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Renewing Modernism

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We live today in the modern world; that is, we live in a world shaped by modernism. All aspects of the places we inhabit have been molded by the aesthetic principles, design sensibilities, and technical capabilities of modernist thinkers, designers, and builders. Modernism has prevailed, superseding building blocks of brick and stone with crystalline structures of metal and glass.

The rise and proliferation of modernism has pressed vigorously forward for more than a hundred years. Wright's Larkin Building was completed in 1904, his Unity Temple in 1906. Having surpassed their fiftieth year, many landmarks of modern architecture are eligible for historic landmark designation. Though it may seem paradoxical, both Mies van der Rohe's Farnsworth House (1951) and Philip Johnson's Glass House (1949) are designated historic sites operated by the National Trust for Historic Preservation.

Modern-Era Architecture, Preservation, and Sustainability

As modernism becomes historic, the "modern-era" building stock, as it is often termed, is moving into a period of refurbishment. Two very real issues have emerged that highlight the need for well-formulated and effective strategies for its renewal. First, the conservation of modern-era buildings presents a broad spectrum of preservation challenges that are substantially different from those of "traditional" buildings. Second, as architects retool for sustainability and respond to climate change, transforming the environmental performance of modern-era buildings must play a significant part. We cannot map a path to sustainability without emphasizing the conservation of existing resources as a guiding principle—if not *the* guiding principle.

Numbers alone indicate the importance of preserving and transforming modern-era buildings. Structures from the 1950s, '60s, '70s, and '80s represent more than 55 percent of all nonresidential buildings in the United States, a stupefying 36 billion (with a "b") square feet.¹ By comparison, projections for new nonresidential construction over the next twenty-five years total around 28 billion square feet.² This is why, over the next generation, renovating modern-era buildings represents an even larger and more difficult endeavor than designing new buildings.

Preserving Modern-Era Architecture

Much of architectural preservation focuses on saving buildings associated with important historic figures or buildings of exceptional architectural merit. Washington's

Mount Vernon is often cited as the first successful historic preservation effort in the United States. But it was outrage over the destruction of McKim, Mead, and White's Pennsylvania Station, at the time regarded by many as New York's most awe-inspiring structure, that is credited for generating the political will needed to pass the National Preservation Act of 1966.

For more than four decades, architectural preservation has been conducted according to a broadly accepted set of principles codified by the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties. The Secretary's Standards establish four rubrics for treatment: preservation, restoration, reconstruction, and rehabilitation. Setting reconstruction aside (although Mies's Barcelona Pavilion serves as an example of a modern-era building possessing the cultural importance to merit it), two types of efforts are emerging with regard to modern-era buildings: the preservation and restoration of significant modern-era landmarks, and the rehabilitation of the "ordinary" modern-era building stock.

Work in the first area is becoming increasingly well-established within preservation practice. For example, the reconditioning of the exterior of Wright's Guggenheim Museum (1959) is expected to be completed this year; Mies's Crown Hall (1956) has undergone a meticulous restoration; and Gordon Bunshaft's Lever House (1952) was renovated by his successors at Skidmore, Owings and Merrill. Each of these projects illustrates an effort to extend the life of an important modern-era landmark whose cultural and architectural significance is beyond debate.

Each also demonstrates how working with modern buildings is redefining preservation thinking and technology. Modern architects and builders were famously forward-looking and quick to innovate, frequently incorporating materials and methods with little track record and no established methods for maintenance, repair and reconditioning. As a result, preservationists are now faced with rendering judgments about the conservation of materials where economy was emphasized over durability, and where original performance expectations differed substantially from present-day standards. In the eyes of many preservation professionals, the marked lack of quality is the defining characteristic of modern-era construction.

A greater challenge may lie in the second effort noted above, however. As historic preservation has "matured," it has broadened its view, finding value in the forest as well as the trees. "Historic districts" thus recognize *unexceptional* properties for their importance as "contributing structures" to a pattern of architecture and urbanization. There



Modern-Era Restoration Challenges

Quinn Evans Architects' restoration of Wright's Pope-Leighey House has elements of both the Guggenheim and Crown Hall examples. Pope-Leighey is one of Wright's many Usonian houses, modest and built with inexpensive materials. Wright designed projecting eaves with extremely aggressive cantilevers that sagged and rotted as the wood framing aged. The restoration involved a complete disassembly and restructuring of the cantilevered eaves, "restoring" them to a capacity and durability they lacked.

Top: Restored exterior view of Wright's Pope-Leighey House on Woodlawn Plantation in Alexandria, Virginia.

Bottom left: Prior to restoration, sagging eaves attest more to Wright's structural optimism than neglect or the ravages of time.

Bottom right: Restored interior view, defining modernism's cultural legacy with simplicity and elegance.

All photos courtesy of Quinn Evans Architects.



Transforming Modern-Era Buildings

Working with William McDonough + Partners, Quinn Evans Architects prepared renovation plans for a “typical” K Street office building. McDonough’s design proposes a complete replacement of the K Street facade with an extremely high-performance glazing system incorporating building-integrated photovoltaics and electrochromic glazing elements. Tenant partitioning, fixtures, furnishing and all mechanical and electrical systems are also replaced. McDonough’s Cradle-to-Cradle protocol guides material selections and systems design.

Left: Existing view of 2029 K Street NW, one of Washington, D.C.’s hundreds of undistinguished modern-era office structures. Photo courtesy of Quinn Evans Architects.

Right: Proposed renewal emphasizing the creative and technological possibilities of replacing the south-facing facade with a light-responsive curtain wall. Rendering by William McDonough + Partners.

are a few examples of modern-era historic districts, like the South Beach Art Deco Historic District in Miami, where the integrity of the pattern is emphasized over the merits of individual structures. But, even among hard-core preservationists, it is difficult to find many who advocate the creation of extensive modern-era historic districts.

Is this simply a function of our place in time? Will modern-era buildings and districts be viewed differently as their numbers dwindle?

Modernism and Sustainability

The preservation of modern-era buildings will be driven by sustainability, and making modern-era buildings sustainable will be no small undertaking.

Picture the existing nonresidential building stock as five buildings. One is a traditional masonry-and-stone building; one is a contemporary, high-performance green building; the other three are modern-era buildings. Over the next twenty-five years, the traditional building and the three modern-era buildings will require comprehensive modernization to adhere to the standards set to combat climate change. During the same period, two new buildings will be constructed.

This may be somewhat of a simplistic model, but it shows how the fate of the modern-era building stock represents a major challenge—and an opportunity.

The challenge lies in three areas. First, the fractured urbanism and far-flung suburbanization of modern-era cities presents tough problems. Creating cities that function as high-performance urban systems is a nearly unattainable ideal for America. Current circumstances, many of which are the product of modernist anti-urbanism, pose formidable constraints. Second, improving the exterior envelopes of modern-era buildings will be difficult and may favor replacement over enhancement. Third, modern-era buildings were designed in an era of cheap energy, and nearly all depend on fossil-fuel-consuming systems to be habitable, even on the most basic level.

Modern Urbanism

Fortunately, since the postwar decades, when the city was declared dead, planners have begun to toss aside the anti-urban theories of Le Corbusier and Wright and rediscover the fundamental vitality and efficiency of cities. In humanistic terms, cities are again understood as places for people, an emphatically social species. As designers of urban systems, planners have been forced to acknowledge the practical necessities of density and compactness as subsidizing sprawl has become increasingly unaffordable.

However, change in the marketplace is far from absolute. Many metropolitan regions are still struggling to reestablish the viability of their urban cores while vigorous development continues at their perimeters.

How does urban context define the problem of sustaining the modern-era building stock? Modern-era buildings can be categorized broadly as representing two conditions: those located within established urban cores and those not. However, in both settings, there are encouraging signs. Many plans have been drawn to transform car-oriented suburban satellite cities, retrofitting transit, mixing housing, commercial and institutional uses, and creating places for pedestrians. “Smart growth” has become the guiding framework for most public policy initiatives both within established urban cores and outside them.

Smart Growth and Preservation

How effectively do such plans contend with the existing building stock? On the positive side, many are, by their nature, “infill” plans—strategies for filling in the empty spaces of low-density suburbia to justify the costs of parking structures and transit investment.

Frequently, smart-growth plans call for drastic restructuring. The existing building stock may simply be in the way, even in densely developed urban settings. Certainly, there are places where this approach makes sense and is justified by the conditions on the ground and the vision of the plan. However, the opposite is also true.

PlaNYC 2030, New York’s climate-change initiative, serves as a somewhat troubling example. Preservation of existing neighborhoods, to say nothing of historic preservation, hardly gets a mention. A number of its proposed model redevelopment plans, even those in tightly packed neighborhoods in Brooklyn, Queens, and the Bronx, have raised deep concerns in the preservation community, which sees them as a return to the heavy-handed tactics of Robert Moses. In several of these development proposals, underutilized industrial districts that have the potential to be the next SoHo are to be razed to make way for forty-story condos. Is smart growth new packaging for old-school urban renewal?

Preservation Growth Models

Washington, D.C.’s Downtown Development Overlay District (DDOD) makes for an interesting comparison. Its origins are in historic preservation, and it favors a more incremental attitude. The ordinance provides for transferring development rights from historic properties to designated receiving zones. Its intent is to prevent the

loss of historic buildings exposed to the pressures of rising property values, while providing economic resources to maintain and restore them.

Whether intended or not, the DDOD program is having a significant effect on modern-era buildings. Washington's K Street is a receiving zone. The canyon of mostly modern-era office buildings, famous for housing powerbrokers and lobbyists, is undergoing a once-in-a-generation transformation. There have been a number of tear-downs, and, certainly, more will occur. However, in most cases two or three stories are added onto the existing structural frame, expanding rentable floor area, increasing density incrementally, and creating an economic engine that drives the renovation of the entire structure.

In these projects, the exterior envelope is sometimes replaced in its entirety. However, some architects have approached the renovation of building facades with a lighter touch, adding new elements, or incorporating existing features such as stone-clad spandrels or columns. In almost every project, mechanical and electrical systems that were terrible energy hogs have been replaced with high-performance systems. Responding to today's real estate market, many are LEED-certified major renovation projects.

Washington's DDOD ordinance addresses the three compelling topics raised by modern-era buildings: urban context, building envelope, and mechanical systems. Yet the program is not equivalent to historic-district designation, because its goals for the receiving zones are not preservation goals. Instead, it sets out to create conditions for the renewal of aging modern-era buildings. Economic resources produced by transferred development rights raise the quality bar for renovation work, making green building practices and high-performance systems a realizable objective rather than a wish. The DDOD ordinance is a very important model for sustainable urban policy.

Transforming Modern-Era Buildings

In 2006, the District of Columbia Historic Preservation Office (Washington's SHPO) and the D.C. Preservation League (the largest and most active preservation nonprofit in D.C.) published a study of modern-era buildings in the Washington area. The study initiated a process that is expected to continue for many years by identifying a "key inventory" of about 250 buildings likely to receive historic designation. To a significant degree, the list recapitulates the design awards won by Washington's most prominent modern-era architects.

Assuming that most, if not all, the buildings placed on the inventory will be preserved as icons of modernism,

what does the inventory express about the great majority of modern-era buildings in the city? What is their value materially and culturally?

The fundamental task facing the next generation of architects and preservation professionals is to capture the value of the energy, material resources, and environmental impacts embodied in these modern-era buildings. Transformation, rather than preservation per se, is the appropriate objective. I base this judgment on four observations about modern-era architecture.

First and foremost, modern-era buildings are by their nature adaptable. The concept of "universal space" articulated by Mies and by Le Corbusier's Villa Domino construction system established the theoretical basis for the buildings lining K Street, Park and Michigan Avenues, and Wilshire Boulevard. A durable structural frame is constructed to be as neutral and minimal as practicable. Every other part of the building is easily adaptable—even expendable.

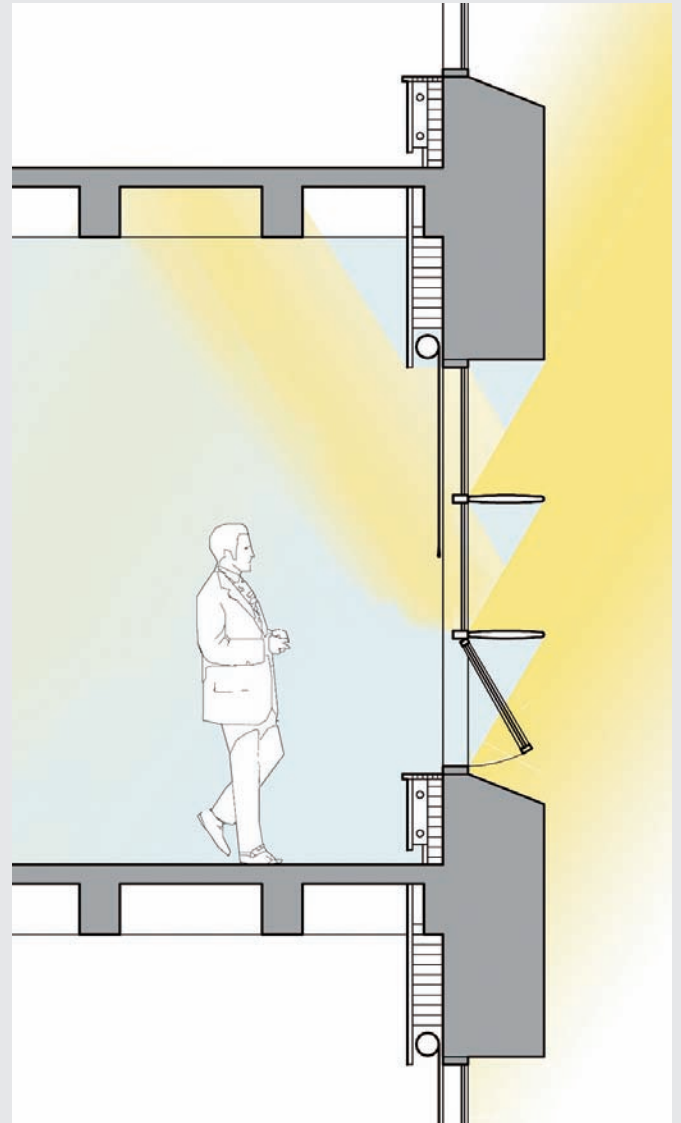
Second, although the degree of quality varies from city to city, many modern-era buildings are simply designed and built to a low standard. As noted, most were built with no regard for energy use and with inexpensive materials lacking durability. It is easy for preservationists to achieve success in both preservation and sustainability in the restoration of traditional buildings whose porches, operable windows, and cupolas provide historic character and climate-responsive function. Similar win-win scenarios for modern-era buildings are difficult to discover.³

Third, unlike examples from the postwar period, when the fronts of traditional buildings were "modernized," the curtain-wall modifications and replacements taking place along K Street are generally consistent with the original design approach. I confess to a certain discomfort when viewing architecture in such overtly stylistic terms, equivalent to changing outdated "clothing." However, the work along K Street represents a continuum of modernism. In light of the need to improve performance, facade modifications and replacement are fundamentally practical.

Last, the transformation of modern-era buildings, their appearance included, is not inconsistent with the underlying philosophy of rehabilitation, because responding to changing needs may be the only way to justify retaining an existing building. Modification is better than destruction.

Greening Modern-Era Buildings

Accepting that modern-era buildings require a new preservation paradigm, today's architects need to become more rigorous in assessing their value. The "throw-away" society that created such low-quality structures is still



Greening the AIA Headquarters

In 2007, Quinn Evans Architects prepared a master plan for renovating the American Institute of Architects Headquarters in Washington. The objectives of the study were to “green” AIA HQ, create a model workplace, and conduct enlightened stewardship of the building, a future modern-era landmark. The intersection of the modern-era stewardship and greening agendas advanced the AIA’s understanding of lifecycle and demonstrated scenarios for meeting the 2030 Challenge through a renovation project.

Top left: The AIA “campus,” including the historic Octagon, landscaped courtyard, and 1973 Headquarters designed by The Architects Collaborative (TAC). The photo-montage illustrates how photovoltaic panels, vegetative roofs, and skylights may be added to a modern-era building of some distinction.

Bottom left: Photo-montage illustrating a strategy for adding sunshades to alleviate the effects of the building’s southern exposure.

Right: Detail of the window upgrade option with exterior sunshades, operable sash, and interior shades. Are visually apparent interventions appropriate on significant modern-era buildings?

All images courtesy of Quinn Evans Architects.



D.C.'s Modern-Era Renewal Marketplace

Making use of Washington, D.C.'s Downtown Development Overlay District (DDOD), which transfers density from historic sites and residential encouragement zones into the urban core, Fox Architects added three floors to a typical modern-era office building. The project also included recladding the entire facade, upgrading mechanical and electrical systems, and fitting out the interior spaces new occupants. Incremental growth and once-in-a-generation revitalization are fueled with transfer development rights, capturing the value of existing resources and transforming the performance of an inefficient building.

Left: Pre-renewal view of 1120 20th Street NW, another example of Washington, D.C.'s modern-era building stock.

Right: Computer-generated illustration of the proposed renewal showing the addition of two floors, the extension of floor plates into previously recessed corners, and the replacement of the entire building facade with curtain wall. Full building renewal is fueled by the economic engine of transfer development rights (TDRs). Images courtesy of Fox Architects.

largely at work. Sustainability and green building are changing this attitude for the better. But the high cost of building, economically and environmentally, will also ultimately demand that the structures we invest in contribute to vital communities that will last for generations. As architects get serious about these issues, basic tenets need

to become ingrained in their practice.

For starters, heeding the words of Ernest Boyer and Lee Mitgang is essential.⁴ Architects need to think in terms of constructing communities. Buildings are not merely objects; they work in partnership to create and re-create places, neighborhoods, and cities. The vision

of today's architects far too frequently follows myopic fascination with an architectural language established by modernism nearly a century ago. It is time to pay attention to the forest, and its processes of regeneration, not only the trees.

Designing in nature is the next imperative. There are many lessons to be learned from the Bedouin tent, the igloo, and the Anasazi cliff dwelling. There are others to be learned from vernacular regional architecture. Reconnecting with the environment means reinvolving people in acts of observation and control: opening and closing a window, turning lights on and off, raising and lowering shades, putting on or taking off a sweater. Advanced human comfort modeling is beginning to provide science that confirms what we already know. People are biological creatures. One size does not fit all. Architecture and engineering must reconnect with people and help people reconnect to nature.

Today, our faith in technology borders on the pathological. Got a problem? Develop a technology to solve it. Many of the problems we face today are the unintended consequences of the technologies we have adopted and proliferated in the past. Greenhouse gas emissions are the most obvious example. There are many, many more.

Architects working with historic structures have the opportunity to observe building technology from a closer perspective. Most components of traditional buildings are considered outmoded and substandard. This is simply wrong. As an example, properly maintained and weather-proofed, traditional wood-frame windows perform well. More to the point, they are readily repairable.

By comparison, modern replacement windows can be shown to perform poorly when their lifecycle is considered. As multicomponent assemblies, their glazing and frames are nearly impossible to repair. Glass and aluminum features that should last for decades, or even centuries, are integrated with seals and other moisture-management elements that are expected to last for twenty to thirty years ("differential durability" is the term). Furthermore, claims regarding the improved operational performance of modern windows are frequently overstated, measuring thermal performance at the center of glazing while ignoring actual installed performance. And it takes decades of operation to recapture the energy and environmental impacts expended in the manufacture of aluminum or vinyl windows. Many of the supposed improvements now being made to modern-era buildings are the problems that architects will face in 2030 or 2040 as these hopeful technologies reveal their mortality.

Modernizing Modern-Era Buildings

As architects face the greatest challenge of our generation, renewing the modern-era building stock, and by extension, reforming the places they make, it is absolutely critical that reality trump good intentions. Along with the unabashed conviction and aesthetic freshness of modernism's vision come complexity and contradiction. Those aspects of modernism which have proven more wishful than insightful leave practitioners today facing problems both astounding and perplexing. Modernism's legacy is certainly vast. As such, it is all the more critical that truly workable solutions be discovered.

It is perhaps simplistic, but it is equally profound, to observe that the present looming environmental disaster is directly attributable to the abysmal performance of modern-era buildings and urban systems. The only path to reducing current levels of environmental degradation leads through their transformation. While there are many lessons to be learned from the enduring resource-effectiveness of traditional buildings, the challenges of capturing the material and cultural value of the modern-era building stock will require new ideas and creativity. Blind faith in technology must be replaced with clear vision of the full consequences of the way we make and operate buildings, and most importantly, how those who follow us will have to remake them as they inevitably age over time.

Modernizing the modern-era building stock is just beginning to emerge as a discipline. But if it is to succeed in providing real solutions, it must rediscover the fundamental durability of building while reconnecting modern-era buildings with their urban and natural communities. Only through creative transformation can the promise of modernism's "new tomorrow" be finally and fully realized.

Notes

1. The United States Department of Energy (DOE) maintains the Commercial Buildings Energy Consumption Survey (CBECS) of non-residential buildings. The U.S. Department of Housing and Urban Development (HUD) maintains numbers on the residential building stock.
2. Projections of building industry activity are cited from "The Boom To Come: America Circa 2030," published in *Architect Magazine*, October 2006.
3. For a wonderfully fascinating exception, refer to "The White City" of Tel Aviv. In 2003, the United Nations Educational, Scientific and Cultural Organization (UNESCO) proclaimed it a World Cultural Heritage site.
4. For an insightful assessment of the need to refocus architectural practice and education onto the quality of communities instead of individual buildings, see Ernest L. Boyer and Lee D. Mitgang, *Building Community: A New Future for Architecture Education and Practice* (Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching, 1996).