



Experts Meeting

A Colloquium to Advance the Practice of Conserving Modern Heritage

March 6–7, 2013

Meeting Report

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The Getty Conservation Institute

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LOS ANGELES

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The Getty Conservation Institute works internationally to advance conservation practice in the visual arts—broadly interpreted to include objects, collections, architecture, and sites. The GCI serves the conservation community through scientific research, education and training, model field projects, and the dissemination of the results of both its own work and the work of others in the field. In all its endeavors, the GCI focuses on the creation and delivery of knowledge that will benefit the professionals and organizations responsible for the conservation of the world's cultural heritage.

A Colloquium to Advance the Practice of Conserving Modern Heritage

Organized under the banner of the Getty Conservation Institute's Conserving Modern Architecture Initiative (CMAI), the Colloquium to Advance the Practice of Conserving Modern Heritage brought together professionals and practitioners to examine the current state of the field and identify areas of outstanding need in order to develop actions to advance practice in this area of conservation.

Purpose and Objectives

Despite increased recognition of modern architecture's cultural significance and more than twenty-five years of effort by government heritage agencies, nonprofit institutions, and professional organizations dedicated to the conservation of this heritage, there are still challenges to securing its protection and conservation. Therefore, it is timely to reflect on how the practice of conserving modern architecture has advanced, so as to identify where future efforts should be concentrated. This need was the catalyst for the Conserving Modern Architecture Initiative, launched in March 2012 by the Getty Conservation Institute (GCI). The CMAI has defined areas that may contribute to the development of conservation practice, including research, the creation and dissemination of information, model projects, capacity building, and training and education.

Many of the characteristics of modern architecture—such as the use of new and innovative construction methods and materials, the role of architecture in social reform, and the development of new building types and forms—challenge traditional conservation approaches and raise new methodological and philosophical issues. Tackling these issues effectively requires leadership, strategic research, and negotiation with industry to develop appropriate repair techniques that translate research into practice and achieve conservation aims. A concerted effort is needed to collect and distribute existing information, to identify areas where knowledge is lacking, and to gather information to fill in those gaps.

To address this need, the GCI designed and organized a two-day colloquium that brought together professionals and organizations with a demonstrated knowledge of this subject to identify ways that the practice of conserving modern heritage might progress. Key objectives were to:

- examine actions undertaken over the last twenty-five years in order to assess the current state of practice of conserving modern heritage;
- identify and prioritize current needs;
- identify potential actions to meet these needs;
- identify entities and potential collaborators to undertake the actions; and
- create a plan for the conservation sector to use to implement the identified work.

Participants

The invited participants were critical thinkers and key players who have been influential in the conservation of modern heritage or who have the potential to be so in the future. This multidisciplinary gathering brought together architects, conservators, scientists, educators, historians, and allied practitioners, including representatives from key organizations and institutions with a specific interest in this area of heritage conservation. Short biographies of the speakers, moderators, and rapporteurs can be found in appendix A, and all participants are listed in appendix B. A small number of observers attended the program's joint sessions.

Meeting Format and Structure

The colloquium was organized around four themes: philosophy and approach; physical conservation challenges; education and training; and identification, assessment, and interpretation. In preparation for the colloquium, position papers on each theme were prepared by selected authors and circulated in advance. These papers, as well as a series of case studies elucidating the themes, were presented on the first day to provide a foundation for subsequent discussions. Abstracts of the case studies are given in appendix C. Appendix D contains the full texts of the four position papers.

On the morning of the second day, participants were divided into four discussion groups, each covering one of the four thematic areas. The groups were charged with identifying important issues, proposing responses, and then formulating specific, prioritized actions, as well as suggesting organizations or institutions that might undertake the actions. In order to catalyze the conversation, issues raised in the position papers were presented to the groups at the beginning of the sessions, and each group was also given prompt questions derived from issues raised in the papers. These questions can be found in appendix E. The discussions were led by moderators, and two rapporteurs were assigned to each group to capture and summarize outcomes. Photos of the meetings appear in appendix F. The discussion sessions concluded with participants individually identifying the four responses and specific actions that they viewed as most important. Because many responses and actions might take considerable time to implement, each participant also identified four that could be achieved relatively quickly while still advancing the field.

Next, in a ninety-minute session, the moderators and rapporteurs of each group distilled and summarized the issues raised and the actions proposed and prepared a PowerPoint report detailing the most critical issues and responses. Appendix G contains all four of the working group reports.

On the afternoon of the second day, during the colloquium's final, general session, the rapporteurs presented each working group's key findings and priority actions. The presentations covered the broad issues and possible responses to them, recommendations for specific actions, and suggestions of organizations or institutions to undertake the actions.

The group presentations were followed by an open discussion with all participants during which additional issues were identified, and priorities for action began to emerge. After receiving input from all four working groups in the general discussion, participants were asked to select the two short- and two long-term actions

they viewed as most important. The top two long-term and short-term actions from each theme are summarized in appendix H.

Colloquium Themes: A Summary of Position Papers and Case Studies

The meeting was organized around the four themes presented below.

Theme 1: Philosophy and Approach

Within the field, there is an ongoing discussion as to whether the philosophical approach to conserving modern heritage should be different from that used for the heritage of other eras. The conversation has been influenced by improved access to primary sources of information, enhanced documentation, industrialization, and emerging architectural approaches. Issues related to material conservation and design intent have long been debated, and the question of where the values-based approach fits into this discussion remains to be answered. A fundamental inquiry is whether modern heritage actually needs its own conservation philosophy. The primary goal in the discussion of this theme was to identify ways of establishing a shared approach among practitioners of modern heritage conservation and to specify measures needed to achieve this.

To establish a framework for discussions, the paper presented by Susan Macdonald, “Integrating Modern Heritage into the Continuum of Conservation Practice,” examined the standards and norms used in practice today and discussed their applicability to the conservation of modern architecture. She asked whether it is important to achieve some degree of universality in our approach. The case study of the Toronto Towers, presented by Michael McClelland, illustrated how a city council has managed to integrate the conservation of large-scale postwar housing into a broader urban planning framework that meets current sustainability demands. Recognizing the urban and social significance of the housing rather than using a building-by-building fabric conservation approach resulted in a successful outcome. Sheridan Burke’s case study of the Sydney Opera House illustrated how a reengagement with the building’s original architect influenced the development of the long-term conservation management framework for this World Heritage site. Burke’s paper also demonstrated a typical conservation methodology that can assist in balancing conservation priorities with ongoing pressures related to the building’s function, visitor management, and financially driven needs.

Theme 2: Physical Conservation Challenges

The explosion of building technology starting in the late nineteenth century led to innovative building forms and construction materials that now pose new conservation challenges. This theme explored the approaches needed to advance the field in relation to environmental, technical, and physical conservation. Case study presentations focused on techniques and treatments that provided balanced and measured approaches to conservation and on work aimed at addressing common challenges. Presenters identified work that is currently being done in the conservation of modern building technologies and materials, ways in which current research addresses

conservation challenges, and areas where improvements can be made to advance practice.

The position paper presented by Kyle Normandin, “Physical Conservation Challenges Facing Modern Architecture,” discussed the challenges relating to the physical conservation of modern buildings. Central to the discussion was the examination of the life span and conservation of modern building materials and the challenges inherent in sustaining the service life of modern buildings. The paper considers ways in which practitioners can improve their approach to maintaining these buildings through the investigation of systemic problems related to unique building materials widely used in the Modern era. Wessel de Jonge’s case study on the Zonnestraal Sanatorium demonstrated many of the issues—specifically the temporal nature of many of the material aspects of the building—and showed how careful examination and a sound understanding of the building itself can result in a successful outcome. Myriam Bouichou of France’s Historical Monuments Research Laboratory presented current material investigation and research work relating to concrete conservation for listed monuments. The presentation discussed material deficiencies that were encountered and shared responses and solutions the organization is developing to address this common conservation problem.

Theme 3: Education and Training

Over the last ten to fifteen years, a number of educational institutions have begun to address the conservation of modern heritage. What are the current needs? What are the target audience groups? What type of education, training, and capacity building are needed to advance the field? Case study presentations focused on current education and training initiatives that respond to the needs of practitioners, and they reviewed successful course frameworks that provide a good understanding of the history, architectural types, and character-defining elements of modern architecture of the 1940s to the 1970s. Presenters identified challenges encountered in the process of conservation, restoration, and adaptive reuse of twentieth-century buildings and identified improvements that could be made in education and training to advance conservation practice.

Theodore Prudon presented the position paper “Education and Training in the Conservation of Modern Architecture,” which he coauthored with Jeffrey W. Cody. The paper assessed current needs based on a discussion of educational programs developed over the past ten to fifteen years, including existing and emerging education programs in the conservation of modern architecture. It highlighted the current primary focus on postgraduate conservation education programs and outlined the various disciplinary skill sets offered, and it identified gaps in knowledge. The authors discussed courses that might be designed and the types of skill sets that could be cultivated to meet the future needs of the field. The case study presented by Tommi Lindh on the International Course on Conservation of Modern Architecture (MARC) provided aims, successes, outcomes, and potential next steps in the training of midcareer professionals. A case study by James Ashby (presented by Jeff Cody) described the two-day introductory training module developed by Parks Canada on the conservation of Canadian modern built heritage, which focused on training a wide range of professionals—architects, engineers, technologists—as well as property owners. This course, which is also available to professionals who are not in the field of conservation, provides basic information on conservation, advocates a values-based approach to decision making, and addresses

issues relating to modern architecture, including materials. The curriculum is designed to address the needs of developing professionals who are as yet unversed in conservation practice or in dealing with modern architecture.

Theme 4: Identification, Assessment, and Interpretation

Efforts to identify and protect modern heritage began as early as the late 1970s. Even so, in many places modern heritage remains unloved, unprotected, and subject to reactionary conservation approaches. What approaches and achievements demonstrate success? What are the factors limiting conservation, and what efforts are needed to increase appreciation and then implement the assessment, protection, and interpretation of modern heritage? Presenters discussed approaches that have been successful in protecting built heritage and its environs as well as summarized effective listing procedures and protocols developed over the past two decades for heritage of the modern and postwar eras.

The position paper presented by Marieke Kuipers, “Modern Heritage: Identification, Assessment, and Interpretation,” focused on advocacy and on listing of modern heritage places since the late 1970s. The paper elucidated a number of proactive approaches to the listing and protection of modern heritage places internationally, from the successful development of the Docomomo Register to efforts to identify methods for building appreciation of these places, leading to local and national listings. The presentation also commented on emerging issues pertaining to potential nominations to the World Heritage List in the absence of a thematic framework for the evaluation of twentieth-century heritage, as well as the challenges surrounding development of serial listings of architects’ work on the tentative lists of local and national government state parties. Emily Gee’s case study on English Heritage’s comprehensive postwar listing program demonstrated the use of a thematic framework to identify and list buildings in a range of typologies—such as public housing, commercial offices, and industrial power stations—as well as public artwork, including sculpture and murals. She drew on various case studies to illustrate how this approach has resulted in a publically supported program. Charles A. Birnbaum’s case study presented the Cultural Landscape Foundation’s advocacy work on modern architecture and landscapes, demonstrating the role of an NGO in effectively engaging the public to build interest, knowledge, and thereby support for conserving modern landscapes throughout the United States.

Working Group Discussions

The primary objective of the working group discussions on the colloquium’s second day was to identify key issues and suggest appropriate responses for each theme, then develop a series of specific, prioritized actions that could be linked to particular institutions and organizations as potential actors. The groups’ lists of suggested actors were generally derived from expert representatives present during group meetings, and therefore, these lists do not necessarily comprise the entire gamut of potential actors.

Below is a summary of each working group’s discussions and observations.

Theme 1: Philosophy and Approach

Seven questions were placed before the group for discussion. The three issues detailed below provoked the most attention.

How important is it to achieve some degree of universality in approach?

The group agreed that there is not yet a shared, universal, and common approach to the conservation of modern architecture because it is often still argued that general conservation principles cannot be applied to modern architecture. The notion that architecture of the Modern Movement is different from the architectural heritage of previous eras and the question of whether this dictates a different methodology and approach to conservation was considered at length. Participants discussed the facts that some modern places were originally conceived for temporary purposes and that some of the building materials were of a transitory nature and quality. For example, when Zonnestraal Sanatorium was constructed, it was expected that tuberculosis would be eradicated within twenty years, and the structure's design and materials were appropriate to that expected service life. Yet it was agreed that we should not assume that modern buildings were always intended to be temporal in nature. Acknowledging the Venice and Athens charters, the working group recognized that the field of modern heritage conservation is a mature, international practice spanning over fifty years. Current practice generally accepts a values-based approach to conservation (as exemplified by the Nara Document on Authenticity and the Burra Charter), which expands heritage significance beyond aesthetic and material qualities. This values-based approach is valuable for all periods of heritage, particularly modern heritage. It was emphasized that there is international agreement to these unifying sets of principles as doctrine and that as practitioners we must apply them on a case-by-case basis to modern heritage.

The working group agreed that a shared approach to the conservation of modern architecture is needed. It was recognized that conservation is about managing change. Early conservation efforts, which focused on monuments and ruins, often emphasized preservation or no change at all. More recent practice, which covers a much wider gamut of heritage places—including industrial sites and places for which their use is an important contributor to significance—has recognized that change is inevitable and must be managed if these places are to survive. Participants agreed that the discourse on theoretical and ethical interventions is the same for all eras, and that international recognition of the values-based approach has fostered evolution of the conservation field's focus beyond design and materiality to encompass social and intangible heritage values as well.

It was agreed that identifying significance is vital to successfully managing change. Understanding relative levels of significance within a single place and comparative levels of significance across multiple places is also important. If significance cannot be articulated it is unlikely there will be a sound basis for decision-making, therefore the clear articulation of significance is an important first step in the conservation process.

While most participants agreed that there is already a generally shared approach through the established methodologies for heritage, the group identified, as a barrier to conservation, the lack of understanding of how to perform significance assessment for modern heritage. A demonstration of how to apply the existing methodologies to modern heritage is needed. This concern also applies to the next steps in the process. While many practitioners and educators are familiar with the conservation of traditional buildings, the creation of more case studies that demon-

strate best practice and show how these principles (including established charters and standards) are applied to modern buildings is essential. This information should be made widely available as part of targeted education for professionals and could be disseminated swiftly to the public via publications, websites, and public programming—perhaps even through tours that provide broader outreach generally.

Can we adopt the existing standards and norms of conservation practice for modern heritage?

The working group discussed examples of interventions for modern heritage and debated acceptable limits of change. It was reiterated that, as with buildings of any era, the identification of significance is critical to recognizing and retaining authenticity. The group confirmed that while national norms and regulations on heritage protection often aim to conform to international legislation, there are cases in which local legislation differs from, or conflicts with, international standards, making it difficult to achieve conformity in heritage protection.

This lack of conformity is particularly challenging with regard to the protection of modern heritage, as local and national legislative bodies may also have differing heritage protection rules. Most still rely on an age rule (generally ranging from thirty to one hundred years) before places are eligible for protection. In many cases modern buildings are too young to qualify for listing, and the challenge is to find ways to maintain a building's significance in the absence of formal protection mechanisms. Given the general lack of information on how to conserve modern buildings, unprotected sites are particularly vulnerable to alteration or demolition before they become eligible for protection.

The working group emphasized the importance of understanding the significance of a structure to any conservation project, regardless of whether it is a modern building or a ruin. However, in modern buildings, it is particularly important, as these buildings' social contexts may be less well understood. As such, it is critical to demonstrate to practitioners and the public how significance assessments should be carried out, so that the process goes beyond architectural and aesthetic significance to include social, technical, and scientific contexts. Developing consensus on significance-based assessment for conservation would help in the application of existing standards as well as promote the adoption of norms that could ultimately help practitioners and guide the public in its decision making. A shared and common approach would reinforce the ability of practitioners and the public to achieve a balanced and pragmatic outcome.

Can we pinpoint specific barriers that are preventing agreement on this, and how can we move past these?

The working group discussed various technical challenges with modern materials and structural systems that create barriers to conservation practices. In general, there is a lack of knowledge and skills for conserving modern building systems and materials, and a lack of engagement with the repair industry as well. As an example, the working group discussed heritage sites like the Unité d'habitation by Le Corbusier in Marseille, France, where one of the structure's character-defining features is the fair faced (exposed) concrete surfaces. In this example, material authenticity is crucial to conservation. If major surface repairs were made and were a coating applied to the building, this would alter its appearance and negatively affect its authenticity. Participants agreed that because we do not currently have an appropriate treatment for the fair faced concrete of this building (and of similar modern

concrete buildings), we do not have the technical means to conserve it—that is, to protect it and retain its significance. The group agreed that there are still many unidentified technical and knowledge barriers to conservation. These must be identified and new techniques developed to address them.

The working group indicated that it is essential to raise awareness and to be honest about these barriers, so that practitioners can be conscious and sensitive when working with any number of modern materials. It is also important to consider developing new, holistic approaches to the repair and conservation of these materials. Participants agreed that working with the construction industry to research and develop repair methodologies for targeted materials used widely throughout the twentieth century could be quite useful in filling the gaps in technical knowledge, and the outcomes of this research could assist authorities as well as those working in conservation departments. Through the creation of technical guidance and educational outreach programs, more practitioners will have access to literature on state-of-the-art repair methodologies. Practitioners and regulatory authorities may be able to incorporate these protocols and thereby help strengthen existing building conservation standards and guidelines.

Potential Actors for Further Collaboration

A list of potential actors (i.e., nongovernmental organizations, professional organizations, and academic institutions) was generated from the discussions, but the group did not tie the actors to specific activities.

Universities cited by the group:

- University of Chicago
- University of Pennsylvania
- Columbia University
- University of Southern California

NGOs/IGOs cited by the group:

- Docomomo International
- English Heritage
- ICOMOS International
- Getty Conservation Institute
- American Institute of Architects (AIA) Historic Resources Committee (USA)
- International Union of Architects
- U.S. National Park Service and similar agencies internationally
- Association for Preservation Technology International (APT)

Theme 2: Physical Conservation Challenges

Six issues were placed before the group for discussion. The following four were discussed.

As practitioners, what do we currently need to learn to obtain better conservation results for modern buildings?

The group recognized the need for more guidelines and resources related to conservation of modern materials, along with better dissemination of information that is already available. In addition, more information on the successful implementation

of conservation treatments to larger-scale architectural structures as well as to small-scale buildings and objects was needed. Some noted that while sculpture conservators are knowledgeable in the application and use of products on a small scale, a majority of conservators are not as knowledgeable about the application of construction industry products in large-scale architectural conservation.

While publications on some treatments of modern metal and alloys are available, further work is needed on the evaluation of available products and processes, to identify those that will perform well across the large spectrum of modern metals used in building construction. It was suggested that research be carried out to identify industrial technologies that may be available and transferable to conservation, and to identify examples for which the application of current industrial products in conservation may have been successful.

Research would not just be limited to modern metals but would also apply to other building materials, particularly to those of the twentieth century, including an array of synthetic-based building products such as insulation materials, vinyl tiles, plywood, and cladding materials such as precast concrete panels, thin stone veneers, and prefabricated composite assemblies.

What more do we need to know specifically about building systems and material performance? What types of repair problems are yet to be solved? Which material repair methods have yielded good results, and which are we still struggling with?

Issues were raised about the accessibility of valuable information on the original construction of modern and postwar structures; material research should be carried out to collect and make available early documents and product specifications. Some of these documents may reside in archives or the offices of architects who are successors to the original building architects. The collection of archival manufacturers' data sheets, including historic specifications, into a central location would allow practitioners more access to the application of modern materials. This access, in turn, would help professionals gain a better understanding of the pathology of modern building materials and develop a more effective approach to their conservation.

The group recognized the lack of available knowledge on building physics, including existing building systems, materials, and their long-term performance. More research is needed to understand the composition of postwar building materials, including their service life and weatherability. It was suggested that institutions carry out research on one or more of the modern materials to understand historic applications, as well as carry out laboratory and on-site testing to learn more about material performance over time. It would be useful to compare the collected data from a range of case studies to see how particular materials perform across different climates and regions.

There was a lengthy discussion about major challenges related to balancing the conservation of modern materials with current and shifting standards in the field of sustainability. It was agreed that conservation practitioners should not allow the sustainability question to drive the decision-making process, as it frequently does. While there are some shared objectives, such as taking a more holistic view of a building, often the energy modeling programs used in sustainable practice are not populated with information from historic materials; these models are more focused on issues like thermal bridging and energy consumption. Such programs are also utilized to help with asset management—especially with regard to material life

cycles and replacement—and as a means of determining measures for anticipated maintenance; they are not necessarily focused on the conservation or retention of historic building fabric. It was agreed that if poor data are input into the modeling programs, then there is a strong likelihood that the model will yield poor results.

As an example, recent research and analysis were completed on historic nineteenth-century single-glazed, timber-framed sash windows by Historic Scotland and English Heritage. Over the years, comparison data on the thermal transmission values of single-glazed versus double-glazed windows had been provided by the fenestration industry. These data were proven to be incorrect by Historic Scotland and English Heritage, a development that caused local regulators to reconsider how performance and service life are evaluated (and by whom). Traditional timber-framed windows may actually perform better than previously assumed. In short, the discussion emphasized the need to continue to support efforts to customize and fine-tune energy modeling programs for historic buildings.

What types of research do we need to carry out to advance practice? Who and what disciplines need to be involved? Which industries need to be approached to address specific areas of research?

The need for research related to concrete repair and conservation was discussed. While general guidelines exist on appropriate methods for concrete repair of buildings of the recent past, these seem to be targeted toward the wider construction industry. Consensus was reached that manufacturers promote repair standards for a wide spectrum of buildings and not necessarily for historic buildings. More practical knowledge should be made available on customized concrete repairs that meet higher standards of conservation. Concrete conservation professionals should focus not only on maintaining the original aesthetic appearance of iconic works of the twentieth century but also on developing treatments that achieve long-term protection. As an example, questions were raised about the ongoing challenges related to the conservation of work by Frank Lloyd Wright. Many of his works of the 1920s that were constructed with concrete and textile block systems—including the Ennis House, the Freeman House, and the Hollyhock House—are in poor physical condition. Textile block construction employed steel wire tie reinforcement embedded in the joints, both horizontally and vertically. When the reinforcement corrodes, the expansive corrosion leads to cracking of the concrete block. There are a number of Wright's textile block structures throughout the United States, including a campus of buildings at Florida Southern College, all of which face a similar systemic failure.

Approaches to concrete conservation need to be customized for different types of concrete developed during the twentieth century. Customization would enhance the quality of conservation for a wide range of heritage built with concrete materials. While there are general guidelines for repair work, manufacturers are focused on product service life and not necessarily on achieving an accurate repair. It was agreed that manufacturers are not necessarily aligned with conservation interests, which include retention of the authenticity and craftsmanship of the original building. Current trends appear to focus on providing the user with exact warranties—guarantees that may not necessarily align with practitioner goals for achieving an effective conservation treatment. More focus should be placed on drawing practitioners' and owners' attention toward solutions that incorporate high conservation standards and superior workmanship balanced with a focus on the service life of repair products. Research should be carried out that encourages manufacturers to

develop products that, when combined with proper techniques, can achieve a more accurate or higher standard of repair for historic concrete. Some of the actors identified were research institutions and international associations involved with standards and material testing, including the British Research Establishment (BRE), T & O Bauen und Umwelt, ASTM International (formerly the American Society for Testing and Materials), the American Concrete Institute (ACI), and the International Concrete Repair Institute (ICRI), as well as the U.S. Army Corps of Engineers.

What sort of literature and resources would help both conservation and non-conservation audiences to understand building materials, including pathology and current investigative methods, prior to implementation of repair and maintenance programs?

The working group discussed resources that could advance conservation practice for twentieth-century heritage. While there is a community with increasing expertise in the conservation of modern materials, a majority of practitioners still do not have basic information about repair approaches for these materials. While this information may already be available in the conservation community, it seems that there may be two levels of information in use and, in some cases, the sharing of good-practice information and principles is delayed. Many professionals are aware of published basic guidelines for different types of repairs. However, owing to the narrowing financial support by a number of government-funded agencies internationally (e.g., English Heritage, the Heritage Council of NSW [New South Wales, Australia], and the U.S. National Park Service), up-to-date resources are waning and should be made readily available online. Despite limited resources on hand to disseminate crucial resource texts to those in conservation practice, the group agreed that disseminating successful and unsuccessful case studies is critical to elevating standards of care in the field and enhancing the quality of conservation across the profession.

During the discussion of potential literature and other resource materials, the need for technical publications and monographic studies emerged as a concern. In some cases it may be possible to overlap technical issues with conservation while presenting actual cases. This does not necessarily mean that these resources should focus only on specific examples of material conservation; there is also a need to address typical or systemic problems that require solutions. For example, after World War II, many cities in France were rebuilt with significant use of concrete, so there is now a large inventory of buildings needing concrete repairs. While different types of concrete may have been used to construct these buildings, the group felt that the conservation approach should be the same. In order to illustrate examples of best conservation practice, monographic studies could impart a thorough understanding of the history and technology of individual buildings together with a detailed account on the life of the building and its changes over time. The term *encyclopedia* was introduced to refer to the systematization and categorization of knowledge through monographic studies. As an example, the research project “A Critical Encyclopedia of the Reuse and Restoration of Twentieth Century Architecture” was started in 2008 by the Swiss University Conference to promote collaboration among establishments of higher education in Switzerland (e.g., the Swiss Federal Institute of Technology in Lausanne and the University of Lugano). The themes contained in the encyclopedia focus on the material history of the built fabric and on the design for its conservation.

When desired additional resources were considered, guidebooks and technical notes focusing on the conservation of modern materials were discussed as a means to assist practitioners in obtaining technical data on topics similar to those covered in the technical briefs on historic materials provided by the U.S. National Park Service. Technical notes could cover specific research topics and also provide documentation on materials. These notes could address typical conditions and important and widespread problems encountered in the field as they relate to materials such as concrete, synthetics, modern metals, glass, and composite materials. During the discussion, a representative of the French Historical Monuments Research Laboratory gave examples of typical published guidebooks that were aimed specifically at practitioners of monument restoration across France—for example, a guidebook on the cleaning of historic concrete, *Le nettoyage des bétons anciens: Guide des techniques et aide à la décision*. The guidebooks have been developed for architects, engineers, conservators, and materials scientists in France who are tasked with the care of historic monuments from the modern and postwar eras. In some cases, handbooks for practitioners have been developed to aid in identifying specific conditions encountered on twentieth-century historic properties, and to supply information on steps needed to respond to them. In addition to the French example given, there are now other guidebooks that focus on concrete conditions and their repair, including concrete cleaning protocols, which are available to practitioners and those interested in the conservation of historic concrete.

Potential Actors for Further Collaboration

The group cited the institutions, organizations, and agencies listed below as potential actors. This working group also linked certain actors to specific activities, as can be seen in appendix G.

Universities cited by the group:

- University of Pennsylvania
- Columbia University
- University of California, Los Angeles
- University of Southern California
- Delft University of Technology, Netherlands
- University of Lugano, Switzerland
- Swiss Federal Institute of Technology in Lausanne, Switzerland

NGOs/IGOs cited by the group:

- Getty Conservation Institute
- English Heritage
- Historical Monuments Research Laboratory (France)
- British Research Establishment (BRE)
- T & O Bauen und Umwelt
- ASTM International (formerly known as the American Society for Testing and Materials)
- American Concrete Institute (ACI)
- International Concrete Repair Institute (ICRI)
- American Institute of Architects (AIA) Historic Resources Committee (USA)

U.S. federal government:

- U.S. National Park Service
- U.S. General Services Administration
- U.S. Army Corps of Engineers

Theme 3: Education and Training

Four issues were placed before the group for discussion, and the following three questions galvanized attention.

What kind(s) of disciplinary skill sets are needed to address the broad range of challenges associated with the preservation of modern architecture?

There was considerable discussion about whether there was a “false divide” between educating students and practitioners with commonly agreed-upon conservation methodologies (e.g., the Burra Charter) as opposed to “customized” methodologies specifically designed for the conservation of modern architecture—including skill sets specifically addressed to the needs of the field. Most believed that although it made sense in general to employ conventional methods, there was a need—because design and construction issues were so different from those of previous periods—for more specialized training in modern building systems, in the newer materials, and in the concept of “age-value.” However, the discussion did not elicit what specifically should be taught or how, where, and by whom these courses should be offered. Some thought that a range of approaches should be encouraged, but there was not much clarity about the nature of that range, although it was suggested that it might span the conservation of ruins to the reconstruction of iconic structures “back to their creative moments,” and it might imply knowledge of and the ability to incorporate new design possibilities relating to use, form, space, and environmental concerns.

Many thought it would be wise to look at current training programs and see what might be added or changed to enrich existing courses. Several precedents surfaced: courses at Columbia University, at the University of Pennsylvania, and at the University of Liverpool’s London campus, where a modern architectural heritage program is now offered, as well as at universities in Brazil, Germany, and Switzerland. The MARC courses from Finland may contain core activities that could be included in every course on modern architectural conservation. Some also referred to recent efforts to incorporate distance learning, in the context of contemporary educational trends. Research was suggested to identify the content that has been delivered, how it was delivered, and by whom—research that could leverage efforts already undertaken by ICCROM and Columbia. Cross-institutional efforts currently under way in some engineering and architectural programs in Europe were cited as potential models. These combined efforts could contribute to the achievement of a comprehensive approach to the range of issues and needs.

There appeared to be strong support for the creation of an “education task force” to undertake this research. Suggestions included examining the available courses and identifying core components that should be common to all efforts. Docomomo’s 2014 conference in Korea may provide the opportunity for such a task force to meet, but the exact scope, composition, and other specifics related to a task force, as well as its future role, were not clarified. Some suggested that this task force might elucidate a shared “kit of parts” that are appropriate across different regions

and that could be used in a range of contexts, from short training courses to more extensive educational courses. For example, the kit might suggest seminal readings and establish a common road map in terms of content, but for the need for this kit to be clear and compelling, research about current courses would have to be conducted: what are people teaching, where are they teaching it, and how is it being taught?

With respect to professional practice, what kind(s) of capacity building activities should be created for those practitioners—in architecture, engineering and other allied professions—who either need to or want to engage in continuing professional development?

Many thought that it would be sensible to target training using a continuing professional development model to more effectively reach professional architects (and others) who are not necessarily linked into the conservation sphere, or who lack sufficient training in conservation and are not achieving good conservation outcomes. Finland's MARC courses (with new partners, something that ICCROM and others are exploring) were referred to as a useful place to evaluate what was most effective. The demise of the MARC course was lamented and some discussion was devoted to the need to identify new partners to ensure this international effort is not lost. The workshops organized either by Parks Canada for Canadian practitioners or Docomomo at its international conferences also provide inspiring examples that might be adapted for wider use.

Concerning the general public, how best to engage that diverse public—in several cultural contexts—so they can better appreciate the values of modern architecture and, therefore, be more likely to support its conservation?

Although several discussants expressed a strong concern for engaging the public and (perhaps) changing its sometimes negative perceptions about conservation of modern structures, there were few specific ideas about what to do. Some referred to a range of good, but unlisted and yet-to-be-loved buildings which, if their value/significance were better understood by the public, would be much better protected than they are today. Others observed that much of twentieth century architectural heritage is invisible. Some suggested that educating the public takes much longer than training professionals. It is also worth acknowledging that the approach to raising general public awareness is a very different concept, with a different approach, than higher-level professional education.

Potential Actors for Further Collaboration

The group cited the institutions, organizations, and agencies listed below as potential actors. This working group also linked certain potential actors to specific activities, as can be seen in appendix G.

Universities cited by the group:

- University of Pennsylvania
- Columbia University
- University of Southern California
- University of Liverpool
- NORDMAK (eight universities in Nordic countries)
- Delft University of Technology, Netherlands

- Ostwestfalen-Lippe University of Applied Sciences, Germany
- University of Lugano, Switzerland

NGOs/IGOs cited by the group:

- ICOMOS International Scientific Committee on Twentieth Century Heritage (ISC20C)
- ICCROM
- World Heritage Centre, UNESCO
- Getty Conservation Institute
- World Monuments Fund
- Docomomo International
- National Council for Preservation Education (USA)
- Historic Preservation Education Foundation (USA)
- European Facade Network
- American Institute of Architects (AIA) Historic Resources Committee (USA)

Theme 4: Identification, Assessment, and Interpretation

Seven issues were placed before the group for discussion, and the following three generated lively discussion.

What specific tools can help improve appreciation and understanding of modern heritage? Are there publications or programs that would assist in this effort?

The lack of broad appreciation and knowledge of modernism—beyond the icons—across public and professional spheres was the topic most discussed among the participants. One response focused on changing the words used in conservation and preservation to more widely understood terms such as *sustaining* and *celebrating*, since such concepts attract media attention and create shared understanding.

In the context of this inquiry, the concept of modern buildings as a public good was introduced and discussed. In most cases, the working group recognized that there is often a public perception that modern buildings do not contribute to the greater public good, yet buildings like the Sydney Opera House, a modern building complex, have become representative and part of the greater public good over time. The opera house, a legally protected modern building, is a site with which the whole city now identifies.

This subject prompted a discussion on the importance of media and of city branding and how these tools can play a critical role in helping to raise awareness and build appreciation for modern heritage. For example, cities like Palm Springs, California, have actively built programs over the past decade, including events like Palm Springs Modernism Week, that help raise awareness for modern heritage. The National Trust for Historic Preservation's This Place Matters program also generates economic value in host communities (and regions), which generates the support of business.

Allied to the importance of public awareness is the value of raising the public visibility of modern heritage via high-profile personalities who champion heritage.

Alternative projects and activities, such as the creation of filmographies of modern buildings or engagement with heritage issues through the lens of the design community, can also attract different audiences for heritage.

The need for accelerated scholarship for certain types of modern places at risk was highlighted, particularly the need for more comparative analyses, shared approaches, and tool kits for sites such as university campuses and office towers which may have difficult futures ahead of them. The English Heritage postwar housing study was cited as a best-practice scholarship, identification, and community engagement project.

How can a thematic framework for the twentieth century be a useful tool? What is needed to make and implement a successful thematic framework?

While methodologies for assessing heritage significance and comparative analysis are relatively well established for older heritage, the working group raised the question of whether any different types of methodologies or frameworks were needed in local, regional, and national designation processes for modern heritage places. The unanimous response indicated that while the standard methodologies for comparative analysis are useful for all types of heritage, some of these methodologies are not well understood or universally applied.

The development of an online tool kit for modern heritage matters by the ICOMOS International Scientific Committee on Twentieth Century Heritage (ISC20C) was mentioned as a welcome initiative. Questions about defining rarity and representivity were raised through the example of a brutalist building in a small rural community: does its rarity make it significant, or is it significant because it represents a good example of brutalism? The question was posed: to whom is the brutalist building significant? A local community may prefer improved facilities over an architectural rarity.

It was unanimously agreed that development of a historic thematic framework for comparative analysis of twentieth-century heritage would facilitate more thorough and critical examination, interpretation, and application of criteria—procedures that are often lacking as parameters in most local, national, and governmental surveys. A historic thematic framework—as opposed to architectural appraisals—would provide clarity about typologies and broad historical movements through which individual sites could be contextualized.

It was generally agreed that there is a lack of knowledge and understanding about conservation values that often undermines and limits heritage protection efforts, and that it is this issue, rather than a lack of time and money, that hampers heritage protection efforts overall. In most cases, property owners fear that heritage protection legislation and procedures may interfere with and diminish property rights; this situation is still particularly the case in the United States, even after two decades of education on the importance of cultural and economic values.

Another issue discussed at length was the methodologies applied to support sites at risk of loss, and the importance of creating a clearly expressed case that will stand up to rigorous public scrutiny. Two currently successful models were identified and discussed. One, the World Monuments Fund Watch List, includes increasing numbers of twentieth-century sites among the cultural heritage places around the globe that are at risk from the forces of nature and from the impact of social, political, and economic change.

The second model discussed was the ICOMOS ISC20C's Heritage Alerts. The committee developed this methodology to assess and respond to urgent requests for an international statement about preservation or protection of threatened sites. Each case is assessed in coordination with the local ICOMOS national committees and partner organizations, such as Docomomo International and the International

Union of Architects. The rigorous Heritage Alert process requires a thorough review of information before a recommendation is made. Once a Heritage Alert is determined to be appropriate, all the documentation, including media releases and formal correspondence with decision makers, is uploaded to the committee website, making authoritative data freely available to professionals and the public.

The working group also discussed potential means of promoting the conservation of modern heritage, including successful examples of protection listings as well as retrofit programs and adaptive reuse for buildings and sites worldwide. The idea of “Heritage Applause” is being developed by the ICOMOS ISC20C as an action that could potentially raise awareness by focusing on positive examples from which practitioners and the public can learn. It was suggested that a gallery of good projects worthy of international praise should include thematic examples of adaptive reuse and retrofit techniques for office buildings internationally. The Heritage Applause could help gather examples that could be utilized to reveal critical aspects of and protocols for heritage protection. The examples could also demonstrate how economic benefits and a values-based approach to conservation can benefit protection of modern heritage. It was agreed that more could be done to increase visibility of modern heritage, such as acknowledging community efforts as well as the work of architects and the technical components of successful conservation projects.

The group discussed the positive profile and benefits of the World Monuments Fund Knoll Modernism Prize; however, it was noted that the program is only awarded to a single project every two years and thus has limited impact.

Do policies such as the commonly applied fifty-year (or thirty-five-year) rule adversely impact this heritage as compared with heritage from earlier periods? Should policies that facilitate the evaluation and safeguarding of younger structures be pursued?

The working group discussed the limitations on protecting the most recent modern heritage, such as the fifty-year rule for heritage listing used in a number of countries internationally. It was noted that countries use varying age limits—for example, the United Kingdom has adopted a thirty-year rule for consideration of heritage listings—and many impose no age limitation on listings. Overall, it was agreed that while there is no hard-and-fast rule, in many cases, having some time to reflect on the enduring value of a place before it is listed is important. It was noted that some countries, such as Spain, have been listing national heritage as little as five years after completion. ICOMOS’ 2004 MAP20 project was mentioned as a survey that provided a picture of international standards in relation to modern heritage listing and protection. It is shortly to be reviewed, a decade later; the process will provide an update on whether and how practice and public awareness have changed.

The Council of Europe Framework Convention on the Value of Cultural Heritage for Society (CETS no. 199, Faro, 27.X.2005), which declares the right to a heritage of choice, was also noted. While the convention has generated debate on how experts identify values for cultural heritage, the treaty is particularly useful in that it introduces a framework that balances cultural and community values. This approach could be useful toward the listing of modern buildings, whereby the public could further engage with the process of heritage identification.

Potential Actors for Further Collaboration

The group briefly discussed general categories of actors, such as NGOs and allied institutions, but no specific list was generated. The group did not attempt to link possible actors to specific activities.

Colloquium Recommendations: Action Plan

Following the colloquium, the GCI summarized the actions prioritized during the final session of the meeting. They are presented below as a potential plan of work to advance the field. This information is organized into three broad categories: research; publications and dissemination; and education and training; there is, however, considerable overlap between the areas of research and dissemination. For each activity, desired outcomes or impacts on the field are identified, specific outputs or products are proposed, and possible actors are suggested.

PROPOSED ACTION PLAN

Research:

Research areas and activities to advance the field of conserving modern heritage

Activity: Research into developing appropriate concrete repair techniques and coatings and materials for exposed concrete buildings

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Concrete repair options that meet the conservation aims of minimal intervention and retention of the integrity of the exposed concrete 	<ul style="list-style-type: none"> New methods and materials for repair Guidance on the application of new methods Embedding of new options into practice 	<ul style="list-style-type: none"> Research institutions Universities Industry architectural/engineering community GCI

Activity: Research into repair technologies and products potentially transferable to modern buildings

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Improved repair options that meet conservation needs 	<ul style="list-style-type: none"> New repair techniques for various scales of conservation 	<ul style="list-style-type: none"> Research institutions Universities Industry

Activity: Collect and archive manufacturers' datasheets, including technical data, in a central repository(ies)

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Access to information on materials and systems 	<ul style="list-style-type: none"> Creation of a central repository of primary reference material for conservation 	<ul style="list-style-type: none"> National or regional repositories University collections Association for Preservation Technology (APT)— has done this in USA and includes some Modern-era materials

Activity: Develop a list of priority research needs on strategic technical areas that can be shared with universities and other institutions engaged in research

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Improved targeting of research to areas of identified need 	<ul style="list-style-type: none"> Prioritized strategic research needs list 	<ul style="list-style-type: none"> Special heritage NGOs (e.g., ICOMOS, APT, Docomomo)—a subgroup of these groups could be established to develop this list Universities GCI

Activity: Develop conservation methodologies and approaches for targeted materials

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Improved conservation of building materials 	<ul style="list-style-type: none"> Information on how to conserve modern materials 	<ul style="list-style-type: none"> Universities Research institutions NGOs GCI

Activity: Develop a customized energy modeling program for twentieth-century heritage (by adapting existing systems) which is populated with data on modern materials and systems

Desired Outcomes	Output	Possible actors
<ul style="list-style-type: none"> Improved understanding of the performance of modern buildings Enhanced conservation outcomes that balance performance needs and change 	<ul style="list-style-type: none"> Modeling program specific to the needs of modern buildings 	<ul style="list-style-type: none"> Research institutions Universities

Activity: Develop, publish, and disseminate a thematic study on twentieth-century heritage

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Framework for assessing the significance of modern heritage that can be used nationally or internationally, or by organizations doing inventories for modern heritage 	<ul style="list-style-type: none"> Thematic study that contextualizes modern heritage for assessment purposes 	<ul style="list-style-type: none"> NGOs Universities GCI

Activity: Record oral histories with significant architects and engineers on their work

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Improved understanding of significant architectural works leading to enhanced conservation outcomes 	<ul style="list-style-type: none"> Body of primary source materials by the creators on their work 	<ul style="list-style-type: none"> Universities Research institutions NGOs Libraries Governmental agencies Getty Research Institute

Activity: Digitize drawings, photos, and other records of significant works and lodge them in central repositories

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Improved access to the historical record 	<ul style="list-style-type: none"> Original documentation of significant buildings digitally available 	<ul style="list-style-type: none"> Libraries Research institutions Universities Getty Research Institute

Publications and Information Dissemination:

Create an enhanced body of literature on the conservation of twentieth-century heritage. Improve knowledge on how to undertake appropriate conservation.

Activity: Develop, produce, and disseminate a publication that demonstrates the application of existing processes to the significance assessment of twentieth-century heritage

Desired Outcomes	Output	Possible actors
<ul style="list-style-type: none"> Improved and agreed-upon understanding of how to identify significance Enhanced decisions on managing change 	<ul style="list-style-type: none"> Guidance document on assessing the significance of modern heritage 	<ul style="list-style-type: none"> NGOs Governmental agencies GCI

Activity: Develop, produce, and disseminate a publication that demonstrates how established conservation principles are applied to twentieth-century heritage

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Improved and agreed-upon understanding of how to apply conservation principles Enhanced decisions on managing change 	<ul style="list-style-type: none"> Guidance document on conservation principles and their application to modern heritage Case studies that demonstrate their use 	<ul style="list-style-type: none"> NGOs Governmental agencies GCI

Activity: Develop, produce, and disseminate publications on good-practice conservation outcomes for twentieth-century heritage, including: general conservation, material repair, adaptive reuse, sustainability upgrades, economic benefits of conserving modern heritage, and case studies

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Improved conservation outcomes for twentieth-century heritage Reduced impact on significance Shared understanding of achievable conservation outcomes 	<ul style="list-style-type: none"> Publications offering guidance specific to modern heritage 	<ul style="list-style-type: none"> NGOs Governmental agencies GCI

Activity: Produce monographs on successful conservation projects

Desired Outcome	Outputs	Possible actors
<ul style="list-style-type: none"> Improved understanding of the conservation process 	<ul style="list-style-type: none"> Monographs that demonstrate a range of conservation issues addressed in individual projects 	<ul style="list-style-type: none"> Publishers Professionals Owners NGOs GCI

Activity: Develop, produce, and disseminate material that celebrates successful conservation outcomes in a range of media

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Improved recognition of what successful conservation looks like Recognition of the benefits of successful conservation outcomes 	<ul style="list-style-type: none"> Publications on successful conservation outcomes 	<ul style="list-style-type: none"> NGOs Governmental agencies Professional organizations Professionals

Activity: Translate important texts on the conservation of twentieth-century heritage into other languages

Desired Outcome	Outputs	Possible actors
<ul style="list-style-type: none"> Improved access to literature on 20th-century heritage conservation across different regions and language groups 	<ul style="list-style-type: none"> Specific texts in language areas of need 	<ul style="list-style-type: none"> NGOs Publishers Governmental agencies GCI

Activity: Encourage and facilitate the transfer of significant archives of architects and engineers to suitable, publically accessible libraries or repositories

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> Improved access to original source documentation 	<ul style="list-style-type: none"> Enrichment of archival collections of architects' and engineers' records 	<ul style="list-style-type: none"> Universities and university libraries Research archives

Education and Training:**Improve knowledge and skills of professionals engaged in conserving modern heritage****Activity: Carry out and publish research on current training and education on the conservation of twentieth-century heritage and identify gaps and needs (build on previous efforts)**

Desired Outcomes	Output	Possible actor
<ul style="list-style-type: none"> Recognition of opportunities and needs for training and education Improved coordination of training and education efforts 	<ul style="list-style-type: none"> Report that identifies current efforts and identifies gaps 	<ul style="list-style-type: none"> GCI

Activity: Create an education and training task force to advance training and education efforts; agree on the core needs for all courses

Desired Outcomes	Output	Possible actors
<ul style="list-style-type: none"> Improved coordination of education efforts Targeting of education and training needs 	<ul style="list-style-type: none"> Task force created 	<ul style="list-style-type: none"> Key organizations engaged in education and training GCI

Activity: Develop, publish, and disseminate training modules, on a range of topics, that can be used for education and training

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Creation of training materials Improved access to training materials 	<ul style="list-style-type: none"> Packages of training materials for trainers and institutions 	<ul style="list-style-type: none"> NGOs Universities Professional organizations GCI

Activity: Create a workshop on education and training to be held at the Docomomo 2014 conference in Korea

Desired Outcomes	Output	Possible actors
<ul style="list-style-type: none"> Improved collaboration on education and training Strategic development of education and training 	<ul style="list-style-type: none"> Workshop delivered 	<ul style="list-style-type: none"> Educators Educational institutions NGOs Professional organizations

Activity: Foster collaboration between existing education and training initiatives (MARC, existing university courses)

Desired Outcomes	Outputs	Possible actors
<ul style="list-style-type: none"> Improved courses Shared understanding of conservation approaches 	<ul style="list-style-type: none"> New training initiatives 	<ul style="list-style-type: none"> Universities Training institutions

Activity: Retain the legacy of the MARC course by indemnifying new partners to continue it or by capturing material from the course

Desired Outcome	Output	Possible actors
<ul style="list-style-type: none"> International access to training on the conservation of modern architecture 	<ul style="list-style-type: none"> International course for mid-career professionals 	<ul style="list-style-type: none"> ICCROM Finnish government

Acknowledgements

The Colloquium to Advance the Practice of Conserving Modern Heritage and this report are the result of the efforts and enthusiasm of a large number of people whom the authors would like to acknowledge here. First and foremost, we would like to thank all of the speakers and participants who brought their diverse knowledge and expertise to Los Angeles and openly shared their ideas and experiences over the course of the event. We are especially indebted to the working group moderators and rapporteurs who did a tremendous job of rapidly summarizing the discussion group results. We would also like to acknowledge the efforts of the position paper authors whose work in advance of the colloquium helped set the tone for the discussions. Finally, we would like to thank GCI staff members Sara Powers, who helped plan, coordinate, and implement the event, and Gail Ostergren, who helped guide this publication to completion.

Appendix A: Speaker, Moderator, and Rapporteur Biographies

James Ashby is an architect specializing in the conservation of the built heritage of the Modern era. His work has included leading the restoration of Buckminster Fuller's Dymaxion House, co-chairing Canada's first national conference on modern heritage, and authoring conservation guidelines on postwar buildings and ensembles. As a guest scholar at the Getty Conservation Institute in 2012, he pursued research on the legacy of the mega-structure movement. Ashby is based in Ottawa.

Charles A. Birnbaum is founder and president of the Cultural Landscape Foundation in Washington, D.C., and is a Fellow of the American Society of Landscape Architects and the American Academy in Rome. Previously he was coordinator of the National Park Service Historic Landscape Initiative, and he spent a decade in private practice. Birnbaum has written and edited numerous publications and is a frequent blogger for the *Huffington Post*. He teaches in the preservation program at Columbia University.

Myriam Bouichou is a research engineer in the concrete department of the Historical Monuments Research Laboratory in Champs-sur-Marne, France, where she carries out research on identification, conservation, and restoration of historic concrete buildings. From 2007 to 2011 Bouichou worked for the Heritage Partners Circle, an association linked to the French Ministry of Culture, where she was responsible for several studies on natural cements and concrete cleaning techniques. She holds an engineering degree in materials science.

Sheridan Burke is a conservation planner and partner at Godden Mackay Logan Heritage Consultants with thirty-five years of experience in cultural resource management. Her work includes planning, development, and impact advice for over five hundred heritage projects. She is president of the ICOMOS International Scientific Committee on Twentieth-Century Heritage and an expert member of the Sydney Opera House Conservation Council. Burke was an international vice president of ICOMOS and acts as an expert advisor to the World Heritage Centre of UNESCO.

Jeffrey W. Cody has been a senior project specialist at the GCI since 2004, when he began coordinating a series of educational and training activities for Southeast Asian conservation professionals. From 1995 to 2004 he taught architectural history at the Chinese University of Hong Kong, and from 2000 to 2004 he served on the Hong Kong Government's Antiquities Advisory Board. Cody has written extensively on historic architecture in China and other parts of East Asia. He holds a PhD in architectural history.

Catherine Croft is the director of the Twentieth Century Society and a Docomomo-UK member. She set up and runs the Conservation of Historic Concrete course at West Dean College. She is the author of *Concrete Architecture* and has worked on the forthcoming English Heritage volume *Practical Building Conservation: Concrete*. She has written extensively on architecture, arts, and heritage; edits *C20* magazine; and teaches on several postgraduate conservation courses. She studied in the United Kingdom and the United States.

Wessel de Jonge, a practicing architect and academic, is co-founder of Docomomo International. He has directed numerous restorations, adaptations, and large-scale rehabilitation projects of significant modern heritage, including the Van Nelle Factory in Rotterdam, Gerrit Rietveld's 1953 Dutch Pavilion for the Venice Biennale, and the 1947 former control tower at Amsterdam's Schiphol International Airport. In 2010 de Jonge shared the Knoll Modernism Prize for the restoration of Zonnestraal Sanatorium in Hilversum, Netherlands.

John Fidler is a British licensed architect and building conservator with more than thirty-four years of experience working with heritage buildings and archaeological sites. He is currently president of John Fidler Preservation Technology. Previous positions include corporate practice leader for preservation technology with Simpson, Gumpertz and Heger and conservation director at English Heritage in London. Fidler has served on building standards committees for the British Standards Institution and the ASTM.

David N. Fixler is a principal at EYP Architecture and Engineering, specializing in the rehabilitation of modern structures, including Alvar Aalto's Baker House at the Massachusetts Institute of Technology and the United Nations Headquarters. He is a frequent teacher and lecturer and has helped organize numerous conferences on varied topics. His work and writings have been published internationally. Fixler is a peer review architect for the General Services Administration and is active in many global organizations. He holds leadership positions in APT, the Society of Architectural Historians, and Docomomo.

Emily Gee is an architectural historian and building conservator who has worked for English Heritage since early 2001 and is currently Head of Designation. She also leads English Heritage's work on later twentieth-century architecture. Gee is a full member of the Institute of Historic Building Conservation and an Associate Fellow of the Institute for Historical Research. She lectures on architectural history in New York University's London program and has published on purpose-built housing for women in the nineteenth and twentieth centuries.

Louise Noelle Gras is researcher at the National Autonomous University of Mexico and has published widely on twentieth-century Latin American architecture. She is a member of the International Committee of Architectural Critics, the Mexican Arts Academy, ICOMOS, and Docomomo. Gras is an Honorary Academician of the Society of Mexican Architects and of the Argentinean National Academy of Beaux Arts. In 2011 she was awarded the Jean Tschumi Prize from the International Union of Architects.

Gunny Harboe is the founder of Harboe Architects, a Chicago-based architecture firm specializing in historic preservation and sustainable design. He has been actively involved in the preservation, restoration, and rehabilitation of older structures of historic or architectural significance for more than twenty years. Harboe is a founding member of the ICOMOS International Scientific Committee on Twentieth-Century Heritage and a board member of the Docomomo-US. He is a Fellow of the American Institute of Architects.

Marieke Kuipers is professor of cultural heritage at the Faculty of Architecture of Delft University of Technology and was previously on faculty at Maastricht University. Since 1977 she has been affiliated with the Netherlands Agency of Cultural Heritage, currently as a senior researcher, and has been directly involved in the listing of twentieth-century architecture. Since 1994 Kuipers has been involved in Docomomo's International Specialist Committee on Registers. She has published widely on identification, valuation, selection, and conservation of twentieth-century heritage.

Tommi Lindh is senior adviser on conservation at the Finnish Ministry of the Environment. From 1998 to 2010, he worked as an architect and keeper of antiquities at the Finnish National Board of Antiquities. Lindh ran his own architectural practice from 1990 to 1998. He was a member of the council of ICCROM from 2007 to 2011 and has been a member of two international scientific committees of Docomomo.

Rosa Lowinger is a Fellow of the American Institute for Conservation of Historic and Artistic Works. She holds an MA in art history and conservation from New York University's Institute of Fine Arts and was the 2008–09 Rome Prize Fellow in conservation. Lowinger has a private practice focusing on modern and contemporary architecture and sculpture, with offices in Los Angeles and Miami. She authored the book *Tropicana Nights: The Life and Times of the Legendary Cuban Nightclub*.

Susan Macdonald has been head of Field Projects at the GCI since 2008. Previously she was director of the New South Wales Heritage Office in Australia. She has also worked as a conservation architect with English Heritage, as well as worked in private practice. Macdonald has written widely on twentieth-century heritage. She is secretary of the Docomomo International Specialist Committee on Technology, a vice president of the ICOMOS Scientific Committee on Twentieth-Century Heritage, and a member of APT's Modern Committee.

Michael McClelland co-founded ERA Architects in 1990. The firm specializes in heritage conservation and planning, and increasingly in new design and landscape architecture as they relate to our built and cultural heritage. Projects of note include heritage architectural conservation for Toronto's Distillery District, collaboration with Frank Gehry Partners as heritage consultant for the remaking of the Art Gallery of Ontario, and ongoing consultation for a program of zoning reform known as Tower Neighbourhood Renewal.

Kyle Normandin is a senior project specialist at the Getty Conservation Institute, where he manages the Conserving Modern Architecture Initiative and the Eames House Conservation Project. Trained as a building conservator and architect, Normandin serves as the secretary general of the ICOMOS International Scientific Committee on Twentieth-Century Heritage and is the chair of the Docomomo International Scientific Committee on Technology. He has contributed numerous technical papers on the architectural conservation of cultural heritage.

Gail Ostergren is a research associate with the Getty Conservation Institute, where she does research, writing, and publication work for a range of projects including the Conserving Modern Architecture Initiative. She holds a doctorate in history from UCLA with a speciality in urban, architectural, and Southern California history. Ostergren is active on the California Preservation Conference program committee and serves on the West Hollywood Historic Preservation Commission.

Theodore Prudon is a Dutch-born architect and principal of Prudon and Partners, a New York firm specializing in restoration. He is president of Docomomo-US and is a board member of Docomomo International. Prudon has taught in the preservation program at Columbia University, where he earned his PhD, for more than thirty years. He was trained as a modern architect, and over time, his interests in preservation and in designing new structures combined. He is a Fellow of the American Institute of Architects.

Luise Rellensmann is a graduate intern at the Getty Conservation Institute. She works on the Conserving Modern Architecture Initiative and the Contemporary Architecture in the Historic Environment project. From 2010 to 2012 she was a research assistant in the architectural conservation department at Brandenburg University of Technology in Cottbus, Germany. Rellensmann holds a master of science in building and conservation and writes for the Berlin-based architecture magazine *Uncube*.

Leo Schmidt is an art historian and professor of architectural conservation at the Brandenburg University of Technology in Cottbus, Germany, where he is primarily involved in the master's programs of architecture and World Heritage studies. His main fields of research are wide ranging and include British country houses and sites with difficult histories, such as the Berlin Wall. He is a member of ICOMOS and its International Scientific Committee on Twentieth-Century Heritage.

Deborah Slaton is a principal with Wiss, Janney, Elstner Associates, an interdisciplinary engineering, architectural, and materials science firm in Northbrook, Illinois. She has served as principal author for numerous conservation studies, historic structures reports, cultural landscape studies, and technical papers. She is a Fellow of the Association for Preservation Technology International, vice president of the Historic Preservation Education Foundation, and a member of the Transportation Research Board's Committee on Historic and Archaeological Preservation in Transportation (ADC50).

Jeanne Marie Teutonico is associate director, Programs, at the Getty Conservation Institute. An architectural conservator with over twenty-five years of experience in the conservation of buildings and sites, she was previously on the staffs of ICCROM in Rome and of English Heritage in London. She has published widely and maintains research interests in the conservation and sustainable use of traditional building materials.

Ana Tostões is chair of Docomomo International and is associate professor of architecture at IST-Technical University of Lisbon, where she specializes in twentieth-century architectural and urban history, with an emphasis on reuse practices. She has published widely, curated exhibitions, and taken part in juries and scientific committees. Tostões has been vice president of the Portuguese Board of Architects and the Portuguese section of the International Association of Art Critics. She holds a PhD from IST. In 2006 she was awarded the title of Commander of the Order of Infante dom Henrique.

Silvio Zancheti is currently general director of the Center for Advanced Studies in Integrated Conservation in Brazil and is the editor of *City and Time*. He is professor emeritus of architecture and urbanism at the Federal University of Pernambuco. Zancheti has published widely on urban conservation, urban planning, urban history, and architectural restoration. He has acted as consultant to the World Bank and the International Development Bank and has a long involvement with ICCROM. He was a GCI guest scholar in 2009.

Appendix B: Meeting Participants by Discussion Group

Theme 1—Philosophy and Approach

Name	Affiliation (as of March 2013)	Country
<i>Moderator:</i> David Fixler	EYP Architecture and Engineering	USA
<i>Rapporteur:</i> Gunny Harboe	Harboe Architects	USA
<i>Rapporteur no. 2:</i> Gail Ostergren	Getty Conservation Institute	USA
Natalia Dushkina	Moscow Architectural Institute	Russia
Roberta Grignolo	Academy of Architecture, University of Lugano	Switzerland
Harry Hunderman	Wiss, Janney, Elstner Associates	USA
Pamela Jerome	WASA/Studio A	USA
Susan Macdonald	Getty Conservation Institute	USA
Michael McClelland	ERA Architects	Canada
Kelly Sutherlin McLeod	Kelly Sutherlin McLeod Architecture	USA
Robert Moore	Robert A. Moore Architects and Conservation Consultants	Australia
Shin Muramatsu	Institute of Industrial Science, University of Tokyo	Japan
Riitta Salastie	City Planning Department, City of Helsinki	Finland
Ana Tostões	Docomomo International	Portugal
Yasushi Zenno	Institute of Industrial Science, University of Tokyo	Japan

Theme 2—Physical Conservation Challenges

Name	Affiliation (as of March 2013)	Country
<i>Moderator:</i> John Fidler	John Fidler Preservation Technology	USA
<i>Rapporteur:</i> Rosa Lowinger	Rosa Lowinger and Associates	USA
<i>Rapporteur no. 2:</i> Kyle Normandin	Getty Conservation Institute	USA
Beril Biçer-Şimşir	Getty Conservation Institute	USA
Myriam Bouichou	Historical Monuments Research Laboratory	France
Wessel de Jonge	Wessel de Jonge Architects	Netherlands
Alex Dill	Faculty of Architecture, Karlsruhe Institute of Technology	Germany
Paul Gaudette	Wiss, Janney, Elstner Associates	USA

Name	Affiliation (as of March 2013)	Country
Franz Graf	Laboratory of Techniques and Preservation of Modern Architecture, Swiss Federal Institute of Technology in Lausanne	Switzerland
Thomas Jester	Quinn Evans Architects	USA
Marjorie Lynch	Lynch and Ferraro Engineering	USA
Jack Pyburn	Lord, Aeck and Sargent Architecture	USA
Stuart Tappin	Stand Consulting Engineers	UK
Jeanne Marie Teutonico	Getty Conservation Institute	USA
Norman Weiss	Graduate School of Architecture, Planning, and Preservation, Columbia University	USA
Antoine Wilmering	Getty Foundation	USA

Theme 3—Education and Training

Name	Affiliation (as of March 2013)	Country
<i>Moderator:</i> Leo Schmidt	Department for Architectural Conservation, Brandenburg University of Technology, Cottbus	Germany
<i>Rapporteur:</i> Silvio Zancheti	Center for Advanced Studies in Integrated Conservation	Brazil
<i>Rapporteur no. 2:</i> Deborah Slaton	Wiss, Janney, Elstner Associates	USA
Jeffrey W. Cody	Getty Conservation Institute	USA
Peyton Hall	Historic Resources Group	USA
Neil Jackson	School of Architecture, University of Liverpool	UK
Giacinta Jean	University of Applied Science and Arts of Southern Switzerland	Switzerland
Tommi Lindh	Ministry of the Environment	Finland
Frank Matero	School of Design, Historic Preservation program, University of Pennsylvania	USA
Uta Pottgiesser	Building Construction and Materials, Ostwestfalen-Lippe University of Applied Sciences	Germany
Theodore Prudon	Prudon and Partners	USA
Chad Randl	Department of Architecture, History of Architecture and Urban Development, Cornell University	USA
Trudi Sandmeier	School of Architecture, Graduate Programs in Heritage Conservation, University of Southern California	USA

Theme 4—Identification, Assessment, and Interpretation

Name	Affiliation (as of March 2013)	Country
<i>Moderator:</i> Catherine Croft	Twentieth Century Society	UK
<i>Rapporteur:</i> Louise Noelle Gras	Institute of Aesthetic Studies, National Autonomous University of Mexico	Mexico

Name	Affiliation (as of March 2013)	Country
<i>Rapporteur no. 2:</i> Luise Rellensmann	Getty Conservation Institute	USA
Charles A. Birnbaum	Cultural Landscape Foundation	USA
Sheridan Burke	Godden Mackay Logan Heritage Consultants	Australia
Gabi Dolf-Bonekämper	Institute of Urban and Regional Planning, Department of Conservation, Technical University of Berlin	Germany
Christine Madrid French	Preservation Capen	USA
Emily Gee	English Heritage	UK
Morris Hylton III	College of Design, Construction and Planning, University of Florida	USA
Marieke Kuipers	Faculty of Architecture, Delft University of Technology	Netherlands
Beth Savage	General Services Administration	USA
Junko Taguchi	Institute of Industrial Science, University of Tokyo	Japan
Whitney Warren	World Monuments Fund	USA

Appendix C: Case Study Presentation Abstracts

Theme 1: Philosophy and Approach

Case Study: Toronto Towers

Michael McClelland

Conservation architect, Toronto, Canada

The case study discussed the approach to rehabilitation of postwar apartment towers in Toronto, including the iconic “tower-in-the-park” model, one of the defining housing innovations of the twentieth century. In 2008 the City of Toronto initiated its Tower Neighborhood Renewal program, which examined the significant impact of postwar construction in the city. The city proposed a plan for the rehabilitation of many apartment towers that had been built within its downtown core and inner suburbs during that period. The speaker discussed the means that have been used to analyze these sites and assess the inventory of heritage properties, including their heritage values, to aid the city in developing a policy framework required to establish tower renewal on a citywide scale. The presentation showed how this program promoted community development and sustainable initiatives, balanced with a preservation approach in the protection of some of the city’s most influential architecture and planning.

Case Study: Sydney Opera House

Sheridan Burke

Heritage consultant, Sydney, Australia

President, ICOMOS International Scientific Committee on Twentieth Century Heritage

This presentation covered the development of the conservation management tools in practical daily use at the World Heritage-listed Sydney Opera House (SOH). The relationship between the Utzon Design Principles (2002) and the Conservation Management Plan (currently under revision) was explored in the context of the daily management realities at Australia’s busiest performing arts center. The Utzon Design Principles are based on the successful collaboration of Jørn Utzon, the designer of the SOH, with the distinguished Australian architect Richard Johnson. Johnson and Jørn’s son, architect Jan Utzon, have completed several collaborative building projects at the SOH which demonstrate the Utzon Principles at work. The speaker discussed the outcomes of the reengagement with the designer of this major twentieth-century icon and the ways that the Utzon Principles are being actively applied in the revised conservation plan through the tool of assessing “sensitivity to change.”

Theme 2: Physical Conservation Challenges**Case Study: Building Technology, Systems, and Conservation
Wessel de Jonge****Architect, Rotterdam, Netherlands****Co-founder, Docomomo International**

The case study focused on the restoration of the Zonnestraal Sanatorium in the Netherlands, which was conceived by Johannes Duiker (1890–1935), Bernard Bijvoet (1889–1979), and the structural engineer Jan Gerko Wiebenga (1886–1974). Founded by the Diamond Workers Union of Amsterdam, the sanatorium was part of a larger aftercare complex for tubercular patients. Zonnestraal is emblematic of the emerging ideal of social democracy in the Netherlands during the 1920s. The speaker presented emerging issues related to the restoration of Zonnestraal Sanatorium, as well as approaches used in this project to promote sound conservation decisions and practice. He also discussed the means that have been used to carry out effective conservation measures and provided suggestions on the measures that are most urgently needed to carry out more effective work in the field in the future.

Case Study: Concrete Technology and Conservation**Myriam Bouichou****Research engineer, Champs-sur-Marne, France**

This presentation covered the examination and development of conservation treatments for historic concrete based on research carried out over the last two decades at the Historical Monuments Research Laboratory in France. The speaker focused on the conservation of several iconic case study projects, including works by Le Corbusier and Perret, which addressed conservation approaches to different concrete types and to various compositions and construction techniques. The case study included an inventory of deficiencies for each type of material, including precast, cladding, and reinforced concrete. It compared different material conditions and the specific responses to restoration that each demanded. Also examined were the ways in which current research is addressing challenges related to the conservation of historic concrete, including monitoring and long-term durability.

Theme 3: Education and Training**Case Study: Canadian Conserving Modern Heritage Course****James Ashby (presented by Jeffrey W. Cody)****Conservation architect, Ottawa, Canada**

This presentation examined a two-day introductory course on the conservation of Canadian modern built heritage. Developed by Parks Canada, the course addresses buildings from the 1940s to the 1970s. It is directed to architects, engineers, technologists, property managers, and others. First offered in Ottawa in 2005, the course has evolved in response to feedback from participants and emerging developments, including the broader context of heritage conservation. The talk outlined the underlying principles in addressing the conservation challenges of modern built heritage and discussed the application of a values-based approach to conservation decision making. The specific learning objectives and corresponding pedagogical methods were described. The presentation offered a critical perspective on the evolution of the course, including its future developments. It also responded to interest in the course as a model that might possibly be utilized for professional training in other regions.

Case Study: The International Course on Conservation of Modern Architecture (MARC)**Tommi Lindh****Conservation architect, Helsinki, Finland**

The aims and objectives of the MARC courses were to train midcareer experts and increase international expertise in the conservation and restoration of modern architecture. These courses were held in 1999, 2002, 2006, 2009, and 2011. The main organizers have been ICCROM, the Finnish National Board of Antiquities, the Helsinki University of Technology at the Aalto University, and the Alvar Aalto Academy. Primary funding has come through European Union programs and Finnish organizations. The themes of the courses have varied from theory and principles to practice and case studies. They have covered periods from functionalism of the 1920s and 1930s to suburban developments of the 1960s and 1970s. A total of eighty-seven international experts were trained in the MARC courses. This presentation provided a critical appraisal of the course with an aim to evaluate its outcomes and successes.

Theme 4: Identification, Assessment, and Interpretation**Case Study: Designating Modern Heritage****Emily Gee****Architectural historian and building conservator, London, United Kingdom**

This presentation provided an examination of English Heritage's approach to and criteria for assessing postwar buildings for listing. The case study addressed the methods used for understanding and evaluating significance across a range of postwar heritage types: from sculpture and murals to commercial offices and public housing, and even power stations and zebra crossings. The talk drew on a range of case studies to illustrate how different values are appraised and how significance is captured at the point of designation. The speaker discussed the social and political context in which designation takes place and considered how owners, developers, advocates, and critics are engaged in the process. While focused on the act of evaluating and ascribing value at the time of designation, the presentation also considered how designation can inform proposals for managing change to buildings and places, as well as encourage wider acceptance of the conservation of post-war architecture.

Case Study: Nurturing Appreciation for Modern Landscape Architecture**Charles A. Birnbaum****Landscape architect, Washington, D.C., United States**

This case study discussed approaches to the protection and conservation of modernist works of landscape architecture, as illustrated through the educational programs and technical assistance work of the Cultural Landscape Foundation. Drawing on project work over the past decade, the speaker illustrated successful frameworks and strategies to provide an enhanced understanding of masterwork designs by postwar landscape architects, such as Dan Kiley's Miller Garden in Columbus, Indiana; M. Paul Friedberg's Peavey Plaza in Minneapolis, Minnesota; and Lawrence Halprin's Freeway Park in Seattle, Washington. The presentation also drew parallels between efforts needed to improve appreciation and protection of modernist landscapes in North America and abroad. It identified and highlighted conservation challenges in these settings.

Appendix D: Position Papers

Integrating Modern Heritage into the Continuum of Conservation Practice

By Susan Macdonald

This paper examines the philosophical approach to the conservation of modern architecture. Clearly all the issues tackled in the four colloquium position papers are interrelated—with approach at the core. The attitudes toward modern heritage, what is important and why, how we identify and protect it, the ability to physically conserve it (the available repair materials, methods, and skills), who is involved, and the knowledge required—all these affect the outcome.

It is not the intent to present a comprehensive history or analysis of the twenty-five-plus years of conserving modern heritage here, which has been done previously (Prudon 2008, 2–22). However, in preparing the colloquium, a time line has been developed that begins to plot influential events and texts that achieve this. Rather, this paper attempts to summarize the status quo, identifies the issues arising from this position, and questions how we may progress toward a shared vision and approach for conserving modern architecture. Much eloquent and thoughtful discussion has been devoted to this topic, and while it is always useful to reflect on what we are doing and how, the discussion has become somewhat repetitious. It is now time to concentrate efforts on solving problems that are hampering the ability to address these philosophical stumbling blocks and move toward achieving a shared approach to conserving modern heritage.

The time lag between a building's creation and its protection and conservation has never been as compressed as for the heritage of the Modern era. Walter Gropius's Bauhaus was only forty years old when it was listed in 1964. The City of Brasilia, designed in 1956, was inscribed on the World Heritage List in 1987. Attempts to inscribe the Sydney Opera House began a mere eleven years after its completion in 1973. Yet despite early efforts to protect and conserve the most iconic places of the Modern era, it was not until the early 1990s that conservation of modern heritage emerged as a distinct area of practice. That decade witnessed intense activity by a growing group of practitioners to address the conservation of twentieth-century heritage, and by the beginning of the twenty-first century, a number of governmental, nongovernmental, and nonprofit organizations began to act.

The emergence of local, national, and international organizations dedicated to saving and conserving modern heritage—including Docomomo International, the Modern Committee of the Association for Preservation Technology International (APT), the ICOMOS International Scientific Committee on Twentieth-Century Heritage (ISC20), and the Modern Asian Architectural Network (mAAN)—advanced conservation efforts. The large number of such groups demonstrates an interest in and comfort with identifying the recent past as important, and this interest brings together sectors of the architectural and conservation communities not necessarily previously closely aligned.

Docomomo, formed in 1989, has been hugely influential, creating a network of academics and practitioners that catalyzed action within and across its over sixty member countries. Constructed on a distinctly different premise from other conservation groups,

Docomomo promotes the continuum of modernist philosophy in the practice of contemporary architecture and simultaneously aims to conserve the legacy of modernism by bringing contemporary architects and critics who are proponents of modernism together with historians and conservationists. Its aims were laid out in the Eindhoven Statement (Docomomo International 1991, 14).

In the 1990s, professional organizations such as APT and government heritage agencies in Europe and North America, including the U.S. National Park Service and English Heritage, organized conferences, workshops, and publications including information on specific technical issues that also contributed to practice internationally. Many of these are listed in *Conserving Twentieth-Century Built Heritage: A Bibliography* (Macdonald and Ostergren 2011a). The ICOMOS ISC20 began activity in the early 2000s, launching Heritage Alerts, a program advocating for threatened significant twentieth-century places, and in 2011 adopting the *Madrid Document: Approaches for the Conservation of Twentieth-Century Architectural Heritage* (ICOMOS 2011). Other organizations have been working in a variety of ways to advance this area of conservation.

This is the area of conservation where the future and the past meet, where creator and conservator may come together, and where we have better access than ever before to first-hand knowledge on why and how places were created. With today's considerable professional interest and an admirable body of conservation knowledge developed over years of practice, in considering all that has been achieved, it would be easy to surmise that modern heritage is well loved, cared for, and conserved. However, many important twentieth-century places remain unprotected and threatened. There is still little research addressing common technical problems that impede successful repair and few comprehensive attempts to capture oral histories and safeguard the records of the creators of these places. With the termination of the Conservation of Modern Architecture (MARC) course—a partnership of various Finnish institutions and ICCROM—there is no dedicated training on the subject at an international level, and there are only isolated opportunities at national levels. Clearly we have not yet achieved widespread recognition and support for the conservation of twentieth-century places, nor is there a shared vision, approach, or methodology for doing so. It is therefore timely to reflect on how the practice of conserving modern architecture has advanced, in order to identify where future efforts should be concentrated. This was the catalyst for the GCI's Conserving Modern Architecture Initiative, which aims to contribute to the following most commonly cited and interrelated challenges:

- lack of a shared methodological approach
- lack of recognition and protection
- life span and technical challenges (durability, knowledge and experience of material conservation, repair versus replacement)
- obsolescence (functionality and adaptability, sustainability)

Research, the creation and dissemination of information, model projects, and capacity building, training, and education are the mechanisms or tools that can advance these areas and thus provide the framework for the GCI's program.

Protecting the Yet-to-Be-Loved

Many national and local authorities now include twentieth-century heritage within their listing programs. Nevertheless, in parts of the world, there remains concern about protecting anything but the icons of the Modern era. “There is so much of it,” “we don't like it,” and “it's too hard to deal with” are common criticisms. In many areas, twentieth-century structures dominate the urban landscape, and for older generations their realization is a living but not necessarily positive memory. Because these places are yet to go through the Darwinian natural selection process, through which the survivors will automatically be appreciated as heritage places, questions are raised about what to protect and how to establish comparative levels of significance within existing frameworks used in the heritage

identification and assessment process. The ISC20 has created a framework for the development of a full-fledged thematic history for the twentieth century, which would greatly assist in the assessment process at the international and national levels and help advance badly needed studies about modern heritage, so that it is better understood and protected (Macdonald and Ostergren 2011b). Marieke Kuipers's position paper addresses the issues surrounding the identification, protection, and interpretation of modern heritage and begins to identify actions that would foster appreciation and support for the protection of modern heritage, and contextualize it within the annals of history.

Material Authenticity and Life Span

The technical challenges posed by conserving twentieth-century places are undoubtedly the arena where the philosophical conflicts and the most difficult practical challenges arise. In the identification of differences between conservation of traditional and modern heritage, the technical area is where they are most distinct. Expanding the repertoire of knowledge to encompass modern construction systems and materials is clearly needed and argued in the position paper by Theodore Prudon and Jeffrey W. Cody titled "Education and Training in the Conservation of Modern Architecture." The move from craft-based to industrialized construction introduced many new materials, brought into use component-based systems, employed traditional materials in different ways, abandoned traditional detailing, and often claimed buildings were maintenance-free. In the fiscally austere post-war era, limited budgets and shortages of materials such as steel and timber, together with the deskilling of the building industry, meant that building quality was sometimes compromised. All these factors have resulted in a building stock with a reduced life cycle. Shorter cycles of repair and higher rates of obsolescence, both in terms of use and of materials, all lead to higher costs in the long term. These arrays of problems have been discussed in the past at length and are summarized in the position paper by Kyle Normandin titled "Physical Conservation Challenges Facing Modern Architecture."

Over the last twenty years, there have been limited advances in developing new repair methods and adapting existing ones to conservation needs. At the same time, there is now recognition that in some cases repair is not possible, and large-scale replacement or even reconstruction may be necessary. In these instances, the level of significance of the place and the cost to repair it arrive at a difficult equipoise that demands creative solutions. There is no infrastructure for modern repair as exists for traditional conservation, partly because of the vast number of materials and systems used, and partly because the knowledge is still in its infancy. Early efforts challenging industry to identify new conservation repair methods and products have lost steam, and leadership is needed to progress. It is also important to learn from the ways in which similar issues were dealt with in the past.

Research is needed to develop technical solutions for dealing with some of the most common and enduring problems, such as the repair of exposed concrete, cladding systems, and plastics. We need information on the ways in which modern materials deteriorate and on methods to repair them that builds on the body of literature from the 1990s. Guidance on diagnosing problems and systematically working through the repair options, as practiced in traditional conservation, and communicating this methodology to new audiences would also advance the field, as would case studies illustrating how others have balanced philosophical decisions.

Issues relating to materiality have occupied much of the discussion with regard to conserving twentieth-century heritage. Ultimately, conservation is case specific, and different practitioners will make different decisions. Current limitations on technical knowledge and available repair methods mean that our ability to be absolutely faithful to conservation principles may be challenged at times. In such instances, the need for a shared approach comes in. When significance is at the core of decision making, balancing design and material matters becomes a rational process, although one that is still subject to individual

interpretations. Transferring knowledge on the values-based conservation approach to a wider audience would assist in developing a shared methodology.

Adaptation and Sustainability

Recent discussions have shifted focus from the materiality dilemma to the issue of obsolescence and use. Early conservation efforts dealt with the most iconic sites, which demanded the most stringent application of conservation principles; thus, questions related to material authenticity received the most attention. Now we are dealing with places for which survival is more often reliant on the ability to accommodate change for new purposes, and adaptive reuse is preeminent. Buildings distinguish themselves from artworks when it comes to conservation simply because, in most cases, in order to survive, they have to be used. This is true of most buildings, including heritage buildings. Conservation, for the bulk of the world's protected places, is about managing change in ways that retain significance—be they industrial sites, cultural landscapes, or modern buildings.

The explosion of building types over the twentieth century, to provide for new ways of living and working, and the centrality of functionalism within the modernist ideology are often cited as problems specific to twentieth-century heritage (Macdonald 1997, 38). However, it is debatable whether functionality, and therefore adaptability, are any more problematic for modern buildings than for those of other eras. There is a large body of information on successful adaptive reuse of historic buildings that is also relevant for modern buildings. Recent initiatives such as the World Monuments Fund's Knoll Modernism Prize are good examples of successful adaptive reuse/conservation projects. Access to successful case studies that exemplify some of the specific issues faced by modern buildings would be a useful addition to the literature. The case study by Michael McClelland to be presented at the colloquium on the Toronto Towers project demonstrates at the city scale how the values-based approach to identifying and managing significance provides the path to successfully balancing some of the problems—scale, adaptability, sustainability, physical fabric—that are cited for the adaptive reuse of modern buildings.

A Shared Approach to Conservation

The challenges discussed above all trigger questions about whether conserving modern heritage should follow existing approaches, or whether conserving the legacy of the Modern era demands a new paradigm. Conservation is seen by some practitioners as a moral act, guided by its well-established tenets—its charters, guidelines, and legislation—and shared among close-knit groups of professionals. Despite its earlier origins as a defined area of professional practice with shared international concepts, conservation is a largely twentieth-century movement. Modernism has a similar trajectory, although with a larger group of international disciples. As in conservation practice, modernism and its followers strove for universal truths, reinforced through international manifestos and key texts. Both movements share ideas of contributing to a more civil society, one through retention of a connection with the past and the other through creation of a better future environment.

The early period of modern heritage conservation saw these universal truths collide, and questions arose as to whether the fundamental tenets of modernism conflicted with those of conservation practice. Two camps were represented: on one side were traditional conservation practitioners who argued for the application of the existing philosophical approaches, tempered by the specific requirements of the conservation challenges at hand, while others argued for a new philosophical approach specific to the demands of modern heritage. The issues generating the greatest debate revolved around the question of material conservation and whether authentic fabric could be conserved without compromising design intent, which was driven by the ideals of modernity and its social consequences.

After the initial flurry of contention, some consensus was achieved, largely amounting to recognition that the existing philosophical approaches, as expressed in the conservation

charters, were broadly applicable to the conservation of the recent past; still, there were some specific technical challenges that necessitated judicious, case-by-case consideration. Lateral thinking, creativity, and flexibility in application of the existing tenets enabled practitioners to accommodate the materiality of the Modern era—specifically and most problematically, issues arising from innovative construction and use of materials. The aim for some working in this area was to mainstream modern conservation, to reduce the controversy, identify a common methodology, and embed it within the continuum of conservation culture. It was recognized that some of the issues had been tackled during the conservation of industrial heritage sites, cultural landscapes, and sites of predominantly social significance. But the debate regularly reappears, recently prompting the creation of the aforementioned Madrid Document, an attempt to reiterate the general principles of conservation and its process specifically for twentieth-century heritage.

Modern architecture has attracted a new generation of practitioners to its conservation. The influence of modernism remains strong in contemporary architectural practice. Architects practicing in this oeuvre are also engaged in the conservation of modern heritage. Docomomo, as discussed previously, has also been hugely influential in the approach to conservation. The swelling of the ranks of those practicing in this area—with architects who are less familiar with conservation theory, methodology, and practice but who bring a deep understanding of modernist theory—continually fuels the debate and the calls for specific doctrinal texts to guide modern heritage's conservation. Those more conversant with conservation practice have argued that existing conservation principles work just fine, and that it is counterproductive to identify modern heritage as different and thus requiring a separate set of principles. The injection of new blood into the comparatively small and sometimes-insular conservation fraternity has served to catalyze reevaluation of some of the existing manifestos and tools, highlighting areas of confusion or areas where conservation has not been well integrated into general planning, development, and architectural practice. The confluence of these sectors provides opportunities to integrate conservation into architectural practice more broadly and reinforces the fact that conservation is a creative process in which design skills are as important as technical knowledge.

The architects of the twentieth century, whose work we are now conserving, have also played an important role in the conservation process—first, by advocating for the protection of their own buildings; second, by a series of high-profile bequeathals of their houses; and third, by providing access to the living memory of the design, construction, and materiality of their buildings. The architects' actions have sometimes meant that conservation has privileged architectural or design significance. Some architects faced with the conservation of their own buildings seek to improve them; some will want to evolve them, introducing new architectural ideas that they have developed over time. While it is important to engage with the creators where possible, it is also important to be able to place their advice in a framework or context for making conservation decisions and to recognize the differing perspectives of creator and conservator. The case study on the Sydney Opera House to be presented at the colloquium by Sheridan Burke demonstrates a mechanism for integrating the architect's vision into the conservation of the building.

Arguments about the distinct nature of modern heritage have in some instances led to a softening of the application of some of the most fundamental principles of conservation: conserve as found, do as little as possible and only as much as necessary. The replacement of original materials, which were cheap and readily available, with more luxurious alternatives—based on the idea that the architect would have used these materials if they had been available or affordable—are speculative. The question is whether we have been making excuses about what can or cannot be achieved, as we have not been willing or able to tackle the impediments to achieving good conservation. Will future generations look back and criticize us for giving up too easily, for not being conservative enough, or for the reverse—being too precious? Only time will tell.

New knowledge, however, will inevitably change what is possible. Better information about deterioration of materials and methods of potential repair will shift opinion. What

seems too difficult or too expensive now may become cheaper, easier, and more widespread. New nondestructive diagnostic tools, as well as the wider application and development of methods such as cathodic protection as a repair and preventative approach to steel-frame and concrete buildings, will continue to reduce the impact of repair on historic fabric. Future technologies and repair methods and materials will inevitably make some of our actions seem heavy-handed, a perception mirroring our generation's critique of conservation work from previous eras. We need to be willing to push the boundaries—to undertake research, to broker new approaches with industry, and to question the status quo.

This paper suggests that it would be helpful to move toward a shared view on approaching the conservation of modern heritage. Lack of understanding about the approach to the identification of modern heritage and the absence of thematic frameworks for assessment result in the fact that seminal buildings, such as Alvar Aalto's Paimio Sanatorium and examples of Le Corbusier's work, remain absent from the World Heritage List. Shared understanding of approach brings consistency in decision making.

Concern about the ability of these buildings to meet current conservation standards during repair has also influenced support for their protection. In many countries, government owns a large proportion of the significant modern building stock and should be leading by example. But government asset managers have generally been slow to formally recognize their own modern heritage assets and to put in place frameworks for their care. With an ever-shrinking public purse, the delivery of services will be a higher priority than conservation of public assets. As public services contract, publically owned buildings are being decommissioned, and government, which can be reluctant to transfer the perceived burden of heritage protection onto the private sector, may also be concerned about loss of profit on sales. The decline of public funding for heritage conservation means that heritage increasingly has to pay its own way in the market economy.

Agreeing on the approach and securing it through legislation, with clear policies and consistent application, is ever more important in securing conservation outcomes. Lack of a shared vision among planners, assessors, conservators, and architects results in conflict, confusion, and, ultimately, poor support. Given the scale and complexity of some modern buildings, cost is often a defining factor. Transnational organizations and transactions are increasingly affecting how development is occurring, bringing forceful financial pressure to bear and sometimes rendering national legislation and local policy ineffectual, unless they are very well articulated and consistently applied. While we continue to promulgate the differences between modern heritage and that of the more distant past, we reduce certainty and consistency in practice.

Values-Based Conservation

The values-based approach to conservation provides the framework for conservation internationally and is now standard practice in most places. Many countries have specific principles that are enshrined in legislation or other means for day-to-day practice. Captured in national charters such as the Burra Charter (Australia ICOMOS 2000), the China Principles (Agnew and Demas 2004), English Heritage's Conservation Principles (English Heritage 2008), the Canadian historic places standards and guidelines (Parks Canada 2010), to reference a few, these all define a similar process for conservation, commencing with the identification of the heritage significance of the place. The simple and basic concept of values-based conservation is that by understanding what is important about a place and the degrees of significance, you can make rational decisions about how to conserve it. Like the Venice Charter (ICOMOS 1964), from which many of them are derived, these later documents advocate a cautious approach and uphold the precepts of doing as little as possible and only as much as necessary, and they underscore the need for informed conservation and skilled input.

The Madrid Document arose out of the need to demonstrate ways in which the fundamentals of conservation practice could apply to modern heritage. Despite the differing

views within the ICOMOS ISC20, which created the document, about the need for such a text, it has been widely embraced and translated into six languages. For those places where practitioners are unfamiliar with the values-based approach and places where legislation does not yet recognize younger heritage, it is an important tool for advocating for modern heritage. For various reasons, its title identifies it as being applicable to architectural heritage, although the general principles included within could just as well apply to a broader range of heritage typologies.

The Madrid Document, which provides a basis for identification via significance assessment and outlines the usual process of conservation, has helped reach new audiences. Questions discussed by the ICOMOS ISC20 are: Should the document be codified as a charter? Should it be expanded to make it more obviously applicable to other heritage places? Would an illustrated version and/or guidelines be useful?

Conclusion

This paper has been written on the premise that strategic effort is required to engender a better-shared understanding of how to approach the conservation of modern heritage. Such an understanding would create more certainty in the heritage system about how to go about identifying, assessing, and physically conserving the heritage of this era, and it would create greater confidence in the governance systems and for the public. The following questions suggest a starting point for achieving this.

1. How important is it to achieve some degree of universality in approach?
2. Can we adopt the existing standards and norms of conservation practice for modern heritage?
3. Can we pinpoint specific barriers that are preventing agreement on this, and how can we move past these?
4. Do we need additional specific documents that clearly describe the approach to conserving modern heritage, or can we build on what we have already?
5. What can be done to build the capacity of those working in this area to understand the approach and to use it to guide their work?
6. Are there specific texts or educational and training initiatives, and the like, that would help?
7. How can we embed these approaches more widely?

Clearly these questions prompt responses that cross into other thematic areas of the colloquium.

Most would argue that modern heritage is now part of the continuum of history and deserves recognition, protection, and celebration. It is now time to acknowledge that modern heritage conservation is part of the continuum of evolving conservation thought and should be integrated into practice.

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Physical Conservation Challenges Facing Modern Architecture

By Kyle Normandin

The objectives of this essay are to summarize current approaches to technical and physical conservation and to provide a basis for a focused and strategic discussion concerning physical conservation challenges related to modern architecture. The essay also examines whether more specialized approaches are needed to conserve modern architecture; to identify the areas of conservation requiring urgent attention; and to suggest what options may be most viable for practitioners to advance the field. The scope of this position paper precludes a detailed history of the development of building technologies in the twentieth century and a comprehensive review of the conservation approaches that have been used to conserve modern assemblies and materials.

This assessment presumes that there is no methodological difference in the approach to conserving modern architecture as compared with traditional practice. However, more frequent monitoring and maintenance are required to conserve and sustain modern “thin-skin” buildings. Given the shorter life span of building materials and their performance characteristics, more techniques and training in building pathology to assess physical building conditions are needed, to understand not only material life spans and expectancy but also the performance of the entire building assembly over time. Certainly more knowledge is needed of building design, detailing, and twentieth-century building materials in order to determine appropriate degrees of intervention for the long-term sustainability of the building fabric and its integrity.

Current State of Physical Conservation

Today many significant buildings from the Modern era remain at risk of neglect or demolition. Important factors are ongoing material deterioration combined with increasing functional demands in response to changes in society. While many of these buildings were created at a time when our society was mainly industrial, we continue to try to use them successfully in a post-industrial world. We are in a constant reactive mode as we face modern buildings that require repair, and we must balance new technological standards aimed at improving building performance, while addressing comfort issues and environmental goals. While heritage of the recent past has performed its intended program function for over fifty years, often technology has become obsolete while building standards become more stringent. Many building materials and systems of the Modern and postwar eras have reached the end of their physical and economic life span and require repair or replacement, or at the very least, they are in need of a great deal of care and maintenance to sustain them in the future.

A key theme in the development of modernism was the determination to design and erect buildings that not only sought to accommodate rapid growth in society but also addressed changing and contemporary social needs; buildings were designed and evolved based on specific functional purposes. Modernist buildings embraced the spirit of this industrialization, both in a quest for new architectural expression and in a search for affordability, through customization based on a specific design for a unique purpose. Modern architecture sought to break from the past by embracing new technology that resulted in building structures differing from traditional building types. To this end, architects and the construction industry collaborated to create a new aesthetic of modern architecture, which integrated specific design intent carried out through new building techniques and innovative materials. They sought to achieve maximum functional efficiency by lowering costs while increasing production volumes.

Modern buildings exhibit myriad physical problems, many arising from the nature of their external envelopes. Hubert-Jan Henket notes, “Twentieth century buildings, in partic-

ular Modern Movement buildings, are more susceptible to the influences of time than their predecessors and as a consequence, this exposes them even more, to the paradox of conservation” (Cunningham 1998, 13). The vulnerability of modern buildings is what makes them different, and this factor is at the core of their conservation. While it was generally expected that the buildings would become obsolete at least once or twice during their life span, it was not envisaged that the building envelope, materials, and, in some cases, the structure itself would show signs of obsolescence after only twenty to thirty years in service (Chandler 1991, 18). The temporal quality of prefabricated materials and systems has changed the face of building construction, and this temporal character presents a significant challenge in conservation. In some cases, we are faced with a quintessential paradox, the desire to make permanent structures originally designed for a short life span.

The importance of preserving original materials, building systems, and technology from the Modern Movement and the postwar era rests on their inherent values. The ability to carry out this process depends on knowledge of building technology, including the performance of modern materials and systems. This knowledge is of key importance when conservation, repair, or maintenance is called for, as well as when changes to the original architectural fabric are considered (Prudon 2008, 76). Conservation of modern materials also requires resolution of the issue of “newness” and patina. Modern materials age over time, but in many cases, they were intended to retain a pristine, nonweathered appearance. This topic has been the focus of discussion for over two decades, and yet the questions remain: when should these materials be refurbished to a like-new appearance, and when does this approach conflict with traditional conservation approaches? If we assume that conservation philosophy accepts an intermediate level of repair and replacement of modern materials, how much intervention is appropriate before the building’s material integrity has been jeopardized and the project is considered a reconstruction (Prudon 2008, 79). Do we need to revisit our understanding of replacement and reconstruction in this context? And are standardized, machined building components understood to have the same significance as traditional carved stone elements on a building facade, which are the work of a craftsman?

Building Design, Typologies, and Systems

One of the most important questions raised by architects from this era was the ways in which building design should respond to the rapid changes in society. Two different principles and approaches arose, based on the customization required in anticipation of program functions. According to Adolf Behne in 1926, buildings could be clearly understood on the basis of their distinction between *functionalism* and *rationalism*.

Functionalism explains that form follows the function closely, to yield a kind of “close-fit” architectonic design that may no longer work when the function changes or becomes obsolete (De Jonge 2005, 289). Often, if the building is not adaptable, there is a strong possibility that it will have a short life span or expectancy. The problem of adapting a specific building design is still a challenge today. The case study on Zonnestraal Sanatorium, “Building Technology, Systems, and Conservation,” that Wessel de Jonge will present at the colloquium demonstrates this building design typology and the physical conservation challenges unique to the structure. The short life expectancy of this building design aligns with the preconceived notion that tuberculosis was to have been eradicated in about thirty years. For this reason, the sanatorium was built of industrial products and used construction techniques including the dry assembly of prefabricated building components and a stick-built curtain wall. Simplified installation and construction that could be executed with inexpensive labor resulted in significantly lower costs. It was also thought that innovative buildings could be constructed using a smaller quantity of material than needed for traditional buildings, as demonstrated by new building envelopes that were quite thin, delicate, and streamlined (De Jonge 2008, 29). The need for less material, combined with economy of scale, was expected to reduce overall cost.

By comparison, *rationalism* was based on a more flexible building design program involving a changeable division of spaces used for various functions. These buildings often consisted of a concrete skeleton with long ribbon windows, in which interior layouts could be adapted or changed over time. For example, the design and rational planning of the Van Nelle Factory allowed for a more multifunctional arrangement of space. The interior spaces could be easily modified and made suitable for new purposes due to frequent changes over time.

Industrialization throughout the twentieth century allowed the affordable production of materials like iron, steel, and glass, as well as reinforced concrete, which developed into one of the most universal and versatile materials in building construction. In addition to its industrial and economic efficiency, concrete could be used to realize building forms that were aesthetically inspired by automobiles, aircraft, and ocean liners—with their metallic-based materials—which idealized the role of technology in design but were often in advance of the realities of actual building construction (Mills 1994, 151). For example, unlike automobiles, which were manufactured in the millions, buildings were typically unique, one-off constructions. There was not just a fascination with materiality but also with the manufacturing process itself.

Innovation in industrial fabrication continued with the emergence of malleable and flexible polymers and synthetics, which could be used to create forms similar in their appeal to formed metallic surfaces. These were considered the “natural” materials of their era (Walker 2001, 55). If buildings were to make use of the same technologies as the automobile, then similar research and testing would have to be carried out toward technological development and prefabrication, an effort that was not economically feasible unless identical buildings could be produced in the thousands (Davies 1988, 7). However, the fact remains that if we are to develop physical conservation strategies that respond to aging and weathering materials like metals, plastics, and synthetics, we must push the boundaries of our knowledge by undertaking targeted research in these areas, engaging with manufacturers and industry to develop a wider range of treatments for materials from this era.

Material Prefabrication, Standardization, and Life Span

The desire to improve production of prefabricated materials, including their assemblies and performance, resulted in a proliferation of standardization. As early as the first International Congress for Modern Architecture (CIAM) meeting in 1928, ideas about the simplification of building forms were a focal point within the Modern Movement. On the one hand, a steady rise in the production of standardized components based on geometric shapes increased economic viability by ensuring that such components could be made universally available. On the other hand, this trade-based industry retained support for a more specific and customized approach to creating components for particular designs based on unique organic forms. Such components were more costly than prefabricated materials (De Jonge 2002, 51).

Advances in technology provided the capacity for larger building systems, as did the development of individual smaller structural building components based on popular demand. For example, the repeated and systemic use of a range of individual building components, such as webbed trusses, laminated wood beams, arches, prestressed concrete assemblies, and precast concrete and composite systems (to name a few), contributed to the evolution of the structural system and the development of new ways to use these components to span large spaces without intermediate columns. These materials and products were typically manufactured using mechanized and large-scale processes often based on patented material properties and production formulas. However, more than any other material, concrete—reinforced, prestressed, cast-in-place and precast—was widely used and became most symbolic of the architecture of the Modern Movement. The case study from the Laboratoire de Recherche des Monuments Historiques, “Concrete Technology and Conservation,” to be presented by Myriam Bouichou, provides context for ongoing

research on historic concrete, identifies research questions, and discusses how these questions were addressed through the development of physical conservation strategies for key monuments by Auguste Perret and Le Corbusier in France

New and lighter constructions, combined with new curtain wall assemblies and flat roofs, made possible the desired visual impact of Modern Movement architecture, which depended upon the impression of light and the aesthetically pleasing thin forms that could be attained through new building technologies attributed to advances in reinforced concrete (Allen 1994, 151). Because the Modern Movement sought to achieve a formal and pristine clarity that relied upon an absence of surface relief, its use of conventional detailing that incorporated overhangs, drip and sill edges, and copings was generally inadequate, creating myriad problems over time. The performance of modern buildings and materials was not only physically compromised but also, in some cases, aesthetically damaging, as the staining impacted the buildings' appearance.

The modern aesthetic also contributed to air and water infiltration problems because the delicate thermal detailing of the envelope of the building had virtually no redundancy and thus allowed air and water to migrate easily through its thin skin. Vapor barrier systems emerged conceptually in the 1940s, while sealants did not come into existence until the end of the 1950s. The combined effect of the use of thin forms, the fragility of the materials, and the vulnerability to air and water infiltration was that the building assembly and its individual material components typically did not weather elegantly. The many Modern era buildings that exhibit these problems provide us with an opportunity and a challenge to continue research into new technologies for conservation, and perhaps leading us to devote more rigorous attention to maintenance programs that may lessen the future need for repair of and intervention to the historic building fabric.

Approaches to Physical Conservation

Over the last century, our understanding of the intricacy of modern building systems and of the materials and their performance has made it clear that building pathology and diagnostics are critical to identifying and responding to failure mechanisms inherent in the building assembly. Based on a multidisciplinary approach, in-depth examination of these built-in deficiencies has been key to knowing the factors that impact the overall performance of building systems. Overall, there is still a lack of coordinated research that brings together analysis of the long-term performance of building systems and materials and their conservation. Because of this lack, responding to building failures with short-term and long-term solutions is challenging. Monitoring and investigative techniques using innovative diagnostic tools to examine building deficiencies are critical. With these tools and techniques, we can better identify inherent problems in building assemblies and find appropriate solutions for conserving the building fabric while improving long-term building performance.

Building Physics

The study of the building envelope and its interior environments has also long been considered a discipline that evolved in parallel with the Modern Movement. Developed as early as 1918, the discipline of *Bauphysik* (building physics) made available literature and research by companies specializing in energy plants and the heating industry (Tomlow 2006, 13). More general articles and examples were mentioned in the periodical *Gesundheits-Ingenieur—Zeitschrift für die gesamte Stadthygiene* starting in 1928. This magazine about public health made important contributions to functionalist buildings, as did the *Handbuch der Architektur* in 1932, which focused on more technical applications of building technologies current during that time (Tomlow 2006, 9). Building physics is currently recognized as an essential discipline that provides necessary tools for the examination and understanding of responses to climate, and helps us appreciate what early pioneers were aiming to achieve through the use of thin-skin technologies. In many ways, the

current debate on sustainability is not much different from the public health debate of the 1920s. While the focus has shifted from then to now, examination through the lens of building physics can be further utilized in the holistic stewardship of modern heritage. A sound understanding of this field of research and practice would support the evolution of the conservation of modern architecture at this stage. Research—on environmental monitoring and on climate control systems and the conservation of modern buildings—should be targeted to identify more synergies with the discipline of building physics, to advance this area of practice.

Preventive Conservation through Repair and Maintenance

The development of sound conservation practice for modern structures may also assume that the traditional approach may be not be suitable to properly maintain overall integrity of the building system and material components. For example, with modern curtain wall systems, to address the lack of redundancy of barrier systems for thin-skin building envelopes, window frames and sashes may need to be disassembled, metal components might require repair and repainting, and the glazing might have to be replaced with laminated glass, in order to meet building code and safety requirements. While a goal of conservation is to retain as much original fabric as possible, successful repair often requires a dismantling of the entire curtain wall and the incorporation of new glazing. While there may be different approaches to the conservation of these building types, the mitigation of deterioration mechanisms inherent in certain design assemblies and materials is highly dependent on preventive maintenance programs that provide care on a regular basis, supporting longer life spans for building components. Toxic materials also present a problem. For example, the cement boards and cement plates commonly used in building exterior construction up through the 1960s were often laden with asbestos and therefore require removal and abatement. Toxic materials remain a challenging issue, one that must be addressed now and in the future.

More professionals, building owners, and technicians in the construction industry would benefit from increased expertise, so that they can be more skillful in the design and implementation of maintenance strategies, contributing to a more holistic and sustained approach to maintaining building performance. An in-depth survey, perhaps through case study examination, to identify repair methods that have been successful would be valuable, in particular if the results were to build upon the current body of knowledge and were made available as a practical resource offering guidance to practitioners and professionals.¹ For example, a conservation tool kit could be developed that provides a useful catalogue and database of successful repair technologies, including supplemental information and an evaluation of their performance over time. By assessing current repair methods, it will also be possible to identify additional areas of need.

Advancing the Field

This paper is intended to provide a point of departure for addressing the challenges of the physical conservation of modern architecture. In order to promote further discussion, the presentation of approaches that have been used over the past two decades has been framed for the consideration of questions about repair methods that have been both successful and in keeping with the building's original design and evolution over time. Emphasis on repair designs that are sympathetic to the original building fabric and that sustain its continued performance is critical. Certainly, managing expectations is important in this context; however, the parameters of intervention depend not only on an understanding of a building's historical structure but also on a thorough analysis of the building systems and material components, as well as on the development of a cyclical maintenance program based on the life cycle of the building and its materials.

The physical conservation of modern buildings shares the same approach as the conservation of traditional buildings of previous eras. However, because of the construction of

thin-skin buildings throughout the modern era, more frequent monitoring and maintenance are required; in some cases, where building assembly failures are systemic, wide-scale intervention may need to be considered. In this case, given the short life span of the materials, more loss of original building fabric is imminent, which would most likely lead to increased building system and material replacement. Additional training in building pathology, building science, and material research, including rigorous study of material life spans and evaluation of successful repair technologies, would advance conservation by integrating methods to improve building performance, promoting the long-term sustainability of modern heritage over time.

This colloquium will frame and build upon these issues. While additional technical information and publications on successful solutions for the repair and conservation of modern buildings is useful to practitioners, research on selected materials, including their material properties and their performance over time, is needed to address the wide variety of building typologies and their construction. As well, targeted research may also be considered in the application of building physics to the examination of climate conditions in modern buildings. Such research might reveal ways in which the environments of existing building can be improved even when as much of the original building fabric as possible is retained and the building's integrity is protected—thereby achieving a balanced resolution of conservation issues.

In considering these areas of potential research, the following questions are proposed to frame the discussion that will follow this essay and presentation:

1. Currently, what do we need to learn to obtain better conservation results for modern buildings?
2. What systemic repair problems are yet to be solved? Do we know enough about how modern building systems and their materials perform and deteriorate?
3. Which material repair methods have yielded good results, and which areas of repairs are we still struggling with? Do we have the right tool kit and repair methods to improve performance in these areas?
4. What skills are needed to deal with physical conservation?
5. What research do we need to carry out? Who and what disciplines need to be involved? Are there opportunities to work with industry to address some of these areas of research?
6. How can disciplines like building physics be utilized in a more proactive role when addressing the need to balance new technological standards for performance, comfort, and environmental climates with conservation goals?
7. What strategies can be developed for building maintenance programs so that they provide the more frequent monitoring and inspections that are part of long-term conservation? Are there monitoring systems, diagnostic tools, and methodologies that could be utilized that we are not yet using?
8. Do we need literature on building pathology and on methods for carrying out investigative studies and repair programs for the non-conservation audience?
9. What sort of guidance, literature, and other resources would be helpful to both conservation and non-conservation audiences?

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Notes

1. Organizations like the Docomomo International Specialist Committee on Technology have made available a series of dossiers and written publications on case studies, based on seminars and workshops through Docomomo International. English Heritage in the United Kingdom and the U.S. National Park Service have focused on key resource texts, such as the Technical Preservation Briefs of the park service, which provide guidance on methods and approaches for preserving, rehabilitating, and restoring historic buildings and address a host of modern materials, including concrete, vinyl, plastics, and other prefabricated materials. In 1995 a key resource text was published by the National Park Service on twentieth-century building materials; it focused on the history and conservation of a wide range of materials and provided historical and technical information about new products used to construct buildings throughout the twentieth century.

Education and Training in the Conservation of Modern Architecture

By Theodore Prudon and Jeffrey W. Cody

The objectives of this position paper are to summarize the current global state of affairs regarding education and training in the conservation of modern architecture; to determine if a more specialized educational effort is needed and, if so, to outline pressing needs; to suggest the options that seem most viable for a variety of audiences; to place the case studies presented by others and that complement this essay in a sensible context; and to provide—for this symposium’s attendees—a basis for a focused and strategic discussion concerning conservation education and training related to modern architecture. The scope and brevity of this essay preclude a full discussion of either the definitions of key terms (e.g., *modern*, *education*, *conservation* vs. *preservation*, *authenticity*, *significance*, etc.) or a detailed history regarding more traditional conservation education.¹ Our main intention is to provide useful points of view so that symposium participants can search for and reach important consensus about priorities and actions that will improve the education of practices concerning the conservation of modern architecture worldwide.

Our principal assumptions are twofold: (1) that there is a distinct difference between the conservation of modern architecture and more traditional practices, and that (2) as such, there is a pressing need for more comprehensive and effective education and training related to the conservation of modern architecture. Our key conclusion is that the relatively ad hoc previous attempts to provide quality conservation education and training in this regard provide useful examples that might well be adapted and/or expanded to meet current needs in the field more comprehensively. However, many salient questions remain; these will be raised below. In our opinion, the nature of modern architecture—often designed and erected with very specific programmatic assumptions, newly invented materials, and building technologies—implies a need by conservation practitioners and educators to modify certain ways in which they have traditionally intervened to conserve buildings. This point, too, will be explained further below.

Current State of Conservation Education Regarding Modern Architecture

The conservation field appears to be in its infancy concerning the most effective strategies and methods for educating students, practitioners, and the general public about the conservation of modern architecture. Although some important steps have been taken by a few institutions of higher education, by some international/national organizations, and by local conservation advocacy organizations, these efforts have largely been piecemeal and uncoordinated, lacking a comprehensive educational vision. Significantly, these steps have largely been directed at three different audiences—conservation professionals in general, architects and designers, and the general public—with varying needs and objectives. Here we will concentrate primarily on the fourth audience, our peers—in other words, the broader range of conservation professionals and policy makers who have not sufficiently addressed the conservation of modern architecture and who will be the focus of the essay’s conclusion.

At the university level, it is only recently that Columbia University in New York has expanded its offerings in the area by adding a course specifically devoted to twentieth-century architectural conservation as a programmatic and architectural problem. For several years the conservation of modern materials was already a substantial part of existing coursework.² Other North American universities with highly regarded architectural conservation programs—e.g., the University of Pennsylvania, Cornell University, the University of Southern California, the University of Florida, the University of Montreal, and the University of Virginia—sometimes include in their course work a consideration of examples and challenges from the recent past in their academic curricula, but not as a

focus. There is much that still remains to be integrated and taught. A few institutions of higher education in other regions also occasionally utilize twentieth-century architectural examples in the context of conservation education. These include (but are not limited to) the University of Hong Kong, the National University of Singapore, Universidad Torcuato di Tella in Buenos Aires, the Ecole Polytechnique Fédérale in Lausanne, and the Delft University of Technology.

It is important to note, however, that confusion and contradiction can result from the focus of the discipline where the program is located and the descriptions assigned.³ Although some postgraduate conservation programs are nested within schools of architecture, others are either intellectually and/or institutionally linked to other disciplines, such as city and regional planning, art history, tourism, and folklore. Some professionals argue that this breadth exhibits a healthy interdisciplinary reach of conservation—beyond architecture and planning per se—while others suggest that this disciplinary variation is counterproductive, because it fosters superficiality and prevents clear professional accreditation. The latter comment is particularly challenging if the conservation of modern architecture is largely interpreted as a programmatic and architectural challenge.⁴ This essay is not the place to address the full implications of the ways in which more specialized conservation education for graduate students has been conceived or has evolved.

Another source of education for postgraduate students is provided by two international organizations—Docomomo and mAAN (modern Asian Architecture Network)—that have organized occasional workshops in the field. For example, since 2006, Docomomo International and its International Specialist Committee for Education and Theory (ISC E+T), among others, have organized four workshops to focus attention, to foster discussion, and to consider practical conservation strategies regarding twentieth-century architectural sites: at the Ataköy housing project in Istanbul (2006), the Van Nelle Factory in Rotterdam (2008), Colonia Cuauhtémoc in Mexico City (2010), and the Otaniemi campus in Helsinki (2012). In these short workshops, students and faculty from a variety of countries and disciplines share their perspectives and solutions with colleagues who “provide a basis for addressing the challenge of the preservation of modern architecture” (Prudon 2012, 189). While the focus of these individual workshops has varied, generally they have sought to find appropriate architectural and planning solutions in a particular context, and they have dealt less with direct physical interventions. Similarly, in 2009 mAAN organized an International Design Workshop for the revitalization of the Great Padang Cement Factory in Indonesia.

While these efforts are helpful in fostering new professional connections and inspiring creative ways to solve problems, their impact remains limited because of their duration and their limited number of participants and geographic scope. The Asian Academy for Heritage Management (established in 2002), a “virtual” network of approximately sixty academic institutions in the Asia-Pacific region, has also used these kinds of workshops (called “field schools”) for training students, although the content focus of these “schools” is not directly related to modern architecture. These examples imply that (1) there is interest in and precedent for broader and more comprehensive developments in several world regions, but (2) these precedents vary according to the region, and (3) there has not been sufficient coordination of these sporadic efforts to identify the most important needs, the places those needs are most pressing, and the institution(s) best suited to meet the myriad challenges of organizing courses, delivering workshops, and, perhaps most important, providing clear, philosophically based, and practical methodologies for conserving modern architectural heritage sites.

Similarly, for those engaged in architectural practice or related conservation work outside of academic institutions who seek further professional development in the conservation of twentieth-century architecture, there are few and different targets of opportunity. Two of the best are case study examples that will be discussed more fully in the context of this meeting—by James Ashby, in his discussion “Canadian Conserving Modern Architecture Course,” and by Tommi Lindh, in his presentation “The International Course

on Conservation of Modern Architecture.” Since 2005 Parks Canada, in collaboration with the Canadian Heritage Conservation Directorate, has delivered a two-day technical course throughout Canada to assist architects and other conservation professionals to better conserve twentieth-century architecture. Although this pan-Canadian course appears to be well conceived, its two-day duration makes it too short to give attendees an in-depth understanding of how, when, and where to take (or not take) actions for truly effective and comprehensive conservation of buildings from the recent past. The second example is Finland’s International Course on Modern Architecture (MARC), which has been delivered in collaboration with ICCROM. However, the future viability of this course remains unclear, for reasons that will be elaborated elsewhere in this symposium.

For education that is not limited to professionals but also addresses the general public, some nonprofit advocacy organizations have targeted a general audience that is interested in learning about modern architectural conservation. The results are encouraging in some respects and disappointing in others. The encouragement can be seen in the work of organizations such as the Association for Preservation Technology, Docomomo US, the California Preservation Foundation (CPF), and the Los Angeles Conservancy. Docomomo US has for the last six years organized a national tour day, in which some thirty or so chapters and affiliated organizations on the same weekend in the fall conduct tours of significant modern architecture in their respective communities, reaching several thousand people. Two other organizations, CPF and the Los Angeles Conservancy, have spearheaded several training events and campaigns for preservation in Southern California, to stimulate interest and marshal efforts by volunteers and members of the public. The Twentieth Century Society (once named the Thirties Society) in the United Kingdom is another salient example of an organization that has succeeded in engaging the public in this regard.

While interest and advocacy have grown over the last decade, it remains disappointing that many examples of modern architecture continue to be demolished or unrecognizably altered worldwide. Still too few members of the public—even those with power to prevent demolition—are educated sufficiently about the values and significance of modern architecture. Ad hoc, reactive, and last-ditch efforts to “save a modern building” too often fail because so few members of the public lack education, awareness, training, and knowledge about the resources that command our attention at this symposium.

Three Key Issues for Three Relevant Audiences

Given our presumption that education and training for the conservation of modern architecture requires its own specific educational format and content, given our own experience in conservation education/training and the current state of affairs (as summarized above), and considering the physical nature of modern architecture, we see at least three principal issues that should be seriously considered as we reflect upon the kinds of changes we wish to effect.

The first of these issues—primarily related to postgraduate conservation education programs—concerns the kind of disciplinary skill set that is best suited to encompass the broad range of challenges associated with the preservation of modern architecture. Recognizing that the following assertion is debatable, we suggest that architecturally based or planning-oriented skills are more integral to conservation efforts than have been required in any previous period, even if many postgraduate students receive conservation degrees linked to other disciplines. This notion is more easily appreciated when considering that conservation efforts for modern architecture tend to more “systemic,” and, using a metaphor for partial interventions, a replacement of individual bricks is not really an option. In that context, we are suggesting by using the term *architecturally based skills* (1) an ability not only to understand the fundamental “systemics” and dynamics of building structures, their performance, and their materials, but also to assess their states of conservation beyond and beneath surface treatments and conditions; and (2) a sensitivity to build-

ing scale, space, precedent, and function, which places ever-increasing pressure for continued effective use on our modern heritage.⁵

If students, conservators, and other relevant professionals were more effectively trained in the acquisition and use of these skills, it seems likely that more conservation efforts might prove successful. In part, this is because of the inherent nature of modern buildings and complexes, which are often larger in scale and height than in any prior period, erected with different technologies and materials than earlier structures, “the durability of the assemblies, and the levels of intervention, which are likely to be more extensive than for earlier periods” (Prudon 2012, 188). This implies, first, that more traditional building skills—in a variety of cultural traditions and often associated with craft-based knowledge—are often not entirely germane to the material and structural natures of many modern buildings, whose conservation requires much deeper, systemic-based knowledge.

The fundamental shift in architectural production, particularly after the mid-twentieth century, also implies that some of the assumptions associated with postgraduate conservation education programs (for example, needing to understand premodern, or “traditional,” building practices, materials, and techniques) do not readily apply to the needs of conserving modern architecture. It is here that the role of design as a formative conservation effort also needs to be addressed. Because of these buildings’ scale and context (and often because of their relative or commercial value), substantial changes and additions are to be contemplated that require a degree of visual and intellectual sensitivity to the original design not often addressed or nurtured in either architectural school or conservation education.

A third implication following from the issue of the appropriate skill set that students (and future practitioners) of conservation should develop is the need for different kinds of courses and curricula in both academia and in continuing education efforts for practicing professionals. These implications with regard to the skill set also relate to the Eindhoven Statement, which was articulated at Docomomo’s first international conference in 1990 (Docomomo International 1991, 14); now, a generation later, we are in even greater need not only for further discussion about these points but also for concerted action, so that better conservation practices can be established.

Questions Relating to the Skill Set

The following questions relating to the skill set will be presented on day one of the symposium, for discussion by symposium participants on day two:

- Is there consensus regarding the presumption that the conservation of modern architecture requires different skill sets and educational approaches than those targeting other kinds of architecture?
- To what extent should design and design-related efforts be included in the conservation discussion?
- What kinds of courses, and at what level, should be created, and what level of expertise should those courses be aspiring to achieve?
- Who, specifically, should create them?
- Which postgraduate programs—in a variety of regions—are best suited to implement those courses?
- Would a conference of conservation educators from different regions help to strategize the next steps? If so, how should this idea become a reality?
- Should a new kind of conservation education program be created, tailored to the conservation of modern architecture? If so, where, and with what funding?

The second principal issue that is related to fostering better modern architectural conservation results is the kind(s) of capacity building activities that should be created for practitioners who either need to or want to engage in continuing professional development.

Throughout much of the world, professionals of all types are required, often by legal man-

date, to improve their knowledge base continually. Those who engage in conservation challenges—at all levels of expertise—also need to upgrade their knowledge in the context of globalized and more specific regional practices, changes resulting from digital media, new solutions arising from ongoing scientific experiments, intensifying competition for services, and other realities associated with a dynamic sets of conditions.

Several professional bodies have responded to this need, either by creating short, intensive workshops (such as the Parks Canada example, mentioned above) or by assigning credit to professional participants who take courses (sometimes online) created by others. For example, the Royal Institute of British Architects (RIBA) in the United Kingdom and the American Institute of Architects (AIA) in the United States both require continuing education of their members to enable them to legally maintain registration and licensure.⁶ Professional planning organizations, such as the American Planning Association, and conservation organizations, such as the American Institute for Conservation (AIC) or the International Institute for Conservation of Historic and Artistic Works (IIC), also engage in a variety of methods for members to accrue continuing education credits in their respective professions. Given that there are precedents for this kind of endeavor concerning modern architectural conservation (Parks Canada, MARC, Docomomo, mAAN), it seems wise to build upon these precedents in devising novel ways—in a variety of cultural contexts—for conservation professionals to acquire the kinds of skills they need for a more effective and ongoing practice.

Questions Relating to Professional Development

The following questions relating to professional development will be presented on day one of the symposium, for discussion by symposium participants on day two:

- What are the best modalities for these kinds of continuing professional development activities?
- Where is the most logical “low-hanging fruit”? In other words, where and how should we begin?
- How should accreditation of these kinds of courses/workshops be recognized/distributed?
- Which institution(s) are best suited to be partners in a venture that develops such courses/workshops?

The third principal issue concerning education and training for conserving modern architecture, which is geared to helping educate the general public, is the best ways to engage the public so they can better appreciate the values of modern architecture and, therefore, be more likely to support its conservation. This is probably one of the most important audiences to reach, but it is also the most difficult. Although one could argue that modern architecture is becoming more “historic” because of the passing of time, and that shifts in some domains of popular culture (e.g., in North America, the popularity of television programs such as *Mad Men*) are helping to instill a new visual and cultural appreciation for modern design and, by extension, for modern buildings, there are several remaining challenges concerning how different “publics” either applaud or dislike modern architecture. These include (but are not limited to) whether and to what extent to alter functions, spaces, colors, and features of the original modern structure and, if so, according to what criteria and standards? We deliberately use the plural form of publics, because there is such variability in how people from different parts of the world have responded to, embraced, or otherwise dealt with the tangible and intangible aspects of “modernity.” East Asia or South America are particularly relevant in this regard, since modern architecture in many countries and contexts of those regions (e.g., Malaysia, Indonesia, Hong Kong, Brazil, Cuba, etc.) has been more positively thought of than in certain areas of Europe or North America (Lim and Chang 2012).

Questions Relating to Engaging the Public

The following questions relating to engaging the public will be presented on day one of the symposium, for discussion by symposium participants on day two:

- What are the best precedents for future efforts (Los Angeles Conservancy, Twentieth Century Society, mAAN, Docomomo, etc.)?
- What specific “public” is the best target audience, especially as a first step toward reaching our goal?
- What kind(s) of partnerships would work most effectively?

Conclusions and Implications

This position paper is only a brief point of departure on a long road toward more engaging, broader, and yet more focused efforts to achieve higher-quality results in education and training regarding the conservation of modern architecture. For an inspiring lively discussion, we have sought to provide points of view rather than a full-fledged literature review related to this topic. We have also framed these points, ideas, and assertions in a way that distills complex questions and conditions into key issues related to three different audiences. We realize that there are also other audiences—such as policy and decision makers from many cultural domains, and major international bodies such as ICOMOS and ICCROM—that are also very concerned with capacity building and conservation education. This is the “fourth audience” that we alluded to at the outset of this essay. Docomomo International’s Eindhoven Statement (1991); the Nara Document on Authenticity (1994); the ICOMOS Seminar Conclusions in Helsinki (1995); and, more recently, the Madrid Document (2011), entitled “Approaches for the Conservation of Twentieth-Century Architectural Heritage,” as prepared by the ICOMOS International Scientific Committee on Twentieth-Century Heritage, are examples of efforts on the international policy front to formulate policies and standards for the conservation of modern heritage. While these efforts are important in creating international dialogue, an exchange of ideas, and an international frame of reference, they also tend to be very general, so as to have the broadest application across cultures. In addition, such charters and statements tend to be a confirmation of an already existing consensus.

We suggest that in the context of the symposium, it might be useful to broach some of the questions we have raised, listen to other questions and points that we did not bring out, and consider these other audiences (beyond the three we have focused on). It is also key to remember that modern architecture is as much a regional as an international style, which manifests itself worldwide in different guises with varying levels of appreciation and elicits a multitude of reactions, as we strive to reach sensible consensus about what might be feasibly accomplished in the context of a strategic vision for action.

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Notes

1. For helpful summaries and different perspectives, see Prudon 2012, Tomlan 1994, Bluestone 1999, Woodcock 1999, and Jokilehto 2007.
2. The second part of a course, entitled “Structures, Systems, Materials,” has dealt with the systemic and materials-based aspects of the conservation of modern buildings.
3. Not only are terms like heritage conservation and preservation used, but terms such as transformation have found their way into the discourse.
4. See, for example, O’Connell 2012. For further data about U.S. university programs in conservation, see the National Council for Preservation Education, www.ncpe.us/. For a similar range of disciplines in Asia, see the Asian Academy for Heritage Management, <http://aahm.org/>.
5. This is particularly the case when arguments of sustainability are applied. Conservation of historic architecture, and especially of modern heritage, continues to struggle with effectively addressing efforts to achieve greater sustainability, which tend to focus largely on increased density and more efficient performance.
6. For instance, aecKnowledge, a provider of AIA-approved continuing education courses for architects in the United States, has “suggested curricula,” in which courses on conservation of modern heritage can easily be embedded. Examples of recent courses already offered are: Theodore Prudon, “Historic Preservation of Modern Architecture” and Ron Radziner, “Sustainably Restoring Modernist Icons.”

Modern Heritage: Identification, Assessment, and Interpretation

By Marieke Kuipers

Introduction

Seen from a European perspective, it is precisely the combination of the terms *modern* and *heritage* that creates a conceptual paradox, one that goes beyond Robert Venturi's complexity and contradictions in architecture and Alois Riegl's intrinsic ambivalence of all monuments. Heritage is usually associated with tradition and history, whereas modernity manifests a strong preference for the new. Such tensions have been discussed frequently, but even so, I highly appreciate the initiative of the Getty Conservation Institute for a critical review, because it can open up new perspectives and deepen knowledge. This position paper sketches briefly some approaches to identification, assessment, and protection of twentieth-century heritage from my personal experiences and observations.

Inherited Practices of Identification

Basically, there are two complementary forms of heritage identification. The first regards a kind of public distinction of particular buildings, sites, and neighborhoods as *historic monuments* or *heritage*. This cultural practice, which connects field research with the production of visual and textual documentation, stands in the old tradition of "tracing architecture" (Arnold and Bending 2003). Having its origins in the private interest of passionate amateurs in antiquities and ancient buildings, this tracing evolved over time into systematically organized inventory work done by diverse community groups, such as historic societies and national trusts and—at least in Europe—in a professional activity of listing and publishing inventories on national monuments of a certain minimum age by experts in the service of public institutions. Also, these activities have led to a more formalized form of identification by assigning carefully selected "monuments of history and art" to a category afforded legal protection against eventual disfigurement or demolition. The two notions of "history"—as a reference to a (glorious) past—and "art"—as an expression of creativity, craftsmanship, and beauty—are fundamental to the construction of cultural significance, but they are not always equally balanced and are also subject to the shifting interpretations of the *Zeitgeist*. Other values are defined by rarity—of a type, stylistic ornament, or component of a particular *oeuvre*—by the material quality of the fabric and, eventually, by its patina.

The second type of identification is site specific and indicates explicitly the particular values of a "historic place" to be respected in cases of architectural intervention for functional or technical upgrading, or other adaptations to new needs of the occupants. This is, in comparison with the more implicit permit procedures for legally protected monuments in Europe, a relatively new practice, and I think that this seminar is very useful in discussing the variety of methods and values that are applied in assessments.

Recognition of "Young" Monuments—Recent or Modern Heritage

By the late 1920s, the foundations were laid for the future historiography of modern architecture (Tournikiotis 1999), its social roots, and its canonization of the Great Masters, especially by such activities as the International Congress of Modern Architecture (CIAM), international exhibitions, and an increasing stream of well-illustrated periodicals and books. These publications made it possible for the emergence of a dichotomy between the image of the building in its initial state—frozen in beautifully arranged photographs—and the building's post-occupancy evolution, during which several users had made changes—perhaps to overcome technical shortcomings of the experimental constructions,

for example. The name and fame of such highlights of the Modern Movement as Walter Gropius's Bauhaus building at Dessau or Jan Duiker's Zonnestraal Sanatorium at Hilversum were entirely based on the early recognition of the structures' architectural *newness* and the personal reputations of the architects, but this largely aesthetic appraisal did not prevent later changes, made to satisfy needs for safety and energy efficiency, that affected the original clarity of design.

Maybe it was because of the possibility of losing control over the longevity of their designs and ideas that some modern architects, and their admirers, anxiously tried, from the 1960s on, to organize the safeguarding of their legacy—by gifting their seminal houses to the public, for example. Le Corbusier established his foundation and his selected works as a collection to be studied, visited, and admired. This was more in line with the practice of exhibiting works of contemporary art in museums and storing papers in archives than with architectural conservation. It also reflects the subtle difference between the concepts of *legacy* (related to ideas and money) and *heritage* (related to properties, places, and historical substance).

In 1962, one year after the first Monuments Act was implemented in the Netherlands, a group of Dutch architects started an international campaign to save Zonnestraal from further deterioration and violation, with the motivation that the building should be handled as if it were a monument. But the building was obviously too young, in view of the fifty-year rule, to obtain protected status or receive grants for restoration. The radicalism with which the modernist architects had rejected history and ordinary heritage now turned against their own works, which were not conceived as designs that would age and, eventually, become part of the past.

The label *young* appealed, then, to a voluntary committee of the Amsterdam-based association Architectura et Amicitia, which had made a selection of young monuments of 1900 to 1940, which I take here as an exemplary new approach to identification. The list contained seventy-eight items of the modernist New Objectivity, forty-eight of the expressionist Amsterdam School, and nine of the traditionalist Delft School; it was published much later ([Van Ruler and Van Woerkom] 1970). Typical of the new approach was, first, that the list was organized by the names of architects and their selected works, given in chronological order; this scheme broke with the topographically and typologically oriented approach that was common in the practice of listing. Field research seemed less important than the narratives in the historiography, which were often in favor of the modernists and formed the foundation for a certain canonization. Moreover, the notion of “representation” had guided the composition of the list, as if a selection could only be made from an imaginary collection of styles and personalities with the heroic narratives in mind.

Second, the “young monuments” were not illustrated by recent images, as if nothing had happened since their completion. So the identification tended to shift from street to book. Such a shift was perhaps inevitable, given the multitude of eligible buildings, but it had the disadvantage that unpublished buildings had less chance to be noticed.

It also ignored the difference between heritage and architecture by exhibiting an exclusive preference for the “contemporary values” (*Gegenwartswerte*) of Riegl's system of value categories; it was as if the historical image alone, rather than the historical substance, could provide the heritage value. This implicit denial of historical evolution was in contrast with the recently accepted conservation approach of the monuments of “elderly” architecture (predating about 1850), of which the various historical layers of time were appreciated, in line with the ideas of the Charter of Venice (1964). A more lasting effect for future assessments of heritage potential and conservation was that the historical image would be more and more taken as the primary reference. Such a practice became more common in the Netherlands, as well as in other countries.

Mixed Attitudes during the 1970s and 1980s

Though the training of the postwar Western architects was—and still is—heavily influenced by the ideals of the Modern Movement, the 1970s saw remarkable changes in society and in cultural and educational institutions. The radical *tabula rasa* approach in urban renewal had evoked popular protests; the results of early postwar modern architecture and town planning were severely criticized for their uniformity and for their technical, aesthetic, and social shortcomings. These shortcomings led not only to an anti-modern attitude in general but also to a broader scope of built heritage, since more and more ordinary houses in the historical townscapes came under threat of demolition, as did buildings, neighborhoods, and industrial sites from the late nineteenth and early twentieth century. Various communities adopted some of these “new” categories to plead for their protection and published about them in journals, newspapers, and monographs.

Museums presented the first retrospective exhibitions on themes of twentieth-century architecture, which supported further identification. Teaching programs in architectural history expanded beyond the Second Empire style, and various survey projects were initiated to familiarize students with field and archival research. Apart from the widespread minimum-age rule, legal protection was difficult to achieve, because of the abundance of possible “new” heritage and the complexity of prioritizing activities, strategies, and focus.

Paradoxically, the fifty-year rule that was valid in various countries and partly hindered a timely protection, provided, in several cases, a good opportunity to celebrate anniversaries as a means to draw attention to a modern “icon” and to stimulate its rejuvenation by a reconstructive restoration—e.g., the Dessau Bauhaus in 1976.

Meanwhile, the World Heritage Convention had been adopted in 1972, under the aegis of UNESCO, as the first international framework for the protection of cultural, natural, and mixed heritage of outstanding universal value. Since the introduction, the concept of “authenticity” had become a very important value to assess. In contrast to most European heritage legislation at the time, the criteria did not require a minimum age for eligible sites. Initially, the cultural nominations for the World Heritage List were strongly defined by a preference for ancient and traditionally constructed buildings and sites. However, over time, interest arose in more recent heritage—albeit with an ambivalence in approaches between the traditional focus on “history” and the time-bound appreciation of “art” value—and there were an increasing number of European nominations. Typically, the first twentieth-century site that was inscribed, in 1979, is associated with the dark pages of history: the former concentration camp site at Auschwitz (renamed Auschwitz Birkenau German Nazi Concentration and Extermination Camp in 2007).

In 1989 the Council of Europe organized a special colloquy on strategies for conservation and promotion of twentieth-century architectural heritage at Vienna. The event gave a good overview of the distinct conservation problems in fifteen European countries. On that occasion, the eligibility of postwar heritage for identification, selection, documentation, and preservation was already acknowledged as a future asset (Council of Europe 1994). From the 1990s on, more initiatives were taken in this field in Europe, as well as in non-European countries (Slaton and Shiffer 1995; Cunningham 1998). In some countries, the minimum age of fifty years in protective legislation was lowered or abolished, to enable timely protection of postwar heritage, since the risk of demolition had increased because of an ever-shorter period in which building investments could be written off, and a dominant advocacy for radical replacements as a better option than repair or adaptation.

Documenting the Modern Movement: Docomomo Registers

In response to the problems encountered with the conservation of Zonnestraal and similar heritage sites of Modern Movement (MoMo) architecture, the International Committee for Documentation and Conservation of Buildings, Sites, and Neighbourhoods of the Modern Movement (Docomomo) was founded in 1988 at the Technical University of Eindhoven. The placing of DOcumentation ahead of CONservation indicated that collecting data on the

construction history (*Bauforschung*, archival research) should be prior to further interventions. In fact, such a protocol conformed to a traditional principle of normal conservation practice, but nonetheless, it was for the contemporary architects—trained in a strong attitude of favoring continuous “progress” and renewal—an eye-opener. It was one of these architects’ first confrontations with the fact that there is a difference between architecture and heritage, as well as between history and heritage. Moreover, it evoked the fundamental dispute on the question of whether the idea of the architect (who might have conceived the former sanatorium as a throwaway building) should prevail over the historical substance (which was, from a Ruskinian perspective, perhaps less valuable in terms of workmanship, since it consisted of prefabricated elements and reinforced concrete). Regardless, the claim was made that the MoMo heritage was in need of appropriate techniques and methods of conservation because of the experimental nature of the construction and the materials used.

The first international Docomomo conference (1990), held in Eindhoven, created a unique platform for debate and exchange of knowledge on conservation philosophy, history of architecture, policy, documentation, and technology of modern architecture among participants from Argentina to Russia. Though a proper definition of MoMo was lacking, the focus was mainly on the buildings, neighborhoods, and sites of the 1920s and 1930s. This focus was quite similar to that of the Thirties Society, which was started in the United Kingdom in 1979 and changed its name to the Twentieth Century Society in 1992. That group initiated several campaigns to safeguard postwar architecture from demolition.

Simultaneously, representatives from non-European countries effectively identified postwar architecture as potential heritage within Docomomo. From 2000 on, postwar modern cities (e.g., Brasilia) and postwar modernism in city centers have been studied in the Docomomo context, as well as by ICOMOS (Kervanto Nevanlinna 2001) and ICCROM (e.g., the 2006 MARC course on the conservation of modern architecture, on the subject of postwar neighborhoods).

In 1992, 1994, and 1995, an internationally uniform approach to identification and documentation of modern sites took shape, under the guidance of the specially formed International Specialist Committee on Registers. National or regional Docomomo working parties were invited to submit so-called “fiches” (inventory forms) on about twenty items. While the typological scope was broad, the interpretation of MoMo architecture was related to functionalism and social themes like hygiene, health, collective living, work, leisure, and so on; the architecture was also assessed for technical innovative in employment of materials or in structural design or construction methods. A general mission statement was required on the position of the Modern Movement in each region or nation, to supply historical context.

The submissions, collected from thirty-five countries worldwide, formed a good starting point for Docomomo in composing an advisory report to ICOMOS on eligible World Heritage sites of the Modern Movement (Docomomo International Specialist Committee on Registers 1997). That report recommended already significant postwar sites, such as the chapel Notre Dame du Haut at Ronchamp, the urban scheme and government buildings at Chandigarh, the reconstructed inner city of Le Havre, Habitat ’67 in Montreal, the Lake Shore Drive Apartment Blocks and IIT Crown Hall in Chicago, the Turin Exhibition hall, Nakagin Capsule Tower and the Olympic Halls in Tokyo, the Municipal Orphanage in Amsterdam, the Lever House in New York, Case Study House No. 8 in Los Angeles, and the PSFS building and Richards Medical Research Building in Philadelphia (Docomomo International Specialist Committee on Registers 1997).

The selection, which functioned partly as a test of the applicability of the World Heritage criteria, strongly emphasized architecture. What was new, however, was that specific architects’ oeuvres were recommended—Le Corbusier’s, for example—and examples of new genres were proposed, such as sanatorium buildings and airship hangers. The first proved very difficult when, a decade later, a transnational nomination for World Heritage was reviewed because it was based more on the architect’s ideas and achievements rather

than on the architectural heritage. The conceptual distinction between architecture and heritage is a serious problem in the identification and interpretation of twentieth-century heritage, of which much documentation is available of the original design intents. This consideration is also reflected in the selection of the Docomomo International Register (e.g., Sharp and Cooke 2000).

The typological/thematic approach complies better, conceptually, with the accumulation of knowledge and value assessment methods concerning built heritage in general. In practice, however, it is not always easy to obtain the knowledge at a geographically equal level. For instance, the typology of sanatoriums from the interwar period is understudied outside Europe (Salastie 2011). Nevertheless, the thematic approach is useful for international comparative studies and exchange on preservation issues.

Interestingly, since the advisory report was submitted, some of the recommended sites of modern heritage have been inscribed on the World Heritage List, even some from the postwar period: the Sydney Opera House, the reconstructed city of Le Havre, and the National Autonomous University of Mexico (UNAM) campus—following the inscription of Brasilia. After accepting the Montreal Action Plan (MAP20) in 2002, ICOMOS formed an International Scientific Committee on Twentieth-Century Heritage (ISC20C) in 2005, to provide advice and develop practice and principles in this area, which encompasses much more than just the architectural heritage of the Modern Movement. In 2009 the committee initiated work on a thematic framework to assess the significance of *cultural* heritage of the twentieth century. In 2011 the committee produced the Madrid Document, “Approaches for the Conservation of Twentieth-Century *Architectural* Heritage.” In this document, the ISC20C raised the issue of whether it should be expanded to include all forms of cultural heritage.

The recognition of world-famous icons of modern architecture as modern heritage often challenges the interpretation of “authenticity” and “integrity” and the adaptation to new needs for which new interventions are required. One of those is an extreme veneration of architectural designs seen as products of the creative genius of the Great Masters. Some of their works that were meant for temporary use have been replicated after several decades in a kind of one-to-one model. In the case of Gerrit Rietveld’s exhibition pavilion (originally at Sonsbeek, 1955; reconstructed in 1965 at Otterlo), a second replica at Otterlo has been made to the design of Bertus Mulder (2010). This re-re-make was motivated by the argument that the use of modern technology would do better for the next forty years than an upgrading of the forty-year-old and a bit neglected reconstructed pavilion. Whereas Mulder claims that he has reinstalled the “original” spatial experience, this preference for newness value, and for image rather than substance, has been critically debated (Stroux et al. 2011).

Nowadays the Modern Cult of Monuments tends to shift toward a Cult of Modern Replicas. The criticism on such *Attrappenkult* (Buttlar et al. 2011) is not limited to the replication of lost modern masterpieces alone; it also addresses the partial reconstruction of the Berlin Wall and of vanished buildings of earlier periods. These kinds of debates reevaluate the essence of conservation much more than do the common discussions about financing, permits, and so on.

The same applies for the valuation of certain privately owned masterpieces. Because of increasing maintenance costs, many owners seek to enlarge their income by creating new facilities for paying visitors, which brings not only the risk of “fossilization” but also raises issues related to the placing and design of the new facilities. Illustrating such tensions are the new creations by Renzo Piano inside the Bourlemont hill near Ronchamp. This age-old sacred site of religious pilgrimage is now changed by its adaptation for the architectural pilgrimage to Le Corbusier’s Chapel Notre Dame du Haut, one of the most iconic buildings of the twentieth century. In this case, the presupposed use value has had a strong influence on the final decision making process.

New Needs and Recommendations

Although the Internet has become indispensable for the collection and exchange of data, traditional forms of exchange of knowledge, such as seminars, dossiers, journals, and books, still support the work on the identification of sites and the needs of modern heritage. Since about 1995, the number of useful international conference proceedings on postwar heritage has grown impressively. The scientific agenda for the further investigation of types, materials, and places of modern heritage has been set, but the pragmatic implementation—particularly for the preservation of postwar neighborhoods and their public green areas (for example, New Belgrade)—meets many difficulties in the twenty-first century.

These large-scale areas, inhabited by thousands of residents, are more subject to social and political changes and economic forces than is usual for many locations. These days, decisions about repair, renovation, renewal, or new infill are driven more by money than by a social agenda. Property developers define the essential public greens as “unused” spaces (with regard to property development), instead of appreciating these “green lungs” and playing fields as functional and valuable to the residents. Similar debates occur all over Europe, and they require new methods of valuation, in which spatial, urbanistic, and architectonic qualities are analyzed and visualized before decisions are made on interventions (Zweerink 2005).

In addition to the needs of postwar suburbia, I would like to identify postwar offices—e.g., one in Pretoria—and shopping areas in urban cores, like the Lijnbaan ensemble in Rotterdam, as new assets for valuation and adaptive development (Kuipers 2008). Both developers and authorities need to consider how to prevent further vacancy, decay, and loss of social, cultural, historical, or material values.

Also, a further extension of physical, architectural, sociocultural, and economic research on the mid-twentieth-century application of materials and colors is needed; for these efforts, adoption of oral history is highly recommended, before all firsthand knowledge of early postwar construction practices has faded away.

Another recommendation is the creation of a lexicon that clarifies specific terms and valuations in recent practices of intervention and adaptive reuse, illustrated by exemplary case studies, to enable better communication.

Finally, in addition to conducting impact assessments and formulating management plans, it is suggested to investigate forward-thinking methods to inform local authorities, users, and designers beforehand about both the limits and the potentials for adaptive developments, based on a deep understanding of the place. Such investigations are likely to stimulate contemporary creativity that avoids brutal disfigurement or replication but is, eventually, combined with partial conservation.

This process is, ironically, a form of architectural continuity that existed before the Modern Movement brought about radical ruptures with the heritage of the past. Indeed, in the current postmodern era, we can reconnect with history without losing the positive legacy of modern architecture.

The greatest challenge will be to achieve another mindset and to develop new calculation methodologies and design strategies that will foster reuse and continuation instead of radical replacement. This approach will have great consequences for the educational programs and practices of architects, economists, and conservationists.

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Appendix E: Discussion Prompt Questions

Theme 1: Philosophy and Approach

1. How important is it to achieve some degree of universality in approach?
2. Can we adopt the existing standards and norms of conservation practice for modern heritage?
3. Can we pinpoint specific barriers that are preventing agreement on this, and how can we move past these?
4. Do we need additional specific documents that clearly describe the approach to conserving modern heritage, or can we build on what we have already?
5. What can be done to build the capacity of those working in this area to understand the approach and to use it to guide their work?
6. Are there specific texts or educational and training initiatives, and the like, that would help?
7. How can we embed these approaches more widely?

Theme 2: Physical Conservation Challenges

1. As practitioners, what do we currently need to learn to obtain better conservation results for modern buildings?
2. What more do we need to know specifically about building systems and material performance? What types of systemic repair problems are yet to be solved? Which material repair methods have yielded good results and which are we still struggling with?
3. What types of research do we need to carry out to advance practice? Who and what disciplines need to be involved? Which industries need to be approached to address specific areas of research?
4. What building physics research is needed to analyze how existing environmental climates can be balanced with new technological standards related to building performance needs and conservation goals?
5. What strategies should be developed for building maintenance programs that include more frequent monitoring and inspections as part of long-term conservation?
6. What sort of literature and resources would help both conservation and non-conservation audiences to understand building pathology and current investigative methods prior to implementation of repair and maintenance programs?

Theme 3: Education and Training

1. With regard to postgraduate conservation education programs, what kind of disciplinary skill set is best suited to encompass the broad range of challenges associated with teaching a more complete set of skills for more effective conservation of modern architecture? Which course(s) might be developed to meet the need? Which programs seem best suited to implement these courses? Is there consensus regarding the presumption

that the conservation of modern architecture requires different skill sets and educational approaches than those targeting other kinds of architecture?

2. With respect to professional practice, what kind(s) of capacity building activities should be created for those who either need or want to engage in continuing professional development? Short workshops? If so, how short, where, and with what content, objectives, and accreditation?
3. Concerning the general public, how best to engage that diverse public—in several cultural contexts—so they can better appreciate the values of modern architecture and therefore be more likely to support its conservation?
4. Among our professional peers in conservation, what actions might be taken to heighten the awareness of conservators and organizations to which they belong, so that modern architecture receives its proper conservation-related attention?

Theme 4: Identification, Assessment, and Interpretation

1. What specific tools can help improve appreciation and understanding of modern heritage? Are there publications or programs that would assist in this effort?
2. What methods for the identification, assessment, and interpretation of modern heritage demonstrate success? How can these be built upon, and how can non-heritage professionals (e.g., property owners, developers, advocates) be better engaged in the process?
3. Are the standards, criteria, and methodologies for assessing modern heritage inherently different from those for assessing heritage from earlier periods? If yes, in what ways?
4. How do we ensure that we extend the reach of recognition and protection processes for modern heritage to encompass all forms of significant heritage (architectural, landscape, industrial, etc.) and not just the iconic works? How does the sheer volume of modern heritage, particularly from the postwar period, affect this process?
5. How can a thematic framework for the twentieth century be a useful tool? What is needed to make and implement the successful use of a thematic framework?
6. How do additions to and adaptive uses of twentieth-century heritage impact identification, assessment, and interpretation? How can the field try to improve its efforts to foster adaptive development?
7. Do policies such as the commonly applied fifty-year (or thirty-five-year) rule adversely impact this heritage compared with heritage from earlier periods? Should policies that facilitate the evaluation and safeguarding of younger structures be pursued?

Appendix F: Colloquium Photos





Appendix G: Working Group Reports

A COLLOQUIUM TO ADVANCE THE PRACTICE OF CONSERVING MODERN HERITAGE

The Getty Conservation Institute

March 6-7, 2013
Los Angeles, CA

Theme 1 – Philosophy and Approach Working Group Report

Moderator: David Fixler
Rapporteur: Gunny Harboe
Rapporteur 2: Gail Ostergren

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Theme 1 – Philosophy and Approach

ISSUE – *Perception that there is a lack of a shared approach to the conservation of modern resources*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
There is in fact a shared approach through established methodologies. We need to demonstrate how these methodologies apply to modern heritage.	<ul style="list-style-type: none"> •Outreach and education for professionals and the public via web sites, tours, etc. •Case studies that demonstrate good practice •Case studies that show how established charters and standards apply •Create guidelines on acceptable limits of change 	

Theme 1 – Philosophy and Approach

ISSUE – *There is a lack of clarity on how existing conservation standards and norms apply to modern heritage*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
Demonstrate how we do significance assessments	<ul style="list-style-type: none"> •Develop a common consensus on significance •Capture oral histories on original intent and design rationale •Clarify how significance is measured in ordinary everyday modernism •Case studies that demonstrate good practice 	

Theme 1 – Philosophy and Approach

ISSUE – *Technical challenges of modern materials and structural systems create a barrier to best conservation practices*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
Make people aware that these barriers exist so that they are sensitive and conscious when working with these materials, approach them holistically.	<ul style="list-style-type: none"> •Education •Work with industry to research and develop better repair methodologies •Work with regulatory authorities to create reasonable responses within existing building codes. 	

Theme 1 – Philosophy and Approach

ISSUE – *Need to address functional and technical sustainability requirements*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
The notion that sustainability is a barrier needs to be debunked.	<ul style="list-style-type: none"> •More research on how to foster sustainable outcomes •Develop new economic models that are tied to conservation goals •There is a justification to apply a conservation ethos to ordinary everyday modernism 	

A COLLOQUIUM TO ADVANCE THE PRACTICE OF
CONSERVING MODERN HERITAGE

The Getty Conservation Institute
March 6-7, 2013
Los Angeles, CA

**Theme 2 – Physical Conservation Challenges
Working Group Report**

Moderator: John Fidler
Rapporteur: Rosa Lowinger
Rapporteur 2: Kyle Normandin



Theme 2 – Physical Conservation Challenges

Lack of Knowledge of Existing Material and Building System Performance including Building Physics

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<p>1. Energy modeling for buildings. Validate and fine tune modeling systems for 20th Century Buildings</p> <p>2. Understand prefabricated and industrialized postwar materials, including composition and rates of decay for synthetic resins, metal alloys, composites, glass, stone veneers, ASR</p>	<p>1. Research project for one or several institutions.</p> <p>2. Proprietary material research to determine what was originally used</p> <p>Collect historic specifications</p> <p>Onsite Testing of existing materials.</p>	<p>University Research -C. Eng -Hist Preservation – Upenn/ Columbia - USC – Material Science</p> <p>Gov. Building Science Labs -BRE -TNO – Bouw</p> <p>Heritage Bodies (i.e. English Heritage, LRMH)</p> <p>Getty Conservation Institute</p>

Theme 2 – Physical Conservation Challenges

Lack of Knowledge on Successful Repair Types

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<p>1. Identify the most typical problems and existing solutions that have been used (for example, on concrete)</p> <p>2. Develop new methodologies for repair of specific problematic materials, for example synthetics and composites</p>	<p>1. Topic specific Case Studies.</p> <p>Archive to document previous conservation work/ treatments including what has NOT worked.</p> <p>Translate/ share international manuals and specifications (i.e. that provide insight into approaches and methodologies)</p> <p>Create comparative monographs</p> <p>2. Work with industry and scientists to develop.</p>	<p>Practitioners</p> <p>Researchers at Universities</p> <ul style="list-style-type: none"> - U of Pennsylvania - Columbia University - USC – Material Science <p>Professional Organizations</p> <ul style="list-style-type: none"> - APTI - Docomomo International - ICOMOS

Theme 2 – Physical Conservation Challenges

Lack of Monitoring and Diagnostic Techniques in Long-Term Conservation

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<p>1. Look at work done previously by organizations like BRE, TNO</p> <p>Develop new tests for materials</p> <p>2. Unlock information and make it known to the conservation community</p>	<p>1. Articulate these strengths and needs to the scientific community</p> <p>2. Publications, websites, wikis, databases</p>	<p>University Research</p> <ul style="list-style-type: none"> - C. Eng - Hist Preservation – Upenn/ Columbia - USC – Material Science <p>Gov. Building Science Labs</p> <ul style="list-style-type: none"> - BRE - TNO – Bouw <p>Heritage Bodies (i.e. English Heritage, LRMH)</p>

Theme 2 – Physical Conservation Challenges

How Do We deliver Treatment Programs Where Needed

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<ul style="list-style-type: none"> ▪Unlock the information and make it available to the preservation community ▪Create interfaces with practitioners in the construction industry 	<ul style="list-style-type: none"> ▪Get information on existing practices and standards to the practitioners and preservation community ▪Identify the hazards and risks of certain materials ▪Put together the best practices list including trends 	<ul style="list-style-type: none"> ▪Practitioners ▪Researchers at Universities <ul style="list-style-type: none"> ▪- U of Pennsylvania ▪- Columbia University ▪USC – Material Science ▪Professional Organizations <ul style="list-style-type: none"> ▪APTI ▪Docomomo International ▪ICOMOS

A COLLOQUIUM TO ADVANCE THE PRACTICE OF CONSERVING MODERN HERITAGE

The Getty Conservation Institute

March 6-7, 2013
Los Angeles, CA

Theme 3 – Education and Training Working Group Report

Moderator: Leo Schmidt
Rapporteur: Silvio Zancheti
Rapporteur 2: Deborah Slaton

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Theme 3 – Education and Training

ISSUE - *What are the specific conservation training and education needs for modern heritage?*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<p>Provide general conservation training</p> <p>Address particularity of Modern Movement architecture</p> <p>Consider course content: building systems, physics, modern materials</p> <p>Address the question of “age-value”</p>	<p>-Survey/analyze content of courses within existing programs</p> <p>-Create task force on training and education from this colloquium</p> <p>-Use digital media</p>	<p>-GCI</p> <p>-World Heritage Regional Centers</p> <p>-ICOMOS/ISC20thC and Training Committees</p> <p>-ICCROM</p> <p>-U.S. National Council on Preservation Education</p> <p>-Universities and colleges with conservation and preservation programs</p> <p>-AIA Historic Resources Committee</p> <p>-Historic Preservation Education Foundation</p> <p>-New partners</p>

Theme 3 – Education and Training

ISSUE – *What are the best ways to engage the public?*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<p>Begin with kindergarten; address a wide range of the public</p> <p>Train advocates in a variety of fields</p>	<p>-Use digital media (e.g., TCLF)</p> <p>-Promote actions (e.g., landmark/list the Getty Center)</p> <p>-Use awards programs (e.g., WMF)</p> <p>-Survey/analyze best practices in raising awareness for conserving modern buildings</p>	<p>-GCI</p> <p>-Historic Preservation Education Foundation</p> <p>-World Monuments Fund</p> <p>-World Heritage Centers</p> <p>-English Heritage</p> <p>-Twentieth Century Society</p> <p>-U.S. National Park Service</p> <p>-U.S. General Services Administration</p> <p>-NGOs</p> <p>-The Cultural Landscape Foundation</p> <p>-New partners</p>

Theme 3 – Education and Training

ISSUE – *What kind of capacity building is needed in professional practice and programs?*

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
Adapt/enrich existing training courses	-Create a workshop on education at DOCOMOMO conference, possibly at Seoul	-GCI -World Heritage Regional Centers
Provide continuing education / lifelong learning	-Work with existing courses: MARC courses; European Facade Network master course; University of Liverpool (London) M.A. in Modern Architectural Heritage; others	-ICOMOS/ISC20thC and Training Committees -ICCROM
Work with professionals and contractors		-U.S. National Council on Preservation Education -Universities and colleges with conservation and preservation programs
Work with all types of resources for training and education		-AIA Historic Resources Committee -Historic Preservation Education Foundation -New partners

A COLLOQUIUM TO ADVANCE THE PRACTICE OF CONSERVING MODERN HERITAGE

The Getty Conservation Institute

March 6-7, 2013
Los Angeles, CA

Theme 4 – Identification, Assessment and Interpretation Working Group Report

Moderator: Catherine Croft
Rapporteur: Louise Noelle
Rapporteur 2: Luise Rellensman



Theme 4 – Identification, Assessment and Interpretation

Lack of accurate information and data easily and quickly accessible to all

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
	<ul style="list-style-type: none"> - Digitalize drawings, photos , oral histories on sites and their subsequent changes or interventions - Implement an archive on films and documentaries related to architecture 	<ul style="list-style-type: none"> -Getty Conservation Institute (GCI) provide a gateway - Universities and other student bodies to find and digitalize the materials - Publishers to contribute

Theme 4 – Identification, Assessment and Interpretation

Methodologies for comparative analysis of modern heritage

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<ul style="list-style-type: none"> - need to be shared more widely 	<ul style="list-style-type: none"> -Sharing and illustrating methodologies including an introduction to them -Sharing case studies and other relevant information 	<ul style="list-style-type: none"> - Agencies that have methodologies in place (US & UK)

Theme 4 – Identification, Assessment and Interpretation

Lack of broad appreciation, beyond icons, of modern heritage

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
	<ul style="list-style-type: none"> - Applaud and celebrate success stories - Exhibitions emphasizing the presence/appropriation of people in the site - encourage and support artistic appropriations of modern heritage 	<ul style="list-style-type: none"> -World Monument Fund, biennial prize -National Parties, ICOMOS and Docomomo - artists, photographers, filmmakers, residents

Theme 4 – Identification, Assessment and Interpretation

Fear of lack of knowledge about conservation

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
<ul style="list-style-type: none"> -Economic preoccupation - Time delay concern 	<ul style="list-style-type: none"> -Assess personal values and relate to socio cultural positions -Make available the economic analysis of various building or site types - Stress idea of authenticity or original fabric 	<ul style="list-style-type: none"> - Architects that have done restorations - Owners and real estate agents

Theme 4 – Identification, Assessment and Interpretation

Policies that facilitate evaluation and safeguarding

RESPONSES	SPECIFIC ACTION	POTENTIAL ACTORS
	<ul style="list-style-type: none">-More training on speaking to the general public-Stress the idea of sustaining-Funding for emergency crisis	

Appendix H: Working Group Priority Actions

Below are the two short-term and two long-term actions identified as top priorities by each working group.

Theme 1: Philosophy and Approach

Short-Term Actions

- Develop/promulgate case studies of modern heritage projects that demonstrate the philosophy and methodological approach to conservation
- Promulgate information on the process of undertaking significance assessments and use modern heritage examples

Long-Term Actions

- Work with industry to research and develop better repair methodologies that meet conservation aims
- Develop new economic models that are tied to conservation goals

Theme 2: Physical Conservation Challenges

Short-Term Actions

- Disseminate information on existing conservation practices and standards to practitioners and the preservation community
- Translate/share international manuals and specifications (i.e., documents that provide insight into approaches and methodologies)

Long-Term Actions

- Carry out proprietary materials research
- Develop conservation methodologies and treatments for targeted materials

Theme 3 – Education and Training**Short-Term Actions**

- Undertake research that identifies existing training and education programs dedicated to conserving modern heritage
- Create a task force from this colloquium to advance training and education efforts and to potentially agree on core needs for all courses

Long-Term Actions

- Create a workshop on education, possibly for delivery at the 2014 Docomomo conference in Seoul
- Work with existing courses: MARC courses; European Facade Network master course; University of Liverpool in London MA in modern architectural heritage, to foster collaboration between training initiatives and courses

Theme 4 - Identification, Assessment, and Interpretation**Short-Term Actions**

- Share and link information tool kits on modern heritage
- Change the conversation to sustaining and celebrating rather than preserving and protecting

Long-Term Actions

- As soon as possible, undertake an international thematic study on the heritage of the twentieth century as a basis for assessment and listing
- Develop illustrated publications on methodologies for identification, assessment, and interpretation specifically on twentieth-century heritage



The Getty Conservation Institute