

**Session Track:** Special Topics  
**Session Code:** CS16a

**Paper:** SPNEA: The Birth of Multidisciplinary Historic Preservation in the USA

**Presented by**

Maximilian Ferro  
The Preservation Partnership  
Brandon, VT USA

**Speaker(s) Biography**

Ex Board Member, first American architect given fellowship for contributions to architectural conservation, first professor of Historic Building Conservation in New England, first Resident Architect of Historic New England.

**Abstract**

My presentation would address how the late Morgan W. Phillips, after graduating from Yale and the first session of Columbia's graduate historic preservation program and becoming Supervisor of the SPNEA's 74 properties developed a range of innovative conservation techniques, and then conceived the idea of forming an interdisciplinary team to advise other owners of historic landmarks on their problems. He then assembled his team, adding an architect, myself, an architectural historian, a conservation scientist, and an administrator. This team, which the SPNEA disbanded after two very profitable years for fear of losing its non-profit status, became the model for my own firm, The Preservation Partnership, the first interdisciplinary HP firm in New England.

After 30 years of successful practice, I have many observations on how to structure such a firm. While I began with in-house lab, several historians, and even added three archaeologists, market forces eventually suggested that a multidisciplinary team works best as a conglomerate of separate consulting firms that can be combined as their disciplines are appropriate, but this was only enabled by the emergence of more specialized firms as preservation awareness increased.

I would continue my presentation by examining the Historic Preservation field as it is today, canvassing my colleagues and consultants with a questionnaire to ascertain their views. I would seek to find what proportion of architectural firms still employ non-architectural preservation staff, as opposed to hiring the increasingly available individuals educated in both architecture and HP, and to what extent Preservation Planning, which I pioneered in New England, has now broken off from general preservation consulting to become the venue of newly specialized graduates of Planning Programs. Preservation Science, which began perforce as a do-it-yourself pursuit for people like Morgan Phillips has also benefitted greatly from the entry of newly specialized scientists, and I will discuss its current status.

Lastly, I will attempt to glance into the crystal ball to see whither we are going. An obvious topic is our interactions and conflicts with sustainability, a theme of this conference, and a subject which has its pratfalls. As conservators, we have both been pioneers in promoting awareness of life-cycle cost efficiency through wise choice of materials and proper repairs, and also been the guardians of ethical principles of preservation that can be at odds with sustainability and other moral imperatives.

How will the energy, social and cultural realities of our immediate future effect our present practices? The United States and Canada have differed fundamentally in their approach to Historic Preservation thus far; will this lessen or intensify? Can Historic Preservation continue in the public spotlight, or have our fifteen minutes of fame passed?

Ideally, I would like to make this presentation in a session with my polar opposite, someone who would speak for Canada, and who works in the public (Parks Canada?) rather than the private sector.

**Session Track:** Special Topics  
**Session Code:** CS16b

**Paper:** Dynamic Assessment of Mural Painting in Cacaxtla Pyramid, Mexico

**Presented by**

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**Speaker(s) Biography**

Dr. Araiza has over 10 years of design, construction, and research experience. He holds a PhD in Structural Engineering from the Technical University of Catalonia, in Spain. His research has encompassed a wide variety of building preservation projects in Spain, Italy, Belgium, Mexico and Japan and was previously a professor of structural engineering at the University of Colima in Mexico. Additionally, since 2003 he has served as a consultant to the National Institute of Anthropology and History (INAH) of Mexico on structural preservation of ancient structures. He joined Sparks Engineering, Inc. in 2007 as a Senior Consultant where he is involved in the preservation of historic structures in the United States. Dr. Araiza has recently joined APTI.

**Abstract**

This paper presents the evolution of damage to a pre-Columbian mural as determined from two nondestructive surveys at the ancient pyramid of Cacaxtla. Cacaxtla is one of the mayor archaeological sites in central Mexico. Prehispanic mural painting is one of the elements that make the site particularly interesting. The great-base -as the archaeologists define the main pyramid- is a superposition of different layers corresponding to different time periods. The pyramid was constructed placing a new platform-city above the previous one for centuries, every new platform-city was constructed under every new governor and the pyramid was rising through the centuries. All the buildings were partially demolished and filled in order to create a new platform for the new city. Al least seven platforms have been clearly identified by the local archaeologists.

Some of the main buildings of every platform were covered with stucco and decorated with one of the most extraordinary mural painting created by prehispanic cultures in Mexico. According to archaeological evidence, the mural paintings in the prehispanic site of Cacaxtla were created from 650-900 A.C. The murals were discovered recently (in the 1970s) and have suffered significant degradation since they were re-opened. The frescoes are directly supported on a highly deformable adobe wall. In the early 1980s a metal roof was placed above the pyramid and the natural wet-dry cycle was disrupted generating a slow drying process that now is evident by a generalized cracking process. The general drying of the pyramid is also affecting the adobe walls and subsequently the mural paintings. Some segments of the murals are detached from the wall in different degrees. In order to plan a preservation strategy it was of paramount importance to characterize these detachments with a non-destructive technique.

The research and development of a new technique for the detection of separation zones in stratified structures and particularly in frescos and mural paintings is presented. The technique is based on the measurements of dynamic response under a forced vibration test, using natural frequencies as a parameter to identify detachment extensions. A grid of dynamic testing was performed on hundreds of segments of the mural. Two different murals were tested, known as Ranas and Rojo. The murals were divided into columns and rows and every 15x15cm segment was dynamically characterized. The first natural frequency was used as a parameter in order to identify the continuity or detachment condition. A few hundred dynamic tests were carried out, and at the end, a particular frequency was defined for every segment. The same procedure was conducted under laboratory controlled conditions in a partially-connected mural made of acrylic. A clear trend was observed when the results were graphically analyzed. The technique was used in Cacaxtla during 2004 and again during 2007, and an evolution of the damage was identified. The detachment plans obtained by dynamic testing are been used to prepare a full restoration project.

The first part of the experimental field work presented in this participation (developed in 2004) was published on the International Seminar on Structural Analysis of Historical Constructions, New Delhi 2006 under the paper titled Dynamic identification of detachment conditions on prehispanic mural paintings in central Mexico presented by Araiza, Rocha and Orduña. The experimental field work results developed in 2007 will be presented for the first time at APT Montreal, showing the usefulness of the method for evaluating the change in condition of the mural painting over time. This work was sponsored by the Institute of Archeology and Anthropology of Mexico (INAH).

**Session Track:** Special Topics  
**Session Code:** CS16c

**Paper:** Historic Elevators in Chicago: A Struggle To Preserve An Antiquated Building Technology

**Presented by**

Susan Singh  
Architectural Conservator  
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**Speaker(s) Biography**

Susan Singh is an architectural conservator, holding a B.A. in Civil Engineering from University of Illinois at Urbana-Champaign and an M.S. in Historic Preservation from the University of Pennsylvania. Her interests include architectural conservation, the history of building technology, and urban / industrial archaeology.

Mrs. Singh's professional experience includes building forensics, façade investigations and historic preservation at Klein and Hoffman, Inc. and LZA Technology in Chicago as well as bridge design and rehabilitation at J. Muller International and Parsons Brinkerhoff. She was also awarded the Samuel H Kress Fellowship in Bronze Conservation at Central Park Conservancy in New York.

Her latest project involved performing research and authoring content for the exhibition *Back on the Map: Revisiting the New York State Pavilion from the 1964/65 World's Fair* at the Queens Museum of Art in New York. The New York State Pavilion was recently listed on World Monuments Fund Watch List of 100 Most Endangered Cultural Sites in the world.

**Abstract**

Tucked within the rotunda capped tower portion of Chicago's Jeweler's Building lays one of the city's best kept architectural secrets: a 1920s circular birdcage elevator with fine mahogany interior and ornamental brass detail. This clandestine elevator is one of a handful of extant examples of the city's elevator history; a history that played a critical role in the development of the American Skyscraper.

This paper will highlight the practical challenges and conflicts that arise when we try to preserve historic elevators and their antiquated technologies. The ways in which building owners and design professionals have tackled the task of preserving historic elevators, in whole or in part, will also be discussed. Today only a few lifts remain that claim nearly all of their original mechanical, functional and aesthetic components. Some have simply modified mechanical controls and interior control panels, while preserving remaining interior features, such as ornate woodwork. In the case of the Reliance Building restoration, a painstaking effort was undertaken to introduce a modern elevator, but then recreate historic elements based solely on an old photograph. The vast majority of original cabs, however, have been completely replaced. At best, an exterior decorative brass door may be the only reminder of what treasure once existed. Of those elevators, doors and grilles which have been scrapped, some beautifully designed by recognized architects have been known to fetch \$10,000 or more on the architectural artifact market.

Building owners and managers often report that it becomes prohibitively expensive to maintain outdated hardware or parts. In many cases, those components may not even still be manufactured today or in stock for purchase. Additionally, all passenger elevators must be inspected routinely and comply with municipal building code regulations for life safety. The majority of the elevators that have retained their historical mechanical features have only been allowed to do so by being grandfathered in. Once critical parts begin to fail and modifications become necessary, these same historic elevators become subject to the same life safety regulations as their modern cousins. Owners find that nostalgia does not justify the additional expense of preservation and feel they are left with no reasonable alternative other than complete overhaul of the cab.

Elevator preservation also addresses the larger role and difficulty in preserving past building technologies, especially mechanical building systems. A lift can at once be viewed purely as a functional mechanical building

component, as well as a significant architectural and historical feature. This leaves us without a clear cut idea of which conservation approach to take. Furthermore, any building housing an old elevator necessarily becomes a living museum for its display, necessary for understanding its inherently spatial and mobile context. We need to investigate further society's perception of antiquated building technologies and whether physically preserving and maintaining this outdated technology is reasonable. Certainly, a more thoughtful approach to elevator preservation is warranted if we wish to understand and physically experience in situ this most important contribution to the history of building and skyscraper technology

