Resilient Renovation
Integrating Flexibility in Historic Renovation
by Susan Welch and Nicole M. Dress

The Pennsylvania State University renovates a historic building and in the process restores a sense of shared community among the various departments.

In 2012, The Pennsylvania State University (Penn State) issued an RFP for a seemingly straightforward update of the systems and interior finishes of the Burrowes Building that would be completed in three phases. The project ended up being anything but ordinary. After an extensive programming exercise, the Office of Physical Plant and the current occupants agreed that a wholesale gut and renovation of the building, done in one complete phase, would best meet current and future needs. It became quickly apparent that renovating the physical aspects of the building was only one goal of the project, which turned out to provide the opportunity for two large organizations within the College of the Liberal Arts to create a sense of shared community and collaboration.

This article outlines the challenges faced and solutions developed by the project team to address resiliency in the systems and use of the building. The project will transform the space for greater learning and scholarship by faculty and students, promote administrative efficiencies, ensure adaptability for future needs, preserve the central building’s historic appearance, and improve Burrowes’s face on The Mall.

Campus Context: The Iconic Mall

A landmark building on Pattee Mall, Penn State’s central pedestrian walkway, Burrowes was the last building designed by Charles Z. Klauder (1872–1938), a famous American campus architect of the early 20th century. Named after a 19th-century president of Penn State and the developer of free public education in Pennsylvania (Bauer 1969), Burrowes was built from 1938 to 1940 and occupied in 1940, with additions added in 1968. Today the building is occupied by the language and literature departments of the College of the Liberal Arts.

The first large-scale building program on Penn State’s campus produced a compilation of buildings that were either in the gingerbread Victorian style of wood-framed cottages or the new solid-brick Romanesque style. At the turn of the 20th century, the university hired Klauder to transform the land-grant college into a visually cohesive campus (Halsband 2005). Klauder’s changes adhered to the principles of the City Beautiful movement that followed on the heels of the 1893 Columbian Exposition; these ideals favored a “unified architectural grandeur and monumentality typical of the Beaux-Arts” (Turner 1984, p. 169). These architectural designs used white slabs of stone rather than red brick and required the use of columns and other decorative elements. The Burrowes Building and its mirror image, the Sparks Building, featured entrances flanked by tall columns and highlighted by decorative friezes with Greek and Egyptian flowers and images.

Klauder’s vision for The Mall created a grand outdoor room that culminated in a temple of higher learning, the Pattee-Paterno Library. The Egyptian-style library building is flanked by Burrowes and Sparks, both of which were designed
in a classical H-shape: a central core building capped by two perpendicular wing buildings. The southern wing of Sparks was built in 1909 as a stand-alone building. In 1938, the cornerstone of the central portion of Burrowes was laid, and the northern wing of Sparks was built. Burrowes languished as a stand-alone structure without wings until the late 1960s.

At Penn State, as across the nation, enrollments skyrocketed during the 1960s (from 16,000 to 26,000 at the University Park campus). To accommodate this new reality, the university constructed many new buildings and added to others, including Burrowes. Wings were finally added on the north and south, but they were built in a very economical and utilitarian manner.

**ACADEMIC PURPOSE AND BENEFITS**

The College of the Liberal Arts occupies 14 buildings on the University Park campus. Many of these buildings are located within the campus’s central core, and many provide the central campus’s iconic ambience, including Burrowes (figure 1). There are two large organizations within Burrowes: the Department of English and most of the School of Languages and Literatures.

In 2012, Burrowes consisted of about 260 offices and other spaces housing nearly 400 faculty, staff, and graduate students in English and four international language departments. The inhabitants of the building are crucial to the research and teaching mission of the university. They teach approximately 10 percent of all undergraduate credit hours on campus. The university’s growing reputation in the humanities largely rests on the work of faculty in the building. Two of the departments in the building ranked in the top 10 of their fields in the last National Research Council study, and all the others were in the top 25 percent.

The Department of English is the single largest group, occupying about half of the building. The international language departments, including Spanish, Italian, and Portuguese; French and Francophone Studies; Germanic and Slavic Languages and Literatures; and Comparative Literature, which offers Arabic and African languages, occupy the rest. Though each of the international language departments is its own academic unit, they are organized into a School of Languages and Literatures that provides staff infrastructure for all four. The school also has an Asian Studies department that is located in a separate building nearby.

Representatives from each of these academic units joined with the architects, engineers, representatives from the college, and representatives from the Office of Physical Plant to form a steering committee to make most planning decisions. At key points in the various discussions, this
committee was expanded to include representatives from every department.

**CHALLENGES**

For the user groups, the project was an opportunity to fix some of the physical limitations of the building that inhibited their transition to modern ways of teaching and learning.

Of primary concern to all the building’s occupants was the lack of adequate electricity for modern technology. It was quite common to have to unplug one device to plug in another, and blown fuses were a recurring issue.

The building’s systems were not able to adequately or appropriately address the new pedagogical approaches requested by the various departments. For example, the new Digital Media Lab was located adjacent to the elevator housing such that the sound and vibration interfered with the lab’s recordings for e-learning.

Due to limited space, several language research sound booths were located in a separate building across campus. The language grant-funded labs housed within the building had specific high-technology requirements and yet their rooms (converted offices) had inadequate space, attenuated sound, and insufficient heating/cooling systems.

By the 21st century, the infrastructure of the entire building was inadequate, with window air conditioning units in only about one-third of the building. There was, of course, central heat, but it could not be controlled manually except by opening the windows.

The windows were an issue as well. The single-pane glass in the large windows allowed winter cold and summer heat to make the building’s perimeter uncomfortable. Due to the lack of adequate air conditioning, the windows were frequently opened to allow in the breeze but then would not close tightly.

The offices in the 1968 wings presented a different problem. They were built in the last days of an era when it was expected that tenured faculty would share offices. They were designed for two occupants, but with no door between to allow for privacy. In fact, the offices in the wings had moveable partitions so that they could be reconfigured; yet, these moveable walls had become fixed in place. Over time, these offices became strikingly inefficient. Referring to the double office configuration, one department head noted, “It is not useful for much of anything other than advising or administrative work for which an anteroom would be helpful. Most faculty in those offices are simply using the anteroom as bookshelf space.”

Troubling to the college was the building’s discordant appearance as the 1968 wings did not echo the architectural features of the original building (figure 2). In fact, the stark modernism of the additions was hidden from the academic quad by large trees. The solid-brick walls of the additions lacked adequate natural light and created awkward and very inefficient transitions between the wings and core. The user groups hoped that the renovation project would address this issue.

Figure 2 Building Front Entrance Before Renovation
As with almost all significant renovation projects, one requirement was to make the building fully compliant with the Americans with Disabilities Act (ADA). This meant taking a hard look at the circulation through the entire building, most especially at the misaligned floors and the three elevators. All of the existing restrooms had been adapted to comply with most aspects of ADA, but they did not meet the university’s stringent requirements.

All of these deficiencies led the building’s user groups to encourage change.

**PLANNING FOR RESILIENCY**

While the user groups had a definite list of requirements to meet their current needs, Penn State’s Office of Physical Plant requested a long-term approach to planning. The Burrowes Building was built almost 100 years ago for a different department but for a similar function as today. There was no expectation that the functions within the building would change drastically, and yet there have been changes in how these functions operate, specifically the ever-changing use of technology. There was an expectation that the infrastructure, particularly technology and energy systems, would change in the near future. The infrastructure improvements were designed to meet the long-term goals for resiliency described below.

**LOWER ENERGY USE**

The improvements included new energy-efficient retrofits and additions to the main building. By adding significant insulation to the roof throughout the complex and to the wing walls (where thermal analysis shows it will be successful) and introducing new insulated glass with special coatings and thermal frames, the building’s energy use will be drastically reduced. This will make it easier for the university to continue to occupy the space while also providing thermal comfort for the building’s occupants.

In addition, all light fixtures are high-efficiency LEDs, which will drastically reduce the building’s energy load. The building’s heating and cooling controls supplement the energy reduction. Each office’s heating/cooling unit has an individual thermostat controlled by the user, and the unit is connected back to the building-wide building automation system to monitor use and efficiency.

**DESIGN FOR DURABILITY AND ROBUSTNESS**

Burrowes has withstood the demands of the university since 1938. The building was built with solid masonry construction, which is extremely durable. The Office of Physical Plant requires a thorough energy analysis to be performed on all projects; this analysis indicated that additional insulation could be added to select portions of the building to maximize its thermal performance for the next 80 years. While the weather patterns of the past few years indicate an increase in wet weather in the spring, the building has more than adequate resources to combat its effects. The initial high-quality design and construction has stood the test of time and will continue to do so. This project required the minor new construction to be built using similar building techniques to ensure its longevity.

**SPECIFY LOCAL MATERIALS AND PRODUCTS**

Clear goals were established at the planning stage for the specification and supply of local materials and products, as were high expectations for the recycling of demolition and construction waste. The project is on target to exceed all goals.

**ACCOMMODATE FUTURE ENERGY INFRASTRUCTURE**

Recently, the university converted from a steam plant fed by coal to one fed by natural gas. The steam is converted at the building into hot water that circulates through the building’s heating systems. The long-term plans of the university include a switch from the current high-temperature steam plant...
to a more efficient, ecologically sustainable energy source. When this happens, the water source will be at a much lower temperature. All of the heating units within Burrowes were designed to accommodate both the current high-temperature system and the future lower-temperature system.

**PLAN FOR REDUNDANCY**

The Office of Physical Plant requested several system redundancies to ensure minimal loss of function in the event of partial system failure. For instance, the plumbing system was provided with two pumps, each sized at 75 percent capacity. Should one pump fail, the entire system will operate at a reduced rate until repaired. The heating system also has redundancy in that the four building units are cross-connected such that if one fails, another will handle part of the additional load. This ensures that although the heating system may have to operate at a reduced capacity, it will never be completely shut down.

**MAXIMIZE DAYLIGHT**

A key component of resiliency in building design is the use of daylighting. The project goals identified design parameters for daylighting such that every office, classroom, seminar room, and graduate cubicle room has natural daylight. It was requested that the corridors also have some natural daylight. However, the addition of any new exterior glazing requires strict adherence to prescribed guidelines to ensure that the introduction of daylight does not require an increase in energy use to heat or cool the brighter space. All new glazing must be in the form of insulated glazing units and, as with this project, tinted or fritted to minimize solar gain.

**DESIGN FOR FUTURE FLEXIBILITY OF USE**

In 1968, the design of the wings addressed the desire for flexibility by including moveable walls on tracks within the two-person offices. However, these were rarely moved. The college wished to ensure that safeguarding flexibility for future use would not come at the expense of current needs. The older, larger offices presented a difficult problem as they were too large for one occupant, yet not quite comfortable for two. The moveable partitions also allowed sound transference, which was deemed unacceptable. An important goal of the project, both programmatically and for resiliency, was to provide flexible spaces that could be retrofitted for different uses with a minimum of effort. In the end this flexibility was accommodated by the standardization of form and the use of a flexible furniture configuration.

**PROGRAMMATIC CHALLENGES**

Although the original overriding rationale for the project focused on improved infrastructure, it also offered an opportunity to create a facility that would encourage better collaboration and sharing across departments, providing a road map for the accommodation of future changes. Of course, these departments had always had collegial relations; occasionally, they “lent” each other seminar rooms or even offices for a specific purpose or time, but sharing was sporadic and informal and the design of the building did not encourage it. Each of the five departments occupied its own section of the building and had its own offices and seminar rooms. The school and the Department of English had entirely separate administrative spaces as well, located on different floors.

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As the project progressed, the goal of providing more opportunities to share spaces and thus become more efficient and able to accommodate future changes became more important. Space is in great demand on central campus, and all participants agreed that it was important to make the best
possible use of space in Burrowes. To accomplish that, the occupants needed to think about the building in a new way.

DEPARTMENTAL COMMUNITIES VS. CROSS-DEPARTMENTAL COLLABORATIVE SPACE

Once it became clear that the layout of the entire building could be reimagined, planning committee conversations took a different tone. One key issue was the balance between departmental communities and shared spaces. In the existing Burrowes, the priority was on communities, and with the exception of the school administration, there was little emphasis on shared spaces. At the opposite extreme, one could imagine a building with no emphasis at all on communities, with faculty from different departments located side by side with no priority to keep departmental faculty together. There were spirited discussions to strike an optimal balance between retaining communities and creating efficiencies by sharing spaces or reorganizing them to facilitate sharing.

The Office of Physical Plant encouraged the architects to help expand the thinking of the committee by showing it examples of other new buildings on campus. This tour showed a broad range of responses to current trends in technology integration and spatial organization. The committee discussed at length the need for flexibility as space is reallocated over time and departments grow and shrink at unpredictable rates.

In the end, the architectural team put forth a compelling vision that all could support, as shown in figure 3. Departmental communities were retained in the allocation of office space in the wings, with English occupying one wing and the departments of the School, organized into their departmental groups, in the other. Core building space was allocated by function, with the most public functions on the first and ground floors, including advising and the building’s two classrooms. Departmental administrative functions were placed on the top floor where there is much less student traffic. The middle floors contain seminar rooms and graduate “bullpens” that could be shared and would adapt over time to the changing sizes of graduate programs. Though there was much discussion about the specifics of the plan, the general idea won strong support.

HOW MUCH SHARING OF ADMINISTRATIVE SPACE?

The other key issue involved the sharing and location of administrative spaces. After many weeks of discussion and numerous iterations that replicated the existing horizontal separation of school and department, the committee was challenged by the Office of Physical Plant to “think outside the box” and effectively consolidate functions within the building. The plans that developed from that discussion placed all the administrative spaces on the top floor. Department leaders worried that this would limit student accessibility to needed services; they also thought that some services for faculty

Figure 3 Building Organized by Function with Public Spaces on Lower Floors
should be more accessible. Thus, a good deal of discussion took place about the location of advising and financial services, functions that had some administrative component but were not part of departmental staffs. Due to their more public nature, these offices were placed on the first floor.

Moreover, there was debate about whether the school and Department of English offices should be on the same floor and how much sharing of space between them was appropriate. In the end, there was significant agreement that the departmental administrations and mailrooms should be kept separate—each is rather large—but auxiliary areas, such as staff break rooms, a small conference room, copier space, and so on, could be shared.

**OPEN SPACE VS. PRIVATE OFFICES**

The division of space between individual offices and shared open spaces was also extensively discussed, with many iterations viewed and debated. This was perhaps the most contentious issue because while historically the departments had moved toward more individual space for staff, campus and national trends were geared toward more shared and reconfigurable spaces. The university had specific office space guidelines, last updated in 2002, directing that a full professor’s office should be 150 square feet, and a professional staff member’s office should be 120 square feet. These guidelines provided a road map for reorganizing the building as the existing offices were designed to an older, larger standard of 180–250 square feet, including those occupied by staff. The department heads pushed for more individual offices for their staff, in keeping with the existing situation, while the rest of the committee advocated for more shared and flexible spaces. A compromise was reached with key senior staff having individual offices and most support staff sharing large open spaces (figure 4). The furniture selected for these open spaces allows staff to have the private countertop and file storage space they need while also providing partial privacy through half-height partitions. This difficult compromise allowed the project to achieve its stated programmatic goals of more faculty offices and more assignable square footage for other educational functions.

**Figure 4 New Open Space Staff Area**

**STANDARDIZING FACULTY AND ADMINISTRATIVE OFFICES FOR FLEXIBILITY OF OCCUPANCY**

As part of this project, the college was adamant that offices be as identical as possible. With a standard office size, it is possible to handle the fluctuation of faculty composition within departments or even within the college by varying the number of occupants within an office. Changing expectations regarding private space may also reduce the number of one-person offices required in the future. Penn State, like most universities, assigns space by title: endowed faculty, tenure-line faculty, full-time lecturers. Currently, tenure-line faculty have an individual office, two full-time lecturers share an office, and part-time faculty are housed in three-person offices, but this may change. Full-time lecturers are assigned space based on the number of courses they are teaching; the number of full-time lecturers may vary greatly depending on last-minute fluctuations in the number of freshmen in English and Spanish courses.

By making almost all faculty offices a standard size, the comparison of who gets what is eliminated. The offices in the wings are practically identical: same width, same depth, same paint color, same furniture components. The variety comes in the number of faculty assigned to the room and therefore how the various furniture components are configured (figure 5 shows a two-person office configuration). Within the wings,
only the configuration of the windows within each office is different.

Figure 5 Office with Two Occupants

Due to the different floor-to-floor heights and column and window spacing in the original building, offices in this building were limited to special functions, such as finance or advising suites, or to department heads.

The graduate cubicle rooms have tremendous flexibility as they are furnished with panel-based systems furniture. The rooms are of such size that they could be converted to seminar rooms or other functions in the future.

Even the seminar rooms are designed to provide flexibility of use and sized to be converted to other future uses. The seminar rooms range from 250–720 square feet. All have at least one wall that is covered with a writeable and projectable wallcovering. Each room has tables and chairs on casters so that it can be reconfigured for lecture seating or conference seating, and each has a variety of IT connections for podiums or projectors.

ACCOMMODATING NEW EDUCATIONAL AND RESEARCH METHODOLOGIES

Several departments located in Burrowes have developed new programs that require specialized spaces with specific technology. This project required the latest wired and wireless backbone to support any requirement in any room. All seminar rooms have accommodations for various functions that may need different technology connections.

The Department of English required a new space for the Digital Media Lab’s video conferencing facility and separate soundproof recording studio. These functions create video and audio recordings for use with the department’s online catalog of blogs, interviews, courses, and programs for students, both on and off campus. This space will also be used for the Digital Culture and Media Initiative and to support ongoing research and teaching in the department, including work in science and technology studies, media studies, rhetorical studies, computers and writing, visual culture, and book history and textual studies.

Several of the language departments required specialized, highly technical spaces for their grant-funded research labs. A project requirement was to relocate several whisper booths (prepackaged soundproof rooms) into Burrowes away from heavy foot traffic. Another requirement was to create several recording booths with explicit spatial and technology specifications. These labs were grouped together and, as one of the few functions that did not require natural daylighting, placed in the quietest corner of the building, partially underground.

THE PLANNING PROCESS

This project was a very successful collaboration among the engineers, architects, and specialists from Penn State’s Office of Physical Plant; the architectural team; and representatives from the college and academic units. A steering committee
with participants from each of the groups occupying the building drove the decision making, and a faculty-staff advisory committee provided periodic advice and feedback. This process included the following key strategies:

**INVOLVE STAKEHOLDERS**

Several tactics were used to involve stakeholders in the planning process. A steering committee was established to develop goals and plans. This steering committee comprised the architectural team; key university administrators directing the use of space (the director of facilities resources and planning, the university architect, and the project manager for the project); and college and departmental administrators (the director of the school, the head of the Department of English, the dean, and facilities experts from the college). This group met regularly, as often as bi-weekly, during the first several months of the project to discuss programming and schematic design. This project was unusual for Penn State because it was not preceded by a program statement. Working on goals and program details while moving ahead with planning proved to be both challenging and helpful in clarifying issues of sharing and collaboration.

**ESTABLISH PROJECT GOALS EARLY**

As with any project, the only way to achieve an efficient conclusion is to establish goals as early as possible. The participants did share the same goals. However, as is usually the case, the ranking of these goals into higher and lower priorities varied drastically among the various stakeholders.

**DISPERSE DECISIONS TO A LARGER AUDIENCE**

The steering committee met with a faculty and staff advisory committee at key points. The advisory committee had a significant role in the planning of building interiors, and members took the lead in choosing color schemes and the overall look of interior fittings. During the process, the steering committee invited all Burrowes users to meetings where they could hear about plans to date, ask questions, and offer suggestions and feedback.

**MAINTAIN CONSTANT COMMUNICATION**

The dean’s office maintained a website on the Burrowes project with timely updates, photos, and basic information (see www.la.psu.edu/about/new-facilities/burrowes-renovation-project). The office also maintained a list of those who wanted to receive the updates by e-mail.

**KEEP AN EYE ON THE BALL**

With so many diverse opinions, it was necessary to regularly remind the various groups of the goals established at the very beginning of the project. Detailed minutes were issued after each meeting, and decisions were revisited over several meetings. Ultimately the discussion and its results were published and issued, with the majority of the group reaching consensus. This was an existing, historic building that could not get any bigger, and therefore trade-offs among goals had to be made. Reviewing the list of project goals at the start of every public or end-of-phase meeting helped keep the priorities in order.

**DESIGN SOLUTIONS**

The programming and design of this renovation project began with two distinct, yet not disparate, sets of goals: those pre-established by the Office of Physical Plant and those established by the users. The Office of Physical Plant required the building to be brought up to code and the building systems enlarged and updated to meet current and anticipated future needs. The users wanted a building that did not feel as institutional, had more natural light, and did away with the unnecessary duplicate stairs and awkward transitions between the five-floor wings and four-floor core.
Both groups wanted more offices in the already crowded facility. Everyone agreed that the renovation must respect the building’s historic character, improve its appearance on The Mall, fix the heating and cooling situation, provide adequate electricity for current and future operations, and be resilient in adapting to future needs. However, there were still difficult trade-offs, such as between wanting more offices while also wanting more seminar rooms or language science labs. In addition to the specific building infrastructure resiliency components addressed on prior pages, a variety of primary design solutions were used to resolve programmatic goals:

**RECLAIMING NEEDED USABLE SPACE**

Due to the manner in which the wings were added to the original core, this 100,000-square-foot building had eight staircases and three elevators. Early in the programming phase, the design team proposed removing the staircases and elevator within the original building and replacing those spaces with usable, assignable square footage. By inserting new structured flooring within these spaces (using only a small portion for new vertical shafts), the building was able to reclaim over 3,100 square feet for program use.

**CREATING MORE OFFICES**

Overall, the project goal of creating more viable offices remained a priority. Offices were further defined with specific requirements such as a window, individual lighting and temperature controls, and specific furniture for different office types. Ultimately, the project added 17 offices within the building, primarily within the wings (figures 6 and 7) since the column and window spacing there was designed for offices.

The project was unable to compromise on the number of graduate student desks provided; however, the specific accommodation of graduates is not ideal. While an additional 2,800 square feet was dedicated to housing graduate students, compared to the pre-renovation building there are now more shared carrels and fewer small offices. The new graduate spaces are limited to 12 desks within one room, a specific programmatic request. These spaces all have natural light and are fully compliant with the university’s accessibility standards.

**Figure 6** Former Wing Office Configuration Showing the Movable Partitions on the Left Bank of Offices

**Figure 7** New Wing Office Layout of Indicating Various Occupant Configurations
The desire for more seminar rooms was not accommodated; however, the Department of English did receive a larger seminar room that can be used for various functions, including those in the evening, and the language departments each received a seminar room that was the same size as their previous seminar room. This project added 350 square feet to the total seminar room space, but provided one less seminar room than previously. Overall, the idea of sharing these seminar rooms between departments proved prophetic: the university has since laid claim to almost all seminar rooms and made them available for use by outside departments.

**PROVIDING NEW MECHANICAL SYSTEMS WITHOUT LOSING PROGRAM SPACE**

One of this project’s primary goals was to install new heating and air conditioning systems to service the entire building. While a large space was needed for the new, large HVAC units, another goal was to maintain as much program space as possible. During the course of the project, the engineers investigated several possible locations for the HVAC system, including within the attic of the original building, on top of the existing wings, or within the existing basement. However, the existing basement was too shallow to satisfy maintenance concerns; the floor would have to be lowered by as much as four feet. After developing many sketches and cost estimates of the various options and contemplating installation, maintenance, and distribution logistics, lowering the basement became the favored solution.

**RESOLVING THE NON-ALIGNED FLOORS**

The wings had five floors compared to the core’s four, resulting in a series of steps and ramps between each section of the building on almost every floor (figure 8). These interstitial connector spaces between the original building and each wing were rebuilt so that the elevators within open on both sides of the cab, each side aligning with a different floor level. The interconnecting stairs were reconfigured to create a light-filled opening in the center (figure 9). These light-filled shafts at either end of the building create a beacon that serves as a wayfinding element.

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**Figure 8 Former Stairs Between Central Building and Wings**

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**Figure 9 New Staircase Connecting Original Building and Wings**

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CHANGING THE PUBLIC FACE OF THE BUILDING

Renovating Burrowes brings the building back to a place of prominence that need not be hidden behind trees. Its Mall face is striking, with a curtain wall linking the core and wings. This modest reconstruction of the segments connecting the original with its 1968 wings displays three generations of building style, each playing off the original and “tipping a hat” to the overall ambiance of Pattee Mall.

INTRODUCING NATURAL LIGHT

Natural light was introduced at the ends of the wings’ corridors and at the connecting corridors between the wings and core. The introduction of natural light through new exterior glazing makes a significant difference in reducing the building’s former institutional feeling. Burrowes feels more open and welcoming, and the natural light provides needed instinctual orientation to the outdoors. In addition, the replacement of the solid wall connections between the original building and the wings with an abundance of windows allows natural light to permeate down to the lowest floor, ensuring that it does not feel like a basement. All doors, except for those for storage rooms and restrooms, have a glass panel in the wood, and many doors in the core have glass transoms above them. This allows daylight to filter through the offices into the central corridor of the original building.

CREATING A NATURAL FLOW OF OCCUPANTS TO PUBLIC SPACES

The previous building configuration required students who had classes in the general-purpose classrooms to wander through the building to reach the upper floors. In the reconfiguration, public spaces such as the general-purpose classrooms, the largest seminar rooms, and the financial and advising offices are located on the lowest, most publicly accessible levels. The language science research labs that require quiet and low vibration are placed far away from the elevators in a wing basement space with no windows (and therefore not viable as offices or graduate carrel rooms). The wings are almost exclusively occupied by offices, and the group gathering spaces are located within the central core building.

CONCLUSION

This case study shows how a seemingly unremarkable project, a simple mechanical, electrical, and plumbing renovation, can transform a building from a serviceable, “make-do” space into one that encourages and inspires its users. The dark, utilitarian spaces that people once rushed through have become areas of bright light that may encourage users to linger and interact. Further, the co-mingling of similar functions by different departments on the same floor may encourage departmental staff to work together and find commonalities for shared space.

This case study shows how a seemingly unremarkable project can transform a building from a serviceable, ‘make-do’ space into one that encourages and inspires its users.

There are many ways in which the renovation of the Burrowes Building demonstrates the university’s commitment to resiliency now and in the future. Foremost is the clear understanding that this building has a proven track record of continued use and reuse. Since 1938 the college has been able to place new demands and functions in the structure’s spaces, and now it is time to do that again. The current program of adaptive reuse will make the core facility stronger and more usable over time. New technology, both wired and wireless, has been woven into the physical fabric of the building’s walls and floors, providing power and data to help faculty continue their research, class preparation, and web-based educational work. By creating these new functions within the old structure, Penn State again shows that investing in high-quality design and construction allows a building to continue to house an array of unforeseen uses well into the future.
REFERENCES


AUTHOR BIOGRAPHIES

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