A strategic guide for renovating and renewing existing facilities
Jefferson Patterson Park and Museum, Calvert County, Maryland: Barn converted to an archaeological conservation laboratory.
In these challenging times, renovating existing facilities is more important than ever. To help you meet this mission we have compiled a series of case studies that demonstrate the economic benefit and transformational power of renovations.

**SEVEN KEY ISSUES TO CONSIDER:**

1. Identify the factors that trigger a renovation
2. Save money with green improvements
3. Preserve your heritage and historic assets
4. Provide high-tech space at lower cost
5. Find underutilized space
6. Create top-quality teaching and research space
7. Transform the user experience
Identify the factors that trigger a renovation

A small investment in a feasibility study can provide significant savings later.

**Program:** Determine if the building meets the needs of existing or proposed occupants and programs, or if an alternative program or occupant would be better suited to the facility.

**Code:** Confirm compliance with the Americans with Disabilities Act, life safety and other codes. Identify areas requiring correction.

**Building Envelope and Internal Systems:** Consider the performance of existing windows, external walls, and roofs. Determine the payback and cost benefits of improving building performance and possibly generating energy on-site (photovoltaics, wind generation) with an energy audit.

**Building Circulation:** Identify opportunities to increase building efficiency by improving both horizontal and vertical building circulation.

**Aesthetics:** Enhance the aesthetic expression of the structure to create real estate value, improve workplace morale, and enhance the surrounding community.
Designed in the 1970s, the austere University of Virginia School of Law building did not embody the University’s heritage or prestige. The building was hidden behind an expansive sea of surface parking. It featured no real entrance or public spaces and was overcrowded. In spite of its limitations, the existing facility offered the advantages of an adjacent building for expansion and connection to an ample green space and adjacent structure. Rather than build new, University officials opted to create a law “campus” by renovating the two existing buildings and adding connections between them. This idea of buildings framing outdoor spaces is rooted in Jefferson’s design of the historical Lawn at UVA. Following a feasibility study, the resulting facility is one that evokes a sense of pride. New spaces – including a stunning main entrance, and iconic reading room – provide the School of Law with a home befitting its nearly 200 years of history.

“
Ayers Saint Gross took two undistinguished and disconnected buildings and formed an entirely new school, one that gave students, alumni, and faculty a handsome home that reflected our values. The renovation was a transforming moment in our history, and today annual giving among alumni tops fifty percent, putting Virginia in first place among U.S. law schools in alumni participation in support of their school.”

William W. Bergen, Assistant Dean for Administrative Services at University of Virginia School of Law
Save money with green improvements

**Investing in sustainable solutions creates long-term savings and positive community impacts.**

**Free Resources:** Take advantage of natural light and airflow. Older buildings, often designed to capitalize on these free resources, can be renovated to reduce energy consumption and enhance the workplace environment.

**Energy and Water Consumption:** Improve the building envelope and internal systems to reduce energy and water consumption. A 2003 California study equated a 30% decrease in energy use, for a 100,000 square foot (sf) office building, to be worth about $44,000 per year. This equates to a 20-year net present value of expected energy savings worth more than a half million dollars. ¹

**Return on Investment:** Create value and reduce long-term costs. Investors have begun to support green buildings as ones that increase in value and have a lower carbon footprint. In the current economic crisis, banks are more likely to finance more responsible developments with lower maintenance costs. ¹

**Community Investment:** Redevelop a site with existing infrastructure that can serve as a catalyst for other development. Infill sites take advantage of existing density and infrastructure, which often means more opportunities for biking, walking, public transportation, and proximate retail and services.

AYERS SAINT GROSS BALTIMORE OFFICE

Renovations use less – they use less material for exterior walls, structure, floor slabs, foundations, and sometimes interior partitions. Often well-located sites are developed at lower costs. At Ayers Saint Gross, we took full advantage of these factors in the design of our new offices. Located in an industrial complex on a brownfield site facing Baltimore’s Inner Harbor, the new office employs a fully sustainable approach.

To locate senior leaders of the firm adjacent to the main studio, we expanded the footprint of the building to include the space below the former exterior railroad trestle. What may have been considered an “ugly, old railroad structure” has been re-used for functional and beautiful offices. Existing concrete and brick walls were cleaned and exposed, further reducing material consumption. Bike storage and a shower facility to support those who bike to work. Seventeen percent of our staff regularly walk, bike, and use the water taxi or other public transportation to get to work. Restaurants and a gym are a short walk away.

We designed the fit-out and interiors to create a warm, sustainable atmosphere. The existing brick walls were left exposed, desks were built of sustainable wheat board with maple hardwood edge bands, and a carpet of recyclable fibers was chosen. The exposed structure at the ceiling was painted a creamy white to reflect the light. Recycling is strongly encouraged among employees.

The project won three awards upon completion. Some may have seen a worn-out warehouse; we saw an opportunity to improve our operations and our city.
Alumni connect emotionally with the buildings and open spaces they used as students; the value of these connections should not be underestimated.

**Heritage:** Protect the cultural heritage of your institution by restoring buildings of historical importance. Many of these historic structures are valued because of the craft and detail of their construction. Carved limestone, for example, is often too expensive to produce today.

**Beauty:** Capitalize on the beauty (or potential beauty) and strengths of existing structures.

**Style:** Understand what the style of your building represents and how it can be used to your advantage. It is difficult to transform the style of an existing building, and often leads to less satisfying results.

**Preservation:** Understand the difference between preservation and renovation. Preservation projects maintain a facility in a given state while renovations change, improve and alter a facility to fulfill a current need.
The renovation of Parrish Hall at Swarthmore College exemplifies the idea of preserving heritage. While building program, code, systems, and circulation issues were the triggers for the renovations at Parrish Hall, the existing site and aesthetics were recognized as significant assets – perhaps driving the project more than the needs. Built in 1864 as the venerable “Old Main”, Parrish Hall has always housed a broad variety of functions. It stands proudly at the top of an extraordinary allee of trees anchoring the heart of the campus. Swarthmore understood that investing in a completely new student services building was in neither their financial nor academic plans. Instead, they reconsidered Parrish to determine how a renovation might resolve building and program needs and fit within the College’s Quaker heritage.

Since the renovation, student services and support functions are located on the main floor near the central post office and student lounge. The new second floor admissions suite allows prospective students to be received and introduced to Swarthmore in a much more gracious manner, up a new central staircase (or elevator). Student residents also have access to elevators. Life safety improvements included a fire suppression system and new egress stairs.

The renovation focused on 65,000 gross square feet (gsf) at a cost of $11,800,000 and was completed in 24 months while the building remained occupied. A comparable new facility would have cost approximately $400/sf or $26 million.

“An iconic building like Parrish Hall transcends classes, majors, and other affiliations that alumni might have with the College.”

Stephen D. Bayer, Vice President for Development and Alumni Relations at Swarthmore College
Provide high-tech space at lower cost

Consider these cost issues when deciding whether or not to renovate.

Conservation: Save money and resources with a renovation by reducing the cost of construction and site disturbance and conserving energy and raw materials.

Time Savings: Reduce the project schedule and disruption to users by renovating. The average renovation has a shorter schedule than new construction.

Quality: Create high-tech space for teaching and research at lower cost than building new. Well-planned renovations speak to the need for both consistency and innovation and, in turn, create compelling cost-effective solutions.
The Krieger Maryland Complex includes the original Krieger Hall, built in 1929; Maryland Hall, built in 1915 and the third oldest building at Hopkins; and an addition to Krieger Hall from the 1950s. With a nationally recognized engineering school, more space was needed for the Johns Hopkins University community. Through a needs analysis, the University had identified a deficit of 50,000 gsf. Ayers Saint Gross completed a feasibility study that identified how these needs could be met through renovation by retrofitting an underutilized basement into new, wet, and laser laboratories. A new corridor would welcome scientists into the space and encourage collaboration with a coffee bar area. The 67,000 square foot renovation of Krieger provided 23 laboratories and 5 offices. The Maryland Hall renovations focused on updating utilities and infrastructure to better support modern scientific inquiry.

The phased, occupied renovation was completed through careful planning and notification in advance of scheduled utility shut downs, with emergency back-up provided for the use of laboratory and classroom spaces in the upper floors of Krieger and Maryland Halls. New air handling units (AHUs) on the roof were clad in copper to better integrate them into the Hopkins campus. At completion, underutilized basement spaces were converted to first class research and learning facilities. This renovation project was completed without the costs of site development, infrastructure, building structure and envelope, saving significant expense over new construction.
Find underutilized space

When enrollments boom or programs expand, institutions clamor for space. Consider areas where efficiency can be improved and/or additions accommodated.

**Options:** Explore the possibilities for existing structures, parking lots, and open spaces regardless of their current use or efficiency.

**Expansion:** Be open to new ideas, such as excavation or infill, to take advantage of underutilized space. An unused space or building may offer a great opportunity to uncover hidden assets.
Built in 1930, the 53,000 gsf Ritchie Coliseum field house no longer served the needs of University of Maryland, College Park. Owing to the original cast-in-place concrete bleachers, locker rooms and program areas were strewn throughout the facility in odd configurations. Moreover, court and seating areas no longer met NCAA regulations. Looking to make the existing and found spaces more useful to student athletes and athletic staff, Ayers Saint Gross proposed the excavation of the entire interior space and created a new lower level. This added 5,000 gsf of program space within the existing envelope. This also allowed a re-purposing of the space to provide an NCAA regulation court with retractable fixed seating that also complies with ADA regulations.

Jay Gilchrist, Director of Campus Recreation Service at University of Maryland, commented in a letter, “Ayers Saint Gross was selected as architects for a major renovation of Ritchie Coliseum, an historic athletic facility on campus. Ayers Saint Gross developed a scheme that went far beyond anything our campus architects had believed possible for the building. This allowed us to create approximately twice as much assignable space as we had originally believed possible, while maintaining the historic façade of the building. The results were absolutely amazing, given the configuration/condition of the building prior to the renovation. This previously uninhabitable building has become a centerpiece for campus recreation and student activities.”

“**The restoration of Ritchie was probably the finest example of a commitment to architectural excellence to be seen on this campus.**”

Create top-quality teaching and research space

**Twenty-first century research laboratory space requires flexibility.**

**Flexibility and Adaptation:** Design building systems (MEP - mechanical/electrical/plumbing systems) so that they are easily accessible. Spaces on a university campus must be able to adapt to changing needs and be easily reconfigured.

**Learning Environments:** Use the building to teach about the working systems. Maintain exposed systems in the buildings to explain how the building works and to enhance flexibility for future needs.

**Communications:** Plan ahead for phased renovations. Since service shut-downs for utility connections are inevitable, building occupants must convey their critical needs to the design team as the phasing schedule is developed. Coordinated, thoughtful scheduling and good communications will give occupants time to compensate for loss of services.
The University of Delaware needed state-of-the-art research laboratory space. With limited available space on campus, they chose to renovate and add to Wolf Hall, a 1915 building with a central location on the campus. The original infrastructure in Wolf was completely out of date. With no opportunities elsewhere on campus to house occupants during construction, a phased, occupied renovation was planned to create the needed laboratory space for Biological and Psychological Sciences both during and after construction.

The program included Biology and Psychology research labs.
- Biology Research labs
  - Generic (wet-bench) labs, tissue culture, equipment rooms, autoclave, microscopy (Confocal, SEM), imaging, isotope (hot) labs
  - Post-doctoral & graduate student space, faculty offices, department offices
- Psychology Research labs
  - Cognitive and behavioral research labs
  - Post-doctoral & graduate student space, faculty offices, department offices

Recognizing the historic features of the building, the original splendor was fully restored. This included: windows, slate roof, ornamental details, and masonry. Ayers Saint Gross carefully integrated new requirements, such as fume hood exhaust, into the existing structure.
Transform the user experience

Renovations have the power to transform dysfunctional buildings and spaces into beloved ones. Through reinvesting and retrofitting, buildings can be adapted to meet changing needs while they raise the spirits of those who use them.

Collaboration: Create flexible spaces that are conducive to collaboration. The technological revolution has changed the American workplace. Colleges and universities must adapt their educational experiences to better equip students for successful careers in this changing world.

Adaptation: Provide adequate space for distance learning and continuing education programs. With many more adult and non-traditional students, institutions need to provide facilities to accommodate a broad variety of students and their evolving needs.

Renewal: Create a hub of activity in once-neglected space. Renovations can turn old, unattractive facilities into new, popular gathering places that support community involvement.

Interpretation: Use a renovation project to teach the community about its past. Renovations can preserve historic features that explain the site’s past while providing insight into our world today.
The University of Rochester’s educational mantra is one of creating “writers who read and readers who write.” The library plays a central role in the mission of this upstate New York campus. Each academic department is assigned a librarian who supports the students undertaking research papers. With the advent of the 21st century and the changes that it brought to the American workplace, Rochester recognized a need to better educate students in collaborative learning. By reorganizing staff offices, 22,000 gsf on the main floor was available for transformation into the Gleason Library, also known as the Collaborative Learning Workspace. With student, faculty and staff input through surveys, anthropological study and charrettes, the reorganized space now accommodates 325 student seats in a variety of settings. New windows face what will become a quadrangle as part of the University’s campus master plan implementation.

This space was designed to specifically respond to student needs and desires including:

- 24 hour access
- Adequate IT and electrical receptacles for laptops
- Group study rooms with flat screen monitors
- A media lounge
- Printers
- Community PCs for email access
- Workstations similar to a professional setting
- Study tables
- Natural light
- Improved HVAC, electricity, and wireless
- A “quieter” study area
- A film viewing room
- Access to coffee and snacks
Get Started

- **Gather the information you have in hand.** This may include: drawings, photographs, surveys, opportunities for tax credits.

- **Engage the design team and complete contracts.** This will include the architect, engineers and any specialty consultants. Often the architect can organize the entire team on your behalf.

- **Define the project parameters.**
  - Budget: include source(s) of design and construction funds and set aside a generous owner’s contingency
  - Goals and objectives: define overarching goals
  - Scope or program: confirm specific needs
  - Schedule: include design, review, and construction phases
  - Procurement method: this could be a traditional design bid build method; design build; construction manager as agent or construction manager at risk

- **Confirm the process.** At Ayers Saint Gross, we provide detailed schedules outlining the process. These include: existing conditions, program confirmation, schematic design, design development, contract documents, bidding and negotiation, construction administration, move-in, and post-construction services.

- **Meet with code officials early.** This will help to avoid issues as the project moves forward.

- **Review the project parameters at every phase.** We suggest cost estimates throughout the design process to make sure that the project stays on track. Many college and university projects are tied to the academic calendar. Confirm the schedule.

- **Ask questions.** If something seems amiss, ask your architect.
Ayers Saint Gross is a multi-disciplinary design firm providing the following services:

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**Select List of Clients:**

- Arcadia University
- University of Arizona
- Arizona State University
- Baldwin-Wallace College
- Baltimore Museum of Art
- University of Baltimore
- Carnegie Mellon University
- Case Western Reserve University
- College of Charleston
- University of Chicago
- University of Delaware
- Duke University
- Enoch Pratt Free Library
- Eckerd College
- Emory University
- Franklin and Marshall College
- Gettysburg College
- George Mason University
- George Washington University
- University of Georgia
- Harvard University, Allston Campus
- Hobart & William Smith Colleges
- Johns Hopkins University
- University of Kentucky
- Lafayette College
- Loyola College of Maryland
- Maryland Institute College of Art
- University of Maryland, Baltimore
- University of Maryland, Baltimore County
- University of Maryland, College Park
- Medical University of South Carolina
- Millsaps College
- Mount St. Mary’s University
- University of New Hampshire
- University of New Mexico, Rio Rancho
- University of North Carolina at Chapel Hill
- University of North Carolina at Charlotte
- University of Notre Dame
- Northern Arizona University
- Oglethorpe University
- Old Dominion University
- Oxford College of Emory University
- Randolph-Macon College
- University of Rhode Island
- University of Rochester
- Swarthmore College
- University of Scranton
- University of Texas at El Paso
- Texas State University, San Marcos
- Towson University
- Vedanta University
- University of Virginia
- Wake Forest University
- Washington College
- Washington and Lee University
- Wesleyan University
- University of Wisconsin - Madison

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