Green & Healthy Homes Initiative®

Evaluation of the Built to Last Program

Prepared for: **Philadelphia Energy Authority**

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Evaluation Project Partners

Evaluator of the Built to Last Program

Green & Healthy Homes Initiative (GHHI) is a nonprofit organization whose mission is to break the link between unhealthy housing and unhealthy families. GHHI has over 30 years of experience in fundraising, delivering high-quality evidence-based services, working with governments in jurisdictions around the country, and forming innovative cross-sector partnerships. GHHI has provided support to over 50 sites seeking to build strong, comprehensive home repair programs that deliver services using a Whole House approach. GHHI brought this experience in conducting this evaluation of the Philadelphia Energy Authority's Built to Last Program.

Built to Last Program Administrator

Philadelphia Energy Authority (PEA): PEA aims to be a catalyst for the growth of a robust, equitable, diverse clean energy economy in Philadelphia through the development of long-term energy projects, policy, education and market-building activities. The Built to Last program, administered by PEA, coordinates and supplements existing programs, simplifying the process for low-income homeowners to navigate complex systems. In doing so, Built to Last ensures a whole-home approach to housing preservation, combining health, safety, and energy efficiency improvements.

1. Executive Summary

Low-income homeowners in Philadelphia are faced with a uniquely difficult set of challenges: home maintenance and energy costs are outpacing inflation, increasing the risk of housing instability, energy insecurity, and poor health outcomes. For the 63% of extremely low-income Philadelphia households spending more than half of their income on housing, a single structural failure can lead to displacement.[i] The median energy burden for low-income Philadelphia households is 9.5%, over three times higher than non-low-income households.[ii] And with an estimated 95% of the city's housing built before 1978, low-income households living are disproportionately exposed to environmental health hazards that are prevalent in older housing.[iii] Public health data indicates that 21% of Philadelphia children have asthma, a rate driven in part by unhealthy exposure to mold, pests, and dampness in aging homes.[iv]

Historically, these issues have been addressed by siloed programs. Homeowners would need to seek out multiple programs if they had a range of repair needs in their home, likely running into administrative challenges or systemic barriers that in result in an inability to access services. A homeowner might seek a roof repair from one housing program but be denied service from another siloed program, such as weatherization, due to old wiring, or vice versa.

The Built to Last (BTL) program, administered by the Philadelphia Energy Authority, is designed to comprehensively address the home repair and energy upgrade needs of low-income homeowners in Philadelphia. Built to Last offers a one-stop-shop to program participants, streamlining funding and services from multiple federal, state, and local programs. At the time of preparing this evaluation, within the nearly three years of program operations between January 6, 2023, and October 21, 2025, the Built to Last program completed repairs on 340 homes in Philadelphia, delivering $11.71 million in construction upgrades, and these coordinated housing services reached 623 residents, including 161 children and 163 senior citizens.

Using a whole-home model, Built to Last has coordinated the delivery of critical home repairs, including health and safety measures to protect occupant health, and building systems and energy appliance upgrades to reduce energy use and cost. By integrating these housing services, the holistic approach moves beyond the traditional, fragmented model of home repair to address the root causes of housing instability and energy insecurity for low-income homeowners. Built to Last has also proven effective at layering multiple funding sources to address the full scope of housing quality needs of low-income homeowners.

Summary of Findings

Housing Stabilization: Across the evaluated cohort, Built to Last repairs addressed 1,538 critical building systems, including carpentry, plumbing, masonry, weatherization, energy system upgrades, health & safety, and more. With an average of 5.03 distinct building systems repaired or upgraded per participant, Built to Last demonstrated its ability to deliver whole-home repairs across a range of distinct home systems.

Effective Program Reach: The program effectively reaches low-income homeowners, who are the most vulnerable to housing instability. 95% of Built to Last participants earn less than 50% of Area Median Income, with a median income under $19,000. Built to Last reached seniors at triple the citywide rate (51%) and Black/African American households at double the citywide rate (82%).

Avoiding Deferrals: Prior to the Built to Last intervention, nearly 47% of homes had active roof leaks and 45% had plumbing leaks. Based on assessment data, Built to Last homes show a much higher prevalence of hazards and issues than the overall housing stock. Despite the higher level of need, Built to Last defers only 1% of homes due to housing quality issues, much lower than typical deferral rates for weatherization programs (a 2020 Pennsylvania survey found about 36% of homes in the state are rejected).[v]

Energy Affordability: 94% of Built to Last survey respondents reported that their utility bills either remained stable or became easier to afford after repairs were completed. Given that utility rates have climbed double digits and outpaced inflation in the service area in recent years, this is an indication of Built to Last's weatherization and energy efficiency services having significant impact on energy affordability.

Program Costs: For the 340 homes evaluated between January 6, 2023, and October 21, 2025, Built to Last delivered repairs with $11.71 million in construction costs. Overall, the average construction cost per home is $34,444, with a median of $30,208. On average, Built to Last's own program funds contributed $21,273 of construction costs per home, and BTL layered $13,171 in construction costs from external programs and service providers.

Layering Funds: Each Built to Last project coordinated an average of 2.69 unique funding sources per home. For every $1 of core Built to Last funding invested, the program layered an additional $0.62 from external home repair and energy programs, allowing for comprehensive interventions that would have otherwise been financially out of reach for homeowners navigating siloed housing programs.

Participant Satisfaction: 83% of Built to Last participants would recommend the program to others, and 76% were satisfied with Built to Last's intake and coordination process. This eclipses typical satisfaction rates with government services and programs, which was recently measured around 70%.[vi] While still leaving room for improvement, Built to Last has demonstrated an ability to deliver complex service and funding coordination while maintaining broad satisfaction for participants.

Health & Safety: Survey results indicate that Built to Last's home repairs and energy upgrades improve the physical energy security of homeowners which translates into a self-reported 88% of participants reporting that they feel more comfortable and safer in their homes following the program. 53% of respondents reported that their sleep had improved after Built to Last repairs, which can occur because of improved thermal comfort, air quality, and stress levels. A previous Children's Hospital of Philadelphia (CHOP) consultation found that nearly half of respondents reported improved health after Built to Last repairs.

Key Strategic Recommendations

For Policymakers & Funders:

- ***Scale the Model:*** Expand funding and administrative support for Built to Last to meet the goal of preserving 10,000 low-income homes in Philadelphia by 2032.
- ***Sustainable Funding:*** Establish sustainable funding streams, including through healthcare/Medicaid partnerships.
- ***Prioritize Preservation:*** Invest upstream in home repair and energy efficiency as a strategy for sustaining affordable home ownership while building climate resilient and energy efficient housing, to prevent displacement and homelessness.

For the Built to Last Program:

- ***Healthcare Partnerships*:** Grow partnerships with healthcare entities to strengthen referral pipelines of low-income homeowners, attract sustainable funding for BTL repairs addressing health hazards in the home, and measure health outcomes using utilization and cost data from administrative claims data.
- ***Data & Evaluation***: Strengthen consistency and availability of data for evaluation, including training and capacity building on data collection and entry for contractors and implementing partners.

2. Background

2.1 The Need for Home Repair in Philadelphia

Affordable homeownership provides low-income families with long-term housing stability, energy security, generational wealth, and community resilience. However, Philadelphia's low-income homeowners face multiple challenges in maintaining and upgrading their aging homes. A 2025 research brief on housing affordability in Philadelphia found that between 2005 to 2023, the homeownership rate decreased from 57.5% to 52.4%.[vii]

Homeownership affordability has deteriorated more for low-income (LI) and extremely low-income (ELI) households due to rising home prices, property taxes, and home insurance premiums have driven up homeownership costs.[viii] In fact, from 2014 to 2024, the nominal median annual cost of owning a home surged by 163 percent, rising from $7,991 to $21,033 whereas the Consumer Price Index (CPI) increased by 28.7 percent during the same period.[ix] The brief also noted racial gaps in homeownership with 47.4% of black households compared to 57.4% for white households driven by a significant deterioration of homeownership affordability for Black, Hispanic, and/or non-dual-earner households.[x]

Housing affordability and energy insecurity are two interrelated challenges for low-income homeowners due to the city's aging housing stock, which consistently ranks among the oldest in the country.[xi] With older homes come greater housing deficiencies, energy inefficiencies, and more complex repair needs, yet most low-income homeowners often cannot afford to pay for critical home repairs and energy upgrades. More than a quarter (28%) of Philadelphia homeowners meet the federal standard for being cost-burdened by spending over 30% of their income of housing.[xii] And 77% of low- to moderate-income homeowners in Philadelphia delay repairs due to cost.[xiii] Deferred maintenance can have cascading effects for homeowners in terms of increasing repair costs, exacerbating health impacts, and in some cases, forcing displacement from one's home. Thus, the ability to afford and access no cost home repairs programs is a make-or-break factor for ensuring sustainable homeownership among low-income households in the City of Philadelphia.

Home repair cost burdens for low-income homeowners in Philadelphia mirror broader challenges throughout the country. National research from the Federal Reserve of Philadelphia shows the total estimated cost of needed repairs to occupied housing units in the US was $198.4 billion in 2024.[xiv] Most notably, "repair needs were concentrated among lower-income households, which made up 29.0 percent of occupied units but accounted for 37.6 percent ($74.6 billion) of aggregate estimated repair costs."[xv] Recognizing these

same home repair needs exist in Philadelphia, Mayor Cherelle Parker launched the Housing Opportunities Made Easy initiative, which was included in the city budget that passed June 12, 2025, and is an ambitious effort to address the city's affordable housing challenges.[xvi] Mayor Parker has promised to create or preserve 30,000 affordable housing units throughout the city, at a cost of roughly $2 billion.[xvii]

In May 2025, the Housing Initiative at UPenn released a research brief summarizing the housing burden, repair needs and costs in Philadelphia. The researchers estimated a shortage of almost 65,000 units that are affordable and available to those with the lowest incomes (AMI<30%), as seen in Table 2.11 below.[xviii] This acute shortage of available and affordable housing requires upstream investment in supporting low-income homeowners to maintain habitability and upgrade energy systems to preserve the supply of affordable low-income housing.

Table 2.11. Availability of Affordable Housing in Philadelphia.[xix]

Income level	Households	Units affordable and available	Shortage of units
AMI <30%	98,792	34,243	**- 64,549**
AMI 30-50%	48,218	57,310	9,092
AMI 50-80%	67,067	116,216	49,149
AMI 80-100%	30,913	45,503	14,590
AMI 100%+	73,395	83,994	10,599

Source: ACS PUMS 2023 1-year

While many solutions will be needed to address this shortage of affordable housing, preservation of affordable housing is more cost-efficient (and faster) than building new affordable housing. Multiple studies have found that preservation of existing housing is less costly than developing new affordable housing, with one study estimating that new construction generally costs 24 to 45% per unit than preservation.[xx] Making home repair programs and funding more accessible and available to low-income homeowners will also help prevent displacement, including the potential risk for homelessness, due to the economic burden of living in poor housing quality which is energy inefficient and unhealthy for occupants. The current housing needs research brief noted that "thousands of currently subsidized rental units may need to be invested in or have their affordability preserved" in Philadelphia in the years ahead.[xxi]

Low-income homeowners who experience the most severe housing burden would also benefit the most from the protective factors generated by home repairs or energy upgrades.

However, these same homeowners have the most limited ability to self-finance repairs. For those attempting to access local housing improvement programs or incentives, they also face the participant burden of navigating multiple programs to meet the full scope of the housing deficiencies.

Housing Burden & Poverty in Philadelphia

Low-income households experience the greatest housing burden, with only 35% of households at 30% AMI or below having access to homes that do not require them to spend more than 30% of their income on housing.[xxii] Almost one third of renters and 16% of homeowners experience a severe housing burden - spending more than 50% of their income on housing costs.[xxiii] Among those with the lowest incomes, this trend is even more pronounced, with 70% of renters and 63% of homeowners with incomes below 30% of Area Median Income (AMI) spending more than half of their income on housing – see table 2.12.[xxiv] It is important to note that any low-income homeowners who are displaced and must move out of their home would face entry into an unaffordable rental housing market with a shortage of 65,000 units and therefore are at increased risk of ending up homeless.

Table 2.12 City of Philadelphia: Housing Cost Burden by Tenure and Income

Area Median Income (AMI) level	Renter Households			Homeowners		
	% of Households	Moderate cost burden	Severe cost burden	% of Households	Moderate cost burden	Severe cost burden
AMI <30%	31%	85%	70%	19%	76%	63%
AMI 30-50%	15%	83%	45%	14%	47%	19%
AMI 50-80%	21%	48%	5%	16%	24%	7%
AMI 80-100%	10%	18%	0%	13%	15%	5%
AMI 100%+	23%	6%	1%	38%	3%	0%

Source: ACS PUMS 2023 1-year

Cost of Repairs & Unhealthy Housing

Not only are low-income homeowners exposed to a higher *prevalence* of home hazards, they also are exposed to rising *costs* of repairs. From 2022 to 2024, the cost of repairs increased 16.7 percent in the U.S, significantly exceeding the rate of inflation, which was 6.4 percent during this period.[xxv] The rising costs of home repairs and energy upgrades combined with growing housing burden for low-income homeowners results in occupants living in unhealthy housing and threatens the sustainability of low-income homeownership. In addition to jeopardizing sustainable homeownership, the cost and complexity of home repairs can result in negative quality of life, health, and safety outcomes for residents.

According to city data, approximately 92% of Philadelphia's housing units were built before 1978, the year lead paint was banned in the U.S., signifying a high prevalence of lead-based paint.[xxvi] Many low-income homeowners with pre-existing health and safety hazards, such as lead-based paint, are deferred from weatherization or energy efficiency programs until these hazards are addressed. Poor housing conditions can also lead to respiratory impacts, particularly for vulnerable populations. 21% of Philadelphia children have asthma, which is a rate more than triple the national average of roughly 6%.[xxvii] Dampness, mold, and pest infestations—common in homes with structural leaks—act as primary triggers that exacerbate pre-existing respiratory conditions such as asthma or chronic obstructive pulmonary disease (COPD). Combustion appliances, such as stoves, clothes dryers and heating/cooling equipment, emit pollutants such as nitrogen dioxide into the home that are also associated with respiratory health effects.[xxviii]

Energy Security & Affordability

Beyond the physical health impact of unhealthy housing, the financial health of low-income homeowners in Philadelphia is strained by rising energy costs and other manifestations of energy insecurity. These factors contribute to the growing housing burden, potentially leading to housing instability or even homelessness. "Energy insecurity" is defined as the "inability to adequately meet basic household energy needs" and is a major issue for low-income and vulnerable communities.[xxix] Energy insecurity is a multifaceted issue that encompasses economic, physical and coping dimensions. The physical manifestations of energy insecurity include dated, malfunctioning, or nonexistent heating and cooling equipment; poor insulation; drafts; and reliance on older, less efficient lighting systems and domestic appliances such as refrigerators, stoves, and hot water heaters. These physical energy insecurity factors affect the ability to achieve quality of life, thermal comfort and manage household costs by improving energy efficiency. Low-income households experience "energy burden", which is the ratio of income to energy expenses because of high energy bills relative to low income.[xxx] In the U.S., the energy burden contributes significantly to the housing burden of low-income households and when the ratio exceeds 6% it is considered a high burden, and when it exceeds 10% it is deemed severe.[xxxi]

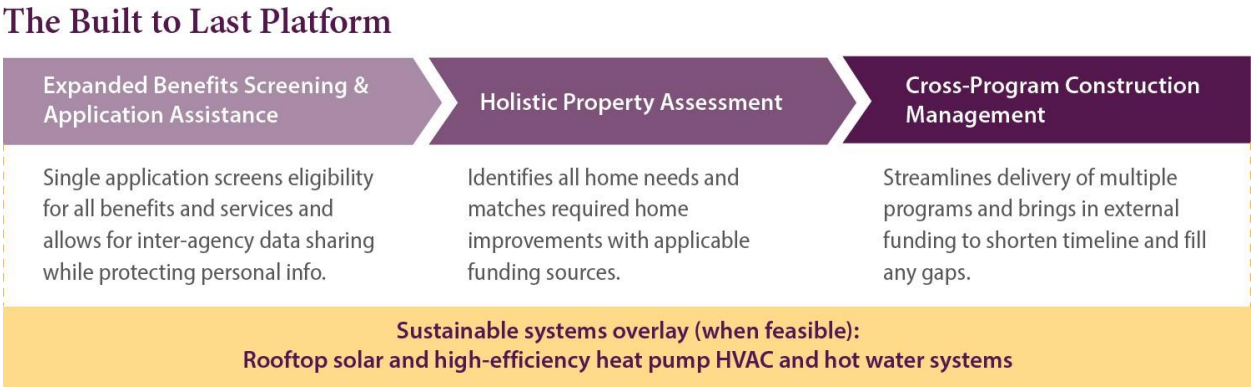
Recent analyses by the *Philadelphia Energy Authority* and *ACEEE* indicate that the median energy burden for low-income Philadelphia households is approximately 9.5%, compared to just ~3% for non-low-income households. For the most vulnerable, this burden is even higher; one in four low-income households spends 19% or more of their income on energy bills alone.[xxxii] This burden is exacerbated by the physical inefficiency of homes arising from deferred maintenance and lack of energy system upgrades.

2.2 The Built to Last (BTL) Program: An Integrated Whole House Model

Low-income households looking for comprehensive retrofits may need to apply to multiple housing programs, with separate applications, inconsistent eligibility requirements, different administrative processes, limited scopes of services, and varying contractor qualifications. A lack of coordination across agencies with separate funding sources results in uncoordinated independent housing programs, which can be difficult for households to navigate and receive the necessary comprehensive scope of housing services. Because of this complexity, administrative participation burden results in many eligible low-income households unable to access crucial home repair and energy upgrade services.[xxxiii] For example, one recent survey of the Weatherization Assistance Program (WAP) in Pennsylvania found a 36% deferral rate, most often related to water intrusion and structural issues.

The Philadelphia Energy Authority (PEA) launched the Built to Last (BTL) program in 2021 to offer a holistic approach to meeting home repair needs while responding to the local challenges of climate change. Built to Last's mission is to restore owner-occupied homes to safe, healthy, long-term affordable conditions, with a goal of delivering holistic home retrofits to 10,000 owner-occupied low-income homes by 2032. Built to Last uses a whole-home approach to home repair, aggregating available home repair and energy upgrade funding to holistically address multiple deficiencies in the home. Built to Last also serves as a "one stop shop" to manage the process of delivering home improvements to preserve affordable low-income homeownership in the City of Philadelphia Built to Last's program design streamlines access to and delivery of multiple home repair and energy programs for homeowners. There is a single intake portal that screens eligibility across all potential benefits and services. A home environment assessment identifies all needs in the home and Built to Last's scopes of work match home needs with applicable funding sources.

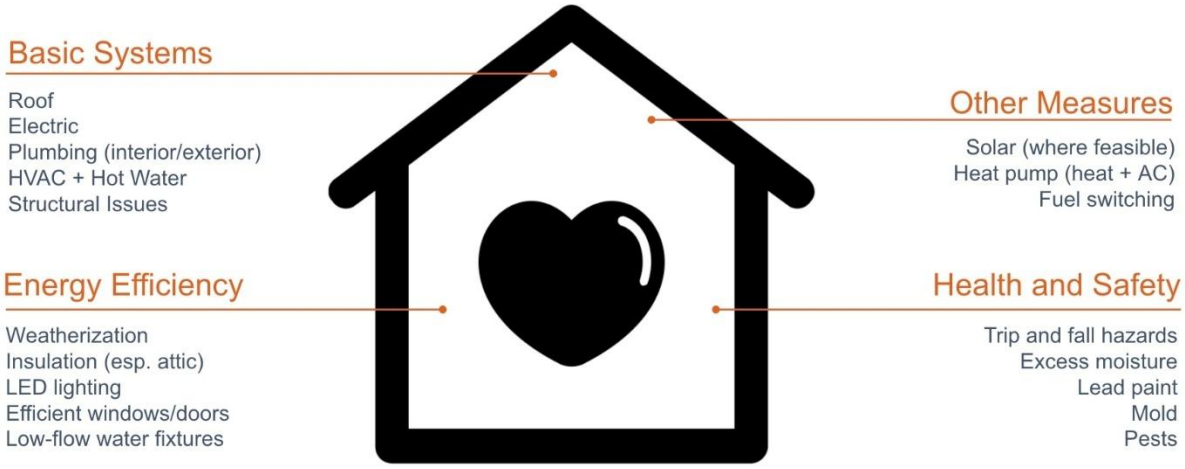
Figure 2.21. Built to Last Platform Model



Source: Built to Last

The program delivers essential structural repairs alongside critical health and safety modifications. Furthermore, Built to Last implements significant energy efficiency and clean energy upgrades. These improvements often include air sealing, insulation, and the installation of high efficiency Energy Star appliances. The program also facilitates the transition to modern energy systems, such as energy efficient HVAC units and heat pumps for heating and cooling, as well as the integration of rooftop solar technology. Built to Last coordinates with contracting partners such as Habitat for Humanity, the Energy Coordinating Agency (ECA), and Capital Access.

Figure 2.22. Built to Last Intervention Examples



Source: Built to Last

Built to Last simplifies access to funding from a wide range of external home repair and energy partners and funding sources. The Philadelphia Housing Development Corporation (PHDC) manages the city's Basic Systems Repair Program (BSRP) and Adaptive Modifications Program (AMP). US Department of Housing and Urban Development (HUD) resources for home repair include HUD Healthy Homes and the HUD Older Adult Home Modification Program. The Philadelphia Corporation for Aging (PCA) conducts home modifications for seniors to support aging in place. For weatherization and energy measures, Built to Last layers funding from utilities such as Philadelphia Gas Works (PGW) and PECO, the Weatherization Assistance Program (WAP), and Solarize Philly, a PEA initiative focused on solar power. Finally, Built to Last also works with community partners such as Philadelphia Regional Center for Children's Environmental Health (PRCCEH) and Habitat for Humanity Philadelphia.

The initial pilot of Built to Last, concluded in 2022, resulted in wide-ranging benefits to homeowners. Among the 50 homes served in the pilot, the average spending per home was

$14,000, with 3.6 unique funding sources leveraged per home. 100% of respondents reported feeling safer in their homes, 50% reported improvements to chronic illnesses, and 50% reported lower utility costs. Critically, the pilot avoided deferrals from the Weatherization Assistance Program in 25% of projects, allowing homeowners to access critical weatherization resources. As of January 2026, Built to Last has completed repairs and inspections for over 340 homes. With a waiting list in the thousands, homeowner demand for Built to Last's services is clearly high among Philadelphians.

3. Evaluation Design & Methodology

The primary goal of this evaluation is to determine how well the Built to Last model addresses the overlapping crises of housing instability, energy costs, and poor health outcomes. To do this, we examine both the program-level impacts such as total number of homes served, total amount of funding, and partner funding sources utilized, as well as household-level impacts such as housing stability, energy affordability, thermal comfort, health outcomes, client satisfaction, and more.

Built to Last's evaluation goals centered around five questions:

1. What are the impacts of Built to Last interventions on housing stabilization?
2. What are the impacts of Built to Last interventions on energy security?
3. What are the impacts of Built to Last interventions on health and safety?
4. How effective and successful are Built to Last's programmatic operations?
5. What are the impacts of Built to Last on job creation?

To answer these questions to the greatest extent possible, GHHI utilized a mixed-methods approach, drawing from direct program data (intake, assessments, scopes of work, etc.) as well as client surveys collected independently between January 6, 2023, and October 21, 2025. In total, GHHI evaluated Built To Last programmatic data from a range of data sources displayed in Table 3.11 below. Some of this data was collected directly by Built to Last during the intake process, while other data such as home assessment and scope of work data were collected by partners.

Table 3.11. Data Sources for Built to Last Evaluation

Data Source	# of Households	Key Variables
Intake & Demographic Data	*306*	Demographic and household information, number of Occupants, number of Children in Household, Age, Race, Income, Education, etc.
Home Assessment Records	*297*	Categories of hazards and building systems issues identified in each home
Scopes of Work Records	*306*	Categories of buildings systems addressed and other interventions in each home
Construction Cost Data	*340*	Construction cost per home, broken out by PEA spending and external partner program costs
Children's Hospital Of Philadelphia (CHOP) Survey	*45*	CHOP conducted health consultations in 2023, asking about the health and safety outcomes from interventions in the home
GHHI BTL Client Survey	*66*	GHHI conducted a survey in 2025, asking about housing stability, health and safety, energy affordability, and overall satisfaction

Overall, data availability varies across the cohort of homes evaluated. As a result, the sample sizes for key variables analyzed in this evaluation vary based on data availability. This poses a limitation for making "apples-to-apples" comparisons across variables, since the sample of households fluctuates slightly. These data gaps are likely due to delays or other gaps in data entry and transfer from Built to Last and its partners. Future evaluations would benefit from more consistent and available data. Nevertheless, the available data for this evaluation still enables meaningful analysis of program benefits and the ability to draw conclusions about the costs, efficacy and efficiency of the Built to Last program.

To evaluate the direct physical impact of the program, we conducted a systematic analysis of the initial home assessments and the resulting Scopes of Work (SOW), which included home improvements and energy upgrades completed for each property. The home assessments (n=297) and scopes of work (n=306) were collected by three home repair partners and were combined to form the aggregate sample of BTL participants for analysis of home repair needs, type of interventions and BTL program costs. By analyzing the baseline hazards identified during the initial walkthrough and the hazards remediated in the SOW, we can quantify across the aggregate sample the types of hazards identified and the corresponding housing interventions and the costs.

For the financial analysis, we analyzed construction cost data, which is aggregated project cost data provided by PEA. Cost data was made available at the household level and broken down by partner funding source. This allowed evaluation of investment per unit, as well as how many partner funding sources were leveraged for each home, and to what amount. There was no granular data available on a measure-by-measure basis, limiting the cost analysis to the household level costs (total and by funding source).

To supplement BTL program data, GHHI developed a survey for BTL clients as part of this evaluation report. PEA distributed GHHI's survey via email to 352 clients (all clients since BTL's initial pilot phase who had not previously been surveyed). The GHHI survey collected 66 responses between December 5th to 23rd, 2025, for a response rate of 19%. The GHHI survey contained 36 total questions across domains such as housing affordability, energy affordability, health, and client experience. A previously conducted study is also referenced in this evaluation report; the Children's Hospital of Philadelphia (CHOP) conducted health consultations in 2023 with 45 households who participated in the Built to Last program.

4. Program Impacts: Results & Findings

4.0 Program Eligibility Criteria

The target population for the Built to Last program was limited geographically to the City of Philadelphia and program eligibility criteria were purposefully open to any low-income homeowners of all ages – which ensures sampling from a diverse group of participants (e.g. low income, older adults, and racially diverse) and enhances external validity by making results more generalizable to a broader population. Eligibility for enrollment in Built To Last requires meeting all of the following criteria:

- Own and occupy your home. This home is the only property you own.
- Meet the Income Guidelines for maximum annual household income determined by Area Median Income (AMI) and household size. Participants are required to be low-income – have less than 80% AMI for their household size.
- Be current on your property taxes and water bill or be in a payment agreement with the city.
- Plan to remain in your home for at least three years after repairs are completed.

4.1 Demographic Profile of BTL Participants

During the program evaluation period between January 6, 2023, and October 21, 2025, the Built to Last program completed repairs on 340 homes in Philadelphia. Built to Last coordinated housing services that reached 623 residents, including 161 children. Demographic data is collected by PEA during the intake process and securely kept on file. GHHI reviewed 340 records of Built to Last clients who had completed participation in the program as of the time of analysis in November 2025. While the overall sample size is 340, due to data gaps, the sample size for each variable (Gender, Race, etc.) may differ, and is thus specified in Table 4.11.

Table 4.11: Age, Gender, & Race: Built to Last Study Sample vs. Philadelphia

Data source: Intake & Demographic Data – filtered for "Inspection Complete" (n=340)

	BTL Study Sample		Philadelphia[xxxiv]	
	Total	**% of total**	**Total**	**%**
Gender (n=292)				
Male	62	21%	723,326	47.4%
Female	230	79%	802,679	52.6%
Age (n=321)				
< 65	158	49%	1,306,261	85.6%
Over 65	163	51%	219,745	14.4%
Race (n=274)				
Asian	10	4%	119,028	7.8%
White	16	6%	550,888	36.1%
Black/African American	226	82%	608,876	39.9%
Native Hawaiian/Other Pacific Islander	1	0%	1,526	0.1%
American Indian or Native Alaska	0	0%	6,104	0.4%
Other Multi-Racial	15	5%	111,398	7.3%
Prefer not to answer	6	2%		

Built to Last demonstrates efficacy in reaching some of the lowest-income households with children, a demographic at high risk both for the negative impacts of housing instability (evictions, forced moves or homelessness), as well as negative health outcomes caused by home environmental hazards (lead-based paint, asthma triggers or unintentional home injury). Of the 340 households evaluated, 91 (27%) had children present in the home. This participation rate closely aligns with the Federal Reserve Bank of Philadelphia's estimate that 31.7% of Philadelphia households with significant repair needs include families with children. In total, the program stabilized the living environments for 161 children, or an average of 1.77 children in each household with children.

At intake, 20% of Built to Last households reported receiving disability benefits (65 out of 322), which demonstrates effective program service delivery to another vulnerable population. Among Philadelphia residents, 17% report having a disability, which is the highest rate of disability of the 10 most populous cities in the country.[xxxv] In lieu of self-reported disability data, this evaluation looks at the proportion of households who receive disability benefits, which likely undercounts the actual number of households with

disabilities. First, the Built to Last data is only for the head of household / main point of contact, so it would not include other members of the household with disabilities. And second, there are administrative burdens to enrolling in disability benefits that prevent some individuals with disabilities from receiving those benefits. Thus, at a minimum, Built to Last is reaching a proportional number of households with disabilities. More likely, Built to Last is reaching a greater number of households with disabilities, thus demonstrating effective program reach to a population with both medical and financial vulnerabilities that depend on housing stability to age in place.

Demographic data shows that Built to Last is also reaching households most in need in terms of racial categories. Of 274 BTL participants with data on race available, 226 (82%) identified as Black or African American, 16 (6%) as white, 15 (5%) as multi-racial, 10 (4%) as Asian, and 1 (0.25%) as Pacific Islander. Within the overall population of the city of Philadelphia, African Americans represent 40%. The fact that Black residents are represented in this program at double their citywide population rate underscores the pervasive racial disparities in housing quality that persist across many American cities. These figures reflect a legacy of systemic disinvestment and redlining that has left many Black homeowners in the city's oldest housing stock, where they face a disproportionate burden of deferred maintenance and environmental health hazards.

Household Income

To understand the economic profile of the households served, the evaluation analyzed annual income relative to both the Federal Poverty Level (FPL) and Area Median Income (AMI). HUD defines "Extremely Low-Income" (ELI) families as those whose annual incomes do not exceed 30% of the median family income for their specific geographic area. [xxxvi]

Table 4.12. Annual Household Income: Built to Last Households

Source: Intake & Demographic Data – filtered for "Inspection Complete" (n=323)

Annual Household Income	**Mean**	$ 22,245.90
	Median	$ 18,816.00
	Min	$ 0.00
	Max	$ 63,295.56
Federal Poverty Level	**Count**	**Percent of Total**
<100%	144	45%
101-150%	95	29%
151-200%	51	16%
>200%	33	10%
Area Median Income	**Count**	**Percent of Total**
< 30%	239	74%
31% - 50%	67	21%
51% - 80%	17	5%
81% - 100%	0	0%

The economic data reflects a population with significant financial constraints. The average household income was $22,245.90, with a median of $18,816.00. Notably, 239 households (74%) qualify as "Extremely Low-Income" (<30% AMI), while an additional 67 households (21%) fall into the "Very Low-Income" category (31-50% AMI). Collectively, 95% of the households served by Built to Last earn 50% of the AMI or less. To compare this with another whole-home repair program, a UPenn evaluation of the ACTION-Housing Program in Allegheny County, PA, found that 83% of participant households were below 50% of AMI.[xxxvii]

Built to Last's program data includes several households reporting an annual income of $0, which does not appear to be an issue of missing data. In this context, a $0 value represents households that reported no formal taxable income at the time of assessment, often relying on informal support or non-monetary assistance. This is consistent with the employment data, which shows that a significant majority of participants are not currently in the workforce: 35% are retirees on pensions, 20% are receiving disability benefits, and 9% are unemployed.

Taking demographic and income data together, the Built To Last program reaches households that represent groups at the highest risk for housing instability and energy insecurity, including extremely low-income (74%), very low-income (21%), adults 65 years

and older (51%), families with children (27%), and African American households (82%) from the wider target population of low-income households. This underscores the critical role of the Built to Last model. For households living on a median income of less than $19,000, an extreme weather event, home environmental hazard or system failure in the home is a catastrophic financial event. Without the layered funding provided by Built to Last, these homeowners would face serious risks of displacement or be forced to live in increasingly hazardous conditions due to an inability to afford repairs.

4.2 Home Environment Assessment and Housing Interventions

After the intake process in which homeowners submit documentation for eligibility verification, BTL program implementers use a comprehensive home environment assessment to identify the housing conditions, and the home repair and energy upgrades needs. The comprehensive assessment determines the home's condition by inspecting:

- Structural integrity
- Mechanical, electrical and plumbing systems
- Kitchens and bathrooms
- Roofs
- Heating, ventilation and air conditioning
- Health and safety hazards

During the initial home visit, an assessment of the home environment is recorded by each partner agency and used to identify the housing hazards and energy upgrade needs and then used to develop the scope of work. The assessment data was collected by Built to Last's three implementing partners and aggregated for the purpose of the scope of work analysis. Built to Last assessment data is indicative of the relatively old housing stock in Philadelphia, as well as the prevalence of housing hazards in low-income communities.

Table 4.21. Hazards Identified in Built to Last Households

Source: "Home Assessment Records" (n=297)

Housing Hazard	Hazard Identified	Hazard Not Identified
Roof Leak	138 (46.5%)	159 (53.5%)
Window Leak*	143 (48%)	154 (52%)
Plumbing Leak	135 (45.5%)	161(54.5%)
Masonry Repair	119 (40%)	177 (60%)
Pest Infestation	42 (14%)	254 (86%)
Trip & Fall Hazard	164 (55%)	132 (45%)

** Count of 180 leaks identified in 143 households*

Note: Responses may not add up to 297 for all categories due to missing data

Table 4.22. Functioning Utility Systems in Built to Last Households

Source: "Home Assessment Records" (n=297)

Home Utility System	Yes/Functioning	No/Not Functioning
Electric service functioning	261(88%)	35 (12%)
Gas service functioning	277 (95%)	14 (5%)
Water service functioning	296 (100%)	0 (0%)
Functioning Heating System	223 (75%)	73 (25%)
Functioning HWH^	224 (75.4%)	60 (20.2%)

^ 13 (4.4%) Hot Water Heaters that need repair are included in functioning HWH group.

Note: Responses may not add up to 297 for all categories due to missing data

Table 4.21 shows proof of the complex and compounding nature of home repair needs that makes housing repair costs unaffordable for Built to Last participants. Structural hazards and water intrusion are the most prevalent housing hazards identified, including roof leaks (46.5%), windows (48%), plumbing leaks (45.5%), and masonry repairs (40%). These types of structural and building envelope deficiencies have high repair costs which means many of these critical home repairs are deferred by low-income homeowners because they are unaffordable. Water intrusion is a major threat to the structural integrity of these homes. Combining window, roof, and plumbing leaks, there were a total of 453 leaks across 297

households, or an average of 1.52 leaks per home. These figures are representative of the old and poor-quality housing most in need of repairs and are also evidence of the risk that homes with leaks face from being deferred from other programs for energy, weatherization, and more.

Table 4.23 Comparison of Built to Last Participants and 2025 National Home Repair Cost Study – *Repair Category by Prevalence and Share of Aggregate Repair Cost, and BTL Program Prevalence*

Repair Category	Prevalence in BTL Participant Population	Prevalence in 2025 National Home Repair Study	Share of Aggregate Repair Cost, 2024 (% of total)
Leaks and Mold	46.5% - 48.0%	*15.7%*	*19.9%*
Structural	40%	*15.6%*	*54.1%*
Cooling	5-12%***	*5.9%*	*8.6%*
Electrical	12%	*5.8%*	*6.2%*
Heating	25%	*5.6%*	*4.7%*
Pests	14%	*4.3%*	*1.6%*
Plumbing	45.5%	*4.1%*	*5.0%*

Source: **Federal Reserve of Philadelphia. * Figure 1:** Author's analysis of 2023 AHS PUF. Includes all occupied housing units. Households may report repair needs in more than one repair category. **Figure 2: Author's analysis of 2023 AHS PUF and 2024 RSMeans data from Gordian. *** BTL participants without "functioning natural gas or electricity".

A comparison of Built to Last assessment data against national home repair data shows greater home repair needs required by participants in the BTL program, which indicates these homeowners are living in worst case housing conditions with complex home repair needs. The 2025 National Home Repair Cost Study reported home repair needs at 15.7% for mold and leaks and 15.6% for structural repairs, much lower than the rates of BTL participants, which include over 45% with leaks and 40% with structural repair needs. Among the households in the BTL program, the greater prevalence of structural issues and repairs for water intrusion is important, because these types of home repairs are significant drivers of both home repair costs and deferrals from siloed housing programs. In Table 4.23, the share of aggregate repair cost from the national study shows that structural repairs (54.1%) and water and mold (19.9%) account for 74% of aggregate home repair costs.

From BTL assessment data, there is evidence that the overall program costs are driven by the pre-existing housing conditions that need repair prior to performing any energy home upgrades. Beyond the 2025 National Home Repair Cost Study, an earlier 2019 Federal Reserve of Philadelphia report surveyed households of all incomes and found leaks and

mold to be the most reported category of repair needs in the Philadelphia metropolitan area, followed by structural issues affecting walls, foundations, and roofs.[xxxviii] Among units with repair needs, the most frequently reported issues were roof leaks (13.7 percent), cracks or holes in walls or ceilings (13.7 percent), cracked or crumbling foundations (13.1 percent), basement leaks (12.5 percent), and signs of rodents at least weekly (11.8 percent).[xxxix]

There is also evidence of physical energy insecurity as documented in the home environment assessment data. The assessment data showed 25% of households did not have a functioning heating system, 12% did not have functioning electricity service, and 5% did not have functioning natural gas service. This outlines the need for home energy system upgrades, which once installed, can improve the thermal comfort and quality of life of participants. A lack of physical energy security often forces extremely low-income families to rely on coping mechanisms such as using high-risk portable space heaters or even ovens as primary heating sources, which can both drive up utility cost burdens as well as increase fire hazards and exposure to air pollutants within the home.[xl] One-fifth of the homes did not have functioning hot water heaters at the time of assessment as well, further compromising the quality of life, health and safety of occupants. Most of these homes served by the BTL program would normally be deferred from the Weatherization Assistance Program or other energy efficiency programs, due to structural repair needs or water intrusion.

In the absence of Built to Last, these homeowners face several challenging financial and transactional barriers to afford home repairs. From 2021 to 2024, the costs to repair homes increased at 16.7 percent, meaning the overall nominal increase in total repair costs was significantly greater than the rate of inflation, which was 6.4 percent in the same period.[xli] From 2022-2024, research indicates a 20 percent nominal increase in the average costs of structural repairs, which were already the costliest repair category in 2022, thus posing particular concern to low-income homeowners.[xlii] The BTL assessment data reveals a significantly higher intensity of need and significant scope of home repair needs among the program's study population of low-income, high burdened homeowners.

Health and Safety Hazards

As part of the home assessment process, the Built to Last implementers tracked the presence of specific environmental triggers identified in the home environment that are known to cause lead poisoning in children, exacerbate chronic conditions like asthma or COPD, and increase fall or injury risks for older adults. The most frequent hazard identified

was "Trip & Fall" risks in Table 4.21, which was identified in 164 or 55% of all assessed homes. Given that 51% of the program's participants are over 65, and 20% of households include individuals living with disabilities, these hazards are threats to independent living and quality of life.

Beyond the categories of hazards listed in table 4.21, the BTL home assessment process specifically identifies environmental toxins— such as lead, asbestos, and mold, which serve as primary triggers for respiratory illness and neurological harm. The BTL assessment data shows 72 households were assessed with an environmental hazard (Table 4.24). This is another evidence point of Built to Last reaching the households and homes most in need. Moreover, Table 4.24 likely understates the actual environmental hazards found in BTL homes. Due to the age of the housing stock, the vast majority of BTL homes are at risk of having lead paint, but an assessment would only score "yes" for lead if chipping/flaking paint or other clear lead hazards were identified.

Table 4.24. Environmental Hazards Identified at Initial Home Visit

Source: "Home Assessment Records" (n=297)

Note: Environmental hazard data was coded by specific hazard type for 100 households, and by general Yes/No for 197 households

Environmental Hazard *(N=100)*	**Hazard Identified (Asbestos, Mold, Lead)**
Asbestos	14
Mold	4
Lead	3
None	78
Missing	*1*
Environmental Hazard *(N=197)*	**Hazard Identified (Yes, No)**
Yes	51
No	145
Missing	*1*
Total = Yes – Environmental Hazard Identified	**72**
Total = No – Environmental Hazard Identified	**223**

In total, 72 homes or 24% were assessed with harmful environmental hazards that were identified in the initial home visit across the homes with data (297). By identifying these environmental hazards, Built to Last directly helps identify and mitigate threats like asthma triggers, home injury or fall risks, asbestos, mold, and lead poisoning which need to be removed to upgrade the home and protect the health and safety of the occupants.

Built to Last participants heavily rely on natural gas (89%), which presents a critical

intersection between energy infrastructure and public health. Gas appliances such as stoves are known to release harmful amounts of nitrogen dioxide and benzene into the home. When gas-fired appliances are aged, poorly maintained, or failing, they can become especially significant sources of indoor air pollutants, including carbon monoxide, nitrogen dioxide, and particulate matter. In many assessed homes, these risks are compounded by a lack of adequate ventilation that fails to properly exhaust combustion byproducts. Since residential energy use accounts for approximately 20% of the greenhouse gas emissions in the United States, the electrification of residential homes and buildings is critical to reduce carbon emissions and enable the equitable transition to clean energy.[xliii] A recent NO_2 exposure assessment study, concluded "gas and propane stoves are also responsible for virtually all (>99%) of the residential exceedances of the WHO's 1-hr-averaged air quality guideline across the United States" and are a substantial source of residential NO2 exposure even when compared with all outdoor sources combined.[xliv]

Scope of Work Analysis

The Built to Last home environmental assessment informs the development of the scope of work, which is a customized housing intervention plan to address all the structural deficiencies, health and safety hazards and energy inefficiencies in the home. Built to Last's scope of work analysis below is displayed, using the categories of the home repairs and percentage of home receiving those repairs, as seen in Table 4.25. The actual number of individual repair measures is higher than the data reported below, as data availability was limited to the categories of home systems addressed by BTL. For example, "plumbing repair" might be scored as a "Yes" or "1" in BTL Scope of Work data, but could involve multiple repairs of leaks.

Table 4.25. Scopes of Work for Housing Intervention Services
Source: "Scopes of Work Records" (n=306)

Home Repair Category	Included in Scope of Work	Not Included in Scope of Work
Carpentry – Doors, Windows, Finish	272 (89%)	34 (11%)
Plumbing Repair	238 (78%)	68 (22%)
Electric Repair	204 (67%)	102 (33%)
Roofing or Building Envelope	172 (56%)	134 (44%)
HVAC	121 (40%)	185 (60%)
Masonry Repair	119 (40%)	177 (60%)
Specialized Health & Safety	107 (35%)	199 (65%)
Energy Efficiency	102 (33%)	204 (67%)
Weatherization	96 (31%)	210 (69%)
Full Electrification	8 (2.6%)	298 (97.4%)

Partial Electrification (Heat Pump)	7 (2.3%)	299 (97.7%)
General Health & Safety	32 (11%)	274 (89%)
Accessibility	10 (3%)	296 (97%)
Asthma	29 (10%)	277 (90%)
Asbestos	15 (5%)	291 (95%)
Mold	4 (1%)	302 (99%)
Lead	2 (<1%)	304 (99%)

This Scope of Work data analysis demonstrates a whole-home philosophy that delivers comprehensive repairs, with Built to Last addressing 1,538 home intervention categories across 306 homes, for an average of 5.03 categories per home. In general, home repair categories with the greatest number of improvements included carpentry repairs (89%), plumbing (78%), electric (67%), roofing or building envelope (56%), HVAC (40%), and masonry repair (40%).

Overall, the intensity of the housing interventions demonstrates the greater need among low-income homeowners for structural and carpentry repairs, energy system upgrades, as well as specialized health and safety interventions to address the home's habitability problems. The fact that all these home repair categories have high intervention rates and more than five housing measures installed per home is indicative of the complexity of preserving low-income housing and the need for the whole house model to deliver coordination and sequencing of housing services. Built to Last helps repair the building envelope (roof, doors, windows, masonry), thereby preparing homes for weatherization, home energy efficiency upgrades, and electrification. The BTL program was able to directly provide weatherization to 96 (31%) and energy efficiency to 102 (33%), while providing partial (7 or 2.3%) or full electrification (8 or 2.6%) to 5% of the homes. By adding the 72 homes that received WAP funding layered by BTL, the total number of homes receiving weatherization through Built to Last would be at least 168 (49%).

The BTL program is a partner of the ENERGY STAR Home Upgrade program which provides significant, comprehensive benefits by focusing on six high-impact improvements (heat pumps, water heaters, insulation, smart thermostats, windows, and electric-ready infrastructure).[xlv] Key benefits of these improvements cited by ENERGY STAR include average annual energy bill savings of over $500, improved year-round comfort, reduced environmental impact, and enhanced home value.[xlvi] Built to Last also provides access to specialized health and safety measures which can be installed along with essential system repairs, such as electrical upgrades in 107 (35%) of homes, protecting occupant health and providing a foundation for long-term residency by improving the habitability of the home environment. Building repairs, energy system upgrades, and

energy efficiency improvements lower electrical and heating costs, enhancing overall comfort, improving indoor air quality, and reducing environmental impacts.

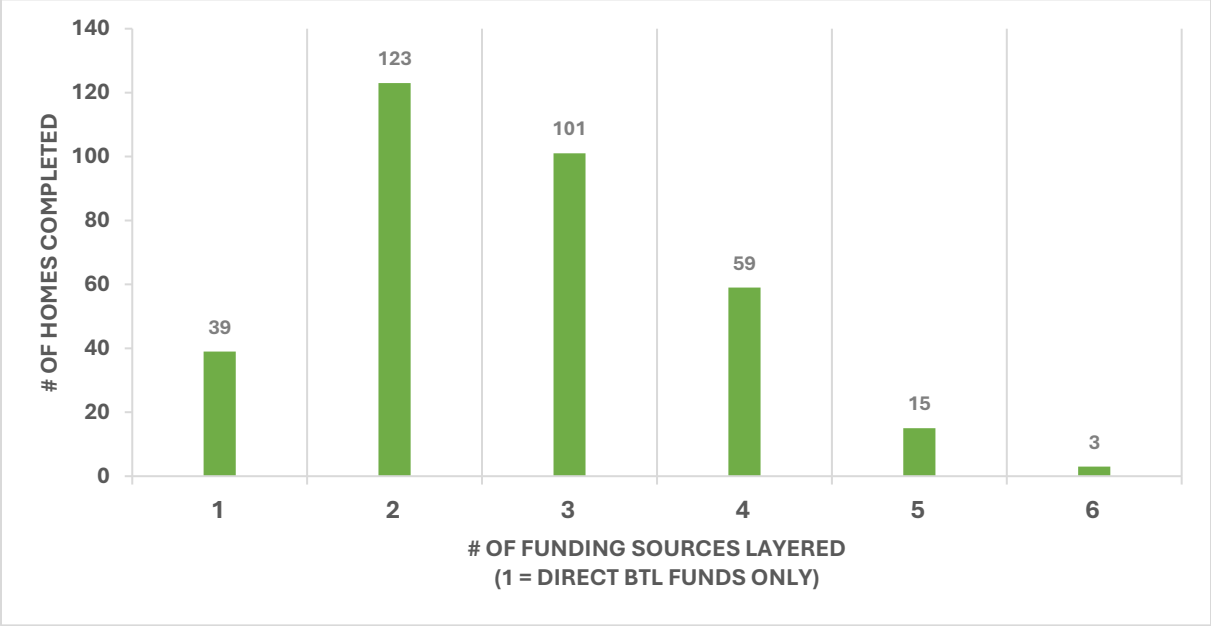
4.3 Layered Funding from External Home and Energy Programs

Through Built to Last, PEA serves as an administrative backbone to connect homeowners with housing and energy programs through a layered and streamlined service delivery. Built to Last seeks to restore the safety, health, affordability and comfort of existing affordable housing in a way that improves the long-term quality of Philadelphia's housing, builds community wealth, and helps families avoid displacement and stay in their homes.

Programmatic Operations

Evaluating programmatic operations involves looking at the braided funding sources for households. Since part of Built to Last's service delivery model is streamlining access to various programs through a "one stop shop", we analyze the results based on program data. We also examine responses to survey questions regarding the satisfaction of participants, as a measure of how effectively Built to Last meets the needs of homeowners. On average, each project leverages 2.69 unique funding sources, showing Built to Last's ability to layer resources that traditionally operate in silos.

Figure 4.31. Total Number of BTL Households by # of Funding Sources Layered
Source: "Construction Cost Data" (n=340)



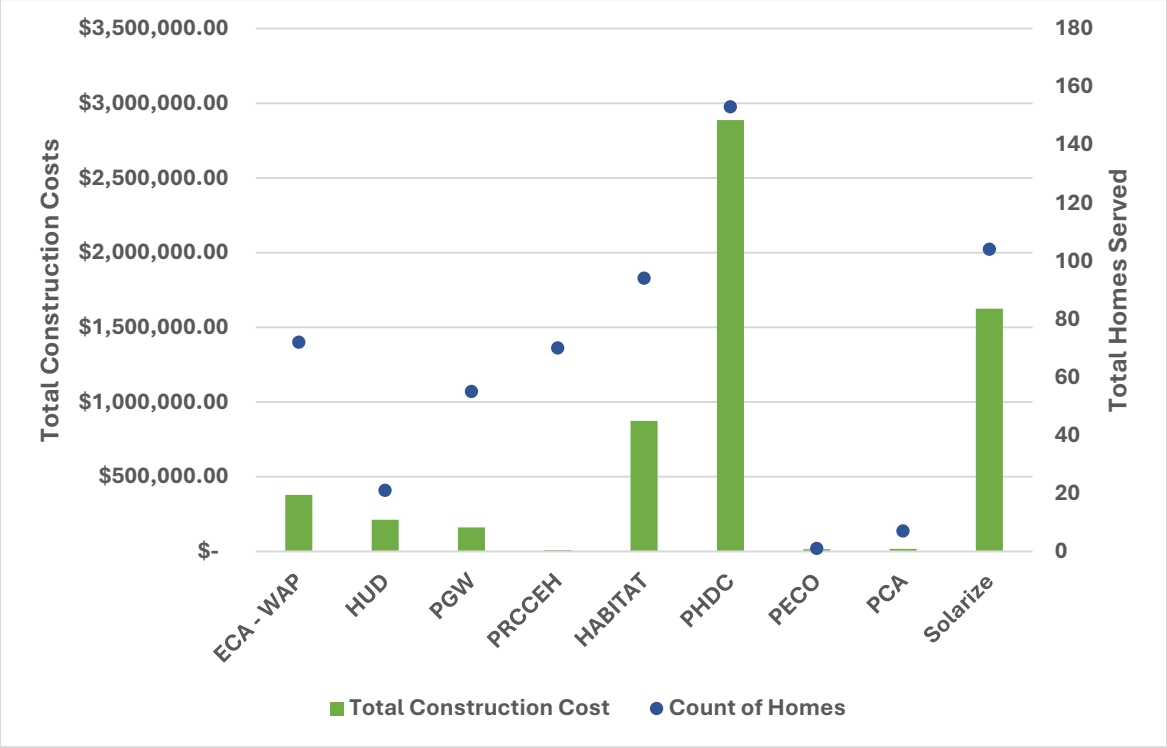
The success of the integration model is evidenced by the high volume of multi-layered support across the portfolio. Out of the 340 homes included in the cost analysis, the vast

majority (89%) benefitted from layering one external funding source in addition to core BTL program funds. 178 households (52%) were supported by at least three total funding sources. This demonstrates effectiveness from Built to Last in coordinating multiple funding sources, and enabling homes to access more resources, more effectively, than would otherwise be feasible.

Built to Last's direct program funds were spent on 100% of projects (340 out of 340) and thus were essential for complete service delivery for every home evaluated. This underscores the critical role of core, flexible funding sources for whole-home programs that can be used across categories of home intervention, based on household need and external funding source availability. Pennsylvania has pioneered a state Whole-Home Repairs Program which partially funded Built to Last's core program funding, though more recently has met uncertainty over future funding levels. As data from Built to Last shows, core program funding is both an anchor and helpful supplement to existing programs, catalyzing the effective delivery of whole-home repairs.

Figure 4.32. Total Construction Costs from each External Funding Source, and Total # of Homes Served by Each External Funding Source

Source: "Construction Cost Data"(n=340)



The number of homes supported by each partner funding source reveals the critical role of citywide and nonprofit collaborations. PHDC is a primary partner, contributing to 153 homes with a total investment of $2.89 million. Habitat for Humanity and Solarize Philly also layer significant funds for home upgrades, contributing a combined $2.5 million toward structural preservation and energy independence. Smaller specialized spending from partners like PGW and ECA-WAP are vital for addressing specific health and energy needs across roughly 20% of homes. While their total dollar amounts are lower than large scale structural work, these sources fund the critical HVAC and energy efficiency measures that reduce long term utility burdens. The ability to coordinate these highly regulated funding streams alongside multi-million-dollar city grants ensure that homes are upgraded holistically regardless of the restrictive guidelines of a single funding source.

A final lens through which to examine Built to Last's effectiveness in coordinating across funding sources is by comparing the construction expenditures of Built to Last's direct program funds to the total of layered funds. The total layered funding across 340 homes, combining Built to Last and external funding sources, was $11,710,922.65, with Built to Last funding making up $7,232,944.21 of that (62%). This results in an investment multiple of 1.62. In other words, for every $1 of Built to Last funding, the program brought in another $0.62 of partner funding to provide a whole-home intervention.

4.4 Program Cost Analysis

The spending data per Built to Last home shows that the program is serving the highest need population of homeowners with the highest home repair costs. Researchers estimate median home repair costs across all homes in Philadelphia to be under $5,000 per home, with roughly one in 40 homes having repair needs more than $10,000.[xlvii] Households that were more likely to report repair needs included those with incomes below the federal poverty line, those headed by Black/African American or Hispanic/Latino householders, those headed by single women, families with children, and those living in units built before 1940.[xlviii] Another whole-home program serving a low-income population, the ACTION-Housing in Allegheny County, reported the average cost of each project (with most homes receiving repairs on two or more critical systems) as $46,000.[xlix]

Figure 4.41. Built to Last Households Grouped by Ranges of Construction Cost ($)
Source: "Construction Cost Data" (n=340)

The most common spending range for a house in the Built to Last program is $20,000-$30,000 (116 households, or 34%). Overall, the average spending per home is $34,443.89, with a median spending of $30,207.90. The average contribution of Built to Last funds is $21,273.37, and $13,170.52 is the average partner funds layered in per home. Nearly 85% of the homes served by Built to Last required an investment of greater than $20,000, highlighting the expenditures needed to address homes with complex structural, health, safety, and energy deficiencies.

PEA also provided implementation cost data for its BTL program operations through October 21, 2025. Implementation expenses for BTL include $2.65 million in "soft costs" (intake, home assessments, project management, inspections), $635,281 in program development costs (CRM software, licenses, etc.) and $862,824 in program staff costs, for a total of $4.15 million. Built to Last's combined $1.5 million in staff/program development costs makes for an administrative ratio of 12.8%, which is in line with the requirements for federal WAP grants (for example) that have administrative cost caps of 10 to 15%.[l]

As Built to Last works toward its goal of restoring 10,000 homes by 2032, the funding data in this analysis sheds light on the required funds to meet this target. At an average of $34,443.89 per home for 340 completed homes, it would take an additional $333 million in construction costs, approximately, to achieve 10,000 completed homes. Based on the previous ratio of Built to Last funds to partner funds, PEA would need to secure roughly $206.2 million in construction funding ($29 million/year over the next 7 years), with the balance of $126.4 million coming from partner funds ($18 million/year over the next 7 years). Based on the administrative cost ratio to date, the 10,000-home goal would also

require $118 million in implementation costs, or nearly $17 million/year over the next 7 years. However, there is potential for greater cost efficiencies as PEA scales the Built to Last model.

4.5 Job Creation

In addition to upgrading homes and preserving sustainable low-income ownership, the Built to Last program has significant workforce impacts as well. This evaluation did not analyze employment data from Built to Last or its partners and therefore can only make estimates of the workforce impact of Built to Last based on established benchmark multipliers. Given the whole-home nature of Built to Last repairs, it is difficult to use just one category of specialized trade when estimating the jobs created through Built to Last.

For the purposes of this evaluation, we use the benchmark of 20.3 jobs created for every $1 million invested, which the American Council for an Energy-Efficient Economy (ACEEE) has cited for energy efficiency and building retrofit programs. Applying this multiplier to the program's current progress reveals a substantial economic contribution. With $11.71 million already invested across the cohort of 340 homes, based on this benchmark estimation the program has supported approximately 238 jobs in the Philadelphia area. The whole-home model is also conducive to workforce development through cross training because Built to Last utilizes a comprehensive assessment process, and contractors are encouraged to understand how their specific trade interacts with other building systems.

With Built to Last's goal of 10,000 homes upgraded by 2032, the total projected construction investment needed of $333 million would support an estimated 6,754 jobs over the next seven years. This shows that the Built to Last program can have significant benefits from a job creation perspective, in addition to supporting sustainable home ownership.

5. Household Impacts: Results & Findings

5.0 Household-Level Impacts - Built To Last Client Survey

In November 2025, PEA sent out a post-intervention client survey to 352 past participants in the BTL program to assess the household level impacts after receiving services. The client survey was completed by 66 respondents. These post-intervention client surveys results represent a cross-sectional analysis that utilizes survey data from a sample of the program population at a single point in time and is intended to contextualize the benefits of the BTL program from the perspective of those served.

5.1 Housing Conditions and Client Satisfaction

Baseline Housing Conditions from Client Perspective

Participants were asked to identify barriers to home repairs prior to enrollment in the BTL program. Affordability or the cost of repairs was identified as the leading barrier to home repairs with 89% or 59 respondents, followed by debt and income at 42% then credit history and complexity of process selected by 29% and 27% of households respectively. Barriers to home repair for low-income family's stem from the difficulty of accessing affordable financing for costly repairs like roofs or foundations; limited income or poor credit history, making even basic maintenance impossible, leading to deteriorated housing; insufficient underfunded and fragmented assistance programs that do not reach everyone; and challenges navigating complex eligibility requirements, application processes and qualified contractors for addressing multiple housing repair needs.

Table 5.11. Barriers to Home Repairs Reported by Built to Last Participants
Source: GHHI Survey (n=66)

Barriers to Home Repairs	Count	Percentage
Affordability or cost	59	89.39%
Debt and income	28	42.42%
Credit history and score	19	28.79%
Complex or difficult process	18	27.27%
Finding contractor	7	10.61%

Prior to enrollment in BTL, 44% of the participants indicated that the home had experienced water damage, 38% reported none and 18% were not sure. Also, 10 participants, or 15% of respondents, had been displaced "due to issues with the habitability or condition of their house, or lack of functioning appliances (HVAC, hot water heater, etc.)." These types of home repair needs are often unmet because they have significant costs and are unaffordable, since many homeowners with limited income

cannot access traditional financing due to homeowner's limited income and existing credit/debt issues. Many of these low-income families can also experience housing instability in the form of displacement due to inhabitability of the home environment.

Client Experience and Satisfaction with Built to Last Program

To understand participants' perspectives on the BTL program, we asked about satisfaction with the housing intervention services as well as about the experience with the process of receiving improvements. Concerning work on the home, 48 or 73% of the participants reported they were very satisfied (45.5%) or satisfied (27.3%) with the housing interventions completed as part of the BTL program. Nine of the participants (14%) were neutral, 4 reported being dissatisfied (6%), and 5 were very dissatisfied (8%). As for the "process (intake, assessment, repair coordination) of working with the Built to Last program to receive improvements to your home" there were 26 (39.4%) who were very satisfied, 24 (36.4%) satisfied, 9 (13.5%) neutral, 1 (1.5%) dissatisfied and 6 (9%) very dissatisfied. Another measure of satisfaction showed 55 (or 83%) of respondents would recommend BTL to family or friends.

Built to Last's participant satisfaction appears to be higher than what is typical for government programs. For example, a 2024 survey by the American Customer Satisfaction Index found that citizen satisfaction with US federal government services reached a 7-year high of 69.7 out of 100.[li] By aggregating multiple home repair funding sources into a one-stop-shop, Built to Last is streamlining the administrative experience of low-income homeowners in need of repairs, and alleviating the burden of managing the applications for and process of multiple home repair programs.

There is still room for Built to Last to improve among respondents to the GHHI survey. Most of the recommendations from an open-ended question for improvements to the BTL program were concerned with the contactors over timeliness, quality of work/materials, incomplete work, and/or communication of the scope of work. There were some suggestions on how to improve the process, including improving the waiting time for enrollment/services, information on program services at intake, amount of time to return phone calls, and working to communicate scope of development and selection of housing interventions with participants. These findings suggest there may be a need for additional case management and client education – perhaps by assigning BTL Housing Navigators to guide clients through the process from intake through completion of home improvements.

5.2 Housing Stability & Climate Resilience

Housing Security

Housing security is the consistent, reliable access to safe, affordable, and adequate housing. Homeownership is the key to housing security which is considered a social determinant of health. Housing instability encompasses several challenges, such as having trouble paying mortgages or homeowner insurance, overcrowding, displacement or moving frequently, and spending the bulk of household income on housing.[lii] An increase in housing cost burdens, whether arising from higher mortgage costs, utility costs or accelerating costs of home repairs and energy upgrades, can lead to foreclosure or eviction (a forced move).[liii] Forced moves may also happen if a landlord is in foreclosure or the property is deemed unsafe for living.[liv] Foreclosures cause the loss of generational wealth, result in poor health outcomes, can damage the social fabric of neighborhoods as well as lead to homelessness.

Preservation of low-income housing through the BTL program should positively impact the housing stability of participants who receive significant home repairs. After completing the BTL participants, 33 (50%) participants responded they were able to make mortgage payments every month, 23 (35%) did not have a mortgage, and only 8 (12%) participants indicated they were unable to make payments every month. In comparison, in a 2019 Pew survey, 40% of Philadelphians said they sometimes had trouble making their mortgage or rent payments, thirty-four percent said they had a problem a few months out of the year, while 6% said they have difficulties in many months.[lv]

The survey results also show the cost of homeowner insurance is a concern among BTL participants. Survey results show 58 participants (or 88%) have homeowner's insurance. Among the 7 BTL respondents without insurance, five reported it was due to the unaffordable and increasing cost of insurance, and two participants reported not having insurance at some point in part due to home related hazards. We note that six of the seven homeowners without insurance did not have mortgages and the seventh indicated a change in policy resulting in response to uncovered insurance claims from a roof leak. A few of the participant responses to the home insurance question are shared below, as illustrations of the home repair affordability challenges for low-income homeowners in Philadelphia:

- "Cost; Had homeowners for years because of the age and style of the home my policy jumped from 2500 to-almost 15k like they are trying to force people out of their homes."

- "Cost; I needed some more repairs before looking for an insurance within my limited budget."
- "Home maintenance issues; History of insurance claims - I had insurance. A leak developed causing a serious leak on corner of the roof that caused water to go everywhere into bathroom and kitchen, bathroom, and closet. Contractor would not honor the warranty when the roof started leaking. Insurance co. would not fix roof still under warranty nor repair all other damages until roof was repaired. Closed policy and saved $$ to patch the problem to regain insurance. Horrible experience."

Thermal Comfort & Climate Resilience

The BTL program addresses the physical manifestations of energy insecurity – including "dated, malfunctioning, or nonexistent heating and cooling equipment; poor insulation; drafts; and reliance on older, less efficient lighting systems and domestic appliances such as refrigerators, stoves, and hot water heaters".[lvi] By utilizing the whole house approach to address multiple factors of physical energy insecurity, Built to Last positively affects the ability of low-income households, who are most burdened by rising housing and energy costs, to achieve comfort and manage costs."[lvii] Survey results indicate that Built to Last's home repairs and energy upgrades improve physical energy security of homeowners which translates into a self-reported 88% of participants reporting that they feel more comfortable and safe in their homes following the program. Such an improvement in comfort and safety is key for enabling homeowners to sustainably live in their homes.

Table 5.21. Self-reported Comfort and Safety of Home – Post-BTL intervention
Source: GHHI Survey (n=66)

Please rate the impact of Built to Last repairs on your home's overall comfort and safety:	***Count***	***Percentage***
Much less comfortable and safe	0	0.00%
Slightly less comfortable and safe	4	6.06%
No impact / neutral	4	6.06%
Slightly more comfortable and safer	22	33.33%
Much more comfortable and safer	36	54.54%
How has the comfort of your home changed during cold weather?	***Count***	***Percentage***
Much less comfortable	1	1.52%
Slightly less comfortable	3	4.55%
No change	18	27.27%
Slightly more comfortable	26	39.39%

Much more comfortable	18	27.27%
How has the comfort of your home changed during hot weather?	***Count***	***Percentage***
Much less comfortable	1	1.52%
Slightly less comfortable	3	4.55%
No change	32	48.48%
Slightly more comfortable	13	19.70%
Much more comfortable	16	24.24%
How would you rate the impact of your home's comfort on your sleep?	***Count***	***Percentage***
My sleep is much worse	2	3.03%
My sleep is slightly worse	0	0.00%
No change	29	43.94%
My sleep is slightly better	19	28.79%
My sleep is much better	16	24.24%

The post-intervention client survey also asked about comfort in the home during cold and hot weather. For cold weather, 44 (67%) BTL participants reported either "slightly more comfortable" (39%) or "much more comfortable" (27%) after the housing interventions were completed. There were 18 (27%) who indicated there was "no change" and 4 (6%) that reported being uncomfortable in the home during cold weather – with 3 participants "slightly less comfortable" and only one who was "much less uncomfortable".

For hot weather, the majority of BTL participants 32 (48%) experienced "no change", whereas 29 (44%) reported either "slightly more comfortable" (20%) or "much more comfortable" (24%) after the housing interventions were completed. Another survey question on the draftiness of the home found that almost half or 32 (48%) reported improvements, 23 (35%) reported no change, and 11 (17%) found the home draftier.

Overall, the BTL program appears to benefit participants by reducing the draftiness of the home and improving thermal comfort in both cold and hot weather which is a sign that homes are more resilient to climate change. Improved thermal comfort in the home environment is a protective factor that has indirectly impacts resident health and well-being – such as quality if sleep. 53% of participants reported an improvement in their quality of sleep, a metric that can reflect improvements in thermal comfort and indoor air quality.[lviii] By addressing these underlying energy inefficiencies and structural deficiencies, the program provides benefits that improve the daily functioning of residents, such as quality of sleep, helping them achieve the comfort and stability necessary to successfully manage their households.

Power shutoffs and disconnections are manifestations of physical energy insecurity (malfunctioning heating/ cooling) and economic energy security (inability to pay utility bills). After completing the BTL program, 60 participants (91%) did not experience any 24-hour power shutoffs, which is a sign of improved energy security for the household. Among the 5 (6.5%) participants that did have power shutoffs, 4 had one incident (1 due to natural disasters, 1 to planned shutoff, and 2 for other reasons) and 1 household had multiple incidences due to natural disasters. Although 53 households (80%) reported having uninterrupted access to heating or cooling, there were 8 (12%) who reported broken equipment and the inability to afford repairs, while 5 participants had disconnections - 3 (4.5%) being unable to pay for electricity and 2 (3%) being unable to pay for natural gas. There were 22 (33%) households with someone who uses home medical equipment, and only 3 reported being unable to use the home medical equipment due to power outages, with two incidents related to natural disasters and one incident because of their inability to pay electricity bills.

Climate change produces both environmental and secondary effects which increasingly have negative impacts on the home environment and public health. Climate change is directly impacting how Americans live in our home and surrounding environment, as the nation experiences increased flooding, extreme weather and natural disasters, increased temperatures and humidity, changes in seasons and land use, rising sea levels, and more.[lix] The health effects that arise due to the negative impacts of climate change have demonstrated causal pathways that lead to increases in morbidity and mortality from cardiovascular diseases, respiratory diseases, asthma, heat-related illnesses, mental disorders, water- and vector- borne diseases, and even injuries and death.[lx] By providing greater thermal comfort in the home environment, the BTL program serves to protect public health by improving the resilience of low-income homes.

5.3 Energy Insecurity

Many of the BTL participants experience economic energy insecurity which is an inequitable consequence of high energy bills relative to low income, exacerbated by the increasing utility rates in Philadelphia. Over the past six years, average electricity prices have risen faster than inflation in roughly half of U.S. states, including Delaware, New Jersey and Pennsylvania.[lxi] Low-income homeowners in Philadelphia faced rising utility costs in 2024–2025 due to approved rate hikes for electricity and water, driven by infrastructure improvements, rising operational costs, and increased demand.[lxii] Just in the past year alone, PECO implemented a 10% rate increase in early 2025, with a further 2.8%

hike expected in 2026, while the Philadelphia Water Department raised rates by over 9% in Sept 2025.[lxiii] This evaluation analyzes energy impacts through responses to GHHI's survey of BTL participants. For the purposes of this evaluation report, actual utility data (energy usage and cost) was not available, but would be critical to analyze in future evaluations.

Table 5.31. Impact of BTL Repairs on Energy Affordability
Source: GHHI Survey (n=66)

How has your ability to afford your energy bills changed?	Count	Percentage
It's much harder to afford my energy bills	1	1.49%
It's somewhat harder	3	4.48%
No difference	27	40.91%
It's somewhat easier	23	34.85%
It's much easier to afford my energy bills	12	18.18%

Within the context of rising utility costs, responses from Built to Last participants indicate significant energy savings for participants. 53% of survey respondents reported it was either "somewhat easier" (35%) or "much easier to afford my energy bills" (18%) and only 3 (4.5%) found it "somewhat harder" and 1 (1.5%) "much harder to afford". This indicates that the weatherization, energy efficiency, and supporting measures through Built to Last have the result in reducing energy consumption and the costs of energy. The most common answer to the survey's energy affordability question, receiving 41% of responses, was that there is no difference in affording energy bills. This is not a neutral result. Energy affordability challenges have skyrocketed in recent years, with the average overdue balance on utility bills climbing 32% since 2022, with low-income households impacted the most.[lxiv] Given that utility rates are climbing, it is an indication of energy savings from Built to Last upgrades that 94% of respondents stated either a) no difference or b) it is easier to afford energy bills. The responses to energy bill assistance also show that despite the program making energy bills more affordable, many of the participants still rely on energy bill assistance with 53% using the Customer Assistance Program (CAP) and 44% using Low-Income Home Energy Assistance Program (LIHEAP).

Ultimately, these survey results show that Built to Last upgrades serve as a buoying force for energy affordability, helping absorb the impacts of rising utility rates. By improving or preserving a homeowner's ability to afford their energy bills, Built to Last helps sustain homeownership in the face of growing energy and cost burdens across the region. The improvement in economic energy security is reflected in households not having to resort to coping mechanisms, such as not paying for basic needs or risking exposure to unsafe temperatures, which are adaptive strategies to manage inadequate and inefficient housing

conditions and the corresponding economic hardship.[lxv] The consequences of energy insecurity results in low-income households coping by using potentially hazardous heating alternatives (stoves, ovens and space heaters) when main heating source is broken or engaging in energy rationing to limit utility costs at the expense of comfort and health.[lxvi]

Still, even after Built to Last repairs, some households may still face affordability challenges. While the majority (67%) of respondents to the GHHI survey reported "no change" and 4 (6%) reported having to forgo basic needs "much less often", there were 7 (11%) participants that reported forgoing basic needs "somewhat more often". Four of these respondents also reported experiencing unhealthy or unsafe temperatures related to the ongoing energy burden (three of these participants had power shutoffs because of their inability to afford utility bills). Two of the households forgoing basic needs indicated that they experience unhealthy or unsafe temperatures "much less often" and one experienced "no change". Overall, 16 (24%) participants reported living in unsafe temperatures "much less often" and 34 (51%) reported "no change", whereas 9 (14%) participants reported experiencing unsafe temperatures in the home (8 "somewhat more often" and 1 "much more often").

5.4 Household Health

Housing is a core social determinant of health. Exposure to environmental hazards in the home such as poor indoor air quality, lead paint, or trip and fall hazards can significantly impact health outcomes, particularly for vulnerable populations such as children and seniors. Research from GHHI has shown that low-income households bear a dual burden in terms of housing and health: low-income households are both over-exposed to poor quality housing while also being medically under-served, which contributes to health inequities.[lxvii] The whole-home interventions from Built to Last can result in health benefits for residents across a range of domains.

The home interventions coordinated by Built to Last have been shown by research to yield measurable health improvements. Forty percent of asthma triggers are caused by preventable triggers in the home, including mold and moisture.[lxviii] Home hazards can also cause preventable injuries such as trips and falls; in 2023, across the country, 41,400 individuals over age 65 died as a result of preventable falls, and more than 3.5 million visited the emergency room for fall-related injuries.[lxix] Lead paint exposure can cause lifelong learning and behavioral issues, and each dollar invested in lead hazard control results in a return of $17-$221 of savings from reduced costs due to crime, special education, and more.[lxx]

In 2023, Built to Last partnered with the Children's Hospital of Philadelphia (CHOP) to conduct 45 home health consultations, revealing a high prevalence of environmental hazards that contribute to chronic illnesses. The assessments found that 51% of the households surveyed included at least one person with asthma and 57% reported chronic allergies. Beyond respiratory triggers, the consultations identified significant safety risks, including intact or damaged asbestos in 17% of homes and potential lead exposure in the 51% of properties built before 1978. 48% of respondents to the CHOP consultations said their health improved after Built to Last repairs, while 44% said their health had stayed the same. Follow-up evaluations highlight the relief that Built to Last repairs provide; for example, one participant reported that her daughter had not required an emergency room visit for an asthma attack in the year since the repairs were completed.

5.41. Self-Reported Health Conditions by Respondents to GHHI Survey
Source: GHHI Survey (n=66)

Health Condition	Count	Percentage
Asthma	19	28.79%
Chronic obstructive pulmonary disease (COPD)	3	4.55%
Other respiratory condition	3	4.55%
Diabetes	15	22.73%
Hypertension	31	46.97%
Cardiovascular disease	9	13.64%
Cancer	9	13.64%
Obesity	14	21.21%
Lead poisoning	2	3.03%
Other health condition	10	15.15%

The GHHI survey of Built to Last participants asked several questions about occupant health. Generally, a vast majority of participants reported no change in their physical health (77%) and mental health (68%) after Built to Last repairs were completed on their home. However, the respondents indicated a high prevalence of health conditions that are known to be negatively affected by exposure to unhealthy housing, such as increased indoor humidity and temperatures, poor indoor air quality, environmental toxins, and asthma triggers. Many of the respondents reported multiple health conditions that are directly or indirectly impacted by the affordability, accessibility, and quality of their home. There were 19 (28.8%) households reported having an occupant with asthma, 3 (4.6%) with COPD, and 3 (4.6%) with other respiratory health conditions. High outdoor temperature is associated with thermal discomfort and adverse health outcomes, including higher rates of all-cause

and cardiovascular mortality and emergency hospitalizations, across a range of study designs and across geographical regions.[lxxi] Children, the elderly, and those with psychiatric, cardiovascular and pulmonary illnesses have a weaker physiological response to heat, and are more vulnerable to the negative impact of high temperature on health.[lxxii] In a future evaluation, a healthcare partnership (such as with the state Medicaid office) could potentially yield analysis of anonymized health utilization data, which would enable findings on the health value of Built to Last upgrades.

6. Conclusions

6.1 Key Conclusions

This evaluation of the Philadelphia Energy Authority's Built to Last program has yielded the following top line conclusions:

1. **Housing Stabilization:** Built to Last interventions addressed 1,538 critical home systems across the evaluated cohort. With an average of 5.03 distinct systems addressed per home, Built to Last's holistic approach helps stabilize housing with the most pressing needs.
2. **Program Reach**: The program effectively reaches the city's homeowners most vulnerable to poor housing quality and compounding cost burdens. 95% of program participants earn less than 50% of AMI, with a median household income under $19,000. Built to Last reached seniors at triple the citywide rate (51%) and Black/African American homeowners at double the citywide rate (82%).
3. **Overcoming Deferrals**: Prior to Built to Last intervention, nearly 47% of homes had active roof leaks and 45% had plumbing leaks, which indicates a far greater prevalence of housing hazards among homes served by BTL than the overall housing stock. These conditions would normally trigger a deferral from federal weatherization programs and are an indicator that Built to Last's whole-home approach is critical for serving homes with the greatest needs. Built to Last's deferral rate is 1%, compared to an estimate of 36% deferrals for weatherization in Pennsylvania.
4. **Program Costs:** Built to Last completed repairs and service delivery for 340 households between 2023 and 2025, with $11.71 million of funding. Overall, the average spending per home is $34,444, with a median of $30,208.
5. **Layering Funds**: Each project coordinated an average of 2.69 unique funding sources per home. For every $1 of core Built to Last funding invested in construction, the program layered an additional $0.62 from external housing and energy programs, allowing for comprehensive interventions that would have otherwise been financially out of reach.
6. **Energy Affordability**: 94% of Built to Last survey respondents reported that their utility bills either remained stable or became easier to afford after repairs were completed. Given that utility rates have climbed double digits in the service territory in recent years, this is an indication of Built to Last's weatherization and energy efficiency services having significant impact.
7. **Participant Satisfaction**: 83% of Built to Last participants would recommend the program to others, and 76% were satisfied with Built to Last's intake and

coordination process. This eclipses typical satisfaction rates with government services and programs, which was recently measured around 70%.[lxxiii] While still leaving room for improvement, Built to Last has demonstrated an ability to deliver complex service and funding coordination while maintaining broad satisfaction for participants.

8. **Improving Health & Safety:** Built to Last interventions are backed by research that shows improved health outcomes for household residents. 88% of survey respondents reported feeling more comfortable and safer in their home after Built to Last repairs. Roughly 53% of respondents reported that their sleep had improved after Built to Last repairs, which can be associated with thermal comfort, air quality, and stress levels. A previous Children's Hospital of Philadelphia (CHOP) consultation found that nearly half of respondents reported improved health outcomes after Built to Last repairs.

6.2 Recommendations for Program Enhancement

The Built To Last Program provides a cost-effective pathway for preserving affordable, energy efficient, and healthy housing for low-income homeowners. Based on this evaluation, GHHI makes several strategic recommendations for policymakers and funders of the Built to Last program, as well as to the BTL program itself.

Recommendations for Policymakers & Funders

Scale Built to Last's Effective Program and Service Delivery Model

Expand the Built to Last program so that it meets its goal of 10,000 homes served by 2032. Built to Last is proving the ability to serve as Philadelphia's primary administrative backbone for home stabilization. Greater funding for the administration of Built to Last and unit production will scale the impact found in this report to serve more homes in need across the city. Built to Last's service delivery model is more efficient than the traditional, siloed approach to home repair.

Establish Sustainable, Cross-Sector Funding Streams

Built to Last will benefit from long-term, sustainable funding streams, including through the Pennsylvania Whole-Home Repairs Program. Another sustainable source of funding could be value-based housing investments from state Medicaid or other health stakeholders, in which investments in home repairs are made to reduce medical costs associated with emergency room visits, hospitalizations, and other costs from chronic disease.

Recognize Home Repair as a Key Strategy for Sustaining Home Ownership and Preventing Homelessness

Stabilizing an extremely low-income homeowner through the Built to Last program is significantly more cost-effective than addressing displacement or homelessness. Home repair preserves affordable housing and is more cost-effective than constructing new affordable housing. Even when incorporating in administrative and other "soft costs", the average Built to Last bill of repairs costs less than $50,000, compared to the median price of an "entry-level home" in Philadelphia of $160,000.[lxxiv] Further research is needed to study and quantify the return on investment from a housing stabilization perspective.

Recommendations for the Built to Last Program

Expand Healthcare Partnerships for Referrals & Funding

Deepen partnership with CHOP and expand to other MCOs and local/regional healthcare/systems. By formalizing referral pipelines, BTL can reach high-risk patients for whom home stabilization is a medical necessity. Built to Last should also pursue funding partnerships with healthcare entities, based on the return on investment that home-based health interventions can achieve by reducing asthma utilization, trips and falls, and more

Strategic Outreach & Services for High-Vulnerability Populations

The homeowners that stand to benefit most from Built to Last services will likely have compounding needs in terms of complex health issues and significant cost burdens (both housing and energy). Built to Last should focus outreach efforts to identify and match those homeowners with needed home repairs. Given that Built to Last has a waitlist in the thousands, the program could also expand triage methods to serve high-need households with dedicated funding sources sooner than the waitlist would otherwise allow.

Provide Healthy Homes Education to Participants

Built to Last Navigators and Household Support staff should inform and clearly communicate home health, safety, and energy information to homeowners to support long-term energy savings and improved housing quality. This could involve developing a curriculum tailored to Built to Last participants or using pre-existing materials from partners.

Ongoing Capacity Building and Workforce Development for Contractors and Implementation Partners

Built to Last and/or technical assistance partners should provide ongoing training to CBO implementation partners and local contractors to ensure the highest quality delivery of services. Coordinating with contractors was a common complaint for respondents to

GHHI's survey of BTL participants, so continuing to invest in the workforce for whole-home and electrification scopes of work will pay dividends for Built to Last and partners.

Cultivate Community Input Through Advisory Board

One avenue to ensuring the Built to Last centers the voice of residents is to recruit and convene a Community Advisory Board. Sharing ongoing program updates and lessons learned with the Board would foster community trust, while also providing input onto improvements in Built to Last's service delivery model.

Establish and Implement a "SMART" Evaluation Framework

Built to Last's ongoing evaluation work should utilize the "SMART" framework (Specific, Measurable, Achievable, Relevant, and Time-bound). This framework would track Key Performance Indicators (KPIs) to prove the long-term value of Built to Last to funders and policymakers. In particular, the Built to Last's evaluation efforts would benefit from ongoing tracking of household utility data, as well as data on health outcomes supported by additional surveys, or ideally partnerships with healthcare entities.

Standardize Data Management and Evaluation Capacity

Provide specialized training and technical assistance to all implementation partners to establish rigorous data management best practices. Standardizing data collection of administrative data, assessments and scope of housing repair needs as well as analysis of key process indicators and outcomes measures is fundamental to developing effective policy and iterative programmatic solutions for scaling the BTL program. By standardizing how data is collected, stored, and reported across various CBOs and contractors, Built to Last can ensure maximum quality and consistency of data in future evaluations.

Appendix A: GHHI Survey

GHHI's survey of Built to Last service recipients contained 36 questions, ranging from household information to client experience and post-repair impacts.

Household Information

1. What is your full name?
2. What is the street address where Built to Last repairs were completed?
3. What is your email address?

Baseline Housing Conditions

Prior to participating in the Built to Last Program:

4. What was preventing you from completing home repairs? (select all that apply)
    - Affordability or cost of home repairs
    - Credit history and score (Poor credit score, lack of credit history, negative marks on credit report)
    - Debt and income (Insufficient income, high debt-to-income ratio, unstable employment or income)
    - Complex or difficult process to complete home repairs
    - Finding Contractor
    - Other specify _____
5. Was your home ever damaged (water damage, mold, etc) from severe weather, such as flooding, hurricanes, or heavy storms?
    - Yes
    - No
6. Had you ever been displaced or stayed with family/friends due to issues with the habitability or condition of your house, or lack of functioning appliances? (HVAC, hot water heater, etc.)
    - Yes
    - No

Built to Last Program – Post-intervention Housing Conditions

Client Experience / Satisfaction with Built to Last Program

7. Overall, are you satisfied with the work that was done on your home through the Built to Last program?
    - 1 – Very Dissatisfied

- 2 – Dissatisfied
- 3 – Neutral
- 4 – Satisfied
- 5 – Very Satisfied

8. Are you satisfied with the process (intake, assessment, repair coordination) of working with the Built to Last program to receive improvements to your home?
    - 1 – Very Dissatisfied
    - 2 – Dissatisfied
    - 3 – Neutral
    - 4 – Satisfied
    - 5 – Very Satisfied
9. Would you recommend Built to Last to family or friends?
    - Yes
    - No
10. Are there any improvements you would recommend for the Built to Last program?
    - Open response

Housing Security

11. Are you able to make your mortgage payments every month?
    - Yes
    - No
    - Not Applicable / No Mortgage
12. Do you have homeowner's insurance?
    - Yes
    - No
13. [*Conditional if no*] What is the reason for no homeowner's insurance?
    - Cost
    - Use of home (work, non-residential purposes, etc.)
    - Home maintenance issues
    - Hazardous home features
    - History of insurance claims
    - High risk location (flood zone, steep hill, etc.)
    - Other

Energy Security

14. Since Built to Last repairs were completed on your home, how has your ability to afford your energy bills changed?
    - 1 – It's much harder to afford my energy bills

- 2 -- It's somewhat harder
- 3 – No difference
- 4 – It's somewhat easier
- 5 – It's much easier to afford my energy bills

15. Since Built to Last repairs were completed on your home, how has the comfort of your home changed during **cold weather**?
    - 1 – Much less comfortable
    - 2 – Slightly less comfortable
    - 3 – No change
    - 4 -- Slightly more comfortable
    - 5 – Much more comfortable
16. Since Built to Last repairs were completed on your home, how has the comfort of your home changed in **hot weather**?
    - 1 – Much less comfortable
    - 2 – Slightly less comfortable
    - 3 – No change
    - 4 – Slightly more comfortable
    - 5 – Much more comfortable
17. Since the repairs, has there been a **change in how often** your household must reduce or skip basic needs (like food or medicine) to pay an energy bill?
    - 1 – Much less often
    - 2 – Somewhat less often
    - 3 – No change
    - 4 – Somewhat more often
    - 5 – Much more often
18. Since the repairs, has there been a **change in how often** your home is at a temperature that you felt was unsafe or unhealthy?
    - 1 – Much less often
    - 2 – Somewhat less often
    - 3 – No change
    - 4 – Somewhat more often
    - 5 – Much more often
19. Since Built to Last repairs were completed, was there ever a time your household was unable to use your main source of heat or cooling because any of the following events happened? Please select all that apply.
    - Your heating equipment was broken, and you couldn't afford to pay for the repair or replacement
    - You couldn't pay for electricity, and it was disconnected

- You couldn't pay for natural gas, and it was disconnected
- You ran out of fuel oil, propane, wood, or pellets because you couldn't afford a delivery
- None of these happened

20. Since repairs were completed, has your home had a power outage lasting at least 24 hours that was not related to paying bills?
    - No
    - Yes, once
    - Yes, 2-5 times
    - Yes, 6 or more times
21. [*Conditional if* yes] Which of the following best describes why this power outage occurred? If you experienced multiple power outages during the past year, please select the reason for the longest outage.
    - Natural disaster or weather event
    - Electric utility had a planned or unplanned blackout
    - Other
    - Don't Know
22. Do you or anyone else in your household use any home medical devices, such as ventilators, oxygen, nebulizers, or CPAP machines?
    - Yes
    - No
23. [*Conditional if yes*] since Built to Last repairs were completed, have you been unable to use medical devices at home that require energy due to power outage?
    - Yes
    - No
24. Since Built to Last repairs were completed on your home, has this household participated in any water or energy bill-assistance program? (Check all that apply)
    - Tiered Assistance Program (TAP) – City of Philadelphia
    - Customer Assistance Program (CAP) – PECO
    - Customer Relief Program (CRP) – PGW
    - Low-Income Home Energy Assistance Program (LIHEAP) – PECO
    - Other

Comfort and Health

25. Please rate the impact of Built to Last repairs on your home's overall comfort and safety:
    - 1 – Much less comfortable and safe
    - 2 – Slightly less comfortable and safe

- 3 – No impact / neutral
- 4 – Slightly more comfortable and safe
- 5 – Much more comfortable and safe

26. Since Built to Last repairs were completed on your home, how has the draftiness of your home changed?
    - 1 – It's much draftier
    - 2 – It's slightly draftier
    - 3 – No change / not sure
    - 4 – It's slightly less drafty
    - 5 – It's much less drafty
27. Since Built to Last repairs were completed on your home, how would you rate the impact of your home's comfort on your quality of sleep?
    - 1 – My sleep is much worse
    - 2 – My sleep is slightly worse
    - 3 – No change
    - 4 – My sleep is slightly better
    - 5 -- My sleep is much better
28. Since the repairs, did anyone in the household have to go to a doctor, urgent care, and/or the hospital, for a heat- or cold-related illness due to the temperature in your home?
    - Yes
    - No
    - Not Sure
29. Since the repairs, did anyone in the household have to go to a doctor, urgent care, and/or the hospital, for an unintentional injury at home?
    - Yes
    - No
    - Not Sure
30. Since the repairs, has there been a change in your physical health?
    - 1 – Physical health is much worse
    - 2 – Physical health is slightly worse
    - 3 – No change
    - 4 – Physical health is slightly better
    - 5 -- Physical health is much better
31. Since the repairs, has there been a change in your mental health?
    - 1 – Mental health is much worse
    - 2 – Mental health is slightly worse

- 3 – No change
- 4 – Mental health is slightly better
- 5 -- Mental health is much better

32. Have you or anyone in your household ever been told by a doctor or other health professional that you had any of the conditions below? (Check all that apply)
    - Anxiety
    - Depression
    - Other mental health condition
    - None / N/A
33. Have you or anyone in your household ever been told by a doctor or other health professional that you had any of the conditions below? (Check all that apply)
    - Asthma
    - Chronic obstructive pulmonary disease (COPD)
    - Other respiratory condition
    - Diabetes
    - Hypertension
    - Cardiovascular disease
    - Cancer
    - Obesity
    - Lead poisoning
    - Other health condition____
34. [*Conditional if asthma selected*] Since Built to Last repairs, have you or anyone in your household had an episode of asthma or an asthma attack?
    - Yes
    - No
35. [*Conditional if asthma selected*] Since the repairs, have you or anyone in your household had to visit an urgent care center or an emergency room because of asthma?
    - Yes, emergency room visit
    - Yes, urgent care center visit
    - Yes, hospitalization
    - No
36. Since the repairs, has anyone in the household had trouble breathing, coughing, or eyes watering that you believe is related to appliances – gas stove, heating or cooling sources in your home?
    - Yes
    - No

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