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Building Reuse: A Proven Climate and Economic Strategy

The greenest buildings are buildings that already exist. With nearly half of America's 125 million buildings having reached fifty years old, policies that support the preservation, retrofit, and adaptive reuse of older buildings offer an innovative and economically sound approach to reducing the nation's thirty-one percent contribution to annual emissions from building operations.¹

- Reuse and retrofit of older and historic buildings avoids the release of embodied carbon emissions—the carbon emitted by the manufacture, transport and assembly of materials—from the construction of new buildings.
- Research shows that building reuse avoids 50-75% of the embodied carbon emissions that an identical new building would generate because renovations typically reuse most of the carbon-intensive parts of the building — the foundation, structure, and building envelope.²
- Reducing embodied carbon through the preservation, reuse, and retrofitting of existing buildings helps attain emission reduction goals and offers an innovative strategy that can be replicated on a global scale.

Building Demolition Wastes Valuable Climate Assets

Thirty-four percent of buildings are demolished due to land-use concepts that have nothing to do with the physical state of the structural systems.³ Each year, approximately 1 billion square feet (about the area of Manhattan) of buildings are demolished and replaced with new construction in the United States. According to the EPA, 600 million tons of

Reduce Operational Carbon by Making Older Buildings More Energy Efficient

Retrofitting existing buildings dramatically reduces its operational carbon emissions in the future. Operational carbon is released as the result of heating, cooling, lighting, cooking, etc., within the building.

Retrofitting buildings to increase their energy efficiency has the potential to significantly reduce the amount of operational carbon released into the atmosphere. Building reuse in urban environments has the potential to achieve half of carbon reduction targets.⁵

Improving the energy performance of existing buildings through rehabilitation can also be eligible for federal Historic Tax Credits. Historic rehabilitation has a thirty-eight-year track record of creating 3 million jobs and generating \$90 billion in private investment. Studies show that residential rehabilitation creates 50% more jobs than new construction.⁶

¹ The Environmental Protection Agency, "Fast Facts 1990 – 2020 National-Level U.S. Greenhouse Gas Inventory"; April 2022.

² Brockman, Clark, Lindsey Naganuma. "Combating Climate Change: A Study of Embodied Carbon." GreenBiz, November 8, 2021.

³ O'Connor, Jennifer. "Survey on Actual Service Lives for North American Buildings." October 2004.



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construction and demolition (C&D) debris were generated in the United States in 2018, with demolition waste representing more than 90 percent of the total debris. Most of that waste is hauled using trucks producing air pollution to landfills that often occupy land formerly used for farming and forestry.⁴

Rehabilitation is Now Preferred Over New Construction

It can take up to eighty years for a new energy-efficient building to overcome, through efficient operations, the climate change impacts created by its construction. While carbon measuring methods continue to evolve, the American Institute of Architect's (AIA) 2030 Commitment—program has offered the design community a way to publicly show their dedication to a carbon-neutral future since 2007. Calling on designers to achieve carbon-neutral buildings by 2030, the 2020 expansion of the program to include embodied carbon represented data growth of more than 250 million gross square feet of tracked embodied carbon the following year.⁷

In addition to supporting climate goals, rehabilitation is good business. According to the AIA Architecture Billings Index, renovations have surpassed new construction for the first time in two decades⁸ and this market trend has been underscored by American architecture schools' increasing emphasis on embodied carbon.⁹

Repurposing old buildings—particularly those that are vacant—reduces the need for construction of new buildings and the consumption of land, energy, materials, and financial resources that they require.

Support Policies that Promote Building Reuse

- Strengthen the Historic Tax Credit Incentives
 - Through the federal historic tax credit, historic rehabilitation has a more than 40-year record of accomplishment in the U.S.—creating 3 million jobs, rehabilitating 47,000 buildings, and generating \$181 billion in private investment. This progress has been particularly impactful for small, midsize and rural communities.
- Support and Reauthorize the Historic Preservation Fund (HPF)
 - The HPF needs robust funding to support survey and digitization efforts that will significantly aid in efforts to address mitigation and planning for climate-related disasters while preserving irreplaceable historical and cultural resources.

⁴ U.S. Environmental Protection Agency. "Sustainable Management of Construction and Demolition Materials." March 8, 2016.

⁵ Rockwool. "Understanding the Potential of Energy Retrofits." AIA: American Institute of Architects, January 12, 2021.

⁶ "Federal Tax Incentives for Rehabilitating Historic Buildings." National Park Service, Technical Preservation Services, March 2022.

⁷ American Institute of Architects. "AIA 2030 Commitment By the Numbers: Embodied Carbon." 2022.

⁸ Richards, William. "Renovation claims 50% share of firm billings for first time." AIA: American Institute of Architects, May 8, 2022.

⁹ Bernstein, Fred A. "Architecture Schools Begin to Put Embodied Carbon Front and Center." Architectural Record, September 2022.