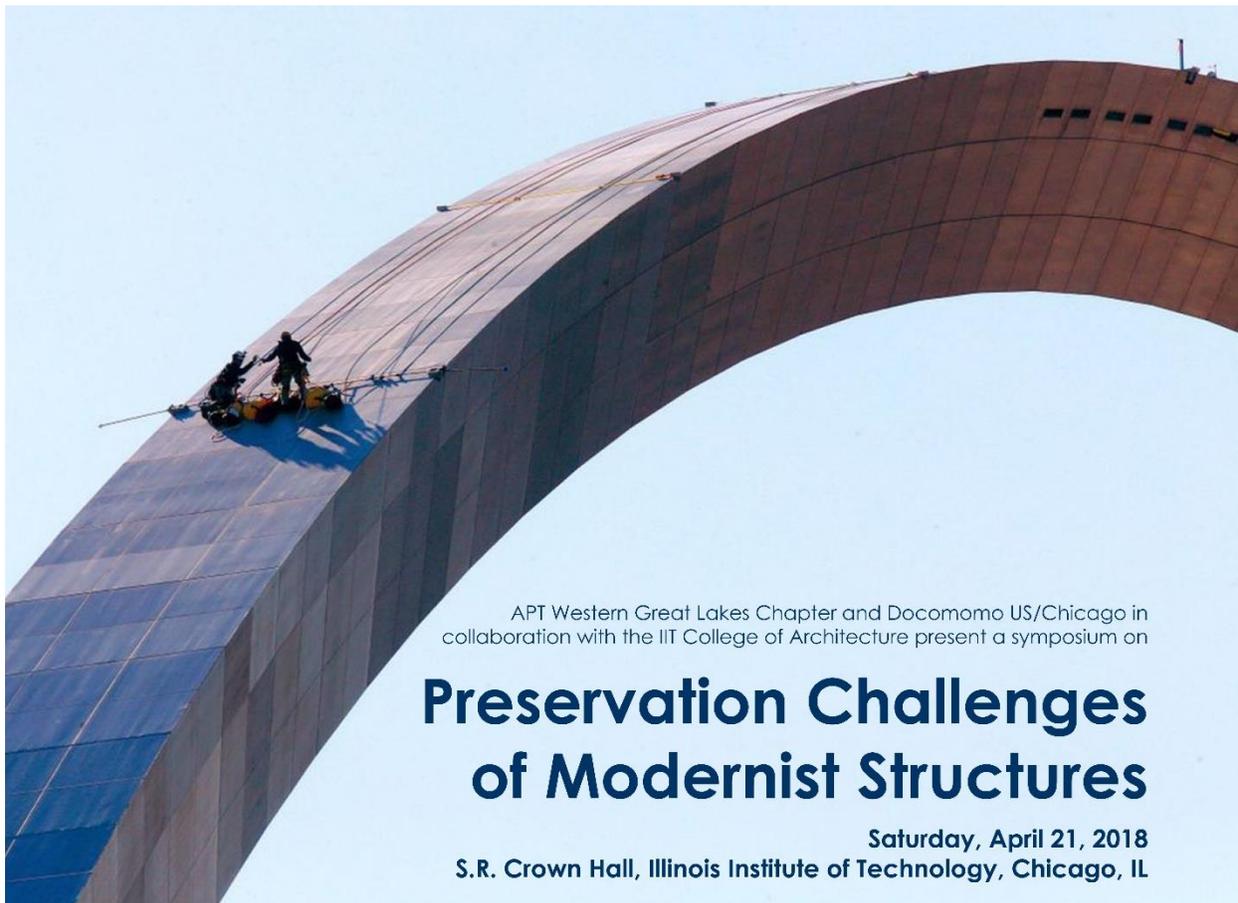


# Symposium Abstracts



APT Western Great Lakes Chapter and Docomomo US/Chicago in collaboration with the IIT College of Architecture present a symposium on

## Preservation Challenges of Modernist Structures

Saturday, April 21, 2018  
S.R. Crown Hall, Illinois Institute of Technology, Chicago, IL

The symposium abstracts included within are shared with the permission of the authors and are presented in no particular order relative to their presentation schedule.

## The Madrid/New Delhi Document: Approaches for the Conservation of Twentieth-Century Cultural Heritage

**Gunny Harboe**, FAIA, FUS/ICOMOS

Harboe Architects

In the United States, The *Secretary of the Interior's Standards for the Treatment of Historic Properties* have long served as the primary rules for guiding preservation practitioners in the design and construction of thousands of projects. Originally written in the 1970s to serve as guidance for the federal programs such as HUD, the *Standards* continued to be developed into an elaborate and richly illustrated set of guidelines to be applied to all projects that were looking to take advantage of the Federal Historic Preservation Tax Incentives program. They have been updated several times (most recently in 2017) and have been adopted by state and local municipalities across the country to help regulatory agencies to evaluate proposed projects on historic resources no matter when they were built.

Internationally, it is a different story. While there are several well-known international documents, such as the Venice Charter of 1964 and the Australian Burra Charter of 1979 (revised in 1999 and 2013), in many parts of the world, there has been significant confusion about the basic principles of conservation that should be applied to 20<sup>th</sup> century sites and places. It was believed that there needed to be a document that more directly addresses the sometimes thorny issues of more recent heritage. Between 2010 and 2011, the ICOMOS International Scientific Committee on 20<sup>th</sup> Century Heritage (ISC20C) developed a set of guidelines called *Approaches for the Conservation of Twentieth-Century Architectural Heritage*. The document was introduced at a major international conference that was held in 2011 in Madrid, Spain, that explored the issues surrounding the proper approach and treatment of architectural heritage of the 20<sup>th</sup> century. The guidelines quickly became known as the "Madrid Document" and were widely disseminated. The second addition, published in 2014, is available in twelve languages including Finnish, Japanese, Hindi, and Mandarin Chinese.

This fall ICOMOS held its General Assembly in New Delhi, India. During that time, yet another updated and expanded version was adopted by the ISC20C. The *Madrid/New Delhi Document*, as it is now known, moves beyond its original focus on architectural heritage to include other important types of 20<sup>th</sup> century heritage such as cultural landscapes, historic towns and industrial heritage.

This presentation will provide a brief overview of the *Madrid/New Delhi Document*, how it came to be and how it is applicable in every practitioner's methodology who is dealing with heritage of the 20<sup>th</sup> century.

## The Plight of Suburban Modernism - Elgin State Mental Hospital Adaptive Reuse of Bertrand Goldberg's Laundry Building at 50

Eric Keune, AIA  
SOM

1968 - Near the apogee of his thriving professional practice, Bertrand Goldberg was awarded his first major medical building commission — a patient bed tower for the Elgin State Mental Hospital in Elgin, Illinois. This commission was awarded nearly concurrently with a parallel commission for a long span concrete laundry building on the same site.

2018 - Still standing, both buildings, although relatively near Chicago, are little known and abandoned.

Understood as part of a family of buildings, these two buildings could be considered spinoff chapters, in an incomplete American response to the Japanese Metabolists, and present unique preservation challenges in the face of both the massive reshaping of the health care landscape and the return of suburban populations to America's downtowns. Both buildings are especially poignant within Goldberg's oeuvre in the wake of the 2014 demolition of the remarkable Prentice Women's Hospital tower at Northwestern University in Chicago, to make way for a new research building. While Prentice was erased from a prominent site in a dense mixed use urban neighborhood, the Elgin ensemble by contrast, stands at the periphery of an increasingly abandoned, historic Mental Hospital from the 19th Century, whose usability is slowly being eliminated in favor of a new, smaller consolidated facility to house the facility's current population of 500 from its peak of 6000 in the early 1950's.

Contraction of the overall site does yield potential reuse opportunities since it directly abuts the city's main recreational and sports facility. In 2015, SOM was asked to undertake a study on behalf of Landmarks Illinois to reuse the Laundry building - whose unique form and structural solution lend itself to such programs. The reuse of modernism in this case is first programmatic, but relates directly to similarly sited, repurposed suburban modernist buildings including Bell Labs (1958) in Holmdel New Jersey by Eero Saarinen, Weyerhaeuser Headquarters (1971) in Tacoma, Washington by Charles Edward Bassett of SOM and Orange County Government Center by Paul Rudolph, Orange New York; all of which have been under threat by recent demolition/adaptive reuse plans.

Societal return from the periphery to the urban core in recent years suggest that this is an increasing trend, which will continue to generate orphaned buildings designed in the high period of the second modernists as corporations continue to relocate to urban centers.

Using the Elgin complex as a case study, this presentation will unpack issues related to Goldberg and his oeuvre — which has been the subject of increased study and appreciation following the 2014 exhibition of his work at the Art Institute of Chicago, with consideration also given to parallel examples or similar problems/solutions, including those referenced above.

## **GSA's Sustainable Asset Management: *Preserving and Adapting Mid-Century Facilities***

**Robert P. Theel, FAIA**

**Regina Nally**

**Mariah McGunigle**

**Maria Roche**

U.S. General Services Administration

The U.S. General Services Administration owns 1866 properties nationwide. Approximately 500 of them were constructed between 1950 and 1979 - an era frequently defined as Mid-Century Modern. Of these approximately 19% meet historic eligibility criteria. In order for GSA to manage the needs of such a large real estate portfolio, a standardized investment strategy is required. However, National Register evaluation criteria, asset management, and investment planning do not always align or share the same values.

This presentation will share how GSA assesses the various investment needs of our portfolio by evaluating a variety of key elements including: tenant occupancy needs, security requirements, infrastructure modernization, and historic building preservation. How does GSA balance the various building concerns while maintaining the character-defining features of these properties? A series of case studies will answer this question.

These case studies will highlight GSA buildings with mixed degrees of architectural and historic integrity that range from large, multi-tenant complexes to smaller structures in mid-sized communities. This compare and contrast approach will illustrate the multiple needs GSA strives to balance in both annual maintenance projects and larger capital rehabilitation efforts.

The Audience takeaways include: a better understanding of the complexities that GSA faces in determining whether to pursue a pure preservation approach, a contemporary solution or something in between; how as landlord to the federal government GSA seeks to meld asset management and preservation strategies; and how flexibility, as a characteristic of Modern era design is aiding GSA in preserving our Mid Century buildings.

## Preservation and Modernization Challenges at Gordon Bunshaft's Hirshhorn Museum

**Nikolas Vigener, PE**  
Simpson Gumpertz & Heger

Designed by Gordon Bunshaft, the Hirshhorn Museum in Washington DC, opened in 1974, is a landmark of Brutalist Architecture and serves as the Smithsonian Institution's museum of contemporary and modern art. In its time, the building, a squat concrete donut, nearly windowless on the exterior and elevated over a courtyard by four massive piers, was a controversial addition to a landscape of stately and monumental "traditional" museums.

After more than forty years in service, the building is plagued by performance issues that are part and parcel of its 1970s technology: its energy performance is among the worst in SI's portfolio, and the mechanical humidification required to preserve its collection causes wintertime condensation. While these issues can be ameliorated or resolved with contemporary technology, the Hirshhorn's peculiar geometry and immutable architecture place limits on the addition of contemporary materials and equipment. Trade-offs include appearance changes, disruption, reduction in usable space and, of course, cost.

The Smithsonian Institution is assessing options for performance upgrades to the building but requires quantitative as well as qualitative information to support its decision making. Using the Building Science-based options analysis for the Hirshhorn's enclosure as an example, the presentation will describe the building's performance issues, as well as the technical analysis and decision making process that is applicable to the rehabilitation of a historic icon that houses a high-performance building. These include:

- Required enclosure repairs to address performance issues
- Establishing minimum improvements to resolve wintertime condensation
- Energy modeling to assess impact of energy improvements through the restoration of roofing, glazing, and opaque walls

## **A Challenge or a Gift? Conserving the Original Building Materials of Louis Kahn's Salk Institute for Biological Studies**

**Kenneth Itle**

**Timothy Crowe**

Wiss, Janney, Elstner Associates, Inc.

Situated on a Southern California bluff overlooking the Pacific Ocean, the Salk Institute for Biological Studies (1965) is one of architect Louis Kahn's most recognized works. The prefabricated, teak window assemblies and concrete walls of the studies and offices flanking the Institute's plaza define this distinctive complex. After fifty years in an exposed marine environment, however, the building complex has shown signs of deterioration and weathering to a non-uniform appearance. Rather than continuing short-term repairs and treatments to address the condition of the complex, the Salk Institute decided to develop a conservation-based plan for repairs, to manage these issues on a long-term basis.

In 2014, the Salk Institute engaged Wiss, Janney, Elstner, Associates, Inc. (WJE), to lead the preparation of a Conservation Management Plan (CMP) for the Salk Institute. In conjunction with development of the CMP, WJE designed a preservation program for the teak window wall assemblies, to improve their structural and weatherproofing performance. In 2015, WJE evaluated the assemblies to understand their structure, materials, and performance, and to assess appropriate levels of intervention. Building upon initial research and studies conducted by the Getty Conservation Institute, WJE customized and designed detailed repair approaches and developed construction documents to implement a preservation program aligned with the CMP. This program permitted WJE to retain the original window assemblies, which are critical to the site's cultural significance. Construction of this work was completed in April 2017. As part of this preservation program, WJE has also assisted the Salk Institute to develop protocols for repair of localized concrete deterioration.

This lecture examines the decision-making processes that led to the selection of appropriate intervention for various types of repair and conservation work at the Salk Institute, focusing on the teak window wall assemblies and the concrete, as well as how the CMP informed these decisions.

## **The Stuhr Museum of the Prairie Pioneer – Modernism and Rehabilitation on the Great Plains**

**Dan Worth, AIA, FAPT**

**Greg Munn, AIA**

BVH Architecture

The Stuhr Museum of the Prairie Pioneer is a quint essential example of New Formalism expression by renowned American architect Edward Durell Stone.

In the early 1960s, a group of Grand Island, NE residents, in an effort to commemorate their pioneering roots, contacted every major museum in the United States seeking recommendations for an architect for their new museum. The overwhelming response was for Edward Durell Stone, chiefly due to his modernist design for MoMA. Design was completed in 1963 and the museum was dedicated in 1967. As cited in the 2016 nomination to the National Register of Historic Places,

"The open plains on the outskirts of Grand Island provided Stone and his son, landscape architect Edward Durell Stone, Jr., a blank canvas. The resulting museum building drew from Stone's established geometrical vocabulary and is among Stone's most unique works in terms of setting and integration between building and landscape. The Stuhr Museum is a perfectly square, two story peripheral building on a square podium set upon a circular island within a circular pond. The approach to the building establishes its monumentality, and allows the visitor to view the building from multiple angles as they circumambulate the pond to reach the museum's entrance. The widely spaced columns and fascia recall classical motifs, while the simplified decoration, extensive white surfaces, strong horizontality, and use of reinforced concrete all speak to international style modernism. Stone's combination of the two traditions, classical and modern, was characteristic of his firm."

In 2007, BVH Architecture was engaged to develop a Conservation Master Plan for updating the building's interior and systems for modern use, correcting significant envelope deterioration and to provide accessibility while carefully maintaining Stone's original design intent. The 1963 construction documents are extant, and served as an invaluable guide. Research revealed that many details were changed during construction due to budget constraints, making for interesting and informative comparisons between intent and reality. The recommendations from this master plan lead to rehabilitation efforts beginning in 2013. The project was presented with a Citation of Merit Award at the Docomomo US Modernism in America Awards in 2017.

This paper will explore the many complex challenges faced preserving iconic buildings of the Modern Movement, including issues of authenticity, design intent, modern materiality, as well as the necessity of balancing the evolving programmatic needs of the building and its valuable contents. Using the Stuhr Museum as a case study, the presentation will examine how the process revealed significance while presenting exciting challenges and new ways of thinking of how to modernize Modern while staying true to a building's aesthetic. This process led to a fulfilling architectural journey to update systems and address today's code and program requirements, all while staying true to the design and aesthetic of Edward Durell Stone.

## **Challenges in the Preservation and Rehabilitation of the House of Tomorrow, designed by George Fred Keck for the 1933 World's Fair**

**Todd Zeiger**

Indiana Landmarks

**Charles Hasbrouck, FAIA**

bKL Architecture LLC

**Edward Torrez, AIA**

Bauer Latoza Studio

**Jose B. Rodriguez, LEED AP**

WSP USA

In 1933, the House of Tomorrow showed millions of attendees at the Century of Progress World's Fair a new, technology-driven vision of what domestic life could be in the future. Architect George Fred Keck's design featured innovations such as central air conditioning, the first electric dishwasher, inside storage for both a car and an airplane, as well as a glass façade.

After the Fair, the house was shipped across Lake Michigan to what is now the Indiana Dunes National Lakeshore. Despite recognition by The New York Times as an "indisputable architectural masterpiece," the House of Tomorrow has sat vacant and deteriorating since 1999. An innovative lease agreement between Indiana Landmarks and the National Park Service is now allowing for the rehabilitation of the house.

Rehabilitation of this unique building presents numerous technical and preservation challenges. While many original structural elements remain, 100% of the original exterior glass wall is gone and only fragments of original interior remain. Even when new, the innovative HVAC system was inadequate. The rehabilitation will preserve original historical elements, reconstruct missing exterior elements using contemporary materials, and install efficient, new, sustainable MEP systems that provide human comfort in the building for the first time.

The intent of this project is to create a New House of Tomorrow that faithfully reflects the original design intent and becomes a sustainable, financially viable model for the preservation of similar modernist structures in the future.

The following two abstracts were submitted individually; however, due to the similar subject matter, the presenters agreed combine for one presentation.

## **Case Study: Steel Curtain Wall Restoration, Eero Saarinen's War Birdcage Stair, Milwaukee, WI**

**Donna M. Weiss**  
Preserve, LLC

**Russ Drewry**  
HGA

Dedicated in 1957, the War Memorial is Milwaukee's only building by master architect Eero Saarinen. This project was led by Russ Drewry from HGA architects. Preserve, LLC was the Architectural Conservator providing restoration expertise on steel curtain walls and a restoration approach.

HGA had been awarded the project to replace the steel curtain wall of the original stair, known as the "Birdcage Stair," with aluminum. HGA knew the steel curtain wall fine lines with glass lites only 10" wide x 58" tall (smaller at angles) would be dramatically altered by this approach.

HGA proposed to the County they proceed with cost estimates and details for the aluminum replacement track while Preserve, LLC executed a condition assessment and cost estimates for restoration. The County already allocated budget to execute the work - a solution had to fall within a budget ceiling.

This presentation will demonstrate the parallel pricing approach, existing conditions, materials and methods determinations essential to bringing the restoration approach within an already fixed budget, field testing to confirm scope (such as vapor blasting) and pricing, mock—ups, and project execution. Public bid requirements impact on the project, pre-qualifying contractors, and the bid process will also be discussed.

The steel was corroded, the extent of which was not fully visible beneath paint and sealants Glazing stops and fasteners could not be removed and were feared to be seized in place Glazing was fractured due to oxide jacking of the steel frame and would need to be replaced within a 7 mm glazing pocket; an innovative product was used and will be detailed in the presentation. All restoration needed to occur without increasing the structures dead load capacity.

A myriad of factors had to be known in order to price the curtain wall restoration approach such as:

- Glazing Stops (condition and removal methods)
- Glazing Replacement Specification (cost effective with low weight utilizing existing 7 mm glazing pocket, if possible)
- Heating Augmentation (with the least visible approach)
- Paint and Corrosion Removal Methods (most effective with least cost impact)
- Schedule (building use and construction timing)
- Scope (building maintenance items vs. curtain wall related restoration)
- Glazing type: Wire glass is no longer allowable so given that the glass needed to be replaced we need to select a product. "What would Eero do?" became our mantra

This abstract and the preceding abstract were submitted individually; however, due to the similar subject matter, the presenters agreed combine for one presentation.

## **The Preservation of Eero Saarinen's Birdcage**

**Neal A. Vogel**  
Restoric, LLC

This presentation will cover the research, installation and project nuances of ultra-thin vacuum insulated glass (VIG) or "Spacia" in the restoration and re-glazing of Eero Saarinen's "Birdcage" (1955) at the Milwaukee County War Memorial in Milwaukee, Wisconsin in 2017. The project required 686 Spacia units mounted in fixed rectangular, trapezoidal and casement window openings throughout the three-story stair structure and breezeway. This project represents the first historic commercial installation of vacuum-insulated glass in the Midwest. The advantages and limitations of glazing historic buildings with VIG will be covered including aesthetics, lead times, costs, and setting options. The energy and safety performance of Spacia will also be compared and contrasted with other commercially available products for glazing retrofits in historic buildings.

## North Shore Congregation Israel: Concrete Repairs at a Modern Architectural Icon

**Mike Ford**, AIA

**Deborah Slaton**, FAPT

**Paul Gaudette**

Wiss, Janney, Elstner Associates, Inc.

The North Shore Congregation Israel (NSCI) is a multi-building complex consisting of a sanctuary, administration building, and a school building connected by a shared enclosed breezeway. These structures were designed by Minoru Yamasaki and completed in 1964. The primary features of the buildings include the architectural precast concrete panels surrounding window and door openings, architectural precast concrete columns and roof shells that frame the glass breezeway, and the cast-in-place concrete parabolic forms of the sanctuary. (An additional small sanctuary was constructed in 1990 at the south end of the complex.)

Yamasaki was a modernist architect of the mid-twentieth-century whose notable work includes the World Trade Center (1971). His early works and prominent low-rise structures were typically modernist concrete structures featuring details inspired by the pointed arches of Gothic architecture. Yamasaki was very interested in the design potential of precast and cast in place concrete, as illustrated in the NSCI complex, which is characteristic of the architect's early work.

NSCI personnel had observed spalling along the edge of the architectural precast concrete panels at the school and administration buildings. Previous concrete patch repairs did not match the existing architectural concrete and many had failed. Wiss, Janney, Elstner Associates, Inc. (WJE) was engaged to perform an assessment of the existing architectural precast concrete, document the extent and types of distress, and develop repair documents. WJE worked with the contractor to develop a concrete design mix and concrete finishing procedure that would blend with the existing concrete. Project challenges included developing a design mix that would match the existing concrete, keeping in mind the different facade components to be repaired and the varying natural lighting conditions that affect the appearance of the concrete; identifying installation procedures to blend the repairs and match the existing finish; and developing a cleaning procedure to address the range of soiling and biological growth present on the building.

The presentation will focus on the process of developing the concrete repairs for NSCI, including an overview of the building assessment process and development of repair details, concrete cleaning procedures, concrete mix design, and concrete finishing procedure.

## Challenges of Preserving the Gateway Arch

**Stephen J. Kelley, FAIA, SE, FAPT**  
Stephen J. Kelley, Inc.

The Jefferson National Expansion Memorial (JNEM) was the first major national park development after World War II and a turning point from the rustic style to a more modern style of architecture that characterized the Mission 66 period. Its centerpiece, the Gateway Arch, is significant due to the role it played in the career of architect Eero Saarinen and its architectural and engineering design. The Gateway Arch in St. Louis, designed by Eero Saarinen, was designated a National Historic Landmark in 1987 and retains a high degree of integrity.

In 1947, Eero Saarinen entered the architectural design competition for JNEM. His winning entry, which included the Arch, was one of the first major designs Saarinen completed on his own and seen by some as his greatest contribution to American modern architecture.

The design of the Gateway Arch is based on a weighted catenary. The Arch is constructed of double-wall carbon steel and stainless steel triangular segments that reduce in size as they approach the apex. This stressed metal double skin carries the structural loads, eliminating the need for interior framing. The stainless steel material that covers the exterior of the Arch contributes to the overall character of the structure. The reflectivity of the material is an important aspect of the Arch's design, and the quality of the machined finishes adds to the overall character of the Arch.

Visitors can touch the monument where it meets the ground and experience its abstract simplicity close up. Consequently, there are body oils, perspiration and chemical pollutants from touching by hand, soiling collected on these residues, and graffiti either incised, etched or pounded into the stainless steel. Tools of ferrous and other metals have been used in making this graffiti and corrosion residue of these dissimilar metals are causing problems.

The Gateway Arch has also become soiled above the ground and this soiling is particularly apparent at the lower reaches of the legs. The previous studies (Gateway Arch Corrosion Investigation — Part 1, 2005; Jefferson National Expansion Memorial Gateway Arch Historic Structure Report, 2010; Gateway Arch Corrosion Investigation Part 2, 2012; and Gateway Arch Corrosion Investigation Part 3, 2015) have given confidence that stains that appear on the upper reaches of the monument are atmospheric pollutants and not corrosion-related as was originally feared.

Maintenance and preservation of the Arch poses numerous challenges due to its sheer size and the use of modern metals and welding techniques, to name a few. The present challenge is selectively cleaning the monument without affecting the reflectivity. Small-scale mockups using traditional and mildly abrasive techniques were installed at the base of the north leg in 2014, but there are other and newer technologies that will also be evaluated.

## Special Legal Challenges and Preservation Opportunities for Modernist Architecture

**Richard F. Friedman**

Neal & Leroy, LLC

Modernist architecture does not always have strong public support, and the new federal tax law effective in 2018 adds to the obstacles. To preserve the innovative mid-Century buildings, it is necessary for advocates to become aware of the legal challenges making mid-Century buildings particularly difficult to preserve.

One legal challenge is the fifty-year rule of the National Register and similar rules or understandings in local communities. The Secretary of Interior's regulations prohibit placing buildings younger than fifty years on the National Register of Historic Places, absent their extraordinary importance. Fortunately, as time passes more landmarks can overcome the fifty-year barrier.

Another barrier, even for half-century-old buildings, is public perception, which may support preservation of old buildings but does not regard modernist buildings as old and worthy of protection. Many modernist buildings were placed in service during our lifetimes or, because of the nature of the style, seem new even if they are not. A related concern is outdated architectural surveys—where they exist. Many surveys, like Chicago's, were created when there was no threat to newer buildings and thus arbitrarily excluded newer buildings from the survey. Chicago's Architectural Resources survey, completed in 1984, ignores Crown Hall and all Mies buildings because post-war buildings were thought too contemporary to be surveyed. The same situation is true in other cities. It is time to update the surveys and the thinking of the surveyors.

Perhaps the law which holds the greatest expectation is the most disappointing. Section 106 of the National Historic Preservation Act of 1966 is weak and its capabilities are not fully exploited. An example of the failure of the promise of Section 106 is the Morton Salt Building. Following its way through the Section 106 process is instructive. Section 106 provided interested groups the opportunity to be aware of the development plans and to participate in the public debate about the future of the building. But in the end, the federal administrators' proposed resolution was to allow the building to be demolished, with only drawings and photographs preserved for posterity. As weak as Section 106 is, it could be used more effectively to achieve its preservation goal.

Preservation and protection opportunities exist locally, where communities, called certified local governments, may use their local landmarking power to protect modernist buildings. There is no fifty-year rule to hold back local landmarking here.

Opportunities are still abundant to save modernist structures. The minimalist style of such buildings, together with their relatively contemporary systems, allows for cheaper and easier rehab than older buildings. Fortunately, after the Tax Cuts and Jobs Act, most tax incentives for rehab are intact. The Historic Tax Credits are retained but significantly reduced, but other incentives, like the federal conservation easement program, state historic tax assessment freeze and local government grants and assistance, remain unchanged.

## Mid-Century Glazed Glass Block

### Nicole Frank

Master's Degree Candidate, M.S. Historic Preservation, School of the Art Institute of Chicago

This presentation will discuss several different glass block designs manufactured by the Owens-Illinois Corporation and the Pittsburgh-Corning Corporation between 1950 and 1979. After their initial popularity in the 1920s, interest in and sales of glass block had decreased by the mid-century, resulting in a need to breath new life into the building material. What resulted was a brief period of ceramic frit fused colored, patterned, and textured blocks that offered new graphic possibilities to architects and builders. Offering a range of colors from walnut to vibrant coral in several geometric patterns, the blocks could be utilized as decoratively or minimally as desired. In 1962 and 1967, the Pittsburgh based design firm Peter- Muller Munk and Associates was hired by Pittsburgh-Corning to design two series of glass blocks. What resulted were Intaglio Glass Wall Units and the Chiaro I and II designs. Distinct patterns featuring a recessed antiqued glass in the Intaglios and organic, sculptural surfaces of the Chiaros produced dimensional walls with strong textural effects. Often found in the suburbs of metropolitan areas, these glass blocks embodied mid-century design and added decorative elements to simple forms. Due to preservation challenges, these glass blocks are no longer manufactured and throughout time are being replaced by their clear and simply patterned counter parts. It is valuable to understand the context and history of these glass blocks before they disappear from the built environment.

## Conserving Tadao Ando's Concrete in Chicago

### Dan J. Whittaker

Ph. D. Candidate, Architectural History, Illinois Institute of Technology

The contemporary creation of finished concrete surfaces which meet the performance and aesthetic specifications of Tadao Ando entails a broad array of construction techniques specifically tailored to yield predictably high expectations. This presentation will explore the detailing, preparation, construction and in-situ casting of concrete in a Chicago construction project not yet open to the public. New technologies, uniquely adapted to respond to the Chicago climate, and not formerly used in other overseas projects, will be discussed, explored and shown in an array of construction-site photographs documenting this building process. Restoration, a term that in this instance shall be used to encompass the routine and expected patching of concrete to conform to an aesthetic expectation, will be rigorously examined.