Case Study: Lam Family Home in Elkton, VA

The Client and Her Home

When Nancy Lam found her way to Community Housing Partners (CHP) in July of 2019, no one expected that the journey to the home repairs and weatherization that would allow her to stay in her home of 64 years would span multiple years. Through partnership and perseverance in the face of the worldwide COVID pandemic, Nancy is now safe and comfortable in the home she shared with her husband, Orbin, before his passing in 2019.

Nancy’s home is a farmhouse-style 3-bedroom, one-bath, vinyl-sided wood-frame home with tin roofing. It is situated on over four acres in rural Elkton, Virginia just outside of Harrisonburg in Rockingham County. Nancy has lived in Elkton her entire life. She and her husband bought the home from her uncle in 1957, the same year they were married. Nancy and Orbin, a Marine Corps veteran of the Korean War, raised their family in the house and the property remains a multi-generational home with her son and grandson living in their own home behind Nancy’s house.

Nancy credits the nurse who cared for her husband during his illness with connecting her with the United Way, who in turn connected with CHP and Dominion Energy. “It means everything to have this work done. It is the difference between me having to leave my home and being able to stay. I get to stay at home,” says Nancy.

Scope of Work

All CHP energy efficiency projects start with a comprehensive energy and safety inspection or audit of the home. Upon inspection of Nancy’s home, three key issues emerged that prevented weatherization work from proceeding: drainage issues at the back of the house with resulting water damage to floors and walls, leaky Quest-style water pipes in the attic, and a damaged woodstove that struggled to heat the home adequately and safely. Through a combination of funding sources and partners, these issues and more were addressed before energy efficiency upgrades were installed.

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-Nancy Lam, Elkton, Virginia

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| Total value of upgrades     | $19,268 |
| Expected Annual Savings     | $1,519  |
| Projected Annual kWhe Savings* | 13,206 |
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*mixed electric & propane

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A French drain was installed to route water away from the back of the house and the damaged floors and walls were repaired. The Quest-style pipes were replaced with PEX piping to allow for blown insulation in the attic. A Rinnai LP Space Heater, fueled by propane gas, was installed and broken fire brick in the woodstove was repaired. The flue was then cleaned to allow the home to be heated safely.

After these major repairs, the weatherization work could proceed. Blower door guided air sealing was performed throughout the house including accessible plumbing and wiring penetrations, and weather stripping and door sweeps were installed at all exterior doors. The result was a 20% reduction in air leakage. Loose-fill blown fiberglass insulation was added to all three attic spaces bringing the previously uninsulated attics up to the recommended R-38. A retaining dam was installed around the chimney and stove pipe in the main attic to keep the loose-fill insulation in its intended location and clear of heat sources. Exposed and accessible hot water pipes, as well as the water heater, were insulated. Densely packed blown fiberglass insulation was added to four walls. Ten LED lightbulbs were installed throughout the house.

Other smaller repairs and safety issues were also addressed, including a broken kitchen window, leaking kitchen sink pipes, two improperly vented bathroom fans, and a broken dryer vent. A carbon monoxide detector and smoke alarms were also installed.

"This complex project in the face of adversity is really what CHP Energy Solutions is all about. The commitment of our partners Dominion Energy, Virginia DHCD, United Way, and the trust of the client resulted in a safer, more comfortable and affordable home for a senior resident — that’s the best result."

-Mark Jackson, Vice President, Energy Solutions, CHP

February 2020 just before the COVID pandemic hit causing all work to stop. As the early months of the pandemic went by, CHP stayed connected with Nancy, monitored conditions, trained crews in new COVID protocols, and resumed on-site work when it was safe to do so. Nancy persevered too, keeping faith that her home would be fully repaired and weatherized as soon as possible.

"This complex project in the face of adversity is really what CHP Energy Solutions is all about. The commitment of our partners, Dominion Energy, Virginia DHCD, United Way, the Carpenter's Guild, and the trust of the client resulted in a safer, more comfortable and affordable home for a senior resident — that’s the best result," said Mark Jackson, Vice President of Energy Solutions at Community Housing Partners (CHP).
The Impact Continues

Weatherization clients most often find their way to CHP through word-of-mouth contact like Nancy did with the nurse caring for her husband. CHP’s work and positive impact for Nancy and the local community continues as her son has now been approved for weatherization work on his mobile home. This multi-year effort continues and grows with multi-generational impact reducing energy burden and improving health, safety, and comfort for the entire family.

Installed Upgrades

**Building Envelope**
- Attic insulation
- Attic access hatch
- Wall insulation
- Insulation dam
- Air sealing

**Baseload**
- LED lightbulbs
- Hot water pipe insulation
- Hot water tank insulation

**General repairs**
- Electrical
- Wood stove
- Floors & walls

**Heating**
- Rinnai LP Space Heater

**Water Management & Plumbing**
- French drain
- Quest pipe replacement/rerouting
- Kitchen sink repair

**Health & Safety**
- Carbon monoxide alarm
- Dryer venting
- Exhaust fan venting
- Fire extinguisher
- Smoke alarms
- Lead remediation