (Boston)

Visit [newecology.org/category/jobs](https://www.newecology.org/category/jobs) for our complete list of job postings and instructions on how to apply. Feel free to pass this along to your professional networks!



## The Future of Energy Engineering: A Conversation with the Rising Generation of Professionals

BY FRANK STONE, PROJECT MANAGER

*Karthik Arumugam, Rachel Cohen and Kieran Bartels are students at Northeastern University, and they are currently working on remote monitoring (ReMO) projects as part of their co-op semester. These talented young professionals are writing software for a user interface that will make energy and water data visible and actionable. Karthik Arumugam's interview will follow in the next edition of NEI's newsletter.*

### Q1: HOW WOULD YOU DESCRIBE WHAT YOU ARE WORKING ON?

**Rachel Cohen:** I'm working on the software development side of the new remote monitoring website. It is going to allow clients to better monitor their sites, and it lets them know if things go wrong - for example if the heat has gone off. We are also working on speeding up the workflow for adding sites and equipment to the system, as well as building a new client facing website with new graphing functionality to track metrics using graphs. That way we can all see metrics compared with variables like outside temperature, and track them at the hourly, weekly, or monthly level.

**Kieran Bartels:** The ReMO team has been installing monitoring devices in the boiler plants of commercial and residential buildings to get insight on how well they're working. I am building out the website that clients will use to view that data and get alerts if anything is wrong, and I'm developing the back-end so that engineers in the field can efficiently populate the data for a site, with the goal of making data entry easier for all.

### Q2: HOW DID YOU GET INVOLVED WITH THE WORK YOU ARE DOING HERE?

**Rachel Cohen:** I'm a third-year college student at Northeastern University, and interning at New Ecology is part of our Co-op, where we go and we work for six months as opposed to taking classes. My majors are computer science and physics, and I've always been really interested in the application of the two, so ultimately what I'm really interested in is engineering that pushes the boundaries of field.

**Kieran Bartels:** I'm a fourth-year Northeastern student, and I study environmental and computer science, so this is the intersection between those two majors. We do a Co-op every six months, starting during our sophomore/junior year, and I realized that this work is right in line with my major. It is environmental science and computer science with a focus on coding, which is what I wanted for my second Co-op, so I was really lucky that I was able to find this job.

### Q3: WHEN THINKING ABOUT THE AFFORDABLE HOUSING SECTOR, WHAT IS THE MOST IMPORTANT PRIORITY TO YOU?

**Rachel Cohen:** One of the biggest things that I see with affordable housing are the environmental factors, and environmental justice side of things, especially in cities. There's a huge problem with environmental injustices, there are different environmental factors like worse air quality and higher temperatures, so I want to see housing that is environmentally resilient and responsive to those factors.

**Kieran Bartels:** I think addressing the needs of the community, both at the point when the housing is created, but also looking in the future, what will this community need in the next 50 to 100 years? Also, thinking about how those need will change over time. Preparing for that future is super important to me.

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## ATTENTION REMO CLIENTS!

New Ecology is excited to announce that we will soon be launching our new user interface website. While there is plenty more to come, this initial launch will provide access to real-time and historic data, performance graphs, and alert summaries for each of your remotely monitored properties.

If you are currently a ReMO client, you will receive notice in the near future with more details. If you are interested in becoming a ReMO client—for continuous monitoring of heating and hot water systems and water meters, [contact us](#) today!



## Q4: HOW HAVE YOU USED YOUR SKILLS TO TACKLE A PROBLEM IN YOUR WORK AT NEW ECOLOGY?

**Rachel Cohen:** On the software development side, a lot of the problems we run into tend to be bugs in the code and things we can't quite figure out, along with learning the style of the code that has already been written. It is a very much a learn as you go process, with a lot of Googling and posting on online forums to find answers. One of the biggest skills is research, because we're both learning as we go and we constantly need to look things up, to reach out for advice, and figure out how to get over different road blocks. That plus gathering information internally from different teams to figure out how we need these systems to work together to get the desired output.

**Kieran Bartels:** We have a graph as part of the tool we are developing that focuses on water consumption. Presenting water consumption is a challenge because you have to look at the difference between two time intervals, so the data that looks quite different from our other graphs. When building that graph I faced a challenge of how to present the information.

There was also the coding challenge with finding and correcting bugs in the code. I had a significant bug that just wouldn't show the data, which is the worst kind of bug because you can't see what is wrong. My go-to solution for bugs is to just trace where it comes from, starting at the very beginning, even if I know that the code at the beginning is right. Using that method, I was able to find the bug. In the end, the bug was one word and it broke the entire thing, but it now is up and working!

## WATER CONSERVATION

Water and sewer costs are often the most expensive utility at multifamily properties. To help lower operating costs, use and share this 4 minute video produced in cooperation with MassHousing and LISC with tips to understand the water bill, then diagnose and stop leaks. Adding these routine steps can save a development significant money. Turn your [Drips to Dollars!](#)

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## NEW ECOLOGY NEWS + AWARDS

**Squirrelwood Apartments** New Ecology was mentioned in a recent article in the New England Real Estate Journal, which shared exciting updates about the Passive House testing at Squirrelwood Apartments.

<https://nerej.com/callahan-reaches-milestone-squirrelwood-apartments>

**Energy Star Award**

New Ecology has earned an ENERGY STAR Residential New Construction Market Leader Award in recognition of its continued commitment to providing our nation’s homebuyers with ENERGY STAR certified homes and apartments. In 2020, NEI contributed 81 ENERGY STAR certified homes and/or apartments.

*Table credit.*

# New Ecology to Work on First Masonry Retrofit Passive House in Baltimore City

BY JUSTIN IOVENITTI, ENERGY ENGINEER & ALEX HAWORTH, ASSISTANT PROJECT MANAGER/RATER

The Compound is a non-profit founded in 2010 with the goal of turning a derelict forklift factory in the distressed East Baltimore Midway neighborhood into a hub for community engagement and the arts. Today, the vibrant community includes light industrial space for five companies, a performance space, community garden, classroom, and a library. Soon, affordable housing will join this mix. Four adjacent, existing rowhouses are to be retrofitted to Passive House level. New Ecology is providing rater/verifier services for the project which is early in the construction phase. The design by Quinn Evans Architects has been pre-certified by PHIUS, and is expected to be the first masonry retrofit Passive House in Baltimore City.

## COMMUNITY-BASED RESILIENCE PLANNING

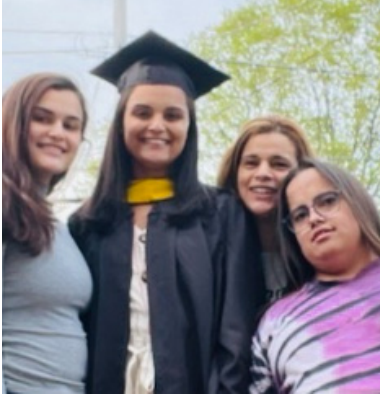
*Extreme storms, floods, fires, and heat waves... The news headlines are becoming increasingly common, and according to the recent United Nations report, are likely to continue without dramatic action to reduce carbon emissions. In the meantime, we need to understand the threats and prepare.*

*Long a leader in development of climate resiliency assessment tools for properties and portfolios, New Ecology was invited to join a recent webinar hosted by the National Low Income Housing Coalition and the Public and Affordable Housing Research Corporation. These groups recently issued a report describing the risks to project-based federally assisted properties based on the Federal Emergency Management Agency’s National Risk Index (NRI). Senior Project Manager Joshua Galloway joined the report’s authors and other national experts on the webinar to discuss the threats, case studies, policies, tools, and solutions to achieve resilience goals and mitigate risks from disasters due to climate change.*

**Table:** Federally Assisted Homes, Renter Occupied Homes, and Owner Occupied Homes by Overall National Risk Index (NRI) Rating of Census Tract

NRI (Overall) Risk Rating	Assisted Rental Homes		Renter Occupied Homes		Owner Occupied Homes	
	Number	Percent	Number	Percent	Number	Percent
Very High	533,521	11%	3,380,542	8%	2,689,173	3%
Relatively High	1,047,797	21%	8,117,791	19%	8,686,907	11%
Relatively Moderate	1,285,185	26%	10,964,893	25%	15,339,237	20%
Relatively Low	1,309,190	26%	11,343,362	26%	22,057,158	29%
Very Low	803,639	16%	9,662,475	22%	28,471,696	37%
Data Unavailable	868	0%	12,604	0%	30,210	0%

PAHRC & NLIHC tabulation of NHPD, retrieved 2020, and American Community Survey 2015-2019 (five-year estimates), matched to the National Risk Index (2020).



Janine and her three daughters.

## LET'S TALK

New Ecology is eager to work with partners who are interested in learning more about our work and how we can help you to achieve your project's goals. We have worked on hundreds of projects for owners in market sectors including housing, office, retail, education, healthcare, government, arts, and nonprofit.

Our passion and commitment is best demonstrated by the fact that we have been at the leading edge of community-based sustainable development since 1999.

At the same time, our reach, approach and successful model have helped us attract and retain a talented staff known for its desire to make advances in a new and growing field.

Interested in learning more? Contact [info@newecology.org](mailto:info@newecology.org) or call 617-557-1700.

## NEW ECOLOGY

Community-Based Sustainable Development

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## Staff Profile

**Name:** Janine Bennett

**Title:** Comptroller

**What does your job entail?** My job entails supporting the organization and its team members. I view Finance as internal customer service, and supporting NEI's Team.

**What is the most inspiring/interesting part of your job?** The most interesting part of my job is interacting with all members of the organization. I work with a group of extremely intelligent and talented individuals, and I learn something new with every conversation. I am in awe of the technical skillsets that every individual brings to the table and the continuous learning process keeps me stimulated and engaged.

**What do you like to do outside of work?**

During the weekend I usually have a girls' night with my daughters, usually watching a scary movie or documentary. I also like to spend time with my girls and help them with their careers/school since they are growing up so fast. My oldest just recently graduated from Brown University with her Master's Degree in Biotechnology, and started her first

industry job at one of the largest biopharma companies, in a senior level position.

My youngest is going into her junior year at Suffolk University, majoring in law studies. It's fun to sit around and help her study for the LSATS by asking her practice questions, it also helps me learn more and keep my brain stimulated. My daughters and I have also started our own Fantasy Football League, just for fun. I am a huge fan of the Celtics and the New England Patriots.



**Favorite movie/TV show/band?** Bruno Mars is my favorite artist.

**What have you been doing lately to keep happy and healthy?** I just recently purchased a new bike and have a Peloton membership, (thanks to help from a very knowledgeable and helpful co-worker: Kelsey), and try to use it at least a few times a week for about 30 minutes. I also like to take my two French Bulldogs on walks on the nature trails down the street from my house.

**What advice would you give to somebody looking to start in this industry?**

To be willing to pivot and turn, be agile. Demands and priorities constantly change. Also, the learning never ends.