

Old is Gold for Sustainable Buildings

By Kristen Olson, Historic Ithaca's Preservation Services Coordinator

Maybe you've heard the phrase, "the greenest building is the one that's already built." But what exactly does it mean?

When it comes to sustainable buildings, old is gold for several reasons. First, reusing existing buildings reduces the demand for new materials and conserves the embodied energy of old materials. Embodied energy is the sum of all of the energy inputs that go into extracting, processing, manufacturing, transporting, and installing all of the parts of a building. Compared with the energy inputs required to demolish and dispose of an existing building and replace it with a new one, rehabilitating the existing building clearly saves a lot of energy.

But buildings also use a lot of energy to operate, accounting for about 85% of a building's total energy use over its lifespan. It is often assumed that older buildings are "energy hogs" and their replacement with new "green" buildings is a sustainable practice. However, the General Services Administration found that utility costs for the federal government's historic buildings were on average 27% lower than utility costs for modern buildings.

Older buildings usually have built-in, practical features that reduce energy consumption, such as hot-water heat, comfortable ceiling heights, double-hung windows, transoms, louvered shutters, and sensitive siting. Many of these features are being rediscovered as "green" technologies today, but in their own time they were simply common sense.

There is also room in historic buildings for cutting-edge sustainable technologies. Beyond energy star appliances and low-flow plumbing fixtures, older buildings can be retrofitted with radiant heat, geothermal, solar, and greywater systems. Low-tech storm windows, weather stripping, attic or basement insulation, and even wall insulation can be added without damaging historic character.

Older buildings were built to last. We've heard the phrase, "they don't make them like they used to," but in the case of older buildings, we can't build them like we used to because the materials are no longer available. For example, the old-growth wood found in older buildings is naturally denser, stronger, and more rot- and insect-resistant than today's wood products. From wood windows to slate and metal roofs, traditional building materials were selected for longevity, whereas many modern building materials are engineered to be easy to manufacture and install, with a shorter lifespan.

Besides their shorter lifespan, many newer materials produce toxic byproducts or off-gassing, cannot be repaired when broken (the maintenance-free myth), or won't biodegrade. Vinyl windows, touted by their manufacturers as energy-saving, are really energy-wasting when their full impact is taken into account. Toxic to produce, vinyl windows typically fail before they reach the 30 years of service required to recoup the cost of their installation. A traditional wood window, properly maintained and paired with a wood or aluminum storm window, can achieve energy performance on par with most modern replacement windows. A wood window can last

indefinitely when properly maintained, whereas a broken vinyl window is almost certainly destined for the landfill.

The sustainability of older buildings also goes beyond the energy impacts of the structures themselves. Buildings located in older, traditional communities often have ready access to green space, public transportation, schools and businesses, and cultural attractions, and are bicycle- and pedestrian-friendly. Utilities and infrastructure, including firefighting and other services, are already in place. Preservation is economically sustainable, too, creating local, green, skilled jobs and fostering reinvestment in existing communities.

Here in Tompkins County, our businesses and communities are already ahead of the curve when it comes to recycling and composting, exploring alternative energy, and buying local. Let's exercise the same commitment to sustainability in making the best use of our built environment.

For more information about historic preservation in Tompkins County, visit www.historicithaca.org.

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