

Cinderella Stories:

ADAPTIVE REUSE OF OLDER BUILDINGS

by Joseph Brinkman, AIA, LEED, and David Miller, LEED

On campuses today, older buildings are being renovated, not only beyond their current condition, but even better than their original condition. When done properly, campus architectural treasures can become high-performance facilities by today's standards.

When to Renovate

When considering renovation there are at least five tests that determine if the effort should be pursued:

1. Land acquisition is unrealistic.
2. Existing infrastructure has capacity.
3. Funding is limited.
4. There is historical value or alumni support.
5. Sustainability is a priority.

If the campus is land-locked, growth is limited to existing acreage. Often the character of a beautiful quadrangle or green space would be destroyed if a new facility is built. Yet when land becomes available, the cost of acquisition can be extremely high, especially when land owners realize the value of the property to the institution.

Most campuses have a utility loop of some kind, typically hot and chilled water. When older buildings are renovated

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Above Top photo: Wilson Hall, Washington University in St. Louis

Above bottom photo: Lela Raney Wood Hall exterior, Stephens College

Above, top image: Selective or complete demolition allows for a more accurate estimate. Above, bottom photo in frame: The detail and character of older buildings is difficult to replace.

“When older buildings are renovated into high-performance facilities, the resulting drop in the utility load allows the buildings to remain on the central system.”

into high-performance facilities, the resulting drop in the utility load allows the buildings to remain on the central system. Additional capacity might even be freed to allow for further use of the loop.

When capital improvement funds are tight, renovating can be the most cost-effective solution. The structure, core and shell are already in place. Further, the detail and character of older buildings are expensive to reproduce. There are some issues that can create larger expenses when renovating though. If extensive demolition or structural work is necessary to convert a building to a new use, these items can cause renovation costs to go up to near or beyond the typical cost of building new structures. In addition to those issues, abatement of hazardous materials such as lead or asbestos can be financially significant and extend schedules beyond expectations. All of these issues should be analyzed and planned for by the project team.

Some buildings have historical or even sentimental value. For example, Lela Raney Wood Hall at Stephens College was

the social hub of the entire campus for years. However, over time, the building was used less and sat nearly dormant, even though it is in the heart of the campus. A plan was launched to restore the hall to its former glory, and allow much needed consolidation of campus administration functions. Key to fundraising for the project was the restoration of the ballroom, where most of the social events on the campus took place. The great memories of the once-active building allowed college alumni to raise the entire cost of the project.

Sustainability will always be important on a campus. Yet one should not assume if a building is being renovated it is inherently a “green” project. Granted, renovating can keep quite a bit of material out of landfills, but some older buildings are not well-suited to every sustainable principle. For instance, large windows are typically found on every side of older buildings. While a new building might limit exposure on the southern or western sides, it is not always possible with adaptive reuse.

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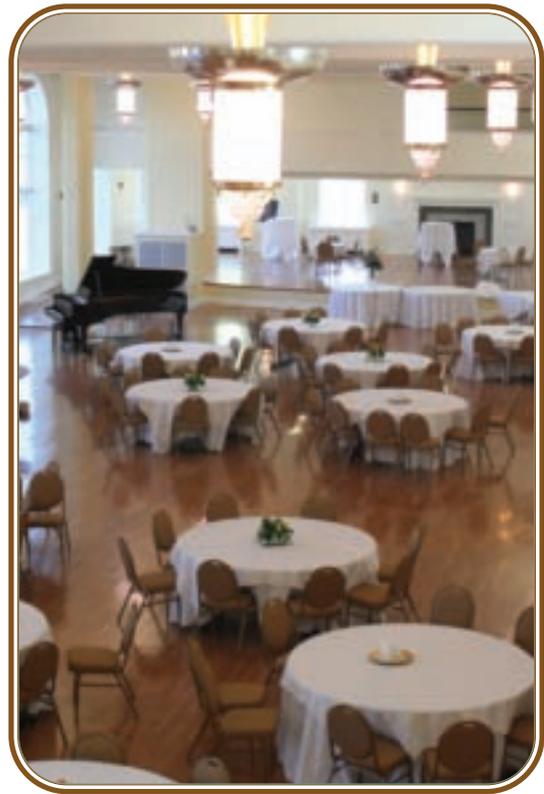
On the other hand, there are clearly times when renovating is not an option. First and foremost the building needs to have the square footage and volume required to accommodate the new program. Trying to put 20 pounds of program into a 10-pound building will likely result in a compromised facility, and will not meet the needs of the department. The spacing of the structural column grid may be restrictive, or the floor-to-floor heights may be unacceptable, especially when adding systems that did not exist prior to the renovation.

Also, there are times when closing a building, or a portion of it, for renovation is unacceptable. Some functions on campus are simply mission-critical; they must stay in operation. If an improvement program involves several buildings on campus, the sequencing of departmental moves may not allow a building to close until another comes back on line. Lastly, some facilities are simply beyond repair. If a facility is neglected for too long, or if the building was not built well in the first place, renovation is probably not a viable option.

Evaluating Facilities

Perhaps the best thing an administrator can do is to bring on an architect and engineer at the beginning of the process. An impartial set of eyes thoroughly assessing a building will go a long way toward avoiding costly mistakes. Any existing information should be made available including as-built

Lela Raney Wood Hall ballroom, Stephens College



Restoring the ballroom at Lela Raney Wood hall was the key to garnering alumni support.



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drawings, facility schedules and uses, and the campus master plan.

Similarly, a contractor with experience in renovation will speed the process, eliminating some of the guess work. A contractor brings cost information to the table, as well as a wealth of knowledge concerning constructability, sequencing, staging, and phasing. The best design in the world will be useless if construction issues escalate the budget beyond a reasonable level. For example, while planning the renovation of Washington University's Wilson Hall, the need for a substantial crane was identified by the builder. A special route had to be mapped to bring a crane to the site in order to avoid underground utility tunnels. Knowing constructability issues early can help managers avoid surprises that lead to costly redesign or change orders during construction.

Prior to finalizing documents, selective or complete demolition is necessary to eliminate as many unforeseen conditions as possible. Unforeseen conditions inevitably lead to change orders

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and additional costs. If the building can be vacated, complete demolition speeds the construction process. The advantage of knowing what is behind walls and ceilings cannot be underestimated. A clean building also presents less mystery to prospective bidders, resulting in more accurate bids and schedule projections.

Chances are, the mechanical and electrical systems in an older building are going to be inadequate. Older buildings were often not designed to be air-conditioned. Further, the demands of air conditioning and modern technology require an electrical capacity well beyond what was anticipated in previous decades. Computers, wireless technology, projection systems, and other technologies add space, generate heat, and use electricity. Further, if the use of a building is being changed, the building must be updated to meet current codes. Lela Raney Wood Hall is such an example. Two completely new stair towers had to be added to provide proper egress. In addition to inadequate egress, most older buildings will require other additional systems such as fire sprinklers and smoke evacuation systems. Space for these systems can be hard to come by.

Turning Challenges into Opportunities

If handled correctly, many of the challenges associated with renovation can be turned into opportunities. Nearly every older facility will have lower floor-to-floor heights than their modern counterparts. Running ductwork is next to impossible. However, a little creativity can uncover potential design opportunities when facing such challenges. The creation of a coffered ceiling allowed a sprinkler system to be “hidden” in Wilson Hall’s lecture room. Through the creative use of soffits and decorative pilasters, new ductwork and data lines were run throughout the building without littering the interior.

Also, the lobby for the building was undersized for new inter-departmental uses. A larger, two-story lobby was created by opening the space above and widening the entry area. The second story corridor became a new curved balcony overlooking the lobby. The formerly

congested area is now a focal point for the building and brings daylight into previously dark areas.

Through careful planning and the proper experience, renovation will remain a viable option for campuses everywhere. ▲



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