

HISTORIC PRESERVATION OF THE RECENT PAST: CHALLENGES FACING THE
PRESERVATION OF MODERN ARCHITECTURE

By

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A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN ARCHITECTURAL STUDIES

UNIVERSITY OF FLORIDA

2007

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To my amazing family

ACKNOWLEDGMENTS

First, I thank my husband, Shane, for being incredibly patient with me throughout the thesis research and writing process. I thank my parents for always supporting me, not matter what endeavor I choose to undertake. I thank Professor Peter Prugh and Professor Roy Graham, for fostering my interest in preservation and motivating me throughout my studies at the University of Florida. I thank Professor Charles Hailey, for taking me in at the last minute and helping me create this finished thesis.

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of the University of Florida in Partial Fulfillment of the
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August 2007

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Major: Architecture

Over the past two decades, the recent past has become an increasingly critical topic for preservationists. As Modern buildings pass the fifty-year mark, or rapidly approach it, differing views arise about the need to preserve these buildings. Most Modern buildings have been disliked or misunderstood since the beginning of the Modern Movement, and the surmounting technical problems faced by these buildings only fuel the conflicting opinions on how to deal with these aging structures.

My study first looks briefly at the history of Modern architecture to provide a foundation for the ideas, architects, and buildings behind the movement. Next, the technical issues encountered in Modern building envelopes are discussed. Then, the negative views of the aesthetics of Modern design and the presence of aesthetic preferences in decision making are discussed. Essays, journal articles, and case studies were utilized for information on the connection between preservation and Modernism. This data helped to define some of the important challenges of preserving Modern architecture and led to the examination of groups that promote and protect many of these important historic resources from the recent past. The observations section of my study addresses the need for educational reform to make

preservationists and the general public aware of the importance of Modernist buildings in our place in history, and discusses some of the other obstacles faced by Modern buildings.

CHAPTER 1

INTRODUCTION

Statement of the Problem

In the blink of an eye, the present has become the past. Buildings that were erected in the lifetime of many Americans are now up for consideration as historic properties. The buildings themselves do not seem “old” to most people, let alone historic or even significant. Included in the “old” new buildings of the recent past are works of Modern Movement architecture, a period of design which lasted roughly from the 1920s to the 1970s.

For the most part, Modern architecture was never fully appreciated or understood. While some enlightened people may have understood the significance of European-style white-box Modern structures and the glass-and-steel skyscrapers of the postwar era, even fewer grasped the importance of Modernist industrial buildings, suburbs, and roadside architecture. How should we expect these buildings to now be saved if they were never appreciated in the first place?

Aesthetic barriers are a considerable obstacle plaguing architecture from the Modern Movement, but the short lifespan of most Modern architecture is an even greater challenge for preservationists. Building materials and construction techniques in Modern design were often experimental. Designers did not intend for their buildings to last for eternity—an idea that went hand-in-hand with the dismissal of historical reference from Modern design. While Modernists certainly did not want their buildings to fail, they were primarily concerned with building efficiently for the present and often did not take into consideration how well their buildings would stand up over time. Many Modern structures are now in disrepair due to material or system failures or blatant neglect. This raises an important issue in the preservation of Modern architecture: authenticity.

If Modern buildings face detrimental structural and material failures, is it against preservation values, specifically the Secretary of the Interior's Standards (Appendix A), to try and preserve them? According to the Standards, properties should only be minimally changed or altered, and the materials and spaces that make the building significant should be left alone. Many of the experimental techniques and materials used in Modern design are now obsolete, rendering them irreplaceable. Does substituting a new material for the original mar the authenticity of the structure, making it undeserving of preservation?

Despite the dilemmas involved in saving the Modern buildings, many preservationists and organizations are finally beginning to devote time and attention to documenting and preserving Modern structures. Others still remain ambivalent toward Modern heritage. If Modern architecture is treated as an impermanent piece of our history, then that is what it will become—and it will not have the chance to leave a permanent mark on the future (Longstreth “Critique” 2000).

Purpose and Significance of the Study

My study ties together the technological limitations of Modern buildings, the issue of aesthetics and its relation to preservation, and the organizations that are looking beyond the challenges of preserving Modern architecture and taking action to save Modern buildings. My study makes use of journals, books, and the Internet to provide a history of the movement, discuss the preservation failures and triumphs, and examine some of the future challenges to the preservation of Modern buildings.

CHAPTER 2

RESEARCH METHODS

The first approach taken for this thesis was to review the existing literature on the Modern architecture and historic preservation. Since the idea of preserving Modern architecture is a relatively new concept, the main sources of information regarding Modernism and preservation are located in journals and publications from conferences. In addition to the fundamental pieces collected in *Preserving the Recent Past 2* and *Modern Movement Heritage*, journals in the design field have included articles about the attitudes toward recent past preservation, as well as technical limitations of Modern buildings, over the past few decades.

For the background of the architectural history featured in this study, books were the most beneficial source of information. General architectural history books provided a foundation for the historical summary, while more specified books filled in the gaps, detailing the particulars of the Modern Movement. These books provided the necessary background information for a background summary of the people, locations, buildings, and ideas behind the Modern Movement.

After the Modern Movement was summarized, the problems of Modern buildings were examined. The technological challenges of preserving Modern buildings are numerous, and some of the most pertinent issues with curtain walls, monolithic structures, thin-shell structures, and flat roofs are outlined in this study. The challenges are addressed more specifically through various case studies on important examples of buildings from the Modern Movement. It is important to realize the difficulties with Modern buildings in order to address preservation issues pertaining to them.

Technical issues are not the only barrier for the preservation of Modern buildings. Cultural aspects and aesthetics also play a vital role in preservation and Modernism. The

Modern Movement was highly misunderstood by the general public. The burgeoning historic preservation movement in the 1960's itself was in some ways fueled by a distain for the current architecture of the day. Case studies provide support on how aesthetics has affected people's judgment of Modern architecture. This especially apparent in the battle over Richard Neutra's Cyclorama Building at Gettysburg National Park.

Though Modern buildings face many obstacles, several organizations are working to promote the preservation of Modernism. The internet is the most critical source of information to help identify these organizations. The websites for the International Council on Monuments and Sites (ICOMOS), the International Working Party for the Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement (DOCOMOMO), the World Monuments Fund (WMF), the Recent Past Preservation Network (RPPN), UNESCO's World Heritage Centre (WHC), and ICCROM outline current initiatives to help save and raise awareness of Modern buildings. The sites are updated regularly so they provide the most recent information available on the subject.

My research approach led to the discovery of another underlying barrier to the preservation of Modern architecture—lack of education and information. People do not know the important ways Modern design and planning changed building types and cities everywhere. People let their aesthetic preferences control the way they feel about Modernism without knowing the reasons why buildings look the way they do. Of almost equal importance is the lack of education about how to preserve these Modern buildings when the technologies implemented were new and experimental. This leads to another dilemma in preserving Modern buildings—authenticity. When materials perform poorly or altogether fail, it can be difficult to know how to address the possible solutions. How much of a building can you repair or replace while still

maintaining the authenticity of the original structure? In traditional structures that implemented traditional materials, it was often easy to replace or repair any materials that had failed. In Modern buildings, you often find materials that are no longer produced. Is it against preservation standards to implement new materials if they make up a significant portion of a structure? The dilemmas discussed in my thesis outline many of the obstacles to preserving Modern architecture.

CHAPTER 3

LITERATURE REVIEW

Interest in preserving buildings and sites from the Modern Movement is a relatively new phenomenon. An increased interest in saving Modern buildings sparked in 1988 with the formation of an International Working Party for the Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement (DOCOMOMO), an organization solely based on documenting and conserving buildings from the Modern Movement. And as the famous and not-so-famous Modern icons are disappearing at an alarming rate, people are increasing their interest in these often misunderstood pieces of architectural history. While it is possible to find written works on the issue of preservation and Modern architecture, the published pieces are few in number, and are often found in journals. Both *Preserving the Recent Past 2* and *Modern Movement Heritage* contain a series of papers, covering topics such as the Modern Movement in general, the significance of the movement, its shortcomings, and strategies for conserving this crucial part of American history. Edward Ford discusses the technical problems with constructing impermanent buildings in “The Theory and Practice of Impermanence.” In *How Buildings Learn*, Stewart Brand discusses maintenance concerns of Modern Buildings, and discusses how buildings grow and evolve with time. Hale discusses the failures of Modernism to beautify the world in *The Old Way of Seeing*. Brent Brolin considers Modernism a complete failure and talks about alternatives to Modern design in *Failure of Modern Architecture*. Finally, Richard Longstreth tackles recent past preservation issues and barriers in both “When the Present Becomes the Past” and “Critique: What to save? Mid-century Modernism at risk.”

Preserving the Recent Past 2

Over the past several years, preservationists have finally begun to devote serious attention to the immense challenge of documenting, evaluating, and conserving cultural resources

from the twentieth century. This attention occurs not a moment too soon: it is clear that these are the issues that preservation professionals will be grappling with for the remainder of this century and well into the next millennia.

– Ward Jandl, 1995.

The publication *Preserving the Recent Past 2* is a collection of papers from the Preserving the Recent Past 2 Conference that took place in 2000 in Philadelphia. The first conference on “Preserving the Recent Past” had been in 1995 and stirred public and professional interest in recent past architecture. It seemed that in five years, the need to address Modernism had become even more urgent for preservationists and design professionals.

The publication is divided into three major sections. First are the papers that examine the recent past from an international perspective. Introductory topics include an examination of Canada’s Modern heritage, which is often overlooked when dealing with Modern architecture and development. Specific preservation topics about England and Scotland are also addressed. The inclusion of the Secretary of the Interior’s Standards for the Treatment of Historic Properties outlines standards for preservation, rehabilitation, and restoration.

The second section of the publication focuses on evaluation, planning, and preservation strategies. Here, there are papers on Puerto Rican public housing, low-income housing in Chicago, supermarkets in New Jersey, modern banks and storefronts, Cuban Modernism, landscape design in Maryland, a prototypical Modernist subdivision in Colorado, and highway bridges, just to name a few. This section serves to show the diversity of places and building types affected by the Modern era. The Modern Movement was not limited to residences in Los Angeles or skyscrapers in Chicago and New York. Modernism infiltrated all building types around the world.

The final section provides the most information on the technical aspects of the Modern Movement, and it scratches the surface of the issue of preservation. Modernism was a time for experimenting with new materials. Buckminster Fuller was a proponent of using new materials and forms in his designs. His 1945 Dymaxion House challenged the notion of what was considered “home” with its basic metal cylindrical form and domed roof. The structure was easy to move, erect, and take apart. Today, conservation efforts for the Dymaxion have been difficult as it has suffered from serious deterioration over time, but it an important piece of Modern history (Ashby 2000). Included in the arena of new materials, the emergence of Formica has a place in Modern architectural history. After WWII, the use of Formica and other plastics grew in popularity, but many of these early synthetic materials are now facing degradation problems (Stull 2000).

Thomas Boothby and Charlene Roise discuss the challenges specific to thin-shell concrete structural forms that became so popular for sports arenas and conference centers in the 1960s and 1970s in the article “Soaring or Crashing? The Challenge of Preserving Thin-Shell Concrete Structures.” Boothby and Roise (2000) use case studies, such the Kingdome in Seattle and Hershey Sports Arena, to illustrate the successes and failures of these thin-shell concrete structures.

Finally, the six essays discussing curtain walls provide an enormous amount of information on the history, construction, and ultimate failures and limitations of the curtain wall. David Yeomans gives an overview of the pioneers of curtain-walling in his paper, “The Arrival of the Curtain Wall,” as well as the technical development of the building system. Dennis Johnson discusses “Modern Thin Cladding Considerations” such as thin stone, thin precast concrete, resin panels, composite aluminum panels, and solid aluminum panels. Johnson also discusses the

failures of using thin-cladding system instead of thicker units. Don Erwin's "Principles of Curtain Wall Performance Affecting Assessment and Repair" sheds light on the problems of movement and water infiltration faced by curtain walls.

The last chapter of *Preserving the Recent Past 2* mainly focuses on the issues faced by commercial architecture. It does not specifically address the problems faced by Modern residential or vernacular structures.

Modern Movement Heritage

Modern Movement Heritage is a compilation of nineteen essays by authors around the world. In the introduction, editor Allen Cunningham provides an overview of the Modern Movement, its shortcomings, and its significance. Much like *Preserving the Recent Past 2*, this collection is divided into three sections: Conjectures and Refutations, Strategies and Policies, and Case Studies. Over 150 images support the written works included in this book.

Conjectures and Refutations

In "The Icon and the Ordinary," Hubert-Jan Henket discusses the paradox of preserving "throw away" buildings, and what preservation approaches should be taken for the Modern buildings that were built with a limited lifespan. Henket recognized that it is critical to be selective when preserving Modern structures because not all them can (or should) be saved. Modernity is a difficult term to define, and Henket determines that it means "that which is innovative in its social, technical and aesthetic intentions" (1998:15).

Hilde Heynen's essay, "Transitoriness of Modern Architecture (1998)," discusses the inherent temporariness of Modernism, and how that affects how we should treat it today. It is often argued that Modern architecture should be left to decay on its own. Heynen writes about the voices behind those opinions, such as Tschumi, Ruskin, and Sant'Elia. On the other hand, Torres and Berman argue the opposite, expressing that Modern architecture should be protected

and conserved. When preservation is enacted, however, sometimes the result is a life-less, frozen-in-time building which is far from the Modernist vision. Heynen concludes by stating the importance of protecting Modernism in order to legitimize the significance of the movement.

Strategies and Policies

Part II contrasts preservation policies and attitudes regarding Modernism in five different locations—Latin America, Hungary, the United States, Canada, and the Netherlands. Since the focus of this study was primarily on American modernism and preservation, Nina Rappaport's "Preserving Modern Architecture in the US" (1998) contains important data about preservation efforts in America. Rappaport discusses the ways information on preservation and Modernism are disseminated in this country and touches on the organizations and individuals that have protected important works of Modernism.

Case Studies

"The Metal and glass curtain wall: The History and Diagnostics" (1998) is both a history of the curtain wall, and a listing of its failures. Kelley and Johnson point out the main problems with curtain walls—water penetration, air leakage and thermal discomfort, material failures, and structural failures. They also discuss the imperfections of common repair scenarios for curtain walls.

The remainder of Part III focuses on specific structural and material concerns of several different Modern buildings. Two New York curtain wall structures, the Woolworth Building and Lever House, are contrasted in "Great Expectations." Several European structures, such as the House of Culture, Sant'Elia Infant School, Villa Noailles and Villa Cavrois, De Lar Warr Pavilion, Masion Prouve, Zonnestraal Sanatorium, and Villa E-1027, are all examined in further detail with a chapter devoted to each.

The Theory and Practice of Impermanence

Edward Ford discusses the inherent flaws in Modern construction. Ford outlines numerous case studies, such as Peter Eisenman's House VI and Rogers and Piano's Pompidou Center, that are experiencing severe and expensive problems although they are relatively young buildings (just over 30 years old). Although these buildings are not strict examples of International Style Modernism, they represent the unfortunate fate of many innovative buildings from the past eighty years. In some cases, the fault of poorly constructed building lies with the builder, but in other cases it is the fault of poor detailing by the architect. All Modern building types are subject to technical challenges—residences, institutional buildings—not just curtain wall skyscrapers. Problems with Modern buildings cannot be attributed to one common denominator. Ford brings up the important point that all buildings have problems, not just Modern ones, and discusses the many problems with traditional buildings by citing specific examples. According to Ford, the issues with Modern structures are often just more publicized because people have are critical of Modern buildings in the first place. The main difference with durability issues with traditional and Modern structures is that traditional buildings were meant to last, while Modern buildings were considered more temporary (Ford 1997).

While minimalism allowed for Modern buildings to achieve their sleek appearances and effective use of materials, it is the very minimalism that causes so many problems. Dome structures are full of problems. Early Modern steel curtain walls by Le Corbusier and Walter Gropius failed within twenty years. Thin-stone clad buildings are incredibly expensive to maintain. Even monolithic Modern structures, such as the Hilversum Town Hall and Louis Kahn's Exeter Library, have their own share of problems.

Ford concludes that Modern buildings must be treated like the complex structures that they are. Architects, contractors, and occupants must all work together to maintain Modern

structures. The biggest role is ascribed to the architect, who must keep the user in mind when designing and detailing buildings.

How Buildings Learn

In *How Buildings Learn*, Stewart Brand examines buildings as a whole—not just whole in space, but also in time. Brand argues that the uses of buildings and their surroundings are constantly changing. Buildings are always being driven to change by technology, money, and fashion. Brand states that commercial buildings adapt quickly, domestic buildings steadily adapt, and institutional buildings are resistant to change.

Brand discusses three types of buildings, what he calls “low road,” “high road,” and “no road” buildings. The “low road” buildings are cheap, lacking in style, and have a high turnover rate of occupancy. Most buildings fall into this category. Although these buildings may not appear desirable at first, according to Brand, they allow for tremendous amounts of creativity from the occupier. “High road” buildings, in contrast, are the elite buildings that were intended to last, such as the residences of United States presidents. They are considered significant to most people, but they are not open to change. They can be improved, but not drastically altered. The “no road” buildings are famous new buildings, would-be famous buildings, and imitation famous buildings. These buildings are featured in sleek architectural magazines and are an expression of the artistic side of architecture. According to Brand, the notion of “art” as architecture started in the mid-1800s, and it still thriving today. Brand notes that the main problems with art functioning as architecture are that art is non-functional and impractical, it revels in the new and despises the old, and architectural art only sells at a distance. These “no road buildings” are driven by architectural fads.

Brand specifically mentions buildings from the Modern Movement when talking about how these buildings could be built cheaply, but were flashy. The architects received praise by

using less money, but the users ultimately were the losers in this scheme because they were stuck with cheap buildings plagued with problems. Brand also discussed maintenance of buildings, and addresses many areas specific to Modern buildings, such as flat roofs, faulty domes, new materials, thin brick walls, and concrete.

The Old Way of Seeing

Jonathan Hale devotes a chapter to “The Life and Death of Modernism” in his book, *The Old Way of Seeing*. Hale points out that Modernists had high hopes of beautifying the world through Modern architecture, but their goal was never realized. In the beginning, Modernism’s simplicity may have been refreshing and shocking, but after short while it became boring to both architects and users. Hale discusses how Modernism was an elitist style, and those who were good were successful, but those who were not as good, failed miserably. While Gropius had intended to teach a vision, he instead gave the world a style. It was not the intention of Modernists to provide style guidelines.

Hale also brings up the point of Modern city planning. Architects such as Le Corbusier had far-reaching plans for entire towns and housing complexes, but the ideas behind some of those plans led to disastrous public housing projects like Cabrini Green in Chicago, and Pruitt-Igoe in St. Louis. Lastly, Hale talks about the theoretical end of Modernism, brought about by Robert Venturi and Post-Modernism.

Failure of Modern Architecture

Brent Brolin’s 1976 book, *Failure of Modern Architecture*, is a rejection of the Modern design principles and ideas that were still being taught in design schools at the time. Brolin points out that Modernism never gained the mass acceptance that was intended. Modernism, to Brolin, is not only visually imposing, but it also disregards the social and aesthetic values of users. Brolin feels that Modernists forced their views on unwelcoming recipients, and stripped

them of their traditions when designing their buildings. The Modernists veiled their aesthetic preferences under moral pretenses. The rejection of ornament led to boring buildings. Standardization and mass production produced monotonous cityscapes. Brolin concludes with case studies of Chandigarh and Yemen as failures of Modern design and planning because he feels that they show how designers imposed their sterile aesthetics on groups of people who rely on historicism in their buildings as an important piece of their culture.

When the Present Becomes the Past and Mid-Century Modernism at Risk

Richard Longstreth, former president of the Society of Architectural Historians, has written several articles on preserving the recent past. His 1992 essay, “When the Present Becomes the Past,” Longstreth discusses how the 1966 preservation legislature was fueled by the notion that the buildings of the present were inferior. The National Historic Preservation Act (NHPA) protected the buildings that stood in the way of “progress.” The increasing interest in preserving the recent past is often fueled by nostalgia for the buildings that people grew up around.

Longstreth talks about how most people will be reluctant to accept preservation of the recent past. In history, people have generally hated the recent past and adored the distant past. According to Longstreth, this is a never-ending cycle. Too often, aesthetics fuel decision-making in preservation, and people, in general, dislike the aesthetics of Modernism. They view the recent past as an alien environment. The recent past is also viewed as too young to be historic and worthy of saving. Ultimately, Longstreth calls for an improvement in education of buildings of the recent past in order to make people think it is worthy of preservation.

In 2000, Longstreth revisits the recent past and focuses on the troubles facing Modern architecture. Much of Modernism is either deteriorating or being forgotten altogether. While many of the icons of Modernism have been lovingly saved, this gives a false sense of security for

Modernism as a whole. Works by lesser known Modern architects are disappearing at an alarming rate, and no one seems to notice. Since Modern houses often are sited on expensive pieces of land, they are viewed more as real estate and are not appreciated for their historic value. Developers buy up these properties, only to demolish and reuse the land for something more profitable.

Longstreth discusses how preservationists are nervous about Modern architecture, and may not fully see the significance of Modernism. Architects tend to understand the importance of the Modern Movement, and it is up to them to promote education of the buildings from our recent past.

CHAPTER 4

THE EVOLUTION OF MODERN ARCHITECTURE

First, what makes a building Modern? The Organization for the Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement, DOCOMOMO, states that Modern buildings are those constructed roughly between the 1920s and 1970s that “emphasized expression of functional, technical or spatial properties rather than reliance on decoration” (DOCOMOMO-US). Moffett defines many of the characteristics of Modern architecture—admiration of industrial materials and products, straightforward architectural expression with no applied ornament, and an interest in pure geometric forms and planar surfaces (2004: 518). Tom Wolfe in *From the Bauhaus to Our House*, describes it as the “whiteness and lightness and leanness and cleanliness and bareness and spareness of it all” (Strickland 2001: 120). Strickland defines Modernism as a “socially progressive movement in the early twentieth century that championed undecorated, cubic, functional architecture” (2001: 169). An exact, all-encompassing definition of Modernism would be nearly impossible to formulate. For this study, the DOCOMOMO definition is most appropriate. In order to begin to understand the meaning of Modernism, however, a background of the movement is critical.

Modern Beginnings

The machine age at the end of the nineteenth and the beginning of the twentieth century brought with it steel, concrete, curtain walls, and, of course, the emergence of the great American skyscraper. The new buildings of this era reveled in their nakedness and their lack of historic ornament (Glancey 2000: 158). The great fire of 1873 all but destroyed the city of Chicago, sparking a tremendous building boom and economic revitalization (159). Prior to the fire, most of the buildings packed into the downtown area of Chicago were constructed of wood. The new, replacement buildings erected in Chicago were made of steel and could be much taller than their

earlier counterparts, thus making Chicago the birthplace of the skyscraper. Charles Atwood's 1895 Reliance building is one of the purest examples of these first skyscrapers (159).

Architect Louis Sullivan (1856-1924) moved to Chicago after the Great Fire. Sullivan was responsible for the critical theory behind early skyscraper technology, and helped popularize the building form. The Wainright Building in St. Louis, Carson Pirie Scott in Chicago, and the Guaranty Building in Buffalo are some of Sullivan's best works. Sullivan abandoned ornament in the traditional sense in his designs, but he advocated for a type of ornament (generally derived from plant-like forms) that was integral to a building instead of applied for decoration (Moffett 2004: 469). Sullivan authored the phrase "forms follows function," a key underlying concept of modern design. Louis Sullivan and his work were critical to the career of one of the masters of twentieth-century architecture, Frank Lloyd Wright (Pehnt 1963).

Frank Lloyd Wright was not purely a Modernist architect. In fact, he did not like to consider himself a Modernist at all. Frank Lloyd Wright's architecture was more rooted in the Arts and Crafts movements, and then to a more organic way of building. Wright's signature Prairie houses took on the form of the rolling prairie lands of the Midwest. The homes were built close to the ground and were deeply connected to the landscape. Wright paid careful attention to environmental factors to provide comfort inside the homes. Free-flowing floor plans allowed for ease of movement and cross-ventilation. European Modernists were most influenced by the openness of the interiors in Wright's prairie houses (Moffett 2004: 482). In fact, Wright influenced many of the great European architects and Modernists of the twentieth century. Wright's popularity was marginal in the United States at the beginning of his career, when he gained notoriety in Europe in 1910-11 when a German publisher showed his portfolio to the European avant-garde (Kostof 1995: 685).

Early European Modernism

Even before the European's fascination with Wright, Sullivan and his famous skyscrapers made an enormous impression on their designs. Simultaneously, European architects, such as Adolf Loos in Vienna, August Perret in France, and Peter Behrens in Germany, were planting the roots of European Modernism. In Loos's 1908 book, *Ornament and Crime*, the architect took Sullivan's notion to abandon ornament a step further, claiming that decorating a building was primitive. Loos's writings led people to admire both vernacular, undecorated peasant architecture and engineering structures (Moffett 2004: 477-78). Perret made concrete a commonplace building material (Kostof 1995: 689). Although builders had begun to reinforce concrete with metal in the late 1800s, the idea was not extensively used until the twentieth-century. The development of reinforced concrete was critical to the development of the open plan in Modern architecture (Moffett 2004: 503). Behrens designed the first modern factory in 1909—the AEG Turbine Factory. The Turbine Factory had no applied ornament and the materials clearly express their function. After his work with AEG, Behrens's office became one of the most progressive in Europe, attracting architectural giants-to-be Ludwig Mies van der Rohe, Le Corbusier, and Walter Gropius (Moffett 2004: 487-488).

The Deutscher-Werkbund, a German center for connecting craft and industry, opened in 1907. By 1910, Werkbund had over 700 members, including 360 artists and 276 industrialists. Top German architects, including Peter Behrens and the young Walter Gropius, supported the Werkbund. No specific artistic style was supported by the Werkbund, only the reformation of the link between art and industry (Tafuri 1976: 93).

On the art and design front, the De Stijl movement in Holland was taking form around 1917. The De Stijl movement produced artist Piet Mondrian, who is best known for his use of geometric shapes and primary colors, and designer Gerrit Rietveld. Rietveld's Schroder House

(1924) in Utrecht, is a series of white cubes that interlock in a three-dimensional manner. The De Stijl had a substantial influence on German and Russian avant-garde (Kostof 1995: 702).

Early in his career, Charles-Edouard Jeanneret, later known as Le Corbusier, learned about using reinforced concrete from working with August Perret, and learned about industrial design from Peter Behrens. The Dom-ino house plan was a direct result from these two experiences. The Dom-ino project (1914) was a mass-produced house plan that took advantage of minimal components—floor slabs, piers spaced for vertical support, and stairs connecting the floors. The components could easily be produced at a site nearby, and erected quickly on site (Moffett 2004: 508). This early idea of mass-produced housing gained popularity in America after World War II.

In 1926, Le Corbusier formulated his “Five Points Toward a New Architecture,” which included: pilotis (stilts) to lift the first floor of a building off the damp ground, flat roofs for gardens or leisure, free-flowing interior plans, horizontal windows to allow for maximum illumination, and freely designed facades. Le Corbusier followed his points in nearly all of his projects until the mid-1950s (Moffett 2004: 511).

Le Corbusier was fascinated by man-made objects and technology, and felt like historic architecture was obsolete. He thought the house should be a “machine for living,” devoid of any historical antecedents. He even believed that architecture could improve human nature. Logical, functional, and efficient dwellings could lead to rational and enlightened inhabitants (Strickland 135). The Villa Savoye, built in 1931 in Poissy France, is one of Le Corbusier’s first masterpieces (Glancey 1998: 161). It features Le Corbusier’s pilotis, or stilts, roof spaces, ribbons of glass windows, a clean, white façade. This home is an example of the clean, white box modernism that would be put into practice by many architects to come.

Modern architecture emerged at a time when Western civilization was in upheaval from the First World War and a revolution in Russia. At the same time, art and science were transforming the way people thought about space and time. Young designers felt that European culture had failed them, and should be replaced by a completely new way of thinking. They thought that architecture would fuel that transformation. They put their faith in rationality, functionality, economy, and mechanization. They wanted their building to teach and express these new ideals (Moffett 2004: 475-476).

The Bauhaus

Germany soon became the European leader of the new direction of architecture. In 1919, the Bauhaus opened in Weimar. The school, directed by Walter Gropius, was aimed to bridge the gap between art and industry, much the same as the Werkbund a few years earlier. The Bauhaus forever changed the way art and design were taught (Whitford 1984: 7). If Louis Sullivan was famous for the expression “form follows function,” then the Bauhaus movement was famous for putting that expression into use aesthetically (Brand 1994: 55). Originally, the Bauhaus philosophy was to liberate mankind from a class system via a machine-age environment (Strickland 2001: 133).

In 1925, the Bauhaus was forced to leave Weimar due to lack of financial support, and the school relocated to Dessau. Walter Gropius stepped down as director in 1928, and Hannes Meyer became the new director. Germany was becoming very volatile at this time, and politics forced Meyer to leave the school in 1930. Ludwig Mies van der Rohe became the new director, and the school once again relocated, this time to Berlin. The Bauhaus was shut down by the German government in 1933, but the legacy it left behind can still be seen in schools everywhere. According to Wolf von Eckardt, “the Bauhaus ‘created the patterns and set the standards of present-day industrial design; it helped to invent modern architecture; it altered the

look of everything from the chair you are sitting in to the page you are reading now”” (Whitford 1984: 10).

Though Mies van der Rohe is most noted for his Post-World War II American skyscrapers, as early as the 1920’s he was designing glass skyscrapers (they were never built) that were the predecessors of his Lakeshore Drive Apartments and the Seagram Building (Moffett 2004: 515). His German Pavilion for the 1929 Barcelona World’s Exposition is a hallmark of modernism with its simple, yet luxurious structure features a concrete slab roof, steel columns, sheets of glass, and polished travertine panels (Glancey 1998: 152). Mies’s German Pavilion combined Schinkel’s formality of composition, Wright’s free plan and broad horizontal roof, and the De Stijl’s abstract forms (Moffett 2004: 515). The structure was temporary, but the building was reconstructed on the original site in 1986.

Early Modernism in America

Early modernism in America was more than just skyscrapers. In California, brave new architects were breaking away from the mainstream architectural designs of their era. Irving Gill, who trained in Louis Sullivan’s studio, began to experiment with new materials and more basic forms. Gill designed several homes in around southern California in the early 1900s that exemplify the Modern Movement—flat roofs, white exteriors, geometric forms, no decoration. The Dodge House, built from 1914-16 in Los Angeles, is a prime example of Gill’s work (Tafuri 1976: 82). Gill laid the foundation for other California modernists, such as Richard Neutra and Rudolph Schindler.

Richard Neutra and Rudolph Schindler met in Vienna in 1911. They both admired the architecture of fellow Austrian Adolf Loos, and Frank Lloyd Wright. Schindler came to the United States in 1914, and Neutra arrived in 1923. Neutra and Schindler renewed their friendship in Los Angeles in 1925 and briefly became partners (Lamprecht 2004: 8-9). Although

their friendship dissolved, Schindler and Neutra shared many of the same characteristics in their designs. Schindler designed houses with open floor plans and he carefully connected indoor and outdoor spaces. Neutra stressed the importance of flowing spaces, natural light, lots of glass, and indoor and outdoor connections in his homes, as well (Strickland 2001: 132).

Phillip and Lea Lovell commissioned Schindler to design their beach house in 1922. The Lovell Beach House, one of the icons of American modernism, was completed in 1926. The same family commissioned Neutra to design their Health House in 1927 (Lamprecht 2004: 23-24). These two homes put California Modernists on the map and attracted worldwide attention. Schindler and Neutra both stressed that “the merit of such architects of European background lies in their having singled out in American architecture precisely those technological and structural potentialities of the new multipurpose building types that the Beaux-Arts tradition had done its best to camouflage” (Tafuri 1976: 238).

In 1932, architectural historian Henry Russell Hitchcock and a young Phillip Johnson published a book entitled, *The International Style: Architecture Since 1922* (Tafuri 1976: 238). In the book, Hitchcock and Johnson discussed the “new” style of European Modernism, and called it international because it has already spread from Europe to the United States, and they prophesized that it would become global (Moffett 2004: 476). That same year Alfred Barr, Hitchcock, and Johnson organized an exhibition at The Museum of Modern Art in New York City entitled *International Style* (Tafuri 1976: 238). Included in the exhibit were famous European works by Reitveld, Mies, Gropius, and Le Corbusier, as well as a few American public buildings and Neutra’s Lovell House. The International Style of architecture featured in the exhibit emphasized volumes rather than masses, regularity rather than symmetry, and materials

rather than ornament. The MOMA exhibit showcased European Modernism and raised public awareness about this “new” style in America (Moffett 2004: 520).

The Stock Market crash of 1929 and the subsequent Great Depression of the 1930s put a damper on the building boom in the United States. While there were some important public buildings constructed during this time, residential construction was put on hold. Prior to World War II, most Americans did not support or understand Modern architecture, and little International Style architecture was constructed in the United States in the 1930’s. However, one of the most famous buildings of all times was built during this decade—Fallingwater. Frank Lloyd Wright designed this modern masterpiece in 1936 in Bear Run, Pennsylvania for the Kaufmann family (Glancey 1998: 176). This home is a fusion of both modern and organic styles. Modern in its geometric forms and use of concrete, glass, and steel, but organic in the way it fits seamlessly into the surroundings and integrates natural woods and stones into both the interior and exterior.

Post-War Modern

After World War II, Americans were ready to forget about the sacrifices of the Great Depression and the sorrows of the war. They were optimistic about the future, and were ready for a fresh start (Hochstim 2004: 13). A massive building boom started up after the war. Land and construction costs were low (Webb 2001: 11). Architects and homeowners alike were more open to new ideas and the use of new materials. Architectural journals, advertisements, and consumer-oriented pamphlets all claimed that Modernism would become the cultural norm after the war (Reed 1995: 3).

World War II led many important European architects to flee to America. In 1937, Walter Gropius and Mies van der Rohe arrived in the United States. Gropius took a teaching position at Harvard Design School (Kostof 1995: 724) and Mies became director of the Illinois Institute of

Technology. Here, Mies designed the new campus for the university (Tafuri 1976: 336). Mies designed the Farnsworth House in Plano, Illinois in 1951—an extraordinary glass box. In 1951, he also designed the Lake Shore Drive Apartments in Chicago. The perfect execution of the glass and metal curtain wall influenced skyscrapers to come (Glancey 1998: 186-187). Mies van der Rohe and Phillip Johnson designed the Seagram Building in New York, completed in 1958. The Seagram Building is one of the finest examples of an International Style skyscraper (Strickland 2001: 135). The Lever House by SOM Architects (1951-52), just across Park Avenue, was the first curtain wall in New York City and is often considered the epitome of the glass box.

Phillip Johnson's Glass House (1949) in New Canaan, Connecticut was clearly inspired by Mies's plan for the Farnsworth House (which was completed after the Glass House), Johnson may have even perfected the glass box more than Mies (Glancey 1998: 185).

Le Corbusier continued to work in France in the 1950s, where he produced famous monolithic structures like the 18-story housing block, Unite d'Habitation in Marseilles, and the Chapel of Notre Dame-du-Haut pilgrimage church in Ronchamp (Strickland 2001: 136). In the United States, Corbusier designed The Carpenter Center for the Visual Arts at Harvard in 1961, and collaborated on the United Nations Building in New York City.

Most of the architecture of the Post-War era, often referred to as Mid-Century Modern, was less formal and less serious than International Style architecture. Florida and California were two hot-beds of Mid-Century Modern architecture. Many young families settled Florida and California because of economics, warm climates, and the functional demands of their new lifestyles. The younger generations seemed more open to experimentation, and therefore the development of the Modern house (Hochstim 2004: 13). But postwar architecture was not about

creating a new style of Modernism. Instead, the postwar Modern designers relied less on the proscribed characteristics of Modernism, and focused instead of the changing family life and the specific climatic requirements in addition to new construction techniques and technologies (Hochstim 2004: 17).

In Florida, several architects in Sarasota were creating a Modern Movement of their own. Ralph Twitchell and Paul Rudolph began to design contemporary architecture in Florida that responded to Florida's unique climate and lifestyle. Twitchell and Rudolph were the foundation for what came to be known as the Sarasota School. The Sarasota Modern designers used efficient design principles to adequately cool their houses even before the arrival of air conditioning (Hochstim 2004: 23-28). The Sarasota School architects implemented vernacular Florida architectural ideas into their work—patios, open plans, courtyards, screened porches, lightweight frames, indoor/outdoor living spaces (Howey 1995: 4). The success of the Sarasota School brought worldwide acclaim to Florida architecture (Hochstim 2004: 142). Today, however, many of the Sarasota School buildings have either been demolished or are facing demolition. Paul Rudolph's first commission, Riverview High School built in 1957, is one of the buildings involved in a heated preservation debate (DOCOMOMO-US).

The Case Study Program launched by *Arts & Architecture* magazine in 1945 utilized the talents of several emerging architects in California, such as Pierre Koenig, Craig Ellwood, Eero Saarinen, Richard Neutra, and Charles and Ray Eames. The Case Study Program was intended to showcase affordable modern architecture. Case Study House #8, the Eames House (1949) had a steel frame that was erected in only sixteen hours. Their residence was industrial, cost effective, and modern (Reed 1995: 32).

Even real estate developers were going Modern. Merchant builder Joseph Eichler put over 11,000 modernist tract homes on the map in California, and three in New York, from the 1940's to the 1960's. Not only did the homes feature modern design, they were also affordable and were built from high-quality materials. Eichler collaborated with progressive architects who were in line with his modernist vision. Eichler's homes were far ahead of their time, utilizing indoor-outdoor living, glass walls, atriums, and radiant heating (Eichler Network).

For the most part, postwar Modern houses were only commissioned by more eccentric clients who did not care what their neighbors thought. They were interested in living in a space that suited their specific needs and desires (Webb 2001: 8). Historian Esther McCoy observed that "modern houses were a badge of intellectual emancipation; the less venturesome and more domestic women preferred a Cape Cod or a ranch house" (10). Although Modernism was clearly the taste of the minority, there was enough interest in the movement to keep Modernist architects in business (11).

Mission 66

The National Park Service caught on to Modernism starting in 1956 with its Mission 66 Program. Mission 66, a ten year improvement program, was the largest improvement program ever initiated by the NPS (French "Mission 66" 2002). To accommodate the influx of drastically increased visitor counts (from 3.5 million visitors in 1931 to 50 million in 1955), 114 visitor centers were proposed for parks across the nation. The visitor center was an entirely new concept for the Park Service. The style of the new facilities, later known as Park Service Modern, blended into the landscape because of their stripped-down functionalist appearances. Cecil Doty, park service architect, designed many of the modern Mission 66 buildings, including the Grand Canyon Visitor Center (Frankeberger 2002). Richard Neutra's 1961 Cyclorama

Building at Gettysburg is one of the most notable, yet controversial, products of the Mission 66 program.

The Decline of Modernism

In the 1960s Sigfried Giedion became the “voice” of the Modern Movement. His 1967 book, *Space, Time, and Architecture*, was part of the curriculum for nearly every architecture student. But even Giedion could sense that the Modernism was on its way out in 1967, when he admitted that the movement was “tired” and “unsure” (Hale 1994: 136).

The abandonment of the ideas behind the Modern Movement came from two major sources. First, postwar architecture had failed to meet political, social, and technical expectations. Second, Modernism had been too specific to suit a broad range of cultural interests (Cunningham 1998: 3).

During the unofficial ending of the Modern Movement, the original masters of Modernism were still producing great pieces of Modern architecture. But Modernism never quite revived the world like its practitioners had hoped. When most of the great Modernists died in the late 1960s, so, too, died Modernism (Hale 1994: 136).

Although Robert Venturi had been a pupil of Louis Kahn and had praised both Alvar Aalto and Le Corbusier, he wrote two books that theoretically brought Modernism to an end in America—*Complexity and Contradiction in Architecture* (1966) and *Learning from Las Vegas*. These two books also served as the springboard for the next big architectural movement, Post-Modernism (Hale 1994: 136).

Postmodernism was the complete polar opposite of Modernism. “Less is a bore” was Venturi’s take on Mies’ famous quote. The Postmodern movement was an “anything goes” movement. At its best, Postmodernism broke up the monotony that had been plaguing the late Modern buildings. At its worst, Postmodernism was a huge game where pastel-colored buildings

with pieces of historical ornament thrown on filled the landscape (Glancey 2000: 198-199). Postmodernism did not end all Modernism, however. After the arrival of Postmodernism, the Modern Movement continued to find its place in society with the help of architects such as Richard Meier, Tadao Ando, and I.M. Pei who continued to design traditional modernist buildings with International Style surfaces and pure spaces and forms (Strickland 2001: 151).

CHAPTER 5

PROBLEMS WITH MODERN BUILDING ENVELOPES

Prior to the Industrial Revolution, architects commonly built for permanence—the buildings were planned to last. After the Industrial Revolution, however, most buildings became less permanent and therefore more disposable (Henket 1998: 14). That is to say, that once the building has completed its function for a particular amount of time, it becomes obsolete. In fact, people are often emotionally attached to a building long after it is functionally or even financially viable. The question then arises if it even makes sense to try and preserve these “throw away” buildings if they were specifically designed to only last a short while (Henket 1998: 14). Are the Modern masters rolling over in their graves at the thought of someone trying to preserve their works for posterity?

The lifespan of Modern architecture, in particular, was inherently limited. Most Modern architects wanted to break all ties to historicism. The age of Modernism was a time for new and experimental technologies, and it was unclear how the new methods and materials would hold up over time. At the time, many of these new materials fared well, but presently either do not perform well, or have failed completely (Prudon 1998: 90).

Repairing or replacing materials or systems on Modern structures often does not make financial sense, and brings up the dilemma of authenticity. Problems with modern buildings are rarely minor. These relatively “new” buildings now need serious attention, while most traditional buildings do not require large-scale intervention but every 100 or more years (Macdonald 2000). As early as the 1940s, designers were learning about the technical failures of early modern buildings, and began to try to improve their own building details to promote improved performance (Macdonald 2000). Although some improvements were made in modern design, many of these buildings now need major intervention.

Even the icons of modern design, products of the modern masters themselves, were not immune to architectural defects. In many cases, they were the worst when it came to structural defects and imperfections. For example, Mies van der Rohe's Farnsworth House (1951), a pure, pristine glass-and-steel box, had at least one major flaw—no operable windows. Dr. Edith Farnsworth thought the house was too expensive, too public, and absolutely uninhabitable (Strickland 2001: 135). In fact, she sued Mies “on the grounds that the house was uninhabitable” (Hale 1994: 130).

Concrete walls became a very critical part of many Modern structures. A four-inch thick concrete wall may have been very strong structurally, however, it was inefficient when it came to sound insulation, surface decoration, energy protection, and weather protection (Maxwell 1998). Modern architecture is full of technical limitations and failures.

Curtain Walls

A curtain wall is “an exterior building wall made of non-load bearing panels that are supported on a structural frame. The curtain wall spans between floors and transfers lateral loads, such as those produced by winds, to the structural frame, while the structural frame alone carries these horizontal as well as all gravity loads” (Kelley 1998: 77).

Before the arrival of the curtain wall, the exterior walls served as the structural support of the entire building—they were load-bearing walls. With the arrival of the curtain wall, however, the structural frame became a separate entity from the skin of the building. Some of the early curtain walls implemented traditional brick masonry walls that were narrowed to single-wythe thickness to act as the skin of the building. Other early curtain wall designs involved thin stone panels for building exteriors (Johnson 2000). The first true glass curtain wall came in San Francisco in 1917-18—the Hallidie Building by Willis Polk (Great Buildings 2007). Polk’s

building paved the way for the modern glass curtain wall buildings that would come in the following decades.

Between the two World Wars, architects conducted several experiments that ultimately led to perfecting of various aspects of curtain walls. Modern industrial production was the source of the success (Pehnt 1963: 79). During this time, the theories behind curtain walling were studied at the Bauhaus via educational experiments, through the writings of Le Corbusier, and by the projects of Mies van der Rohe and other German designers. It wasn't until after World War II that these experiments were put into practice on a large scale (80).

The 13-story Equitable Building (1944-48) in Portland, Oregon by Pietro Belluschi was one of the first glass and aluminum curtain wall buildings. Glass, aluminum, and concrete were also the favored materials for the United Nations Headquarters in New York City. The UN Secretariat building was designed by a team of architects from around the world, including Le Corbusier, Oscar Niemeyer, and Sir Howard Robertson, and the team was headed by Wallace K. Harrison. The UN Headquarters was completed in 1953 (Great Buildings 2007).

Acclaimed Modernist Ludwig Mies van der Rohe implemented glass and steel curtain walls in his Lake Shore Drive Apartments (1951) in Chicago, and in the Seagram Building in New York City (1958). The Lake Shore Drive apartments were some of the first American residential structures to be covered in glass (Kelley 1998). Gordon Bunshaft of SOM Architects designed the Lever House in 1950—the first curtain wall building in New York City (Moffett 2004: 515). Unfortunately, the technical guidance for architects in the 1950's designing these curtain walls was practically non-existent (Kelley 1998).

In contrast to traditional building methods, the construction of a curtain wall is quite flexible. A curtain wall can be built from the bottom up, from the top down, or from the center

out (Erwin 2000: 3-160). Loads are always concentrated at a certain point, so any damage to the point of the load is detrimental to the building (3-161).

As is the case with modern design in general, the new materials used in curtain walls were not completely understood at the time of their implementation. Some curtain wall failures can be attributed to materials, but other failures are a direct result of the curtain wall design itself (Johnson 2000).

The curtain wall, which acts as the skin of the building, has to perform many functions in the overall performance of the building. The curtain wall must:

- Resist water penetration and air filtration
- Accommodate thermal movements and volume changes
- Provide thermal insulation
- Withstand direct exposure to UV radiation
- Move with the building structure as it creeps
- Sway from wind and seismic movements
- Deflect in response to internal live loads
- Provide appropriate amounts of light, ventilation, and thermal protection

(Johnson 2000: 3-152)

Since the curtain wall plays so many roles in the performance of the building, it comes as no surprise that there are many areas of potential failure. Even though many of the components of curtain walls may also have traditional applications, in Modern uses they fail in unusual ways. Even the new materials can fail prematurely and unexpectedly. It is always important to address the cause of the failure in curtain walls in order to prevent it from happening again, and to prevent new problems from occurring (Johnson 2000).

Moisture

Water has been the enemy of all designers and buildings since the beginning of time.

Moisture is capable of destroying all types of building materials—wood, masonry, and even steel—if proper care is not taken. Curtain walls buildings are no less susceptible to water problems than any other building type. Since curtain walls implement thinner walls than older building types, then essentially a large water barrier (i.e. the loadbearing wall) is lost. The curtain wall relies strictly on seals to prevent water penetration (Johnson 2000). In order to prevent moisture problems with curtain walls, either water must not be allowed to penetrate the wall, or if that is not possible, then the penetrable water must be controlled (Kelley 1998).

Condensation is another water issue for curtain wall buildings. Here, water vapor can turn into liquid, or even freeze into solid ice, on the interior surfaces of a building. Many of the older curtain wall buildings are very susceptible to winter frost condensation because the designers did not use thermal breaks or insulated glass (Kelley 1998).

Thermal Discomfort

Glass curtain wall buildings can obviously be very uncomfortable due their large expanses of glass if care is not taken to allow for appropriate shading and sun control (Yeomans 2000). According to Kaskel, the Lever House disregarded the building's orientation. There are large panels of glass on the south, east and west sides of the building, which cause a tremendous amount of heat and glare in the morning and afternoon. Since this is an office building, people are at work during those times, and they have to suffer in an uncomfortable work environment (1995).

Another cause of thermal discomfort is air infiltration. Air comes in through the walls and causes drafts. This air can arrive through window vents, mullion joints, sealant joints, and any location where water could also penetrate (Kelley 1998).

Excessive Movement

Mid-century curtain wall buildings move more than buildings built before or after them. Since the steel frame is required to resist all the lateral loads of the building, it is more prone to swaying and twisting than older masonry-framed walls. The movement of the frame causes stress to the anchors that tie the façade to the frame, and can ultimately distort the members themselves. In the worst situations, the anchors may even break from the constant motion (Erwin 2000).

Material Failures

Curtain walls are normally made from the repetitive application of parts. This repetition allows for quick and easy construction and assembly, but can be a major setback when failure occurs. The failure will often be widespread instead of localized to a specific point. Procedures to correct these failures are often very invasive (Johnson 2000).

Aluminum was a prime material component of curtain walls because it forms a “tough, protective coating of aluminum oxide as it weathers. This coating arrests further oxidation of the aluminum surface” (Kelley 1998: 83). Aluminum curtain walls from before the 1950s may lack this protective coating or any surface treatment. These uncoated frames are vulnerable to pitting as the oxidation occurs in an uneven manner. Fortunately, this oxidation is only an aesthetic problem (Kelley 1998).

As durable as aluminum may be, it is also very cathodic. Aluminum easily deteriorates when it comes in contact with anodes like lead, copper, or steel when water is also involved. This reaction causes unsightly staining or oxidation, or even system failure if this process is not planned for in the design of the curtain wall (Kelley 1998).

If the curtain wall is not made of aluminum, but instead made of steel, the steel corrodes rather easily, especially in the presence of water. This corrosion can lead to glass breakage, inoperable vents, and/or total structural failure (Kelley 1998).

Thin cladding systems are prone to problems in curtain walls, as well. These systems are also likely to bow and crack due to thermal cycles after they are attached to the structure. Problems result from the attempt to perfect thin cladding systems by trying to make panels thinner, lighter, and cheaper. When thin cladding systems fail, over-cladding, re-cladding, and replacement may be the only viable solutions for fixing the problems. Thin cladding systems also rely more heavily on joint maintenance and back-up water-tightness than thicker cladding systems (Johnson 2000).

Although glass walls make for an aesthetically pleasing building, impurities in glass can result in severe problems for glass-wall buildings. Glass can obviously break or crack when it is hit by debris such as rocks, and is especially prone to this type of damage during high winds or other inclement weather. Even if nothing strikes the glass, it can still sometimes crack on its own. If the glass was heat-tempered, it can spontaneously crack when the nickel sulfides in it expand after fabrication (Kelley 1998). I.M. Pei and Henry N. Cobb's Hancock Tower in Boston serves as a critical example of the failures of glass in Modern buildings.

The 1976 60-story glass Hancock Tower in Boston was disastrous from the beginning. The excavation of the site caused streets to buckle, disrupted utility service, and most tragically, damaged the adjacent Trinity Church. Upon completion, the building swayed as much as 3 feet in either direction on the upper floors, causing occupants to feel sick and dizzy. The Hancock Tower was not even structurally sound—in very high winds, the building was in danger of literally falling over. Millions of dollars were spent to stabilize the building (Farragher 2006).

Perhaps the most dangerous aspect of the Hancock building, however, was the windows. The Hancock Tower's windows began to fall out of the building during construction in January of 1973. 75 mile-per-hour wind gusts struck the upper floors of the building, causing at least 65 of the 500-pound glass panels to fall off the building. In the following months, more windows fell. The problem with the falling panels was in the window unit's design (Campbell 1995). "Each [window] panel was a sandwich: two layers of glass with an air space between, all held in a metal frame. To cut the glare and heat of the sun, a coat of reflective chromium was placed on the inside surface of the outside pane of glass. (This layer of chrome was what gave the building its mirror effect.) The window frame was bonded to the chrome with a lead solder. During the testing, it was noticed that when a window failed, the failure began when a tiny J-shaped crack appeared at the edge of the outside pane of glass. What was happening was this: The lead solder was bonding too well with the chrome—so well, so rigidly, that the joint couldn't absorb any movement. But window glass always moves. It expands and contracts with changes in temperature, and it vibrates with the wind. So the solder would fatigue and crack. The crack would telegraph through to the glass, and the cycle of failure would begin" (Campbell 1995). The remaining windows were replaced with single sheets of tempered glass (Campbell 1995).

The Hancock Building was not the only famous Modern curtain wall building with glass problems. Both the Lever House and the UN Building developed loose, leaking windows within their first year of operation. The putty that had been used did not withstand temperature variation, vibration, and water run-off, and it quickly dried-up and fell off (Yeomans 2000).

Failure of the structural frame in curtain walls most often occurs when connections between components, or the connection of the curtain wall to the building frame, lose structural integrity. Curtain wall buildings are not maintenance-free. They require routine upkeep, such as

caulking, painting, or refinishing. Sealant maintenance is vital for caring for these Modern curtain wall structures (Kelley 1998). Organic sealants and gaskets often deteriorate over time due to heat and ultraviolet rays from the sun (Johnson 2000).

Monolithic Structures

Contrary to popular belief, the thick monolithic brick and concrete structures implemented by Modern architects often lacked the permanence that was expected of them. In The Netherlands, the Hilversum Town Hall (completed in 1931) by W. M. Dudok is a very solid structure. It consists of monolithic brick walls, a concrete frame, and concrete floors. Although the building is still standing after seventy years, there have been numerous problems. A recent restoration of the building resulted in replacing 75% of the exterior brick walls, 80% of the steel windows, and all of the original utilities. Little of the original building remains. The main causes of the problems for the Hilversum Town Hall building were rust, cheap bricks, frost, and improperly covered rebar (Ford 1997).

Louis Kahn's 1972 monolithic Exeter Library features concrete floors, concrete columns, and concrete beams with eighteen-inch thick brick load-bearing walls. Merely eighteen years after its completion, the Exeter Library faced many problems. The many parts of the roof terrace required retrofitting or replacement. The teak and oak windows needed serious repairs. Much of the brick exterior wall had deteriorated. The Exeter Library needed substantial work after just a short time. It cannot be determined whether the problems were due to improper detailing, poor construction techniques, or a combination of the two (Ford 1997).

Thin-Shell Structures

Concrete

Concrete applications in Modern architecture were not limited to solid, monolithic structures. Just as the curtain wall helped to create thinner, lighter buildings, concrete, too,

allowed for freedom and flexibility in thin-shell designs. Thin-shell concrete structures allowed for large spans in industrial, commercial, and public buildings (Boothby 2000). The thin-shell concrete structure originated in Europe, and came to the United States in the 1920s and 1930s. These structures fit in well with Modernist ideals, as they allowed for the creation of geometric forms, large spans, and exposed raw materials (Boothby 2000). The architects could have total creativity in design because the concrete application took on an almost plastic form. The thin-shell concrete structure became very popular for warehouses, airport terminals (Eero Saarinen's TWA Terminal at the JFK International Airport), and sports arenas toward the end of the Modern Movement in the 1960s and 1970s (Boothby 2000).

Most of the problems with thin-shell concrete structures occur in the concrete roofs. The concrete develops cracks as it resists bending and compression. These inevitable cracks ultimately allow water to penetrate the roof (Boothby 2000). Bare concrete roofs are difficult surfaces to apply roofing materials. At the time when these structures were gaining popularity, few people were experienced in applying roof membranes to concrete (Boothby 2000).

The Kingdome in Seattle, completed in 1975, exemplifies the numerous difficulties of thin-shell concrete structures. The roof of the Kingdome was a scalloped concrete shell, spanning 660 feet across. It was very difficult to place concrete in the shell portions of the roof. This resulted in a low density and a honeycombing effect in the concrete of the roof, and the insulation could not adequately bond to the surface (Boothby 2000). By 1994, the roof was in terrible shape. Seattle's rainy weather soaked through the roof membrane and into the poorly consolidated concrete. In addition, the roof membrane had been stripped in preparation for a roof replacement, and the roof decking was insensitively washed with a high-pressure spray (Boothby 2000).

The public always disliked the Kingdome, and in 1993 voted it Seattle's worst building (Boothby 2000). The problems that surmounted in 1994 made the public like the building even less. The Seattle Mariners were unable to finish their season in the dome due to maintenance delays, and two people died trying to repair the roof. To top it off, the repairs cost over \$50 million in public funds instead of the estimated \$4 million. It's no surprise that the Kingdome was demolished only six years later in March of 2000 (Boothby 2000).

Stone

Thin stone panels are prone to serious deterioration. Stone panels may suffer from saccarification (sugaring), bowing, or overall strength loss. When sugaring occurs, weathering and exfoliation cause the crystalline structure of the stone to break down. Stone bows as a result of thermal and moisture cycles. When stone heats up, the interior and exterior surfaces of the panels are at different temperatures. The crystals in the stone expand and contract, and the crystals do not fully rebound from this process, thus leading to warping and bowing. This bowing ultimately leads to the loss of strength in the stone panels, which necessitates their total replacement (Johnson 2000).

Edward Durell Stone's 1974 Amoco Building in Chicago was built with 1-1/4 inch-thick Carrara marble panels covering the surfaces. In less than 20 years, the marble had deteriorated and bowed so badly it had to be replaced. This time, the building was clad with expensive 2-inch-thick granite panels that cost \$80 million (Ford 1997).

Alvar Aalto's Finlandia Hall, completed in 1971, experienced a similar fate. In 1998, the Carrara marble panels were replaced with marginally thicker Carrara panels. Less than ten years later, the new replacement panels had already begun to bow (Ford 1997).

Brick

When brick is used in modern applications, it is typically just used as a skin over cheaper framing materials. Relying on brick solely for the outer layer of a building, and not for structural support, eliminates some of the natural water barrier properties of monolithic brick walls. Thus, cavity walls are implemented to keep the moisture that penetrates the outer brick from entering the building. Cavity walls catch the water that comes through the façade and they move it to the outside of the building through flashing and weep holes. Although the cavity wall was no new invention, it was officially recognized in America in 1937 (Schuller 2000).

Since many of the components of contemporary cavity walls are located within the walls themselves, maintenance or preservation efforts require at least a partial dismantling of the wall. Rebuilding will be required when the problems are with internal components, such as flashing or wall ties. Brick cavity walls face many of the same problems encountered with curtain wall design, such as differential movement, water penetration, and steel corrosion (Schuller 2000).

The brick veneer on the outside of a building faces temperature extremes and moisture issues not experienced by the structural frame. The masonry wall, in this case, is not meant to withstand the loads of the frame. The skin of the building must be completely free-standing in order to prevent strain from differential movement of the façade and frame. If movement joints are not designed into the outer wall, stress will build up and can ultimately cause cracking. In some rare cases, the load will be transferred to the brick instead of the frame, causing the veneer to support the building (Schuller 2000).

If brick is used in conjunction with a concrete frame, other considerations need to be made. In time, concrete frames shorten in length from applied loads, creep from sustained loads, and material shrinkage due to moisture loss, hydration, and carbonation. Brick, in contrast, gets larger due to thermal and moisture expansion. If the brick is rigidly connected to the concrete,

then a large amount of stress builds up in the brick and the veneer tie system could potentially fail altogether. If the walls are bonded, then even small differential movements can fracture header bricks (Schuller 2000).

Excessive water penetration can lead to several serious problems for brick cavity walls, such as damage to interior finishes, deterioration of building materials, efflorescence, and biological growth within the wall system. Solutions for attacking water penetration typically only address the problem, not the cause. This will not provide permanent solutions. Water repellants remove water from the surface of a building, but they do not seal cracks or separations between the mortar and the brick. Repellants do not block the main entry for water. Sealants and other impermeable coatings are typically not recommended because they do not allow the wall to breathe (Schuller 2000).

The metal materials present in brick cavity walls—vertical and horizontal reinforcements, veneer ties, anchors, lintels and shelf angles, and the structural frame itself—all are susceptible to corrosion due to moisture penetration. The use of acid-based masonry cleaners, or high-powered pressure washers containing chlorine, accelerates this corrosion (Schuller 2000). According to Schuller, “Often the only reasonable approach is removal of corroding elements followed by installation of new elements, often using stainless steel” (2000).

Flat Roofs

Flat roofs are very flexible. They can sometimes hide unsightly mechanical equipment on the top of a building, they are safe to work on, they allow flexibility in design (in that you can install stairs and skylights wherever desired), and they provide more living space when ground area is limited (Brand 1994: 115). Le Corbusier, in particular, viewed the roof as another functional space of the building design. Flat roofs tend to have one major flaw—they are notorious for leaks. The membrane covering of the roof rarely acts as a perfect water barrier.

The BUR (built-up roof) consists of four or more layers of roofing felt and asphalt, with a mineral layer on top (often gravel) to protect the roof from the sun. BUR technology dates back at least a hundred years. Many of the problems with these “built-up roofs” come during the construction phase if it is cold or rainy, or if the flashing is not properly installed. Even more problems come from foot traffic on the roof, or when new mechanical equipment is put in place. Common failures that happen over time include: erosion, alligatoring (sun oxidation), blisters, splits, ridges, and punctures (Brand 1994: 115).

One of the biggest problems with leaks in flat roofs is that the source of the water is difficult to ascertain. Moisture can travel, undetected, for long distances in the roof, ceiling, or walls, even before the damage is noticeable (Brand 1994: 115). Initial repairs typically fail, so new layers are subsequently added. Unfortunately, the addition of new layers adds additional weight that may cause the roof to sag. Excess water builds up in the concave areas, and more leaks ensue. In this case, a total rebuild would be the only option. Many owners opt for a pitched roof at that point (Brand 1994: 115).

In cold climates, snow build-up is also a serious concern for flat-roofed buildings. The slope in traditional peaked roofs allows snow to slide off and not be concentrated on a flat plane. When the snow melts as the temperature rises, the melting snow again has nowhere to go. Again, the roofs are plagued with water issues (Brolin 1976: 33).

Le Corbusier’s Villa Savoye

Le Corbusier threw practicality aside in favor of aesthetics in his 1929 Modern icon, the Villa Savoye. The walls of the house may have been “as delicate as pieces of lace” (de Botton 2006: 65), but the roof was an even bigger architectural mistake. The Savoye family initially did not want a flat roof on their home, but Le Corbusier convinced the family that a flat roof would be more economically and technically efficient than a traditional pitched roof. Merely

one week after the family moved into the house, however, the roof started to leak. And six years later, the roof was still leaking. In 1936, Madame Savoye wrote a “rain-splattered” letter to Le Corbusier about the flat roof , “It’s raining in the hall, it’s raining on the ramp, and the wall of the garage is absolutely soaked. What’s more, it’s still raining in my bathroom, which floods in bad weather, as the water comes in through the skylight” (de Botton 2006: 65).

Although Le Corbusier told the Madame he would take care of her leaking roof, his trademark pompous attitude came through when he reminded her how much praise his roof design had received worldwide (de Botton 2006: 65). In 1937, Madame Savoye declared her house uninhabitable (66).

Frank Lloyd Wright—Water Everywhere

Frank Lloyd Wright, “the greatest American architect of all time” according to the American Institute of Architects (AIA), was quoted as saying “If the roof doesn’t leak, the architect hasn’t been creative enough” (Brand 1994: 58). Wright was notorious for his leaks, and retorted to clients who complained of the leaks, “That’s how you can tell it’s a roof” (Brand 1994: 58). Wright’s Fallingwater, also known as “Rising Mildew” or a “seven-bucket building” by its owner, leaked all over. The leaks destroyed the windows, the stone walls, and structural concrete (58).

Implications

It has been thoroughly addressed that Modern building envelopes have many problems and failures. This, however, is not a phenomenon unique to Modernism. All building types have their own set of problems. The key difference is that people know how to deal with and correct problems with traditional building materials that are implemented in traditional ways.

Modernists utilized brand-new building techniques and materials, and experimented with applying traditional materials and methods in new and different ways. They did not consider

how their experiments would turn out, or in what shape their buildings would be in the future. To make matters even more difficult, many of the materials and techniques used in Modern construction do not even exist anymore. Those concerned with the preservation of these structures are often undecided about how to treat these buildings. Some materials and methods went out of production before people even had time to consider how they would need to treat problems that may arise in the future. Even the Modern materials and methods that have continued to be used in building construction are often unfamiliar territory with preservationists.

Authenticity is a key component of preservation. According to the Secretary of the Interior's Standards (Appendix A), distinctive materials must be retained for preservation projects. Many of the “distinctive materials” used in Modern construction are the exact components of these buildings that have failed. Replacing them with new or more reliable materials raises doubts to maintaining the authenticity of the building. Gaining the support to preserve a building is only the beginning step in the preservation process. Figuring out how to treat Modern buildings effectively, while maintaining authenticity, is often an even bigger problem.

CHAPTER 6

THE AESTHETICS OF MODERNISM

It has already been established that Modern architects designed with an idea of building for the present. They may not have intended for their buildings to last beyond their useful life. At the same time, Modernists also opposed historic architecture—“those old and rotting buildings that form our snailshell” as Le Corbusier put it. (Kostof 702) This creates quite a paradox for the preservation of Modern architecture. Should Modern architecture even be preserved since it inherently rejected tradition and rejoiced at the end of history? Modern architecture thrived on newness, and rejected the old. The Modernist designers did not foresee the time when their own building would become old. (Maxwell 1998)

Modernism was destined for misunderstanding from the beginning (Cunningham 1998: 3). The very event that publicized this new type of architecture, the 1932 MOMA exhibit, *The International Style*, led to mass confusion in two important ways. The first misconception was the notion that there was a cohesive international “movement” in the first place. The second misconception was that modern architecture could be summed up by its physical appearance. As outlined by the exhibit, the guidelines of International Style architecture were simple:

- Architecture is volume, not mass
- Regularity, not axial symmetry, orders design
- Applied decoration is arbitrary

(Cunningham 1998: 3)

According to Brolin, Modern architecture never gained mass acceptance (1976). Most of the apathy, or downright hostility stemmed from aesthetics. Instead of fitting in with neighboring buildings, the buildings from the Modern movement blatantly stuck out (Brolin 1976: 8). Brolin states that people are put off by the sterility of modernism, and they either do

not know about, or just do not care about, the rationale behind the design of the buildings (10).

Brolin further argues that Modern architecture was never intended to be beautiful, per say, but it was meant to be functional and moral, first and foremost (15). Simplicity was bred from functionalism. Ornament was not necessary for functionality, so it was omitted (16).

Applying ornament in a traditional sense was a criminal act for Modernists. When the past was treated positively by Modernists, architects favored the simpler forms and processes. Le Corbusier praised the Doric order of Classical architecture because it was the simplest and least decorated. The lack of ornament essentially meant lack of tradition to Modernists. During the Modern era, for the first time in the history of architecture, ornament was excluded from design (Brolin 1976: 25).

Ornament grabs people's attention as they approach a building. Each successive layer of ornament that is revealed as you get closer increases the intrigue. With Modern architecture this phenomenon does not occur. The buildings are free from historic garb, so one would not find decoration to please the eye of the curious onlooker (Brolin 1976: 25). Essentially, the only elements that pique one's interest are basic geometric shapes and materials which are decipherable from a distance (26). If people can read all the elements of a building from far away, then there is no reason to look closer or even keep looking (27).

Modernists assumed, according to Brolin, that people would recognize and accept their buildings. The fact remains that the general public, even at present, does not find Modernism aesthetically pleasing. Modernism is viewed as an elitist movement, only appealing to a few (Brolin 1976: 58). The modern architects took pride in their work, but the public remained bewildered. The "City of Tomorrow" exhibit at the Osaka World's Fair showcased Modern architecture and city planning. The exhibit was highly misunderstood, and even the tour guides

unintentionally called the exhibit “City of Sorrows” (Brolin 1976: 8). This shows how modern architecture is often perceived as sad and cold. This was not the intention of the architects.

Le Corbusier’s Workers Housing Project

Still relatively early in his career, Le Corbusier received a commission from French industrialist Henry Fruges in 1923 to build housing complexes for his workers and their families. The buildings, near Bordeaux, are prime examples of early Modernism, with their long strips of windows, flat roofs, and stripped-down walls. To Le Corbusier, these complexes celebrated industry and technology. But to the occupants, this was no cause for celebration. They worked hard all day long in an industrial setting, and did not want to come home to one at night. In just a few years, the tenants added the pieces of historicism they felt were missing: pitched roofs, shutters, casement windows, wallpaper, and even picket fences, fountains, and garden gnomes (de Botton 2006: 163-64).

The Historic Preservation Movement

The idea that Modern architecture is unpopular based on aesthetics is unfortunate in and of itself, but it is ultimately leading to the neglect and demolition of important modern structures. On the surface, preservation and modern architecture inherently do not go hand-in-hand. According to Longstreth, “The federal legislation of 1966, which transformed historic preservation into a national movement, also bore rather ominous implications for the traditional concept of progress. Although not directly stated, an underlying rationale for the National Historic Preservation Act was that contemporary achievements in architecture, planning, and other fields that shaped the built environment were inferior to those of the past” (1992).

Early historic preservation efforts arose from the desire to memorialize Revolutionary War heroes. Independence Hall was saved from demolition by a group of activists who proved the significance of the building. The Mount Vernon Ladies Association saved George Washington’s

Mount Vernon residence in 1858 and successfully turned the residence into a house museum.

House museums fueled the preservation movement for nearly a hundred years (Lea 2003).

The National Park Service (NPS) was created by the Department of the Interior in 1916 as a means to protect the ever-increasing number of federal lands. By the early 1930s, the NPS was the leading source of preservation expertise for the government (Lea 2004). The NPS, the Civilian Conservation Corps (CCC), and other federal agencies provided projects for unemployed architects and photographers during the Great Depression. The architects and photographers created measured drawings of significant historic buildings. During this time, the Historic American Buildings Survey (HABS) emerged—the nation's first audit of historic buildings (Lea 2004).

In 1947, a group of representatives from cultural and preservation organizations across the country created the National Council for Historic Sites and Buildings in the nation's capital. The group felt that the current state of the country's important sites was being threatened by post-war development and exploration. The council ultimately created the National Trust for Historic Preservation (NTHP) which helped expand the preservation movement beyond house museums and battlefields. The Trust was chartered by Congress on October 17, 1949, and brought historic preservation to the public eye (Lea 2004).

The National Historic Preservation Act (NHPA) of 1966 ushered historic preservation even further into mainstream society. Prior to the 1966 legislation, only nationally significant buildings were protected by historic preservation activities. The NHPA made preservation applicable to important buildings at the national, state, and local level (Lea 2004). Since the buildings of the distant past were considered superior to those of the present, the new legislation protected the old buildings from the contemporary architects, designers, and planners who were

creating the inferior works of the present. Preservationists (and most people in general) felt that Modern architecture lacked character, scale, variety, and significance (Longstreth 1992).

Hating the architecture of the present, and loving the buildings of the past, was not a new phenomenon. In fact, it has happened countless times in history. Victorian architecture was despised starting in the late 1800s as scholars and proponents of the City Beautiful movement felt like their work was far superior. Then the Modernists came along and declared that all the buildings of the past were fundamentally wrong. In the 1950s and 1960s, Modernism itself came into question as buildings beyond neo-classicism were being protected (Longstreth 1992). As we have witnessed in recent years, many contemporary architects dislike buildings from the Post-Modern period. This is a never-ending cycle.

The most alarming aspect of preservation, especially pertaining to Modernism, is the presence of taste and aesthetics when it comes to decision-making. “While taste is not an official criterion for listing historic properties,” according to Longstreth, “anyone who has worked in the preservation field knows that it is an underlying factor and may surface openly to influence the debate... Matters of taste are usually not expressed at such; they tend to be coded in jargon or made implicit rather than explicit in statements” (1992). The demolition of Joseph Abel’s Governor Shepherd apartment building (1939) in Washington, D.C. proves the presence of taste in decision making. The building was “ugly” and was not a “pure” International Style building. Although this building showcased Abel’s talent as an architect and played a key role in Modernism for public housing in the D.C. area, the building was nevertheless demolished (Longstreth 1992).

While many preservationists today are beginning to work harder in order to protect key buildings from the Modern movement, much of the public is still unsure about modernism, or is

blatantly hostile toward it. Lesser-known Modernist building are disappearing with few people caring or even noticing, and even many Modern architectural gems by famous architects are being destroyed without much protest (Longstreth “Critique” 2000). The voice of the supportive preservationists is not enough to save Modern buildings.

Richard Neutra’s Cyclorama Building

To some, Richard Neutra’s 1961 Cyclorama Building at Gettysburg is the ultimate Visitor Center of the National Park Service’s Mission 66 Program. To others, the Cyclorama is an intrusive eyesore that should be demolished (Longstreth “Integrity” 2000). For several years, it was unclear which side would ultimately win. Unfortunately, the building will be demolished.

The Cyclorama Building is one of the few Mission 66 projects where the Park Service commissioned an internationally renowned architect for the design (Longstreth “Integrity” 2000). While Richard Neutra is most famous for his residential works on the West coast, the Cyclorama is special in that it showed Neutra’s talent for public architecture on the other side of the country. Neutra even considered the Cyclorama “the project closest to his heart” (French “Mission 66” 2002). The building is Neutra’s tribute to Abraham Lincoln, and it houses the 350-foot circumference, 30-foot tall “Cyclorama” painting by Paul Philippoteaux that depicts the climax of the battle of Gettysburg (French “The Cyclorama Building” 2002).

Initially, the Cyclorama received praise from the architectural community and from publications like The New York Times, which predicted it would bring much acclaim to the National Park System. Only twelve years after it opened, however, park officials began to complain that the Cyclorama was too small. The Park Service immediately took away the visitor center function of the building, which sparked a 25-year period of neglect by the Park Service (French “The Cyclorama Building” 2002).

In 1998, the Park Service declared the Cyclorama “an intrusion on the historical landscape” and slated it for demolition (French “The Cyclorama Building” 2002). To add insult to injury, the NPS nominated three Mission 66 Visitor Centers for National Landmark Status in 2000, but omitted both of Neutra’s Mission 66 contributions (his other visitor center is at the Petrified Forest National Park) (French “The Cyclorama Building” 2002).

In 1998, preservationists nominated the Cyclorama for the National Register of Historic Places. That bought some time for the building. In 2000, preservationists, backed by famous architects such as Frank Gehry and Robert A.M. Stern, tried to make the Cyclorama a historic landmark. The National Parks Advisory Board denied the nomination on the grounds that the building didn’t have architectural merit (French “The Cyclorama Building” 2002).

In 2005, the World Monuments Fund (WMF) put the Cyclorama on its Watch List of the 100 Most Endangered Sites. The Recent Past Preservation Network (RPPN), the non-profit organization that nominated the Cyclorama for the Watch List, tried to persuade the Park Service that the building should just be relocated, not demolished (French “Mission 66” 2002). The NPS fought hard to get rid of this important piece of their history, and they had numerous supporters. Those in favor of the demolition argued that “this sprawling modernist pile is an unwarranted intrusion, standing near the high-water mark on the Confederacy, despoiling hallowed ground” and “it is not only big but that its assertive scale and character run at odds with the setting and detract from these historical associations that are the bedrock of the park’s significance” (Longstreth “Integrity” 2000). The NPS ultimately won out, and the battle to save the Cyclorama is over.

Implications

It would be impossible to force people to appreciate Modern buildings, and just liking or disliking a building is not really the issue. The important concept here is that people understand

the significance of Modernism and can appreciate Modern buildings for their innovativeness and the ideas they represented. It is not important to think a building is attractive in order to believe it is significant enough to preserve.

CHAPTER 7

ORGANIZATIONS FIGHTING TO SAVE MODERN ARCHITECTURE

Over the past two decades, several organizations have begun to address the issue of preserving modern architecture. In some cases, traditional groups, such as the International Council on Monuments and Sites, the United Nations Educational, Scientific, and Cultural Organization, or the World Monuments Fund, began to take on Modernism as an important cause. In other instances, groups formed solely to document and preserve works of Modernism, such as the International Working Party for the Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement and the Recent Past Preservation Network. In either case, these organizations are bringing the plight of Modernism into the public domain and are finding tremendous support for their cause.

International Council on Monuments and Sites (ICOMOS)

The International Council on Monuments and Sites, ICOMOS, has over 7500 members worldwide. The goal of ICOMOS is to conserve and protect cultural heritage sites. ICOMOS also helps to disperse information on conservation techniques and principles, and establishes training programs for conservation. ICOMOS bases its principles of conservation on the 1964 Venice Charter (International Charter on the Conservation and Restoration of Monuments and Sites) (ICOMOS 2007).

Almost from its inception, ICOMOS has been concerned with protecting and conserving the recent sites that were the result of “intellectual, social, technological, or artistic evolution.” ICOMOS has held several seminars and produced several publications on Modern heritage. In 1989, ICOMOS published pieces on conserving the Bauhaus in Dessau. In 1993, ICOMOS Germany held a meeting about conserving modern architecture. ICOMOS France held a seminar on preserving architectural concrete (ICOMOS 2007).

The 1995 ICOMOS Seminar on 20th Century Heritage in Helsinki concluded that recent heritage should not be defined based on aesthetics, but instead on the important social, economic, and cultural factors. The meeting also covered how even the modest examples of recent architecture should be given consideration, including urban and rural structures, housing complexes, industrial heritage sites, etc. Meeting attendees also stressed the importance of researching and documenting the problems and solutions of conserving Modern heritage. They suggested a follow-up meeting to further discuss the issues. At the conclusion of the meeting, everyone agreed that ICOMOS, DOCOMOMO, and the World Heritage Center should have an ongoing relationship and should work together to define, identify, and document twentieth-century heritage (ICOMOS 2007).

A follow-up seminar was held in Mexico City in 1996. The main objective of this seminar was to discuss America's specific contribution to twentieth-century heritage. Sites were evaluated in terms of local importance first, then regional, national, and international significance were examined. Since many new and experimental techniques and materials had been used during the Modern Movement, they were also taken into consideration—whether they succeeded or failed. Economic barriers were also taken into account during this ICOMOS seminar (ICOMOS 2007).

Throughout 2000 and 2001, ICOMOS and UNESCO's World Heritage Center collaborated to promote the nomination of recent past properties for inclusion on the World Heritage List. A 2001 session held in Montreal proposed an international action plan and program for modern heritage. The Montreal Action Plan was developed on the basis that: 1) Twentieth-century heritage was very diverse, as were the issues related to identifying and protecting the resources 2) International Monuments and Sites Day 2002 should be dedicated to twentieth-century

heritage 3) The Heritage at Risk Report of 2002 should especially emphasize twentieth-century heritage and 4) ICOMOS should coordinate with UNESCO and other organizations to develop meetings and workshops on twentieth-century heritage.

April 18th 2002, ICOMOS's International Day for Monuments and Sites had the theme *20th Century Heritage*. ICOMOS recognized the importance of recent heritage and realized that recent heritage is often not acknowledged or protected like older heritage (ICOMOS 2007).

United Nations Educational, Scientific, and Cultural Organization (UNESCO) and The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)

The United Nations Educational, Scientific, and Cultural Organization's World Heritage Centre (WHC) was established in 1992. The WHC holds annual meetings of the World Heritage Committee, helps State Parties nominate sites to the World Heritage List, obtains international assistance from the World Heritage Fund, undertakes emergency actions when List sites are threatened, organizes seminars and workshops, updates the World Heritage List, and raises public awareness for heritage preservation (UNESCO 2007).

In 2001, UNESCO's WHC, ICOMOS, and DOCOMOMO created the Programme on Modern Heritage—a joint program for the identifying, documenting, and promoting the built heritage of the 19th and 20th centuries. The Programme, which receives financial support from the Netherlands' government, helps raise awareness about the architecture, planning, and landscapes from the Modern era. There have been five regional meetings on Modern Heritage, including the 2004 meeting, which focused on North American Modern Heritage, in Miami Beach and Coral Gables, FL (Appendix B).

At the Miami meeting, attendees discussed the identification, protection, conservation, and potential nomination of properties and sites of Modern Heritage in North America. They examined both the “architectural masterpieces” and the urban sites that were important to

modernity and modernization in North America. It was determined at this meeting that there was a limited, but growing appreciation for Modern Heritage in America, but that there should be new ways and means for support and public engagement for these sites. While the focus of preservation efforts had been primarily on Modern icons, local or vernacular examples of modernity were also important. Attendees of this meeting discussed two major threats to Modern Heritage—continuing use and upgrading, and obsolescence. The issue of authenticity and preservation of Modern structures was also discussed in detail.

At the UNESCO General Conference in New Delhi in 1959, a proposal was made to create an “intergovernmental” center for the study for preservation and restoration. Soon afterwards, ICCROM (The International Centre for the Study of the Preservation and Restoration of Cultural Property), was established in Rome. ICCROM’s Built Heritage Programme focuses on education, research, and training and also features courses, seminars, and workshops. In the past few years, ICCROM has begun to sponsor courses specifically about Modern architecture. The first MARC, or Modern Architecture Conservation Course, was held in 1999. The course examined both the theory and practice of conserving Modern buildings. The 2006 MARC course focused specifically on the suburbs built in the 1960s and 1970s (ICCROM 2007).

World Monuments Fund (WMF)

The World Monuments Fund began in 1965 by James A. Gray, a retired American army colonel. Gray turned his interest in engineering issues and monuments into a means for the general public to support preservation for the first time in history. The WMF has proven to be a substantial force in the preservation movement, with more than 450 projects in 80 countries (WMF 2005).

The WMF first restored rock-hewn churches in Ethiopia, and then the monuments of Easter Island. In 1966, the WMF stepped in to help save Venice after severe floods threatened

important Italian buildings and monuments. In 1985, the WMF aided Mexico City after a devastating earthquake damaged the historic city center. The World Monuments Fund has launched other programs all over the world, including Asia and the former Soviet Union (WMF 2005).

In 1995, the WMF established the World Monuments Watch program. The Watch program chooses the 100 Most Endangered Sites from around the globe and compiles them into a list every two years. The sites chosen are particularly threatened by neglect, vandalism, war, or natural disaster. It is hoped that being selected as a Watch site will attract technical and financial support for these at-risk sites. Over three-quarters of the Watch sites have been saved (WMF 2005).

Modernism at Risk

In 2006, the WMF, sponsored by Knoll (a leading manufacturer of modern office and home furniture for nearly 70 years), launched *Modernism at Risk*. The *Modernism at Risk* program calls attention to threatened works of Modernism across the world, and will ultimately strengthen the World Monuments Fund's place in the preservation of Modern architecture. With a generous grant from Knoll in the sum of \$400,000, the WMF will not only be able to focus on preserving specific sites, but will also be able to launch initiatives for public education and advocacy, and secure media attention. A series of traveling exhibits and lectures by prominent architects will ensue (WMF 2005).

A major initiative of the *Modernism at Risk* program is the awarding of the World Monuments Knoll Modernism Prize. The award will be given to a professional or firm whose work raises public awareness of the important role of Modernism in our heritage. The winner will be chosen based on either a showcasing of the preservation of a modernist structure, or by

using modern design solutions for increasing the longevity of pre-modern landmarks. The first winner will be chosen in 2008 (WMF 2005).

Modern Buildings on the WMF Watch List

Several well-known Modernist buildings have been included on past WMF Watch Lists. In 2000, Richard Neutra's VDL Research House II made the Watch List. In 2002, two major American Modernist structures made the Watch List—Rudolf Schindler's Kings Road House and Studio in West Hollywood and Edward Durell Stone's A. Conger Goodyear House in Long Island (WMF 2005).

The 2006 Watch List featured the highest number of Modern buildings ever listed at once—nine in total. Included in the 2006 List are: Melnikov's House Studio, Asmara Historic City Center, International Fairground at Tripoli, Ennis Brown House, Cyclorama Center, and 2 Columbus Circle (WMF 2005).

Russian architect Konstantin Melnikov's 1929 home and studio was the only single-family dwelling built for an individual during the Soviet era. The area of town where the house is located is undergoing massive redevelopment. An underground parking lot built next door destroyed the drainage system in the Melnikov house and has led to water penetration. Inadequate preservation work in 1998, in addition to the intense water damage, has led to serious deterioration of the House Studio. Viktor, the architect's son, is currently keeping the house alive with his own money. Viktor and other locals want to see the Melnikov House turned into a house-museum (WMF 2005).

The Asmara City Center in Eritrea was constructed between 1936 and 1941 by Fascist Italian colonists. The Asmara architects incorporated a variety of styles into the City Center, but Rationalism (Italy's version of International Style Modernism) is most apparent. Again, development in the area is threatening the City Center, including a 1919 Modernist Asmara

Theatre by Oduardo Cavagnari. In 2000, the Cultural Assets Rehabilitation Project (CARP), supported by the World Bank, established a safe-zone around the city center where no new construction could begin. CARP feels that by being listed on the Watch List the Eritrea government will adopt planning guidelines that help protect other historic resources in Asmara (WMF 2005).

Brazilian Modernist Oscar Niemeyer was commissioned in 1963 for the International Fairground Project in Tripoli, Lebanon. Niemeyer's design features an oval-shaped fairground with concrete forms and an open-air pavilion. The site was originally used by the military when war broke out during construction, but it is now unoccupied. The Fairground site has been neglected over the years, and plans to demolish the existing structures and convert the site into a themepark are in the works. Patrimoine sans Frontieres and the Association for the Safeguarding of the International Fairgrounds of Tripoli strongly advocate the preservation of the site (WMF 2005).

Frank Lloyd Wright's 1924 textile block house in Los Angeles has experienced severe deterioration over the years. The very materials used by Wright have been a major source of the demise, along with the 1994 earthquake that caused structural damage to the house. Local foundations, state funds, and Federal Emergency Management Agency (FEMA) have been working hard to save this house. After a series of brutal rains further deteriorated the house in 2005, the City of Los Angeles deemed the house uninhabitable (WMF 2005).

Richard Neutra's 1963 Cyclorama Building is in serious trouble (see Chapter 6). Organizations like DOCOMOMO and the Recent Past Preservation Network (RPPN) feel that being listed on the 2006 Watch List will demonstrate the plight of Modernist architecture. In this

case, the demolition of the Cyclorama Building has been approved by government but vehemently opposed by preservationists (WMF 2005).

Edward Durell Stone's 1960s museum building at 2 Columbus Circle was originally a personal art gallery for Huntington Hartford. From the very beginning, this building was controversial. The Gallery closed in 1969 due to lack of funding, but it was purchased by the City of New York in 1980. The Museum of Art and Design (MAD) recently purchased the building, and plans to renovate it with a radically different design. In the new plan, the marble exterior and ornament will be removed, and the interior will be drastically modified. Both the National Trust for Historic Preservation (NTHP) and the Preservation League of New York State wanted to save 2 Columbus Circle, but the New York City Landmarks Commission failed to see the significance of the building, thus rendering it a lost cause (WMF 2005).

Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement (DOCOMOMO)

An International group that specifically focused on Modernism was formed in 1988—DOCOMOMO. DOCOMOMO is an International Working Party for the Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement. DOCOMOMO has working parties in 49 countries, including the United States. DOCOMOMO hosts biannual conferences in addition to a semi-annual journal, and published proceedings from the conferences. DOCOMOMO also has international specialist committees (ISC) that are each assigned a different sector—ISC/T for technology, ISC/R for registers, ICS/L for landscapes, ISC/U for urbanism, and ISC/E for education (Bronson 2000).

Activities featured on the DOCOMOMO agenda include: identifying, inventorying, listing, protecting, researching, and raising awareness of important modern buildings. The steps for

treating modern buildings are much the same as those for traditional buildings, but must be tailored specifically for modern buildings when it comes to physical treatments (Bronson 2000).

Originally, DOCOMOMO was mainly concerned with 1920s and 1930s European Modernism. More recently, however, the focus has shifted, particularly in America, because it was determined that the post-war years showcase a significant portion of modern architectural development (Bronson 2000).

DOCOMOMO US was formed in 1995 and now has seven local chapters—Chicago, Georgia, New England, the New York Tri-State area, Northern California, North Texas, and Western Washington. The chapters host walking tours and educational programs, give technical assistance for preserving modern buildings, conduct research and surveys for the DOCOMOMO Register, and advocate to save endangered sites (DOCOMOMO-US).

The Mission Statement of DOCOMOMO US has four key elements:

- DOCOMOMO US seeks to stimulate interest in and educate the public about Modern buildings, sites, neighborhoods and landscapes;
- DOCOMOMO US seeks to act as a watchdog when examples of Modern buildings, sites, neighborhoods and landscapes are in jeopardy and advocate for their appropriate protection and preservation;
- DOCOMOMO US seeks to make a register of important Modern buildings, sites, neighborhoods and landscapes to be preserved and documented;
- DOCOMOMO US seeks to exchange knowledge and ideas about Modern buildings, sites, neighborhoods and landscapes and to share techniques about their documentation and conservation

(DOCOMOMO-US 2007)

The US DOCOMOMO Register contains significant examples of Modernism in architecture, urban design, landscapes, and gardens. In order for a site to be eligible for the Register, it must first and foremost be a Modern site. The site must have been built during the

Modern period (approximately 1920s to 1970s). The design showcased must be consciously and purposefully Modern (DOCOMOMO-US 2007).

DOCOMOMO outlines six criteria for evaluating the significance of a building or landscape. Although a site does not need to meet all six qualifications, the more it meets will further justify the significance.

- Technological merit: Does the work employ innovative modern technology to solve structural, programmatic, or aesthetic challenges?
- Social merit: Does the design reflect the challenging social patterns of 20th century life? Did the designer attempt to improve either living or working conditions, or human behaviors through the work's form or function?
- Artistic or Aesthetic merit: Does the work exhibit skill at composition, handling of proportion, scale and material and detail?
- Canonic merit: Is the work and/or architect famous or influential? Is it exemplary work?
- Referential value: Did this work exert an influence on subsequent designers as a result of one or more of its attributes?
- Integrity: Is the original design intent apparent? Have material changes been made which compromise the architectural integrity of the structure or site?

(DOCOMOMO-US 2007)

Currently DOCOMOMO US and DOCOMOMO Tri-state New York are fighting hard to save Eero Saarinen's 1962 TWA Terminal at the John F. Kennedy International Airport in New York City. The construction of new terminals right next to the TWA Terminal has been set in place. Since TWA Airline no longer exists, the TWA Terminal is vacant and its future use has no been reassigned. To make way for the new terminals, part of the original TWA terminal and its gates are supposed to be demolished. DOCOMOMO US and DOCOMOMO Tri-state New York are afraid of this demolition, and they fear that the new terminal will dwarf the TWA terminal. Since the terminal is no longer in use, DOCOMOMO is afraid that it will further deteriorate and ultimately be demolished entirely. DOCOMOMO members are asking for letters

of support to be sent to the Governor of New York and the head of the Port Authority of New York and New Jersey (American Institute of Architects 2001).

Recent Past Preservation Network (RPPN)

The Recent Past Preservation Network (RPPN) has the goal of “Promoting preservation education and advocacy to encourage a contextual understanding of our modern built environment.” RPPN advocates the protection of many types of resources from our recent built heritage, many of which are less than fifty years old, “out of style”, or are considered “non-contributing” in terms of local, state, or national significance. The RPPN is very active in raising awareness about recent past heritage, and taking physical actions to save recent past structures. RPPN goes beyond the realm of classic examples of Modernism, and further advocates for the documentation and protection of bowling alleys, drive-in theaters, diners, domes, towers, roadside structures, and other structures most people might find ordinary (Recent Past Preservation Network). Although the RPPN is an invaluable source of information preserving recent past heritage and they have been instrumental in helping to save important pieces of Modern architecture, the group goes far beyond Modern territory and thus was not researched in depth for this study.

CHAPTER 8

OBSERVATIONS

At this point in time, nearly all preservationists agree that there were some highly significant buildings erected in the recent past that deserve celebrating and saving. Organizations and individuals are constantly fighting to save an increasing number of Modern buildings. Although more people are becoming interested in the Modern era, most people are still indifferent toward the preservation of Modern buildings. This lack of interest in Modernism makes it difficult to obtain public support when Modern buildings are threatened.

As addressed in previous chapters, Modern building envelopes have numerous problems, and people do not favor Modern aesthetics. Both of these barriers create opposition for the preservation of Modernism, but education, or lack thereof, is perhaps the basis of these challenges to preserving Modern buildings.

Education is crucial to understanding why any building should be preserved, but it is particularly important for Modern buildings. The Modern era was a highly misunderstood period of our architectural history. Although most Modern buildings have distinguishing aesthetic characteristics, such as flat roofs and simple forms, Modernism was not a movement based on aesthetics. Building forms were a product of their functions. Modernism also demonstrated optimism about the future and a willingness to experiment with new ideas and techniques. While education about the Modern era might not make people favor Modern buildings, it would certainly help raise awareness about the important mark Modernism made on the history of design and culture.

The lack of education about Modern building materials and processes also poses serious problems when physical preservation is enacted. Since Modernists favored experimentation, many building materials used in their buildings were never fully tested or may be obsolete today.

Most preservationists are knowledgeable about preserving traditional buildings, but they are unsure about preservation techniques for Modern buildings. Maintaining architectural integrity and authenticity are monumentally important for historic preservation. Authenticity is a difficult area for Modern buildings, in particular, because retaining the original materials used in construction is often not an option. Insensitive changes and additions to Modern buildings also pose problems for maintaining authenticity. Since most buildings from the Modern era are small (but efficient), they are often subject to additions in order to increase space. In many cases, these additions destroy the materials and spatial relationships of the original structure.

Economics is also an enormous barrier to preserving Modern buildings. Modern buildings are expensive to repair, and the land they are located on is often considered more valuable than the structure itself (Longstreth “Critique” 2000). People today want “McMansions,” not the modest structures from the Modern movement. Developers often buy Modern structures, only to tear them down to build larger buildings on the same site.

During the Modern Movement, particularly in the post-war era, there was a dramatic building boom. Not only was there an enormous increase in the number of building, but there was also an emergence of many new building types. It is also difficult to determine which structures are the most significant, and which are less important. To make matters even more difficult, funds and resources for preservation are limited. People are often more likely to support the preservation of older, sometimes inferior, buildings of the distant past. Since much of the population still remains indifferent toward Modernism, it is hard to raise public support to save Modern buildings. This is a great threat to the survival of Modern building—from the icons to the ordinary.

APPENDIX A THE SECRETARY OF THE INTERIOR'S STANDARDS

http://www.cr.nps.gov/hps/tps/standards_guidelines.htm

The Secretary of the Interior's Standards

ROOTED IN OVER 120 YEARS OF PRESERVATION ETHICS in both Europe and America, The Secretary of the Interior's Standards for the Treatment of Historic Properties are common sense principles in non-technical language. They were developed to help protect our nation's irreplaceable cultural resources by promoting consistent preservation practices.

The Standards may be applied to all properties listed in the National Register of Historic Places: buildings, sites, structures, objects, and districts.

The Standards are a series of concepts about maintaining, repairing and replacing historic materials, as well as designing new additions or making alterations; as such, they cannot, in and of themselves, be used to make essential decisions about which features of a historic property should be saved and which might be changed. But once an appropriate treatment is selected, the Standards provide philosophical consistency to the work.

There are Standards for four distinct, but interrelated, approaches to the treatment of historic properties--preservation, rehabilitation, restoration, and reconstruction.

Preservation focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time. (Protection and Stabilization have now been consolidated under this treatment.)

Rehabilitation acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.

Restoration depicts a property at a particular period of time in its history, while removing evidence of other periods.

Reconstruction re-creates vanished or non-surviving portions of a property for interpretive purposes.

Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Standards for Rehabilitation

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Standards for Restoration

1. A property will be used as it was historically or be given a new use which reflects the property's restoration period.
2. Materials and features from the restoration period will be retained and preserved. The removal of materials or alteration of features, spaces, and spatial relationships that characterize the period will not be undertaken.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate and conserve materials and features from the restoration period will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Materials, features, spaces, and finishes that characterize other historical periods will be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the restoration period will be preserved.
6. Deteriorated features from the restoration period will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials.
7. Replacement of missing features from the restoration period will be substantiated by documentary and physical evidence. A false sense of history will not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
9. Archeological resources affected by a project will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
10. Designs that were never executed historically will not be constructed.

Standards for Reconstruction

1. Reconstruction will be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure, or object in its historic location will be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures will be undertaken.
3. Reconstruction will include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction will be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property will recreate the appearance of the non-surviving historic property in materials, design, color, and texture.
5. A reconstruction will be clearly identified as a contemporary re-creation.
6. Designs that were never executed historically will not be constructed.

APPENDIX B
MIAMI SUMMARY REPORT



United Nations Educational, Scientific and Cultural Organization
Organisation des Nations Unies pour l'éducation, la science et la culture
Centre du patrimoine mondial
World Heritage Centre



Regional Meeting on Modern Heritage – North America
Miami Beach & Coral Gables (Florida), USA
10 – 13 November 2004

FINAL VERSION

Summary Report

From 10 to 13 November 2004, forty-five experts and professionals participated in the Regional Meeting on Modern Heritage: North America in Miami Beach and Coral Gables, USA (see Annex 1 for the program), organised by UNESCO's World Heritage Centre (WHC) and the University of Florida (College of Design, Construction and Planning Preservation Programs). With the support of the Government of the Netherlands, US-ICOMOS, the Consortium for Urban Conservation in North America (CUCINA), the Advisory Council on Historic Preservation, the National Park Service, The Villagers Inc., the Florida Trust for Historic Preservation and DOCOMOMO-US, 20 experts invited by the Director of the World Heritage Centre for their professional work and experience in the field of conservation of 19th and 20th centuries heritage, engaged in debate to discuss identification, protection, conservation and potential nomination of properties and sites of Modern Heritage in North America. (See Annex 2 for the list of participants)

The opening of the Regional Meeting took place on Wednesday 10 November 2004 at the Venetian Pool in Coral Gables with opening remarks from the Mayor of Coral Gables, the Coordinator of the Modern Heritage Programme at WHC, the Representatives of the University of Florida, the Representative of the Advisory Council on Historic Preservation, the Representative of the National Park Service, and the Secretary-General of ICOMOS International.

The expert meeting started on Thursday morning 11 November at the Miami Beach Botanical Gardens setting a broad stage with presentations on general issues, including an overview of the Programme on Modern Heritage with results of previous Regional Meetings, ICOMOS' involvement in the preservation of Modern Heritage, recent discussions at the Advisory Council on Historic Preservation concerning the possible listing of major US properties and sites (such as those related to the Manhattan Project and the Interstate Highway network) and the system of

identification and listing of properties and sites, many of those related to modernity, at the US National Register of Historic Places, National Park Service. Representatives of Parks Canada, including the Canadian Register of Historic Places introduced similar topics, while DOCOMOMO US representatives elaborated on international connections and Modern Heritage criteria applied to sites in the US.

In general it was established that both Canada and the United States had put in place an elaborate system of institutions and instruments, including consultation procedures and public information programmes. While the United States was arguably far ahead of other regions in the world with regard to identification and listing of various heritage categories according to themes, including Modern Heritage, Canada on the contrary had established an elaborate system regarding the World Heritage process, including a rigorous procedure for the establishment of its Tentative List, which had just been completed after two years of identification and consultation. In this respect all participants appreciated the possibility offered at this expert meeting to exchange information and experiences.

As the United States had refrained from putting forward nominations during the last decade (its last nominations were Glacier National Park, together with Canada, and Carlsbad Caverns in 1995), allowing for other States Parties to bring nominations forward, much discussion was focused on how the US is currently planning to get back in the process. The responsible representative explained that at the moment much effort was put in the Periodic Reporting process in view of the presentation of the region's report in 2005. A comprehensive revision of the Tentative List, which was established over 20 years ago, is envisaged, although no strategy had been developed yet. It was brought forward that the US Administration remained open to suggestions, taking into account that the Global Strategy and local support for heritage sites would be important aspects. A Federal Inter-Agency Panel will consider the Tentative List and nominations, coordinated by the Secretary of the Interior. The State Department then will send nominations to the World Heritage Centre.

Chaired by representatives of the US and Canadian Government and non-Governmental organizations, the expert meeting further included a series of presentations on properties and sites of Modern Heritage in North America grouped in three sessions: monuments, sites and landscapes. These served as a basis for the discussion related to the identification and conservation of Modern Heritage in the United States and Canada. The following properties and sites were examined as case studies:

- The Parkway System in Minneapolis
- The Distant Early Warning (DEW) Line Station network in the Canadian Arctic
- Miami Beach Heritage & Art Deco District
- Montreal Modern Downtown
- S.R. Crown Hall and the Illinois Institute of Technology Campus, Chicago
- Habitat 67, Montreal
- Marina City, Chicago
- Grain elevators of Saskatchewan
- The former Visitor Center at Gettysburg National Military Park
- The Dal Grauer Substation and the Burrard Street Corridor, Vancouver

- The Buildings of Frank Lloyd Wright
- Three mid-twentieth century properties in Atlantic Canada
- The University of British Columbia Campus, Vancouver
- The Brazilian Pavilion, 1939-40 Worlds Fair, New York

The different cases ranged from architectural masterpieces to urban ensembles and cultural landscapes, including cities, infrastructural works, military systems and networks of non-contiguous sites, and represented important aspects of *modernity* and *modernization* in North America. None of the cases had been evaluated in the context of a World Heritage nomination, although one is in the process of preparation, being the works of Frank Lloyd Wright.

In the debate following the presentations participants agreed on a limited but growing appreciation for modern heritage, notwithstanding the omni-presence of heritage of the recent past in North American society, urging for a need to rethink ways and means for political support and public engagement. The values of heritage need to be communicated and it was suggested that perhaps three audiences need to be addressed: the general public, decision makers and professionals of related disciplines, focusing on the lessons of history, the collective memory of the people and heritage as important economic, cultural and social assets. It was further remarked that “preservation needs to be pro-active and engage the public.”

While both National Registers showed a broad representation of heritage sites, also on the neighbourhood level, participants agreed that the majority of the presentations at the expert meeting tended to focus on canonical and iconic North American architecture, triggering a debate about internationalization *versus* the importance of local context, of local meaning *versus* landmarks of architectural history.

The ideology of modernism created a language whose expressions became understood as a style. The manifestations of this style have become the object of conservation. A goal of conservation should be the interpretation and conveying of the historical context. The importance of functional, economic, social, cultural and technological factors in shaping the character and form of the built environment should be given greater consideration in the identification and conservation of sites of Modern Heritage.

It was remarked that the conservation of modern monuments often entails the preservation of photographs and images, and it was questioned whether the use of images, which were so powerful in the spread of the modernist ideal, could be used as well to reach the public for preservation purposes.

The grain elevators case provided for intense and stimulating debate about the heritage story encompassing both Canada and the US relating to interconnected networks of food production and distribution, regional planning and land management, settlement and immigration, which offers an opportunity to describe and transmit an important part of North American history. This in turn led to discussion of the importance of understanding many facets of modern heritage as systems or networks into which specific sites can be more fully understood. However, the participants realized while practical issues, such as the need for protection and conservation, and

the requirement for property-owner consent, would limit application of this concept for World Heritage nomination, they do not preclude the need for and desirability of collaborative research.

With regard to identification, reference was made to the 1997 DOCOMOMO study commissioned by ICOMOS suggesting properties and sites of the Modern Movement for possible inclusion in the World Heritage List. Further discussed was the fact that the newly established Tentative List of Canada contained no examples of the Modern Movement.

The participants observed two threats: continuing use and upgrading, and obsolescence. In continuing use the broad public awareness of the heritage value is unrecognized and designation is perceived as a threat to the ongoing operation and upgrading. Obsolescence's, real and perceived, on the other hand is often accelerated by rapid technological changes leading to unusually complex challenges in the use of certain types of properties.

The unusually short life span of modern heritage buildings is a particularly acute problem, which is not only due to rapid obsolescence, but also due to intense pressures for greater growth experienced in city centers, peripheral locations and formerly rural areas alike. For instance many of the great achievements of the Chicago School of Architecture were demolished after only 20 to 40 years.

It was put forward that planned urban renewal schemes were a truly universal phenomenon of modernization and very significant for both the American continents, calling for coordinated research and documentation to take a needed fresh perspective.

With regard to protection, prominent in the discussion was the US requirement for property-owner consent in the process of designating a World Heritage site. In both countries the lack of public appreciation was complicating protection and conservation efforts, illustrated by the often-difficult process of getting even masterpieces of North American architecture protected. In addition, branding for tourism and other purposes, promoting towns "where the old days still live on", often result in destruction of modern properties and remodelling them to simulate a pre-industrial appearance.

An important plea was made to undertake historical analyses of urban form, in addition to a building-focused approach, in protection and conservation strategies for Modern Heritage, an issue that had been discussed in the recent DOCOMOMO Conference in New York in September 2004. The current threat to Place Ville Marie in Montreal highlights the value of coordinating these two approaches.

Issues of authenticity versus the need to improve on the performance of buildings (fire safety regulations, energy efficiency, etc.) were discussed in the context of the often painstakingly precise process of architectural conservation, including the need for careful consideration of new interventions. Since the materials utilized in the original construction sometimes weren't expected to last more than 30 years, obtaining appropriate materials for the restoration process remains another challenge. The use of economic incentives was emphasized as an important tool to support conservation.

While preservation of authentic exteriors is currently fairly well understood, it was shown through examples in particular in Montreal (Habitat complex) and Miami Beach (Art Deco District) that interiors often remained seriously under threat. It was put forward that increased efforts were needed to improve on this situation.

Regarding criteria for assessment and evaluation, the case of the works of Frank Lloyd Wright was discussed extensively. Reviewing the proposed serial nomination to recognize significant contributions to the development of modern architecture represented by the buildings of FLW, the participants suggested that a proper statement of significance could provide for insights into the number of properties to be included in the nomination proposal. Review of the 1991 ICOMOS recommendations confirmed that the current process of reviewing a significant number of FLW's works would lead to an informed decision regarding the selection of buildings. This would facilitate ICOMOS' task of advising the World Heritage Committee, and the Committee's task of deciding on the Outstanding Universal Value of the works.

Recommendations

1) Concept

While the important contribution of architects and architecture was acknowledged, the participants agreed that for identification purposes the concept of Modern Heritage needed to go beyond the focus on individual monuments. Consideration should be given to a broader range of sites, including those with associative value, that form the systems and networks that are traces and experiences of the processes of modernization, modernity and modernism. Modern Heritage is not necessarily defined by a single time period. Such sites may be related to material action to change environments and living conditions that shaped, and are still shaping, society.

For World Heritage nominations, it was understood that a clear focus remained necessary on practical and ultimate results: the preservation of places and development of the conservation process.

2) World Heritage Process

Discussing the implications of the above concept of Modern Heritage, the participants underlined the need to pursue regional balances and efforts for assistance to under-represented regions. Furthermore, assistance from the WH Committee to conduct comparative analyses was requested.

Support for the evolving concept and further development of serial nominations was suggested, certainly with regard to properties of Modern Heritage. The participants strongly suggested turning the World Heritage process into a more interactive one to facilitate the process. This would include the need for a preliminary assessment of OUV of potential nominations to avoid waste of resources and last minute disappointments, considered greatly detrimental to the process.

It was further suggested to involve local communities in the establishment of the Tentative List, along with the professional and scholarly communities. The participants encouraged the involvement of all stakeholders in establishment of a ‘wish-list’ of potential sites to be included in the Tentative List.

The participants reiterated that the World Heritage Convention was ultimately about the conservation of heritage, recognizing that World Heritage listing is only one aspect of this process.

3) International Co-operation

As an example of international cooperation, DOCOMOMO US offered to develop its conference website as a possible portal for dissemination of information on the post-WW II era.

To maintain dialogue between both the US and Canadian Park Services, in the spirit of the already existing longstanding cooperation, and after completion of the Tentative List revision process by the US, multilateral cooperation including Mexico should be considered on the subject of identification of Modern Heritage.

4) Actions at the National Level

The participants expressed admiration for the rigorous and thorough process in the establishment of the Canadian Tentative List and strongly suggested that the US draw on that experience.

Appreciation was expressed as well for the US Government’s initiative to revise the Tentative List in 2005. The participants urged that the process be open and involve all stakeholders.

Participants recommended the use of multiple, relevant research methodologies and preservation measures for Modern Heritage, exploring existing partnerships and generating new ones. They also recommended that students be involved in the process, so as to foster awareness at the local and national levels.

The participants recognized the universal value of the United Nations building in New York and urged the need for exploration of possibilities to have the complex listed in the World Heritage List.

5) Specific follow-up proposals

Considering the implications of the 5 regional meetings, the participants requested the World Heritage Centre to convene a thematic meeting involving experts selected from all regions facilitating general advice to the WH Committee.

Adopted in Miami Beach (Florida), USA, on 13 November 2004.

Annex 2

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BIOGRAPHICAL SKETCH

Carrie Purkerson, daughter of Johnny and Barbara Dilley, grew up in the small town of Glasgow, Kentucky. She graduated from Western Kentucky University in 2005 with a Bachelor of Science in Architectural Sciences. During her undergraduate studies, Carrie developed a love of architectural history (particularly modern architecture) that was sparked by her professor and mentor, Neal Downing. Carrie took all the classes offered on architectural history at her university (there were only three), but she wanted to learn more. She spent much of her spare time reading about modern designers and their buildings, and traveled as far as Marseilles, France to visit some of her favorite buildings.

In the fall of 2005, Carrie enrolled in the Master of Science in Architectural Studies Program in the University of Florida's College of Design, Construction, and Planning. Her interest in architectural history led her in the path of historic preservation, and she is currently most interested in the preservation of modern architecture. Carrie also enjoys cooking and traveling.