SHA NJ

Supportive Housing Association of New Jersey

Extreme Heat and Supportive Housing in New Jersey



Supportive Housing Association of New Jersey

About SHA

SHA's Mission: Since 1998, our statewide mission seeks to enhance lives and accessibility to enable independent living within our communities.

SHA's Vision: We envision a New Jersey where people with special needs can thrive in inclusive communities and live independently and with dignity — made possible by a strong, well-supported network of member organizations that we empower through resources, innovation, collaboration, and advocacy for systems change.

Supportive Housing Association of New Jersey (SHA)

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1. – Summary

New Jersey is experiencing rising summer temperatures and more frequent extreme heat events. Elevated temperatures create difficult conditions for supportive housing residents, as many housing buildings in the state are older structures that were not designed to maintain safe and stable temperatures during extreme heat events. People eligible to live in supportive housing are at a disproportionately high risk of heat exposure and heat-related health harm, given their financial resources and health needs. Supportive housing communities and their stakeholders must take evidence-based action to strengthen community resilience to heat, which requires them to improve both housing conditions and local support services. Upgrading older buildings, strengthening community heat response efforts, and expanding access to stable permanent housing can play a central role in reducing heat-related risks for our communities.

2. – Background

2.1 – A State Warming Faster Than the Nation

New Jersey has warmed faster than the nation, with temperatures increasing by 3.7°F since 1990 compared to roughly 2.8°F nationally (Climate Central, 2025). The state's distinct coastal geography and highly dense urban development cause its temperature growth to exceed most other states (Howard, 2024; Karmalkar & Horton, 2021; NJDEP, 2020). Since 1949, the annual average number of days above 90°F has increased by 36%, from 17 to 23, and in 2024, there were 56 days with temperatures above 90°F, making 2024 the second warmest year on the state's record (NJDEP, 2026; NJDOH, 2025; Davies et al., 2025). Temperatures in the state are continuing to increase with a projected risk of 3.7–6.2°F by 2100 (Davies et al., 2025). This places increasing pressure on both residential and commercial cooling systems.

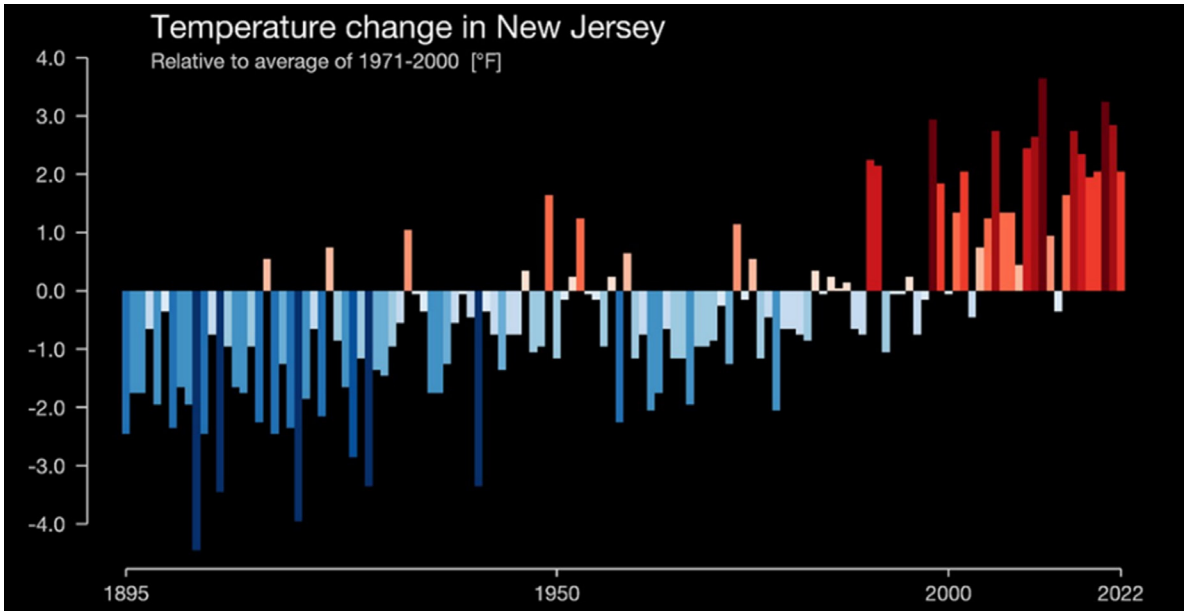


Figure 1. Temperature Change 1895 - 2022 in New Jersey Relative to the Average of 1991-2000 in degrees Fahrenheit.

Note. Each vertical bar represents the average temperature for a given year. Blue-toned bars indicate cooler-than-average years, red-toned bars indicate warmer-than-average years, and white bars represent years at the long-term (125-year) average. Source. New Jersey Department of Environmental Protection, Office for Coastal Management; Agosto Filion, N., Knutsen, M., & Phillips, S. (2024), New Jersey Extreme Heat Resilience Action Plan. https://dep.nj.gov/wp-content/uploads/climatechange/extreme_heat_rap_071924-screen-version.pdf

2.2. – Aging Housing and Thermal Performance

The age of the state's housing stock is an important consideration for supportive housing in New Jersey. Based on data from 2024 (Figure 2), New Jersey's housing stock is relatively old, with 23.3% of homes built before 1950 and 61% before 1980 (NJDOH, 2025). This legacy-built environment could be consequential for supportive housing units, especially when they are developed or rehabilitated from existing older structures. Many current housing stock units were built before current energy efficiency and ventilation standards and were not designed to maintain stable indoor thermal conditions under projected extreme heat events. Some housing units have been retrofitted with mechanical cooling systems such as air conditioning, but the this is one factor in many affecting heat resilience of existing structures.

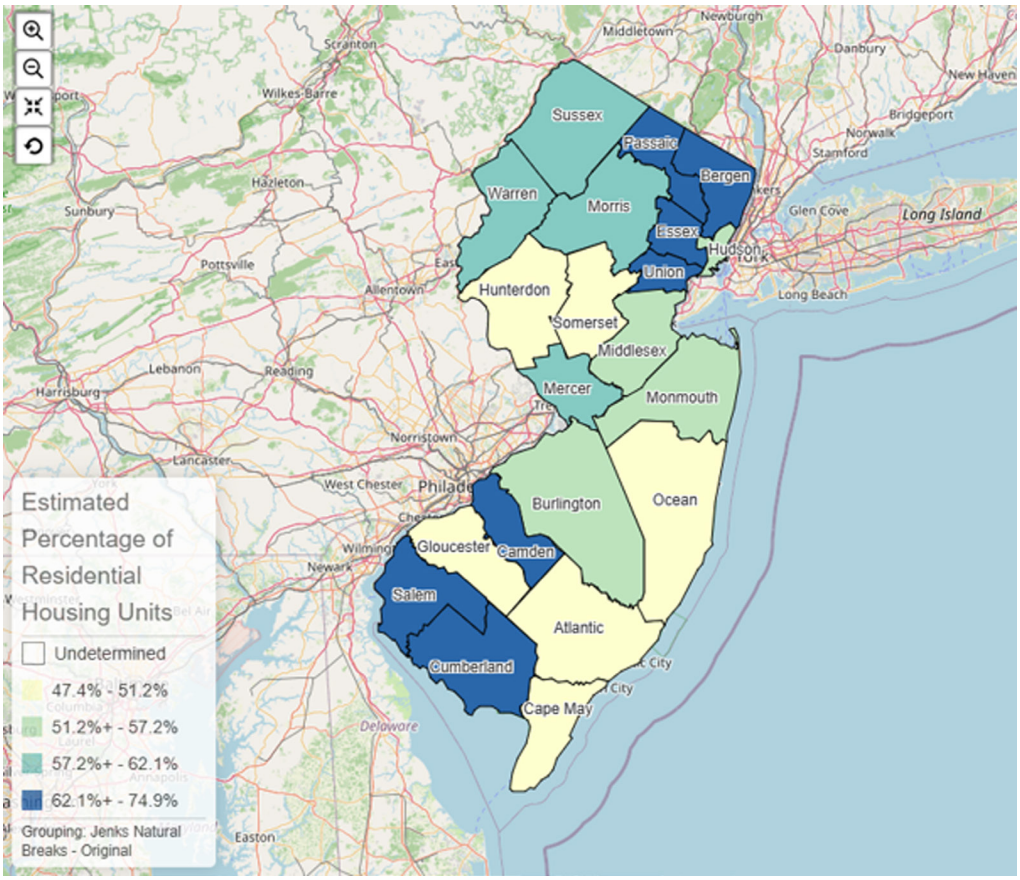


Figure 2. Share of Housing Units Built Before 1980 by County, New Jersey (2024)
Source. New Jersey Department of Health (2025), Housing age: Built before 1950.
https://www-doh.nj.gov/doh-shad/indicator/summary/pre1950home.html

In the late 1970s, the U.S. Department of Housing and Urban Development (HUD) established basic thermal envelope requirements for residential properties. International building standards were introduced after 2020 and were stricter about thermal performance. Key differences of pre- and post-2000 standards include the use of continuous roof insulation, double- or triple-glazed low-e windows, improved air sealing, and mitigation of thermal bridging (Christiansen, 2026). As a result, housing built before 1980, between 1980 and 2000, and after 2000 in the U.S. differs substantially in its ability to maintain safer indoor temperatures when temperatures rise.

Nationally, average U.S. housing stock is older than the improved regulations implemented post-1980. Based on the 2020 Residential Energy Consumption Survey (RECS), approximately 51.68% of U.S. housing was built before 1980 and about 27.09% of housing stock was constructed between 1990 and 2020. 43.68% of U.S. homes built before 1980 do not have central air conditioning. In these homes, cooling may be uneven or entirely absent in some rooms, increasing the risk of indoor overheating.

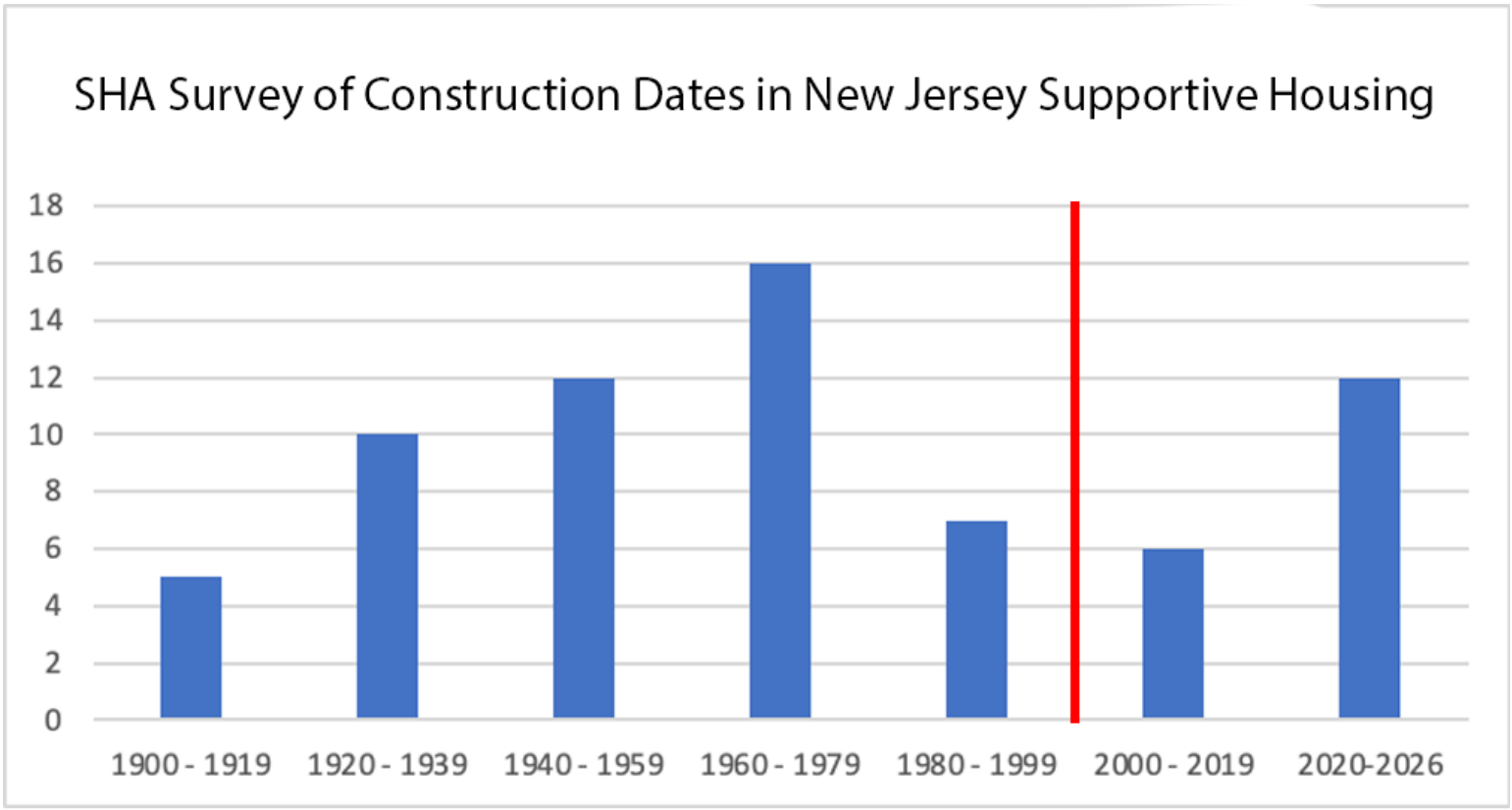
2.2. – Aging Housing and Thermal Performance

Older buildings are more likely to have limited mechanical ventilation and insufficient attic and wall insulation. Poor insulation and ventilation without conditioning of the air produces an indoor heat buildup environment and accumulates heat more easily through conduction and convection (Kenny et al., 2024; Natural Resources Canada, n.d.; Ong, 2011). Other design choices that do not adequately consider thermal performance can also give rise to indoor overheating. The ability to regulate airflow through the full living space is an important mechanism of opening windows or using fans to help remove accumulated heat (Kenny et al., 2024). Available shade plays a similar role by reducing solar heat gain—this can come from tree cover outside or from interior measures like curtains and blinds (U.S. Department of Energy [DOE], 2023; Iungman et al., 2023; Kenny et al., 2024). While some mitigations have worked previously, combined with higher temperatures, they reduce in efficacy and increase potential strain on residents.

Consequently, older housing stock tends to reach higher indoor temperatures, especially during the summer and in areas where heat island effects prevent cooling at night. Based on the 2020 RECS, U.S. homes built before 1980 are more likely to reach indoor daytime temperatures exceeding 80°F when residents are at home. A study of comparable public housing also shows that public housing without central AC reaches an average indoor temperature of around ≈77–79°F (25–26°C), which is higher than the physiological comfort threshold of roughly 75° F (24°C) (Williams et al., 2019). When temperatures are higher than 75° F (24°C), heart rate and stress responses begin to increase.

Figure 3.

A bar graph of supportive housing developments wthin New Jersey arranged by year of constuction. A total of 68 developments were surveyed and include SHA members and past awardees for Project of the Year.



74% supportive housing developments built pre-2000.

26% supportive housing developments built post-2000.

Figure 3 shows a graph of supportive housing developments from SHA members and past project of the year awardees in New Jersey grouped into their years of construction. Of the 68 sampled supportive housing developments, a total of 50 developments (approximately 74%) were built prior to they year 2000. The remaining 18 developments built from 2000 - 2026 only represent approximately 26% of the surveyed developments. With the prevalance of increasing heat events measured since 2000, the chart underscores the need to retrofit, renovate, and adapt a significant portion of New Jersey's housing stock to meet the pressures of wamer climates. Additionally, evolving trends may require reevaluation of building codes including housing built after 2000 to anticipate and prepare for potential climate effects over the following 50 - 100 years.

2.3. – Resident Vulnerability to Heat

Supportive housing in New Jersey provides housing and support services to multiple vulnerable populations. These residents, including older adults, individuals with disabilities, people experiencing homelessness, and those with mental health or substance use conditions, also face elevated health risks during extreme heat. If current supportive housing cannot consistently provide a heat-resilient environment, living conditions may remain unstable, uncertain, and unlivable for residents despite their access to permanent supportive housing.

Research has shown that older adults and individuals with conditions such as type 2 diabetes, hypertension, obesity, cardiovascular disease, and respiratory disease face greater risks of heat-related illness and death during extreme heat events (Kenny et al., 2024). These population groups are more likely to have limited physiological capacity to cope with heat. As a result, rising temperatures and extreme heat can seriously reduce their body's ability to regulate temperature effectively and further exacerbate their health conditions. Additionally, extreme heat could significantly harm individuals with mental and behavioral disorders, as elevated temperatures can impair their ability to perceive and respond to physiological strain and intensify symptoms (Kenny et al., 2024; Shiloh et al., 2007; Tartarini et al., 2017). Supportive housing residents often face other socioeconomically disadvantaged conditions, including financial constraints, limited mobility, and social isolation. These barriers could further increase vulnerability when exposed to extreme heat.

3. – What Works: Evidence-Based Solutions

3.1 – Building-Level Retrofits

The best protection against heat comes from directly improving the buildings of supportive housing through retrofitting older structures and strengthening standards for new construction. Key interventions with documented outcomes include:

- Install insulation beneath the roofing material rather than above the ceiling and consider roof-integrated solar collector designs (Ong, 2011);
- Increase attic insulation thickness (Tariku & Iffa, 2015).
- Optimize airflow through smaller inlet openings and larger outlet openings using ridge vents at the roof peak and soffit vents at the eaves (National Renewable Energy Laboratory [NREL], 2001; Parker et al., 2002).
- Install mechanical systems such as circulating fans and whole-house fans (NREL, 2001).
- Improve roof design to increase albedo, the reflection of incoming sunlight and heat, and reduce heat gain by incorporating green roofs, reflective (cool) roofing materials, or roof water cooling strategies that enhance evaporative cooling and limit solar heat absorption (Rizwan et al., 2008).
- Build shade into designs to reduce heat gain by incorporating external shading devices (e.g., shutters, louvers, overhangs) (Abdullah et al., 2022).

3.2 – Community or Local Strategies

The best protection against heat comes from directly improving the buildings of supportive housing through retrofitting older structures and strengthening standards for new construction. Key interventions with documented outcomes include:

- Increase vegetation cover by expanding tree planting and green space to reduce ambient temperatures through shading and evapotranspiration (Bowler et al., 2010).
- Provide heat-relief resources in supportive housing shared spaces, including electric and misting fans, cooling towels, and access to cold drinking water.
- Create shaded outdoor areas (e.g., pergolas, verandas) around supportive housing sites.
- Deploy on-site support staff during heat events to check on residents and assist with cooling needs.
- Educate residents on heat-risk reduction, including appropriate clothing, hydration, and avoiding strenuous activity during peak heat.
- Ensure access to cooling infrastructure, including nearby cooling centers, in-unit air conditioning where feasible, and a reliable cold-water supply.

3.3. – Stable and Permanent Housing for Heat Protection

Stable and permanent housing cannot be overlooked as a fundamental policy intervention in climate-resilience discussions. Consistent housing can provide long-term protection and substantially reduce residents' outdoor heat exposure from time spent in extreme heat conditions. New Jersey has many programs aimed at strengthening housing access and retention, such as the Homelessness Prevention Program (HPP), the State Rental Assistance Program (SRAP), etc. However, these programs can only provide temporary support and may not sustain individuals over the long-term experiencing challenges of chronic homelessness or housing instability. Prioritizing funding for transitional programs over Permanent Supportive Housing (PSH) could limit State and local investment in permanent housing opportunities. Insufficient funds could prevent people from transitioning out of, or fully bypassing temporary housing into PSH (Hurwitz, 2026). Research has shown that the PSH based in the Housing First (Housing First) model is more effective in ending chronic homelessness (Jacob et al., 2022). Expanding PSH can play a central role in addressing homelessness, health inequality, and climate adaptation.

4. – Conclusion

Supportive housing stakeholders must pay more attention to extreme heat. As temperatures continue to rise and extreme heat becomes intensified, indoor conditions, not just outdoor exposure, can significantly shape residents' exposure to heat. This is particularly important for supportive housing units, serving people who already face heightened health, financial, and social vulnerabilities.

The currently available housing stock does not guarantee thermally stable indoor environments, given New Jersey's legacy-built housing environment. Building upgrades, community measures, service support, and permanent supportive housing expansion are essential in helping residents during extreme heat events. Ensuring that supportive housing is both permanent and heat-resilient should be a priority for all stakeholders in supportive housing in New Jersey.

Works Cited

Abdullah, A. K., Darsaleh, A., Abdelbaqi, S., & Khoukhi, M. (2022). Thermal performance evaluation of window shutters for residential buildings: a case study of Abu Dhabi, UAE. *Energies*, 15(16), 5858. https://doi.org/10.3390/en15165858

Bowler, D. E., Buyung-Ali, L., Knight, T. M., & Pullin, A. S. (2010). Urban greening to cool towns and cities: A systematic review of the empirical evidence. *Landscape and Urban Planning*, 97(3), 147–155. https://doi.org/10.1016/j.landurbplan.2010.05.006

British Columbia Coroners Service. (2022, June 7). *Extreme heat and human mortality: A review of heat-related deaths in BC in summer 2021*. https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf

Christiansen, K. (2026, January 16). *What's the problem with pre-1980 buildings?* LinkedIn. https://www.linkedin.com/pulse/whats-problem-pre-1980-buildings-kyle-christiansen-ra-eepoe/

Climate Central. (2025, April 16). *Earth Day: Fastest-warming U.S. cities and states.* https://www.climatecentral.org/climate-matters/earth-day-fastest-warming-us-cities-and-states

Davies, K., Broccoli, A. J., Shope, J. B., Gerbush, M., Kaplan, M., Robinson, D., Nikolopoulos, E., Araujo, D. S. D., Kopp, R., Herb, J., & Spector, A. (2025). *State of the climate: New Jersey 2024*. Rutgers University, New Jersey Climate Change Resource Center. https://doi.org/10.7282/00000539

Iungman, T., Cirach, M., Marando, F., Pereira Barboza, E., Khomenko, S., Masselot, P., Quijal-Zamorano, M., Mueller, N., Gasparrini, A., Urquiza, J., Heris, M., Thondoo, M., & Nieuwenhuijsen, M. (2023). Cooling cities through urban green infrastructure: a health impact assessment of European cities. *The Lancet*, 401(10376), 577–589. https://doi.org/10.1016/S0140-6736(22)02585-5

Jacob, V., Chattopadhyay, S. K., Attipoe-Dorcoo, S., Peng, Y., Hahn, R. A., Finnie, R., Cobb, J., Cuellar, A. E., Emmons, K. M., & Remington, P. L. (2022). Permanent Supportive Housing With Housing First: Findings From a Community Guide Systematic Economic Review. *American Journal of Preventive Medicine*, 62(3), e188–e201. https://doi.org/10.1016/j.amepre.2021.08.009

Karmalkar, A. V., & Horton, R. M. (2021). Drivers of exceptional coastal warming in the northeastern United States. *Nature Climate Change*, 11(10), 854–860. https://doi.org/10.1038/s41558-021-01159-7

Kenny, G. P., Tetzlaff, E. J., Journeay, W. S., Henderson, S. B., & O'Connor, F. K. (2024). Indoor overheating: A review of vulnerabilities, causes, and strategies to prevent adverse human health outcomes during extreme heat events. *Temperature (Austin)*, 11(3), 203–246. https://doi.org/10.1080/23328940.2024.2361223

Howard, H. (2024, July 3). New Jersey is one of America's fastest-warming states, data shows. The New York Times. https://www.nytimes.com/2024/07/03/nyregion/new-jersey-warming-climate-change.html

Works Cited

Hurwitz, M. (2026, February 27). *There's a way to nearly eliminate homelessness.* The New York Times. https://www.nytimes.com/2026/02/27/opinion/new-york-homelessness-mamdani.html

National Renewable Energy Laboratory. (2001). *Cooling your home with fans and ventilation*. U.S. Department of Energy. https://docs.nrel.gov/docs/fy01osti/29513.pdf

Natural Resources Canada. (n.d.). *Keeping the heat in*. Government of Canada. https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/15768

New Jersey Department of Health. (2025a). *Emergency department visits due to heat-related illness*. https://www-doh.nj.gov/doh-shad/indicator/complete/HeatED.html

New Jersey Department of Health. (2025b). *Housing age: Built before 1950*. https://www-doh.nj.gov/doh-shad/indicator/summary/pre1950home.html

New Jersey Department of Environmental Protection. 2020. New Jersey Scientific Report on Climate Change, Version 1.0. (Eds. R. Hill, M.M. Rutkowski, L.A. Lester, H. Genievich, N.A. Procopio). Trenton, NJ. 184 pp. https://www.nj.gov/dep/climatechange/pdf/scientific-report-on-climate-change-at-a-glance.pdf

New Jersey Department of Environmental Protection, Office for Coastal Management, Agosto Filion, N., Knutsen, M., & Phillips, S. (2024). *New Jersey extreme heat resilience action plan.* https://dep.nj.gov/wp-content/uploads/climatechange/extreme_heat_rap_071924-screen-version.pdf

New Jersey Department of Environmental Protection. (2026). *Climate change in New Jersey: Temperature, precipitation, extreme events and sea level.* https://dep.nj.gov/dsr/environmental-trends/climate-change/

Ong, K. S. (2011). Temperature reduction in attic and ceiling via insulation of several passive roof designs. *Energy Conversion and Management*, 52(6), 2405–2411. https://doi.org/10.1016/j.enconman.2010.12.044

Parker, D. S., Sonne, J. K., Sherwin, J. R., et al. (2002). *Comparative evaluation of the impact of roofing systems on residential cooling energy demand in Florida.* In *Proceedings of the 2002 ACEEE Summer Study on Energy Efficiency in Buildings*. https://www.fsec.ucf.edu/en/publications/pdf/fsec-cr-1220-00.pdf

Rizwan, A. M., Dennis, L. Y. C., & Liu, C. (2008). A review on the generation, determination and mitigation of Urban Heat Island. *Journal of Environmental Sciences*, 20(1), 120–128. https://doi.org/10.1016/S1001-0742(08)60019-4

Works Cited

Shiloh, R., Munitz, H., Stryjer, R., & Weizman, A. (2007). A significant correlation between ward temperature and the severity of symptoms in schizophrenia inpatients — A longitudinal study. *European Neuropsychopharmacology*, 17(6), 478–482. https://doi.org/10.1016/j.euroneuro.2006.12.001

Tartarini, F., Cooper, P., Fleming, R., & Batterham, M. (2017). Indoor Air Temperature and Agitation of Nursing Home Residents With Dementia. *American Journal of Alzheimer's Disease and Other Dementias*, 32(5), 272–281. https://doi.org/10.1177/1533317517704898

Tariku, F., & Iffa, E. (2015). Effect of attic insulation thickness and solar gain in a mild climate. *Energy procedia*, 78, 67-72. https://www.researchgate.net/publication/290003534_Effect_of_Attic_Insulation_Thickness_and_Solar_Gain_in_a_Mild_Climate

Uriarte-Otazua, U., Azkorra-Larrinaga, Z., Varela-Alonso, M., Gomez-Arriaran, I., & Irulegi-Garmendia, O. (2025). Impact of Heat Waves on the Well-Being and Risks of Elderly People Living Alone: Case Study in Urban and Peri-Urban Dwellings in the Atlantic Climate of Spain. Buildings (Basel), 15(13), Article 2274. https://doi.org/10.3390/buildings15132274

U.S. Energy Information Administration. (2023). 2020 Residential energy consumption survey (RECS): Air conditioning. https://www.eia.gov/consumption/residential/data/2020/#ac

U.S. Department of Energy. (2023). Efficient window coverings. https://www.energy.gov/energysaver/energy-efficient-window-coverings

Vandentorren, S., Bretin, P., Zeghnoun, A., Mandereau-Bruno, L., Croisier, A., Cochet, C., Ribéron, J., Siberan, I., Declercq, B., & Ledrans, M. (2006). August 2003 Heat Wave in France: Risk Factors for Death of Elderly People Living at Home. European Journal of Public Health, 16(6), 583–591. https://doi.org/10.1093/eurpub/ckl063

Velashjerdi Farahani, A., Jokisalo, J., Korhonen, N., Jylhä, K., Ruosteenoja, K., & Kosonen, R. (2021). Overheating Risk and Energy Demand of Nordic Old and New Apartment Buildings during Average and Extreme Weather Conditions under a Changing Climate. Applied Sciences, 11(9), Article 3972. https://doi.org/10.3390/app11093972

White-Newsome, J. L., Sánchez, B. N., Jolliet, O., Zhang, Z., Parker, E. A., Timothy Dvonch, J., & O'Neill, M. S. (2012). Climate change and health: Indoor heat exposure in vulnerable populations. Environmental Research, 112, 20–27. https://doi.org/10.1016/j.envres.2011.10.008

Williams, A. A., Spengler, J. D., Catalano, P., Allen, J. G., & Cedeno-Laurent, J. G. (2019). Building Vulnerability in a Changing Climate: Indoor Temperature Exposures and Health Outcomes in Older Adults Living in Public Housing during an Extreme Heat Event in Cambridge, MA. International Journal of Environmental Research and Public Health, 16(13), Article 2373. https://doi.org/10.3390/ijerph16132373

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Zoe Karch is a MPA student at Baruch College working at SHA through the Housing and Community Development Network of New Jersey's (HCDNNJ) Community Scholar Program. She is excited to continue her work in policy and administration and gain a better understanding of how organizations like SHA help to bring together diverse interests to create a more equitable and accessible housing industry in New Jersey.

Sofia Hiltner

Sofia Hiltner is a PhD candidate in sociology at University of Michigan researching healthcare and housing policy in the U.S. She completed her bachelors in psychology at Princeton University and Master of Social Work at University of Michigan. She previously worked at the nonprofit Environmental Defense Fund.

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Luke Burston is a Master of Public Policy student at Rutgers University with interests in housing, economic development, and education policy. He gained experience in housing and community development through his work with the New York City Housing Development Corporation and the HCDNNJ. Luke is excited to build on his experience and continue learning through his work with SHA.

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