The Value of Aged Buildings

Stephen Deal

Older commercial structures, such as this old Kress Building in Montgomery, Alabama, are great candidates for adaptive reuse due to their character and well chosen materials.

Buildings are the puzzle pieces that interlock to form urban life. They are cluttered, complicated and can change almost as often as the residents or shop owners who care for them. But old buildings have value, not just in relating urban history, but in offering environmental benefits. Those benefits can be found in reusing existing materials, but also may be more hidden.

In the best circumstances, a building constantly evolves. In an era dominated by sprawl, however, the expectation is that a new building will be constructed for a specific user with little consideration given to the structure's capacity to adapt to changes in the building's tenants and use. According to the National Trust for Historic Preservation (National Trust), the United States demolishes

approximately 1 billion square feet of existing buildings and replaces those structures with new construction each year. However, older buildings have value: they embody decades of trial and error refinement and experimentation with types of materials and construction techniques, surviving because somebody determined what materials and configuration linked the tenants with the city.

Older buildings can be marvelous engines of efficiency because of the concept of embodied energy. Embodied energy represents the energy required to complete a building.[1] It includes all the processes used to build a structure, from mining and timber harvesting, to manufacturing, transportation, and installation of the materials, as well as the demolition and disposal of old materials. The concept of a building's energy use includes not only embodied energy, but the operational energy needed to run its building systems over its life span, and the transportation energy needed to bring its occupants to and from the building. For example, the National Trust reports that Seattle's 80,000-square foot Grand Central Arcade constructed in 1890 was estimated in 1979 to have 131 billion BTUs stored in the existing structure, considering its embodied energy.[2] Conservationists argued that conserving the building would save an equivalent amount of BTUs, and it was converted into retail and not destroyed.

The National Trust studied the embodied energy of old buildings against newly built energy-efficient structures.[3] The researchers discovered that it takes between 10 and 80 years for a new energy-efficient structure to overcome the negative climate change impacts related to new construction, even when that new building is 30 percent more efficient than an average-performing existing building. The study found that reuse of materials and retrofitting offered the most benefits to the climate. To quantify the environmental savings even further, the National Trust study found that if the City of Portland retrofitted just 1 percent of its office buildings and single family homes over the next 10 years it would help meet 15 percent of that county's total carbon dioxide reduction targets over the next decade.

Building reuse and salvage not only have significant environmental savings, they are also an important resilience component for geographically isolated communities. What once was considered salvage, now may be thought of as recycling. For example, the Village of Ocracoke on a North Carolina barrier island reclaimed old structures and building materials for village use, primarily because large trees were not available for framing.[4] This local building tradition continued even in the modern era, with notable reuse projects occurring in the 1940's and 50's. When the old Coast Guard station and Navy base were abandoned following the 1944 Great Atlantic hurricane, enterprising residents moved many of the structures closer to town and converted them into residences. A former Navy chapel became a vacation rental duplex and an old Navy barracks was converted into a fellowship hall for a church. It was also not uncommon for shipwreck salvage to be used as framing for new residences and buildings.

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This type of materials recycling was common in New Orleans prior to the Civil War, when many New Orleans homes were constructed from barge board. Barge board, as the name indicates, was wood taken from river barges, which were generally broken up once they had completed their haul down the Mississippi River.[5] The rough-hewn wood was once a cheap building supply, but now is in demand for the history it tells.

These historical accounts show that many cities have a history of incorporating building salvage into refining their community. Clever workarounds and locally sourced materials lends older buildings a freedom and flexibility that is seldom found in newer structures; old does not always equate to inferior.

The value of older structures extends beyond the basic proposition that it is generally more efficient to reuse than build new. Many older buildings simply perform better than newer structures and quite a bit of that can be attributed to the traditional building materials and methods employed. According to the National Trust, "data from the U.S. Energy Information Administration

demonstrates that commercial buildings constructed before 1920 use less energy, per square foot, than buildings from any other decade of construction."[6] Part of this can be attributed to the fact that older structures in urban areas frequently have more shared walls, reducing heating and cooling expenses.

The superior performance of older buildings was on display in a 2014 report compiled by the City of New York, which summarized the water and energy use of 23,000 buildings in the city.[7] The data showed that the buildings that displayed the least energy use per square foot were at least 70 years old.[8]

Building materials also should be credited. According to one expert, "what you want in building material is a quality of forgiveness."[9] Older structures and their materials succeed in large part because they are highly malleable. Also, traditional materials such as wood and brick age in such a way that their problems manifest themselves on the surface and so are easily identified. In other words, "they look bad before they act bad." Some newer materials, such as plastic or aluminum siding, may effectively hide problems under a slick veneer, until a major maintenance problem exists.

Also, older buildings may perform better because they often employ superior construction materials which, either due to poor resource management or stock depletion, simply are not viable for large construction ventures anymore. In the Gulf Coast region this is especially true for older structures prized for their use of longleaf pine and cypress, two types of wood that were abundant in the past but rare today. The durability and lasting beauty of these materials is still highly prized by homeowners and other craftsmen. In fact, a small industry is devoted to recovering old pine and cypress "sinker wood" that is embedded in riverbanks and lake bottoms.[10] Many of these old logs can be worth up to a couple of thousand dollars due to their size and their tightly packed grain.

While building reuse seems like a net positive for communities looking to become more resilient, it can be difficult to induce developers, who are often accustomed to greenfield development, to step in and restore old buildings. To encourage private parties to undertake these actions it is necessary for cities and towns to step up and take the guesswork out of adaptive reuse. In order to do that cities must create a systematic framework with a comprehensive inventory of blighted structures to help match viable, older structures with developers and entrepreneurs who can capitalize on those assets.

Huntington, West Virginia is a prime example of a community that has benefitted from the technical assistance of the BAD Buildings Program.

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Endnotes

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