



The Sustainability of Historic Preservation

Martha Canipe

Historic Preservation is often referred to as “the ultimate Recycling,” but its ability to Reduce and Reuse may be even more valuable for present and future sustainability. Reusing an existing structure reduces waste, conserves energy, and increasingly fortifies buildings against climate change. Architect Carl Elefante famously said it best, “The greenest building is the one that is already built.”

Older buildings contain embodied energy — the total energy required for the extraction, processing, manufacture and delivery of building materials to the building site.

It requires energy to:

- Demolish the existing structure
- Haul away the waste from the original building
- Extract raw materials
- Manufacture construction-ready building materials
- Transport building materials to a construction site and
- Assemble the physical structure (<https://thecraftsmanblog.com/greenest-building-is-the-one-already-built/>)

In 2011, the Brookings Institute projected that approximately one-quarter of all existing building stock in America would be demolished and replaced between 2005 and 2030! Not only does this demolition release toxins and pollution into the environment, it generates an astonishing amount of solid waste, clogging landfills. Preservation economist Donovan Rypkema has studied the data for decades. Recent studies by his firm PlaceEconomics show that demolishing just a modest sized house generates 62.5 tons of waste — the average person would need 79.5 years to produce that same amount of waste. Now multiply that by a quarter of our building stock!

A separate environmental study done in Maryland compared the differences in the environmental impact of rehabilitating a 50,000 square foot historic industrial building vs. building a new structure at the edge of town. Among their findings were:

- a 20%-40% reduction in Vehicle Miles Traveled
- a reduction of travel related CO2 by 92-123 metric ton
- retained embodied energy of 55,000 Million BTUs
- 5.2 acres of greenfield land preserved
- 2.500 tons less demolition debris in a landfill
- \$100,000 equivalent of natural resources saved and
- a savings of between \$500,000 and \$800,000 in infrastructure investment (<https://www.placeeconomics.com/wp-content/uploads/2020/01/City-Studies-WP-Online-Doc.pdf>)



Around 50% of a building's total energy requirements are used during its creation, and about half of all greenhouse gases are produced through the construction, demolition and operation of buildings. It can take decades to offset a building's initial carbon footprint — even in today's LEED buildings. Reusing a structure not only helps offset that carbon production but retrofitting of older buildings increasingly includes new technologies like solar panels and green roofs. (In fairness, Historic Resource Commissions are still figuring out when, where and how to incorporate them.) Given that building rehabilitation generally generates about 50% more jobs than new construction, you have to wonder why reuse of existing structures isn't an integral part of any conservation/environmental policy?

Additionally, pre-1970s buildings have been shown to be naturally energy efficient. As Stephanie Meeks explains in *The Past and Future City* (2016), “many older buildings are inherently green by design through features like thick walls, high ceilings, use of daylight, operable windows, awnings, and generous eaves and porches. They reflect the wisdom... of earlier generations to keep places naturally warm in winter and cool in summer.” And that older structure often contains higher quality building materials along with already existing infrastructure connections.

Demolishing, rather than reusing, our older building stock is a major contributor to environmental waste. Rehabilitation of an existing building is almost always the cost-effective choice, a local economic driver and an environmentally responsible reinvestment in our communities. Sustainability is an essential part of historic preservation; Reduce, Reuse, Recycle!

Further References

<https://www.placeeconomics.com/wp-content/uploads/2020/01/City-Studies-WP-Online-Doc.pdf>

https://living-future.org/wp-content/uploads/2016/11/The_Greenest_Building.pdf

<http://www.sohosandiego.org/reflections/2009-1/environmental.htm>