

FIGHTING CLIMATE CHANGE THROUGH PRESERVATION



The Edith Farnsworth House, Plano, Illinois, under several feet of water on September 14, 2008. Completed in 1951 and located about 100 feet from the Fox River, architect Ludwig Mies van der Rohe anticipated flooding and incorporated piers that elevate the house 5' from the ground. However, climate change is increasing flooding frequency and severity.¹ The National Trust for Historic Preservation owns the National Historic Landmark site and Landmarks Illinois holds an easement to ensure its preservation. Developing a permanent flood mitigation plan is complicated because the house's riverfront setting is integral to its historic significance and integrity.

SEPTEMBER 1, 2022

BY BONNIE MCDONALD, PRESIDENT & CEO, LANDMARKS ILLINOIS

The American Bicentennial not only marked our nation's 200th anniversary, but it was the last year on record when the Earth's surface temperature was cooler than average.² Nearly 190 million Americans, 57% of the population, have only ever lived in a warming climate.³ Weather

¹ "Vulnerability Assessment for the Fox River Corridor Plan." Chicago Metropolitan Agency for Planning (CMAP), undated. 13.

<https://www.cmap.illinois.gov/documents/10180/592519/Vulnerability+Assessment+for+Fox+River+Corridor+Plan.pdf/75f860bf-f7bc-c1bf-74b6-24e13f9b4921?t=1533179636771>

² "Global Average Surface Temperature." National Oceanic and Atmospheric Administration, undated.

<https://www.climate.gov/media/12885>. Graph shows the average surface temperature in Celsius from 1880 – 2021.

³ "Resident Population of the United States by sex and age as of July 1, 2020." Statista, July 2021. Accessed August 20, 2022. <https://www.statista.com/statistics/241488/population-of-the-us-by-sex-and-age/>

has become more unpredictable, extreme and will worsen as temperatures rise.⁴ In a 2021 Gallup poll, 65% of Americans reported worrying between a fair amount and a great deal about global warming and 64% believed human activities were mainly to blame.⁵ People polled believed that corporations (70%), individuals (65%) and Congress (61%) should do more to address global warming.⁶

Building operations accounts for 27% of global carbon emissions – the single largest source, while building materials and construction are an additional 20% (called “embodied” or “upfront” carbon.)⁷ Estimates are that two-thirds of our existing buildings will be in continued operation in 2040, so making these buildings more energy efficient is necessary to reduce carbon emissions.⁸ Preservation helps mitigate climate change by eliminating unnecessary building material waste and avoiding upfront carbon emissions from new construction.

Preventing upfront carbon is not enough. We need to improve historic buildings’ energy efficiency and decarbonize building construction and operations by eliminating all on-site fossil fuel use and electrifying all systems. Renewable energy sources need to power these systems, either on-site, or from a sustainable power grid.⁹ While improving energy efficiency, projects should also adapt the building to be more resilient to climate change impacts.

“There is a crisis in our climate. If we don’t connect to the most fundamental thing in our world, then we are irrelevant.”

Chere Jiusto
Executive Director
Preserve Montana
September 18, 2020
Helena, Montana (via Zoom)

Building reuse is having its moment. The American Institute of Architects has tracked new construction and renovation statistics for 20 years. In 2021, renovation reached an all-time high of 52% of U.S. architect-led design activity. Almost 70% of this work was adaptive reuse / conversions, basic interior modernization and tenant fit outs, while only 3% was labeled historic

⁴ “Earth Will Continue to Warm and the Effects Will Be Profound.” Global Climate Change, Vital Signs of the Planet, National Aeronautics and Space Administration (NASA), Undated. Accessed August 20, 2022. <https://climate.nasa.gov/effects/#:~:text=Earth%20Will%20Continue%20to%20Warm,and%20intensity%20of%20tropical%20storms>.

⁵ Saad, Lydia. “Are Americans Concerned About Global Warming?” Gallup, October 5, 2021. Accessed August 20, 2022. <https://news.gallup.com/poll/355427/americans-concerned-global-warming.aspx>

⁶ “Yale Climate Opinion Maps 2021.” Yale Program on Climate Change Communication, February 23, 2022. Accessed August 20, 2022. <https://climatecommunication.yale.edu/visualizations-data/ycom-us/>

⁷ “Why the Built Environment?” Architecture 2030, undated. Accessed August 20, 2022. <https://architecture2030.org/>

⁸ Ibid.

⁹ Special thanks to Jim Lindberg, Senior Policy Director at the National Trust for Historic Preservation, who contributed ideas, comments and resources throughout this blog. Jim manages the Sustainability and Climate Action Preservation Priorities Task Force. <https://www.preservationpriorities.org/climate-action>

preservation.¹⁰ Adaptive reuse generated so much real estate attention that one “Fast Company” reporter asked if 2022 could be the year without any new construction.¹¹ Architect Jeanne Gang authored a May 2021 article advocating for the reuse of Brutalist concrete buildings not only as historic, but as carbon preservation.¹² This is a moment to reinforce that adaptive reuse (preservation) helps to mitigate climate change. We must also recognize that reuse construction generates upfront carbon emissions and at different rates, depending on the project type. By sharing the AIA “[Buildings That Last](#)” guide with design and construction teams, we encourage reducing the amount of new materials.¹³

“We need to understand how we’ve used carbon negatively and use that knowledge as a building block to turn back climate change.”

Alicia Ponce, AIA, NCARB, LEED AP,
Living Future Accredited
Founder and Principal
APMonarch Architectural Firm
Chicago, Illinois
January 23, 2020

Preservationists have been framing the climate change imperative, opportunity, and next steps for nearly two decades. The Relevancy Project’s purpose is to be additive, not duplicative, so I encourage familiarizing yourself with their work. Please see Jim Lindberg’s blog post, “[The Reuse Imperative](#),” the Preservation Priorities Task Force Sustainability and Climate Action [Issue Brief](#), and the National Trust for Historic Preservation’s National Impact Agenda [Climate Resilience Goal](#) for guidance.¹⁴ This post will raise additional points made by project interviewees.

¹⁰ Richards, William. “Renovation claims 50% share of firm billings for first time.” AIA, May 3, 2022. Accessed August 20, 2022. <https://www.aia.org/articles/6502007-renovation-claims-50-share-of-firm-billing>

¹¹ Brandon, Elissaveta M. “What if we didn’t build a single new building in 2022?” Fast Company, December 29, 2021. Accessed August 20, 2022. <https://www.fastcompany.com/90707322/what-if-we-didnt-build-a-single-new-building-in-2022>

¹² Gang, Jeanne. “Revaluing Brutalist Architecture.” The Plan (130), Magazine 2021, May 4, 2021. Accessed August 20, 2022. <https://www.theplan.it/eng/magazine/2021/the-plan-130-05-2021/revaluing-brutalist-architecture>

¹³ “Buildings That Last: Design for Adaptability, Deconstruction and Reuse.” The American Institute of Architects, March 2020. Accessed August 31, 2022. https://content.aia.org/sites/default/files/2020-03/ADR-Guide-final_0.pdf

¹⁴ Lindberg, Jim. “The Reuse Imperative.” Preservation Leadership Forum, National Trust for Historic Preservation, March 16, 2022. <https://forum.savingplaces.org/blogs/jim-lindberg/2022/03/16/the-reuse-imperative>. See Lindberg’s chapter, “Avoiding Carbon: Mitigating Climate Change through Preservation and Reuse,” in “Preservation, Sustainability and Equity,” edited by Erica Avrami and published by the Columbia University Press, 2021. <https://www.arch.columbia.edu/books/reader/826-preservation-sustainability-and-equity#reader-anchor-4> “Sustainability and Climate Action Issue Brief – Fall 2021.” Preservation Priorities Task Force, Fall 2021. Accessed on August 20, 2022.

<https://static1.squarespace.com/static/60748c08c5e3c41f47c49cbd/t/61434da4f0fbc56ed870d59/1631800743277/PPTF+Sustainability+and+Climate+Action+Issue+Brief.pdf>

“Goal 5: Climate Resilience.” National Impact Agenda, National Trust for Historic Preservation, Undated. Accessed August 21, 2022. <https://savingplaces.org/goal-climate-resilience#.YwKdPHbMJPY>

EMBRACING SUSTAINABILITY TO MITIGATE CLIMATE CHANGE

Climate change refers to long-term temperature and weather pattern shifts.¹⁵ Whereas sustainability aims to prevent the overuse of natural resources in order to maintain ecological balance. They are related, but not synonymous. Sustainable practices can mitigate climate change, but the focus is on avoiding exhausting the planet's resources for future life to exist and thrive on Earth.¹⁶

Preservation is an inherently sustainable practice. Our field has known and promoted this fact for decades. We cannot stop there. If a majority of Americans want corporations, individuals and government to do more to slow climate change then preservation needs to be an important part of the conversation about how to make existing buildings more energy efficient and how to decarbonize. This requires knowing which energy saving features will result in the greatest energy reduction with the least impact on the building for an acceptable cost. The National Park Service Technical Preservation Services provides [sustainability standards and guidelines](#), but our field would benefit from training courses covering the following topics in greater depth.¹⁷

STEP ONE - EVALUATE EXISTING CONDITIONS

We can advise building owners to gather data through an energy audit and a building systems evaluation. This is an opportunity to partner with architects and energy companies to provide no- or low-cost services. The Chicago Bungalow Association's [Home Energy Savings Program](#) is one model where the local electric and natural gas companies conduct assessments and homeowners may qualify for free energy saving products and weatherization services.¹⁸ People living in older properties are led to believe that replacing existing windows and doors is the solution to reducing their energy bills, but this is not accurate. Data shows that the highest percentage of thermal loss is through walls, then roofs and windows/doors, floors and chimneys.

¹⁵ "What is Climate Change?" United Nations, undated. Accessed August 28, 2022.

<https://www.un.org/en/climatechange/what-is-climate-change>

¹⁶ Tso, Kathryn. "What is sustainability? Is it the same as taking action on climate change?" MIT Climate Portal, March 30, 2021. Accessed August 28, 2022. <https://climate.mit.edu/ask-mit/what-sustainability-it-same-thing-taking-action-climate-change#:~:text=You%20might%20have%20heard%20the,contribute%20to%20warming%20the%20planet.>

¹⁷ Grimmer, Anne E., et al. "The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings." National Park Service, Technical Preservation Services, 2011. Accessed September 1, 2022. <https://www.nps.gov/tps/standards/rehabilitation/sustainability-guidelines.pdf>

¹⁸ "Home Energy Savings Program." Chicago Bungalow Association, 2022. Accessed August 21, 2022. <https://www.chicagobungalow.org/energy-savers>

“What do we need to do as a climate change solution? Every property is different. We need an energy analysis of every house before work is done and then logical steps to make the home efficient – first, consider its natural response to its climate and then design a system. We need better solutions and case studies.”

Nathan Kipnis, FAIA, LEED BD+C
Former Co-Chair, AIA National
2030 Commitment Working Group
Principal, Kipnis Architecture + Planning
Evanston, Illinois
November 20, 2019

STEP TWO - INTEGRATE PASSIVE DESIGN MEASURES

Integrating passive environmental control measures should be the next step after evaluating what a building needs to improve energy efficiency. Passive design utilizes natural energy sources such as sunlight, wind or temperature differences to accomplish energy efficiency and decarbonization without using electricity or fuel.¹⁹ For example, not all owners understand how their building’s historic ventilation systems work. We can help extend the time that the air conditioning stays off by utilizing the original cooling features, such as demonstrating the operation of a transom window, or both sashes of a double-hung window, to circulate warm and cool air. Something as simple as closing blinds or curtains during the day, and opening doors and windows for cross ventilation, may help. Though they require electricity, whole house fans can also reduce the use of chemical-based air conditioning. Adding interior or exterior storm windows and insulating sash-weight pockets can reduce thermal transfer. And, though they may seem antiquated, window awnings can cool with little to no electricity and shutters can help guard against storm damage.

STEP THREE - CONSIDER ACTIVE DESIGN SOLUTIONS

Active design solutions are those that either use or produce electricity.²⁰ Some architects are trying to design buildings that have very low or no net energy use. For example, [Passive House](#) is a 30-year-old, German concept, gaining traction in the U.S., to build or refurbish homes that use little energy, but are also comfortable and affordable. The Passive House Institute has a guide to refurbishing existing homes using this concept focusing on thermal insulation, airtightness and renewable energy sources.²¹ Deep energy retrofits (DER) are another concept where architects and builders seek to reduce a building’s energy consumption (operational carbon) by at least 50%. To achieve this goal, DER’s make extensive systems and material changes, including, in some cases, exterior insulation over the existing structure.²² Unless a

¹⁹ Spacey, John. “Design: Passive vs Active.” *Simplicable*, June 1, 2017. Accessed on August 31, 2022. <https://simplicable.com/new/passive-design-vs-active-design>

²⁰ Ibid.

²¹ The Passive House Institute: https://passivehouse.com/02_informations/04_refurbishment/04_refurbishment.htm

²² “Remodel Project: Deep Energy Retrofit.” *Green Building Advisor*, undated. Accessed August 22, 2022. <https://www.greenbuildingadvisor.com/green-basics/remodel-project-deep-energy-retrofit>

trained professional who understands existing buildings completes the DER, the process can result in detrimental outcomes like dangerous indoor air quality and moisture problems.²³ Furthermore, manufacturing, transporting and adding new material produces upfront carbon emissions that reduces the overall net energy savings.

Purchasing green power moves energy use to more sustainable sources and promotes decarbonization. Local nonprofit community solar programs and energy utilities may offer consumers the option of purchasing their power from renewable sources, or the purchase of carbon offset credits to spur investment in sustainable power generation. The United States Environmental Protection Agency offers a helpful guide to purchasing green power.²⁴

The National Trust in the U.K. is reactivating its sites' historic hydropower for renewable energy production. Siân Phillips, the Trust's Hydro Technical Specialist, evaluates, designs and manages green power production at their historic dams and sluices. Ten of the Trust's hydropower sites generate over 4.1 million kilowatt hours of energy used by both the organization and sold to the national power grid, helping to generate revenue to operate their 500+ sites.²⁵

“People don’t see the connection between our past and climate change. These people of the past did have bold risk-taking - how self-sufficient they needed to be. We’ve lost that in our nervousness around protecting [these places]. It’s a nod to them - their bold risk-taking. They may have already had solutions built in. We must learn and adapt.”

Siân Phillips
Hydro Technical Specialist
National Trust
Shrewsbury, England
November 6, 2020 (via Zoom)

Other available resources can reduce fossil fuel dependence. Switching to all-electric heating and cooling options is easier with the growing availability of heat pumps. Air source heat pumps transfer heat drawn from outside air into indoor spaces. Ground source heat pumps harness the heat energy stored in the ground. Air source heat pumps are becoming more common than ground source because they are less expensive to install and maintain.

A building's roof, those of secondary structures, and / or a yard, can also house photovoltaic (solar) panels or shingles depending on the climate and roof orientation. National Park Service Technical Preservation Services published guidance on [how solar panels can meet the Secretary](#)

²³ Ansel, Michael. “The Folly of Deep Energy Retrofits.” *Remodeling*, June 21, 2011. Accessed August 28, 2022. <https://www.remodeling.hw.net/business/design/the-folly-of-deep-energy-retrofits>

²⁴ “Guide to Purchasing Green Power.” U.S. Environmental Protection Agency, September 15, 2021. Accessed on August 21, 2022. <https://www.epa.gov/greenpower/guide-purchasing-green-power>

²⁵ “Hydropower.” National Trust, undated. Accessed August 22, 2022. <https://www.nationaltrust.org.uk/features/hydropower>

[of the Interior Standards](#).²⁶ Proactively promoting solar arrays on historic buildings can dispel the myth that we care more about buildings and aesthetics than the people using them. This could include local governments or preservation organizations sending solar array guidelines to the owners of designated properties, hosting solar educational seminars, and collecting and distributing case studies such as those found on the [Historecycle](#) website.²⁷

Energy, accessibility and life safety codes, and/or our own conscience, may demand significant material interventions that our field can work to accept, and even embrace and promote, in the future. Insulating attics can dramatically reduce up to 25% of heat loss that happens through a building's roof. Wall insulation can reduce that up to 35% more. Accessibility needs will grow as the baby boom generation ages — the second largest U.S. population group at 73 million people.²⁸ Partner with architects, aging and disability advocates to design affordable accessibility measures can help adults who want to age in place in their historic homes.²⁹ Safety must be prioritized when lives are at risk. Incorporating seismic retrofitting, flood and sea-level rise mitigation measures, and drought and wildfire preparedness, can require major structural, mechanical and landscape interventions. These interventions may remove historic material, be visible and irreversible, making them incompatible with the Secretary of the Interior's Standards for Rehabilitation.³⁰ The standards are where the discussion begins. Ultimately, building code requirements may supersede saving all of the historic material. To be more relevant to more people, we must be willing to compromise.

STEP FOUR - CONSIDER THE ECOSYSTEM

Historic places exist in a broader natural landscape. They are part of an ecological system where further steps can enhance the sustainability of a building or buildings. Growing and preserving food on a property reduces the carbon needed to cultivate, prepare and transport food from elsewhere. Woodlawn, a National Trust for Historic Preservation historic site, is one model where partner Arcadia Center for Sustainable Food & Agriculture runs a sustainable food program with produce grown on site.³¹ This is in keeping with the site's historic agricultural use.

Planting trees and green roofs reduces the heat island effect. In wildfire prone areas, clearing trees and brush away from buildings may be necessary. Using native plantings or plants needing less water, as well as incorporating storm water retention and pollinator gardens, can repair

²⁶ "Solar Panels on Historic Buildings." Technical Preservation Services, National Park Service, undated. Accessed August 22, 2022. <https://www.nps.gov/tps/sustainability/new-technology/solar-on-historic.htm>

²⁷ Historecycle webpage: <https://www.historecycle.com/home>

²⁸ America Counts Staff. "2020 Census Will Help Policymakers Prepare for the Incoming Wave of Aging Boomers." U.S. Census Bureau, December 10, 2019. Accessed on September 1, 2022.

<https://www.census.gov/library/stories/2019/12/by-2030-all-baby-boomers-will-be-age-65-or-older.html>

²⁹ See the Age in Place website for more at <https://ageinplace.com/aging-in-place-basics/what-is-aging-in-place/#:~:text=Aging%20in%20place%20is%20a,time%20as%20their%20needs%20change>.

³⁰ See the 2017 Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings," pp. 69-73 for treatment guidelines for code-required work. Accessed September 1, 2022. <https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>

³¹ Arcadia Center for Sustainable Food & Agriculture: <http://arcadiafood.org/>

ecosystems. Consult an arborist and horticulturalist to understand which native trees and plants can withstand climate change impacts on your community. Understand which plants will thrive in a changing environment without needing abundant water or fertilizers and those that will not introduce insects, viruses or bacteria that will harm other flora and fauna.

The Trustees of Reservations in Massachusetts offers a more strategic model around adapting its ecosystem to climate change. The Trustees is the largest private coastline owner in the state. It has prepared a broad [coastal strategy](#) to prepare for sea level rise, intensified storms and shoreline erosion that will impact its historic and natural sites.³²

Finally, reinvesting in historic walkable, bike-friendly and/or transit-friendly communities has carbon-saving benefits. We talk about preserving sense of place in such communities, but we can add decarbonization to our work's benefits.

ENVIRONMENTAL JUSTICE

Climate change is not just an energy efficiency or ecological issue. It is the greatest environmental justice issue facing our world. Many of the aforementioned climate mitigation measures come at a substantial cost. Yet, those most vulnerable to climate change impacts have the fewest resources to prepare. A 2021 [U.S. Environmental Protection Agency study](#) showed “the most severe harms from climate change fall disproportionately upon underserved communities,” especially racial and ethnic minority communities, “who are least able to prepare for, and recover from...the greatest impacts of climate change.”³³

“We should be at the forefront of solving environmental inequity.”

Brent Leggs
Executive Director
African American Cultural Heritage
Action Fund
National Trust for Historic Preservation
Chicago, Illinois
December 10, 2019

To be at the forefront of dismantling environmental inequity, we have two, under-resourced communities to work with:

- 1) Current residents affected by climate change; and,
- 2) Climate refugees that may become our future neighbors.

³² “Adapting shoreline today in preparation for tomorrow.” The Trustees of Reservations, January 31, 2022. Accessed August 22, 2022. <https://thetrustees.org/coast-sustainability/adapting-shoreline-today-in-preparation-for-tomorrow/>

³³ “EPA Shows Disproportionate Impacts of Climate Change on Socially Vulnerable Populations in the United States.” U.S. Environmental Protection Agency, September 2, 2021. Accessed August 22, 2022. <https://www.epa.gov/newsreleases/epa-report-shows-disproportionate-impacts-climate-change-socially-vulnerable>

For the first group, we need to offer funding and programs that make weatherization and climate change resilience more accessible and affordable. Income-eligible households, currently at or below 200% of the Federal Poverty Level, may qualify for the U.S. Department of Energy's [Weatherization Assistance Program](#) (WAP), and additional state programs, such as [New York State's WAP](#).³⁴ The federal Inflation Reduction Act (IRA) of 2022 provides home energy rebates to low income households for weatherization and heating and cooling electrification. Homeowners with income tax liability can qualify for tax credits to purchase electric vehicles and install air source heat pumps and solar panels. The IRA also funds environmental justice priorities, including:

- Fifteen billion dollars for low-income and under-resourced communities for clean energy production and carbon emission reductions;
- Three billion in block grants to monitor air quality and provide for extreme weather resilience;
- Three billion to reconnect communities divided by highways; and,
- One billion toward making public housing more energy efficient.³⁵

Under-resourced and resourced building owners need programs to help them tackle weatherization, hazardous material mitigation and basic maintenance. Do-it-yourself training models to look at include [Brick + Beam Detroit](#), the [Chicago Bungalow Association](#), the [San Antonio Rehabber Club](#) and Durham's [Home Repair Lab](#). The programs include construction skills mentoring, proper remediation techniques, reduced-cost or free weatherization products and model climate resilience projects adapted to local weather events. Tool libraries make necessary, yet expensive hand and power tools accessible to those wanting to do their own work (find tool libraries at www.localtools.org.)

By 2050, our neighbors may some of the over one billion people expected to be threatened with climate displacement.³⁶ Already an average of 21.5 million people per year are displaced as climate migrants / refugees.³⁷ Climate refugees will need our support and preparation is key. People escaping climate disasters will look for communities near family and friends, as well as

³⁴ U.S. Department of Energy Weatherization Assistance Program: <https://www.energy.gov/eere/wap/how-apply-weatherization-assistance>. New York State Weatherization Assistance Program: <https://hcr.ny.gov/weatherization>

³⁵ Leber, Rebecca. "The US finally has a law to tackle climate change." Vox, August 16, 2022. Accessed September 1, 2022. <https://www.vox.com/policy-and-politics/2022/7/28/23281757/whats-in-climate-bill-inflation-reduction-act>

³⁶ Ecological Threat Register press release, Institute for Economics and Peace, September 9, 2020. Accessed August 22, 2022. <https://www.economicsandpeace.org/wp-content/uploads/2020/09/Ecological-Threat-Register-Press-Release-27.08-FINAL.pdf>

³⁷ "Frequently asked questions on climate change and disaster displacement." The U.N. Refugee Agency, U.N. High Commission for Refugees, November 6, 2016. <https://www.unhcr.org/uk/news/latest/2016/11/581f52dc4/frequently-asked-questions-climate-change-disaster-displacement.html>

access to social services, health care, job retraining, employment and housing.³⁸ Preservation can contribute by increasing the supply of affordable, energy efficient housing and helping to grow the rehabilitation and weatherization job sectors.

THE HISTORIC PRESERVATION FUND

So far, this blog's focus has been on energy efficiency and carbon reduction. But, climate change necessitates a conversation about the Historic Preservation Fund, the financial underpinning for much of the work we do. The Historic Preservation Fund (HPF), which is underwritten by federal offshore oil and gas leases, is the federal funding source for the state historic preservation offices and certified local government grants. The HPF was created in 1977 with the idea that one non-renewable resource could sustain another. Global warming as a concept was still relatively new to the public in 1977 when 91% of our energy still came from fossil fuels.³⁹ Today, 79% of our energy is from non-renewable sources and that number will continue to decrease.⁴⁰ Conclusive, science-based evidence points to human resource consumption as the leading cause of climate change. If preservation wants to be a part of the climate change solution, then isn't taking fossil fuel lease revenues contrary to our goals? By taking this funding, we depend on perpetual offshore oil and gas drilling. How long will offshore oil reserves be productive? When fossil fuel demand diminishes, it will reduce the lease income. To pass the Inflation Reduction Act, congressional Democrats made a concession to Senator Joe Manchin (D-WV), who required increasing offshore oil lease sales to give his vote.⁴¹ Will Congress curb these leases in the future in their next climate change commitment? Either way, preservation has an oncoming funding problem that we must get ahead of.

We can make the case for alternative funding sources for preservation by considering historic resources as both non-renewable and renewable. They are non-renewable because once they are demolished, they are gone. They are also renewable because they can be replenished, adapted to current conditions and reused for hundreds of years. If we are to be effective participants in the climate change debate, we will need to reframe historic buildings as a key renewable resource. People generally associate positively with renewable resources like solar and wind.⁴² This positivity needs to extend to include historic places. With this in mind, we will need to explore federal funding sources that are consistent with mitigating climate change.

³⁸ Shapiro, Ari, Matt Ozug and Wynne Davis. "The first step in preparing for surging climate migration? Defining it." NPR, February 23, 2022. Accessed August 22, 2022. <https://www.npr.org/2022/02/23/1082370619/migration-climate-change-disaster>

³⁹ The term "global warming" was introduced into the public domain in 1975. "A brief history of climate change." BBC, September 20, 2013. Accessed August 22, 2022. <https://www.bbc.com/news/science-environment-15874560>

⁴⁰ "Total Energy." U.S. Energy Information Administration, undated. Accessed August 22, 2022. <https://www.eia.gov/totalenergy/data/browser/#/?f=A&start=1949&end=2021&charted=4-6-7-14>

⁴¹ Leber.

⁴² Kennedy, Brian and Alison Spencer. "Most Americans support expanding solar and wind energy, but Republican support has dropped." Pew Research Center, June 8, 2021. Accessed August 22, 2022. <https://www.pewresearch.org/fact-tank/2021/06/08/most-americans-support-expanding-solar-and-wind-energy-but-republican-support-has-dropped/>

LEADERSHIP OPPORTUNITIES AHEAD

The public is increasingly recognizing adaptive reuse as a sustainable practice. That is a win for the preservation field. However, the scale of needed energy efficiency upgrades and decarbonization efforts is daunting. The U.S. has approximately 112 million buildings, including 100 million single-family homes.⁴³ Of these, approximately 50 million are at least 50 years old.⁴⁴ Collaborating with government and nonprofit partners on policy changes and resource programs is likely the only scalable approach.

Preservationists can, and should, do more to address the climate emergency that we are facing. Proactive energy efficiency and decarbonizing efforts will help to reduce carbon emissions, but we will continue to see the devastating effects of extreme weather and sea level on historic places. As preservation enhances our relevance to more people, our growing resources can better support the scale of needed planning and interventions. Our practices will need to adapt, as well, as our local environments change. Until then, we can leverage our limited resources through proactive planning, including updating asset surveys (including below-ground resources), integrating weather modeling data, developing new mitigation and adaptive solutions and interpretive methods and creating a thoughtful, inclusive and equitable rubric to make the difficult choices ahead.

YOUR INPUT IS VITAL

Your thoughts on this and forthcoming topics are not only welcomed, they're imperative to ensuring this project is inclusive, with well-considered outcomes. So post away on Landmarks Illinois' [Facebook](#) and [Twitter](#) feeds and my [LinkedIn](#) page (blog comments are not enabled)! I'll collect and consider your comments to inform future blog posts and the project's outcomes published in the forthcoming Relevancy Guidebook to the U.S. Preservation Movement (working title).

DISCUSSION QUESTIONS

- How is climate change affecting your community? Who is most impacted? Are there impacts on the built environment?
- What are the most needed resources for affected communities relating to the existing built environment?
- How knowledgeable do you feel you need to be in order to talk confidently about climate change mitigation, adaption, resilience, energy efficiency and decarbonization? What would you need to feel comfortable persuading others that preservation is a sustainability tool?

⁴³ Data collected from the [U.S. Energy Information Administration](#) as of 2018, the [2019 U.S. Census American Housing Survey](#) and [Construction Physics](#).

⁴⁴ "Table HC2.3 Structural and geographic characteristics of U.S. homes by year of construction, 2015." U.S. Energy Information Administration, May 2018. Accessed August 31, 2022.
<https://www.eia.gov/consumption/residential/data/2015/hc/php/hc2.3.php>

- In what ways can you help mitigate climate change impacts that would demonstrate preservation's relevance to a broader community?
- Which local or regional agencies or organizations can you collaborate with to offer energy efficiency and decarbonizing resources to historic property owners and tenants?
- In what ways can you encourage and engage in planning, and with whom, to help future climate refugees that move to your community?
- What are your ideas for preservation's long-term governmental funding sources?

ADDITIONAL PRESERVATION AND CLIMATE CHANGE TOOLS

*NOTE: Landmarks Illinois' website does not recognize italics, which necessitates using quotation marks for titles. We are aware that this format does not follow proper citation format according to the Modern Language Association (MLA).

Issue Papers

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