PRESERVING A HERITAGE: CREATING A MORE BENEFICIAL HISTORIC STRUCTURE REPORT, FOR CONTRACTORS AND A UNIVERSITY

A Thesis

by

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ABSTRACT

Historic structure reports (HSR) are multidisciplinary and offer much needed understanding to all that use them. These reports are created to help architects, contractors and owners understand the historic importance of features and the building.

This study investigates the importance of historic structure reports and how they can be more beneficial. The study created an outline to be utilized on Texas A&M's College Station campus, on existing building that were constructed prior to 1940. This outline was created using literature and examples of HSRs. Then interviews were conducted with professionals from public universities of the same size as Texas A&M, historic preservation professionals, and general contractors. Following the interviews a more elaborate and beneficial outline was created.

After modifying the HSR outline to be used on campus, the following conclusions could be made. The creation of these reports is beneficial to everyone that uses them on preservation projects. It is important to create a full HSR that even goes a step further than most, which addresses means and methods for implementation and addresses code compliant issues, and offers solutions. The creation of the HSR in academic setting offers research and economically benefits for the university.

DEDICATION

I would like to dedicate this paper to my parents, Rusty and Kathy Ellis. Who at a very young age taught me what hard work is. You both have influenced me more than you will ever know, and I hope that I can do the same for my family.

To God, for giving me the opportunities to do great things in my life. I thank you every day for the people I have in my life, and for your continued grace through it all.

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NOMENCLATURE

HSR	Historic Structure Report
NPS	National Park Service

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1. INTRODUCTION

1.1 Background

According to the National Center for Education Statistics, enrollment in the United States institutions of higher education grew 37% from 2000 to 2010, and is expected to grow an additional 14% by 2021. This advancement in higher education will cause a significant "boom" in university campuses. "It is estimated that the campuses of America will have to accommodate $20 billion of construction within a decade to provide facilities for the expected enrollments alone."(Dober 2008) These increases will stress historical heritage buildings on campuses to accommodate growth.

Historic preservation is vital to a college campus. "Since American colleges and universities are dedicated to the preservation of the best of the past, serving as instruments for conveying our common heritage, it seems highly contradictory to the institutions' basic purpose that buildings, landmarks and memorials of historical and cultural significance would be placed in danger."(Dober 2008) The importance of historical preservation is documentation for future use, while also retaining the building as an asset for future use. Preserving the college campus of old, promotes heritage that is character defining for many universities.

Texas A&M was the first land grant university in the state opening in 1876. The university has continually grown since its beginning, including 18% in the past 10 years.

The university must maintain its heritage and accommodate growth simultaneously through their building inventory.

The university's 2004 *Campus Master Plan* states "Universities are not only defined by their mission, but also their history. That history is reflected by the campus environment and what remains from various periods in its existence." Texas A&M understands it is imperative to the culture, heritage, and traditions of the university to preserve historic structures.(Barnes et al 2004) As part of the *Campus Master Plan* President Robert M. Gates says "The Campus Remembered" effort, a map with seventeen (17) historic buildings and their histories, "aims to give meaning to spaces and structures, to encourage and facilitate connectivity among people, places and programs; and to restore the aesthetic link between the heritage we inherit and the excellence to which we continually aspire." Therefore the university's goal is to preserve the existing "historic" buildings to promote its heritage, character, and traditions.

According to the university's Deferred Maintenance Task Force report in 2010, there are an estimated $720 million in backlog projects or deferred maintenance (DMTF Report). With the increase in deferred maintenance, the likelihood of rehabilitation is greater than new construction. "A major building rehabilitation is equivalent to a multiple-organ transplant: it is invasive, dangerous, and risky. The ultimate goal is the long-term preservation of the patient, but first the patient has to survive the operation."(Lynch 2003) Preserving the Texas A&M's buildings promote its heritage, that is crucial to a university who's culture is steeped in traditions and legacy.

A heritage building loses its authentic design and benevolent heritage through two acts “Redesign” and “Renovation.” During the “redesign” phase important character defining authentic features are blatantly discarded and lost forever. As for “renovation” we often “forget that a structure is at greatest risk *during* the project.”(Lynch 2003) In many cases general contractors and subcontractors are not aware of the importance of historic and heritage buildings under construction. Therefore, placing more risk on the building than necessary. The evaluation of the design and construction processes on these structures is an imperative step in the preservation of these buildings and universities overall heritage.

1.2 Problem Statement

Through analysis of historic structure reports for heritage buildings on the campus of Texas A&M and interviews, the study identifies how they can be more beneficial for contractors and how to complete the reports in an economical way. Ultimately it identifies how contractors work in highly sensitive historical settings on campus to ensure additional features will not be lost.

1.3 Research Objectives

This research project focuses on the use of historic structure reports on historic buildings. The main objectives of the study are as follows:

1. Create a modified HSR that is beneficial to both the university and contractors to be used on heritage buildings constructed prior to 1940
2. Identify what steps general contractors are taking when working on these buildings, and any steps that would be beneficial for contractors.

1.4 Limitations

The study is limited to the opinions of the participants being interviewed. It is also limited by how well the chosen participants and projects represent all projects completed on heritage buildings. It is also limited to professionals that have worked on historic buildings and/or used or created historic structure reports.

Since there are no campus wide construction standards when dealing with buildings over 50 years old on campus, many organizations have developed their own standards, if any, when working on these buildings. Therefore, this study is limited by the ambiguous standards of the individual companies.

2. REVIEW OF RELATED LITERATURE

The following section will help define and understand the importance of creating a historic structure report.

2.1 Historic Structures Defined

Historic buildings or structures are defined several different ways. The Secretary of the Interior defines a Historic Property as "a district, site, building, structure or object significant in American history, architecture, engineering, archeology or culture at the national, State, or local level." Whereas the Smithsonian Institute defined a historic building in *Smithsonian Directive 418* as "structures that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction." However to be considered for the *National Register of Historic Places* the National Park Service(NPS) requires both the historic significance and the building's construction be 50 years or older. These characterizations of historic buildings describe structures on the campus of Texas A&M, perhaps something historic did not take place in them, but by these definitions they are regarded as "historic."

2.2 Campus Stewardship

Stewardship is defined by Merriam-Webster as "the careful and responsible management of something entrusted to one's care." The two important factors of the stewardship of university's campus are the historic buildings and the heritage they build.

"Campus stewardship must always demonstrate care for those qualities of the place that make it unique and meaningful to its constituents within and beyond the campus boundaries." (Chapman 2006) "Debate between agents of change and advocates for continuity is inevitable as culture and technology evolves." (Alderson 2006) "In the next decade and a half, three thousand separate decisions will have to be made as to whether or not a building of probable historic merit is to be demolished or preserved. The focus of this conflict is the American campus. The cause of the conflict is the advancement of higher education. Since American colleges and universities are dedicated to the preservation of the best of the past, serving as instruments for conveying our common heritage, it seems highly contradictory to the intuitions' basic purpose that buildings, land marks and memorials of historical and cultural significance would be placed in danger."(Dober 2008) "Colleges and universities have become increasingly interested in preserving historic campus buildings and sites. Heritage has become more important to students, faculty, and staff as well as to alumni, who have often been its prime supporters."(Audrain 2011)

This "stewardship is the protection of historic landscapes and buildings, the spaces and structures that have attained heritage value because of their character, location, and symbolic significance. Adaptive reuse of heritage structure sustains the cultural language of the campus, renewing the life of places that have brought generational connectivity to the learning environment. The institutional value of iconic structures and places is that they give the campus its distinctive, enduring sense of identity." (Chapman 2006)

It is important that the stewardship of the campus does not default into merely preserving the façade of buildings, and essentially rebuilding a new building inside. This gives a false sense of preserving the heritage, and should be taken to a higher level. The importance of a university's legacy relies on the material culture of the building, not solely the historic shell.

2.3 Texas A&M University

Texas A&M University was established in 1876 "as Texas' first public institution of higher learning". Today Texas A&M has 49,862 students enrolled, which is a 13.5% increase in the last 5 years, and 18.3% in 10 years. The campus has grown to have over 830 buildings with 21.8 million square feet in its 137 years of existence. Of these buildings 30% were constructed prior to 1960(Deferred Maintenance Task Force 2010). Buildings that have been constructed over 50 years ago have been recognized as important and deemed "Legacy" buildings. These buildings give to the campus heritage and the overall environment of the university.

The university has been entrusted with the campus stewardship at Texas A&M. The continued development and continuity of the environment should ensure that the rich cultural landscape remains the same. The importance of heritage is exemplified through the traditions of the student body on the campus. It should also be illustrated through the university in their quest to grow with enrollment and preserve its historic buildings.

However, it is important to note, in a university setting donors at times get a say in what their money goes towards, pushing preservation to the waste side. For example, the Redevelopment of Kyle Field at Texas A&M. G. Rollie White Coliseum was a field

house, built in 1954, the held volleyball and basketball games until the construction of Reed Arena. With the redevelopment of Kyle Field the preservation or renovation of the field house of yesteryear, was not widely accepted or entertained. The donors thought "new" Kyle Field needed to be sleek and fresh, so "Jollie Rollie" as it was once called, was demolished to make way for the football facility.

2.4 Historic Preservations Standards and Guidelines

The National Park Service's *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* was first published in 1983, and has been updated and revised in 1992 and was codified in 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstruction Historic Buildings* are a part of this publication. At this time it is important to note these standards for treatment were written by practitioners of historic preservation, and were not necessarily written with an academic nature. The information is given as the way buildings should be handled.

These guidelines are "intended to provide guidance to historic building owners and building managers, preservation consultants, architects, contractors, and project reviewers prior to treatment." "The Standards (Department of Interior regulations, 36 CFR 67) pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features and the building's site and environment as well as attached and adjacent, or related new construction." (National Park Service) These standards "encourage contemporary construction sympathetic with historic contexts, on the basis that integrity of historic

structures is better maintained through visual distinction and with standards flexible enough to encourage meaningful new architectural contributions." (Alderson 2006)

The treatment of historic properties according to the National Parks Service should be treated four (4) different ways: Preservation, Rehabilitation, Restoration, and Reconstruction. The following are definitions of these treatments by the National Park Service:

- "Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project"
- "Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values."
- "Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and

reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project."

- "Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location."

The universities constant use of these historic buildings and its continual adaptive reuse classifies the most appropriate treatment as "Rehabilitation." The Secretary of the Interior's Standards for Rehabilitation are:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

> 10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The Rehabilitation Guidelines suggests keeping "historic building materials and character-defining features…an assumption is made prior to work that existing historic fabric has become damaged or deteriorated over time, and, as a result, more repair and replacement will be required. Thus latitude is given…to replace extensively deteriorated, damaged, or missing features using either traditional or substitute materials. Of the four treatments, only Rehabilitation includes an opportunity to make possible an efficient contemporary use through alterations and additions." Although there is an opportunity to make alterations, "identifying, retaining, and preserving" the character defining aspects of the building is given precedent.

As part of preservation of materials, protection and maintenance must occur. Preserving these character defining aspects in their historic fabric ensures the further cultivation of heritage. Though these are "standards" for preservation in historic buildings, there is no circumstance where these values must be followed unless outlined by the owner. If an owner deems these standards as insignificant, the damage to the structure can be lost forever.

2.5 Character Defining Features

Identifying and understanding the “character defining features” of historic buildings is paramount in building rehabilitation. These features are going to be the major characteristics preserved in the structure. Properly identifying and understanding what defines the building is vital and must be accomplished prior to the construction process. The character defining elements of buildings should be assessed by a team that understands both the architectural and the historic value of the features.

Character refers to all visual aspects and physical features that comprise the appearance of historic buildings. (Nelson1988) “A floor plan, the arrangement of spaces, and features and applied finishes may be individually or collectively important in defining the historic character of the building and the purpose for which it was constructed.”(Jandl 1988) Rehabilitation within the context of the Secretary of the Interior’s Standards calls for the preservation of exterior and interior portions or features of the building that are significant to its historic, architectural and cultural values. (Jandl 1988) The exterior of the building is prominently visible, or the building’s “public face." The interior is even more important in defining the buildings history and development. Interior components worthy of preservation may include the building’s plan, the building’s spaces, individual architectural features, and the various finishes and materials that make up the walls, floors, and ceilings. (Jandl 1988) The preservation of these character defining features encourages the regeneration of the heritage and culture the building has cultivated throughout its prior existence.

2.6 Documentation

Guidelines for Rehabilitating Historic Buildings states "prior to undertaking work, a documentation plan for rehabilitation should be developed." The documentation of historic structures creates a snapshot of the building in its present state prior to any changes. A "historic structure report (HSR) is an optimal first phase of historic preservation efforts for a significant building or structure, preceding design and implementation." This report documents information on existing conditions and serves as a basis for proposing changes. It should be utilized as a "primary planning document for decision making". It can not only act as a guide for budgets, schedule planning, and a basis for design on the recommended work, but also as a compilation of key information on the history, significance, and existing condition of the structure." (Slanton 2005). These reports are living documents that change with the structure as it changes, enabling a better understanding of how the structure has adapted through time.

2.7 Historic Structure Report

The National Park Service U.S. Department of the Interior states "A historic structure report provides documentary, graphic, and physical information about property's history and existing condition." The first HSR prepared in the United States, *The Moore House: The Site of the Surrender-Yorktown*, was written by Charles E. Peterson. (Slanton 2005) In the 1930's Peterson, who was the Chief Historical Architect of the National Park Service, conducted an investigation of the Moore House Peterson in 1935 created his report. Over time HSR's have evolved and been refined, "so much so, in fact, that the Moore House Historic Structure Report would no longer fit

a close definition of what constitutes a HSR by many professionals today." (Arbogast 2010)

Historic Structure Reports are "planning documents for historic properties [that] provide a means for documenting original construction, alterations, and owners, identifying current conditions, and making prioritized recommendations for future work." (Hawkin 2007) "The purpose of a HSR is to serve as a planning document before any major intervention in the fabric of a specific building is undertaken."(Arbogast 2010) "The need for Historic Structure Reports and Preservation Plans is based on the understanding that each historic property represents a unique and irreplaceable resource. In too many cases, well-intentioned restoration or other construction efforts destroy or obscure historic character and physical evidence or present a false sense of a property's past." (Hawkin 2007)

Historic Structure Reports differentiate themselves from other documents in preservation. They are multidisciplinary and prioritize the work needed in the future. Historic Structure Reports are typically created by a team of experienced professionals. These reports evaluate many aspects of a property simultaneously, that demand a collaboration of dedicated professionals. "Without this high level of interaction among professionals from various disciplines, it is amazingly simple to reach, and then act on, some erroneous conclusions."(Arbogast 2010) "The disciplines involved in a specific historic structure report reflect the key areas or issues to be addressed for the particular property." "For a small or simple project, the project team may include only one or two specialists. For a complex project, a team may involve historians, architectural

historians, archeologists, architects, structural engineers, mechanical engineers, electrical engineers, landscape architects, conservators, curators, materials scientists, buildings code consultants, photographers, and other specialists." (Slaton 2005)

The length and detail of each HSR is different, depending on the building itself. "A number of parameters determine the depth of investigation and, ultimately, the size of a HSR. The size and complexity of the structure itself is perhaps the chief determinant." (Arbogast 2010) "The HSR provides a forum to identify historic fabric and the means to minimize its loss, damage, or any adverse effects upon it… The project team evaluates and documents:

- History of the construction, alterations, owners, and significant events at the property based on physical and documentary evidence.
    - Current conditions
    - Remaining significant and character-defining features
    - Evaluation of current and proposed program needs in relation to the historic fabric
    - Recommended overall treatment approach (preservation, rehabilitation, restoration, or reconstruction)
    - Recommended treatments for individual features or areas
    - Prioritization of recommendations and cost estimates
    - Identification of future areas of research or documentation" (Hawkin 2007)

"The historic structure report is an optimal first phase of historic preservation efforts for a significant building, preceding design and implementation of its preservation, rehabilitation, restoration, or reconstruction. If work proceeds without a historic structure report as a guide, physical evidence important to understanding the history and construction of these building may be destroyed…Prior preparation of a report helps ensure that the history, significance, and condition of the property are thoroughly understood and taken into consideration in the selection of an appropriate treatment and in the development of work recommendations." (Slaton 2005)

Historic structure reports ensure the future existence of character defining features of historic buildings. This will then in turn promote the heritage and legacy of the building. If through time a structure is renovated without the understanding of the historic importance of the building, eventually the building's character will slowly diminish and ultimately be lost. It is only when using HSRs that we understand "why" these features survive. This becomes significant to universities to understand the importance of the continued evolution of the heritage buildings. Whether through preservation, rehabilitation or reconstruction, historic features can survive through time; though many finishes and details have not survived. This is why it is important to document what was originally there through research, and what is here today.

A historic structure report offers a unique view of the progression of an existing building. This view offers benefits to the owner, designer and contractor. To fully utilize and preserve a structure; it helps to know where it began. This understanding offers insight to how new systems can be utilized without causing damage to defining features.

2.8 Construction on Historic Structures

Historic buildings are the most vulnerable to damage during construction processes. "A major building rehabilitation is equivalent to a multiple-organ transplant: it is invasive, dangerous, and risky. The ultimate goal is the long-term preservation of the patient, but first the patient has to survive the operation…Preservation professionals spend a great deal of time determining what elements of a building contribute to the significance, and their projects are designed to respect and preserve those features." (Lynch 2003) The original historical fabric of buildings must be salvaged, especially on character defining features. Once historic fabric is damaged, it cannot be returned to its original state. The originality, nostalgia, and historical integrity are lost with the damage. Adequate pre-construction planning can limit opportunities for damage. It should be clear who has the responsibility for deciding what features are historic, thus requiring protection. (Lynch 1986)

A major area that has been overlooked in academic research in historic preservation is the construction process. The majority of literature found pertaining to preservation relates to the ideas of preservation, the preservation standards or what should be kept. Little research has been created on the gap between what should be kept and what is or how it was kept. Research should be generated on this topic to better understand, if we are indeed practicing what the concepts outlined in the standards, or if preservation ideas are only that, an idea.

3. METHODOLOGY

The methodology approach to the research is designed to examine and validate the use of historic structure reports prior to construction of historic structures. This approach will be accomplished through qualitative research.

First through research of the National Parks Service's Preservation Briefs and related literature an initial "Historic Structure Report" was created for use at Texas A&M's College Station Campus. This report is an outline for the creation of historic structure reports on campus for existing buildings built prior to 1940.

Then interviews were conducted with professionals who have experience working on historic structures or have created or worked with historic structure reports Prior to the interview process, approval was given by the Institutional Review Board (IRB). . Three individuals were interviewed from the following professional categories: Public University, Historic Preservation, and General Contracting. During the interview the individuals gave feedback on what is important to their profession in a historic structure report.

After all of the interviews were conducted the feedback was taken and the historic structure report was modified to be more valuable to all professions interviewed.

3.1 Selection Criteria

The selection criterion for the interviewees was solely based on experience with historic buildings or the use/creation of HSRs. This was in fact the major factor that played a role in the contractor selection. Not all contractors work on historic buildings, and most do not have experience working with HSRs.

3.2 Interviewee Qualifications

The following descriptions of the interviewees demonstrate the experience and role with the use of historic structure reports for historic buildings on campuses.

University Professional 1 is a President of a public research university, which has one of the top 10 largest main campus student bodies in the United States.

University Professional 2 is a Campus Architect of a public research university. This individual is a registered architect, American Institute of Architects member, LEED AP BD+C, a member of the Association of University Architects, and the Society for College and University Planning.

University Professional 3 is a Director for Project Delivery. This individual is a member of American Institute of Architects, and also has 30 years of experience in the architectural and facilities construction and management industry.

Preservation Professional 4 is a registered Architect, a Fellow of the American Institute of Architects, and has a Master of Science in historic preservation.

Preservation Professional 5 is a licensed engineer, with both a Masters and Bachelor Degree in Civil Engineering. This individual worked his way into the preservation side of engineering.

Preservation Professional 6 is the President of a General Contracting firm that focuses on Historic Preservation. He has a Master's degree in History, and has worked on documenting and restoring historic structures for over 25 years.

General Contractor 7 is a project manager for a large national general contractor. This individual has 5 years of experience in the construction industry, and has a Bachelor of Science in Construction Science.

General Contractor 8 is a president and project manager of a general contracting firm, with 29 years of experience in the construction industry.

General Contractor 9 is in senior management for a general contractor with 28 years of experience. They have also worked on various construction projects some dealing specifically with historic preservation.

The interview questions helped understand the use, preparation, and benefits of historic structure reports on construction projects. They also assisted in understanding how these reports can benefit a university (or owner) along with general contractors. The questions were generated to help better understand what makes a great HSR. It is important to remember, that a poorly created HSR, can lead to the loss of character defining features. A poor HSR gives inadequate information and could lead to detrimental decisions in the design and construction process.

4. INITIAL HISTORIC STRUCTURE REPORT

4.1 Overview

This historic structure report was created using literature from the National Park Service's "Preservation Briefs" and other related materials described in the literature review prior to the interview process. *Preservation Brief 43- The Preparation and Use of Historic Structure Reports* specifically addresses the creation and use of these reports. This HSR was created to demonstrate what goes into a typical report according to given literature used by professionals.

This outline was based on the concept that it would be utilized by Texas A&M on existing buildings at the College Station campus that were built prior to 1940.

4.2 Team Creation

The first step in creating the Historic Structure Report is establishing a multi-disciplinary team to generate the information needed. Team members should include architects, structural engineers, mechanical engineers, historians, students and other specialists. Building a diverse team allows all aspects of the structure to be evaluated on different platforms.

4.3 Walkthrough

A preliminary walk through of the structure and the site should be completed by the full team along with owner's representatives from the university, facility managers, building proctors, university architect and other key personnel. "During the walk through, a review of existing conditions can be performed to highlight user concerns and

gather information about distress and deterioration observed" (Slaton 2005). During this walk through building personnel should be able to provide information on recent repairs and concerns, current maintenance procedures, and specific areas of active deterioration. The site personnel may be able to provide archival sources of recent repairs to the structure. Facility managers and/or building proctors should provide the previous year's utilities usage as a bench mark to document the previous use of utilities.

4.4 Historical Research

Historical research for the buildings on the Texas A&M campus should be divided into two groups: the building's history and construction history. The buildings history can be attained by numerous methods, but must include and is not limited to information from the campus archives in Cushing Library. This should include both written history along with photographs. Photographs are incomparable to developing changes that occurred throughout the building's history. The information gathered should focus on what is necessary to understand the evolution of the structure, its significance, and justification for the treatment selected.

The construction history section should focus solely on the structure, renovations, additions, and alterations to date. This information is available through Texas A&M Systems. The information can include binders of information on projects or in some cases only floor plans or drawings. This information is just as significant as a written history of the building.

4.5 Existing Conditions Survey

As stated in Preservation Brief 43 "A survey should be performed to document the physical spaces and elements, and assess the current condition of the building materials and systems." This should include but not limited to: the building's exterior and interior materials, features and finishes, structural systems, interior spaces, mechanical, electrical, and plumbing systems, and fire detection and security systems. The university has and will continue to complete deferred maintenance reports. Information from these reports on the specific heritage building should be complied and utilized in this report.

During this portion of the research and information gathering process it may be useful to utilize students. Additional information on the building should be gathered by various means and can cross various disciplines at the university. The "documentation can include photographs, sketches and measured drawings, computer-aided design and drafting (CADD), video records, and written notes and field measurements" (Slaton 2005). Texas A&M has various classes on all of these documentation tactics and more. The use of students as operatives for the documentation of these buildings will benefit both the university and the student.

4.6 Material Investigation and Testing

Materials in the building should be investigated with diligence. The historic fabric of the buildings should be limited in damage during this process. Utilizing non-intrusive measures is preferred. Intrusive measures should try to be limited to areas where testing materials, components or a system is necessary. If the investigations lead to laboratory

testing of materials the findings of these investigations should be documented. Hazardous materials such as lead, other heavy metals, asbestos, and mold and mildew should be sought after throughout the building.

4.7 Evaluation of Significance

As the information for the historic structure report is gathered, compared, and reviewed the evaluation of the significance begins to take place. "Historical data and physical evidence are reviewed to help evaluate the historical, architectural, engineering, and cultural significance of the property, its construction and use, and occupants or other persons associated with its history and development. The evaluation includes determination of the period(s) of primary significance" (Slaton 2005). By defining the period of significance, the character defining features are more easily found.

4.8 Selection of Treatment

The building's evaluated history, significance, and physical condition along with the university's proposed use for the next 20 years should be considered when establishing the approach to treatment.

4.9 Development of Work Recommendations

"The work recommendations are the central feature of the report. They are developed only after the research and investigation has been completed and the overall project coal established" (Slaton 2005). The specific work recommendations need to be consistent with the selected treatment. The project budget will play a significant factor in determining the extent of the recommended work and preservation.

4.10 Report Preparation and Organization

The style and format of each historic structure report for the university should be uniform in nature. This style and format must be user-friendly and easily accessible. "Ease and economy of report preparation should be considered but should not take precedence over clarity and thoroughness of documentation." The report should be presented both digitally and physically to the University, the university's archives (Cushing's Library) and Texas A&M's Center for Heritage Conservation. The report should then be used "as a basis for design and construction documents" and "readily available and extensively used during implementation of the work."(Slaton 2005)

For the outline of this report New Jersey Historic Preservation Office's *Historic Structure Reports & Preservations Plans: A Preparation Guide* should be referenced. For the compilation of this report there should be a minimum of six (6) areas that should be analyzed: Historical, Architectural, Structural, Building Systems, Materials, and Executive Summary. For each of these sections should have a minimum of six (6) subsections that include: Table of Contents, List of Drawings and Illustrations, Introduction, Narrative, Summary and Recommendations, and Bibliography. "It is highly recommended that a post project record of all work performed later be added as a supplement to the historic structure report. This record may consist of annotated drawings, photographs, and other documentation of the work performed."(Slaton 2005)

Each section of the report should start with its own *Table of Contents*. "It should be detailed enough to provide the reader with a clear idea of the organization and location of the vast quantity of information contained in each section."(Arbogast 2010)

To help readers find illustrations quickly, the *List of Drawings and Illustrations* should follow the *Table of Contents*.

Each section should have an *Introduction*. The *Introduction* should cover each of the following subsections: purpose of the section, the author(s), previous reports (if any), methodology, acknowledgments, and scope and organization of the section. The *Narrative* presents important information that is crucial to the success of the report. It is imperative that the information is presented clearly and accurately. The narrative details aspects of each subsection, such: as time, purpose, and findings. Each section should conclude with a *Summary and Recommendations*, "the summary should be clear and concise, and correct in its presentation… It should summarize the findings and recommendations that have been detailed in the narrative of the report." (Arbogast 2010)

The *Executive Summary* is an opportunity for the team leader to pull together all of the findings and unify the historic structure report. "An Effective Executive Summary should include the following:

- A statement of the goals for the HSR. This statement merely summarizes the more detailed discussion of those goals contained in the introduction.
- Briefly summary statements regarding the overall findings of each section of the HSR.
- A brief summation of the recommendations from each section.
- A prioritized list of implementation of those recommendations.
- Cost estimates for implementation of the recommendations.
- A timeline for implementation if a phased implementation is requested.

- Discussion of funding sources form implementation
- A final statement that may include acknowledgements, thanks to various key individuals, and thoughts about the future of the structure. Unlike the other sections, the Executive Summary does not require a table of content, a list of drawings and illustrations, introduction, summary, bibliography or index."

"An effective summary of the findings of the report will transform what would otherwise be merely a collection of standalone reports that happened to have been produced concurrently and packaged together into a powerful, action-oriented document that can be used to guide the future of the structure it describes and analyzes." (Arbogast 2010)

5. INTERVIEWS

Interviews were conducted with professionals with and without Historic Preservation backgrounds, and professionals who had created and used historic structure reports. The professionals took part in phone interviews where they answered questions pertaining to the use and creation of HSRs and the benefits to their profession. The individuals were pulled from several different backgrounds or subgroups. The first group was individuals who work for a university and have some role in the construction on their campus. The second group was professionals that mostly work on historic preservation projects. These three individuals were a preservation architect, a preservation contractor, and a preservation engineer. Lastly the final group was three general contractors that have experience working on historic buildings, but do not solely work in the preservation field.

5.1 Interview Findings

Through the interviews, all of the professionals found the use of the historic structure reports essential to the processes of construction and rehabilitation. The most vital use covered by all participates was the importance of the identification of the character defining features of the historic buildings. *Preservation Professional #6* went as far as to say that "every piece of information is extremely important so that you can analyze and interpret the method and time of construction." It is essential to the future of the building that documentation of the building in its current state be in the report. This offers a snapshot in time of how the building stands today, and can be referenced in the future for various uses, such as deterioration of the façade or water damage.

Through the conducted interviews with university professionals, it became apparent, the heritage and the branding of the university is a large driver in the preservation of campus buildings. Even though *University Professional #1*, a university president, claimed that sometimes it is more expensive to renovate a historic building, "the context of a college campus and its architectural integrity is really important. We celebrate that and have renovated about half of the historic buildings on the mall. It is an important part of what the university is and how we represent ourselves."

The university professionals also seemed to think that the architectural façade is one of the most important and character defining features for the university. *University Professional #1* stated "it's a balance that preserving the façade, which is the public face of the building, while taking down other parts that are less visible or architecturally significant is probably the practical way to proceed." "Generally with historic buildings the preservation of the architectural character of the envelope is normally very important. The visible part of the building you see from the outside. That is normally one of the key characteristics of the building. They are done in such a way that is different from modern buildings," claimed University Professional #3. This reaffirms that the preservation of the public image of the university is the most important, thus portraying the legacy and heritage of the university as long-standing and established.

From a preservationist perspective, the understanding and documentation of the structure and fabric is vital. The understanding of the building through time allows a better understanding for future use. The preservation engineer believed "You need a good verbal description of it, but also good drawings and photos that can sometimes

offer a better description than the verbal. Inter-relate those to get a full description or full package of what we are seeing. So they can be replicated in the future. To have a base point to be able to reference to."

From a contractor's standpoint, the historic structure report is highly beneficial. In the interview, *General Contractor #7* stated "if this information (the HSR) would have been there, it would have been in the GMP (Guaranteed Maximum Price), and [we] could have done the work. The report could help minimize disconnects between the preservation of the building and the work." *General Contractor #9* reaffirmed the concept, by saying "Pre-Construction Services, 99% is where the HSR is valuable, after that it needs to be in the construction documents. The HSR is too little too late once you hit the construction phase. It cannot serve its purpose once you hit the construction phase."

An area of concern listed by the contractors is the lax description of how to handle certain historical areas or fabric. General Contractor #7 said "There are notes in the drawings that say "protect this, or don't damage that." The architects made notes to protect it, it was up to use to figure out how, when, and how much quantities." This was reaffirmed by *General Contractor #8*, "A lot of times the people that create these reports don't get into the means and methods. How are you going to accomplish this? In a historic restoration, I don't think that the designer should not try to shed that responsibility." Finally *General Contractor #9,* "commonly architects leave it to chance; the best architects do not leave it to chance. We still have to battle with some of our contractors to do what we have specified. Most contractors won't do it, better to

specify it to leave it to chance." This is a major area for concern to the preservation of the building, as mentioned before the most critical time for a historic structure is during construction. If the historical fabric were left to chance, and damaged the original feature would never be the same.

The creation of HSRs in an academic setting was well received, and according to several interviewees appeared economical, beneficial, and legitimate. *University Professional #3* believes "I think that it is an opportunity that can be beneficial to the university. We have worked with some student projects on building programs for new buildings on campus. Now, we used that as a foundation. We still had to do some leg work, but for it to be most best beneficial the documentation and labor would be turned over to say an architect to develop the appropriate documents." The creation of HSRs by students would need to be supervised by a professional with experience in historic structure reports, and also the areas covered in the report. The same professional went on to claim "There also should be someone willing to put their professional seal of approval on the document; whether it is a professor with architecture credentials or an architect. I believe that it does have merit, even coming from students, if it is done correctly. It could save the university a lot of money, which is beneficial for the university." The university president interviewed also believed "When you think of the money it makes sense. You really have to look at value for money on these sorts of things."

6. MODIFIED HISTORIC STRUCTURE REPORT

6.1 Overview

The previous historic structure report outline was modified after interviews were conducted. These modifications were made to create a better, more beneficial HSR for the university and contractors. Reports created using this outline will be beneficial for documentation, pre-construction services, and also more useful during construction processes. As shown below in Table 1, the "X's" depict the information listed in a standard HSR verses a modified HSR. The modified HSR has additional information in the fields of implementation of suggested work, and also implementation of ADA and other requirements.

Table 1. Comparison of Standard HSR and Modified HSR

	Identification of Features	Building History	Suggested Work	Implementation of Suggested Work	Implementation of ADA and other requirements
Standard HSR	X	X	X		
Modified HSR	X	X	X	X	X

6.2 Team Creation

The first step in creating the Historic Structure Report is establishing a multi-disciplinary team to generate the information needed. The team should be led by Team Leader that has previous experience with Historic Structure Reports. It will be most beneficial to substantiate the claims made in this report if the Team Leader and Lead Investigators are credentialed professionals in their field. It is essential to the validity of the report that team members and lead investigators include architects, structural engineers, mechanical engineers, historians, students and other specialists. Building a diverse team allows all aspects of the structure to be evaluated on different platforms. Since Texas A&M is a research based university, students should play an important role as a resource to the contracted professionals in the data collection, analysis, and creation of the report. The team can be broken down into the following positions of:

Team Leader- the team leader acts as a project manager or supervisor for the report. "This individual is responsible for leading the team including monitoring and coordinating the work of the other team members. Most often, the team leader is one of the investigators…Strong oral and written communication skills are a must in order to effectively facilitate team meetings, discussion of findings, overall direction for the HSR, and ultimately, to ensure a high quality written report." (Arbogast 2010) It is recommended that the team leader be a member of Texas A&M's Center for Heritage Conservation.

Historical Investigator- This position is typically held by an architectural historian. This individual is responsible for developing the "biography" of the building. In this

"biography" the genealogy of the building, the construction, as well as the life of the building to date should be paramount.

Architectural Investigator- Unlike the architectural historian, the architectural investigator focuses on the "existing conditions". The Architectural Investigator also determines the development of the structure and deviations of the original plans, helping to determine the surviving fabric of the structure.

Historical Structural Engineer- These investigators not only assess the current condition of the structure, but also its evolution over time. These investigations may lead to flawed or inadequate designs, alterations that substantially weakening the structure or deterioration of the steel leading to the loss of the structural integrity.

Historical Mechanical Engineer- This position is essential to the evaluation of the building. This engineer can provide knowledge of the building's heating and cooling systems. Since most of the buildings have gone through some evolution through the years it is important to understand the new and old mechanical systems of the building.

Finish Analyst- The finish analyst examines the applied finishes of the historic structures, and can also help identify relative dates of building elements and composition of finishes. The identification of the composition of materials is critical, due to the fact that hazardous materials were used during the construction process, and may still exist.

These positions are important to the overall evaluation of the building. These positions should be filled by licensed professionals. It will also be beneficial to have a general contractor and/or a preservation contractor to help to understand what measures should be taken when suggesting how the work will be employed. As mentioned before,

students should be utilized in the data collection and analysis processes. This experience will be beneficial for both, the university and the student, as a learning experience and economical labor.

6.3 Walkthrough

A preliminary walk through of the structure and the site should be completed by the full team along with owner's representatives from the university, facility managers, building proctors, university architect and other key personnel. "During the walk through, a review of existing conditions can be performed to highlight user concerns and gather information about distress and deterioration observed" (Slaton 2005). It is also important to identify historic fabric and finishes that need to remain intact and protected throughout the construction renovation process.

During this walk through building personnel should be able to provide information on recent repairs and concerns, current maintenance procedures, and specific areas of active deterioration. The site personnel may be able to provide archival sources of recent repairs to the structure. Facility managers and/or building proctors should provide the previous year's utilities usage as a bench mark to document the previous use of utilities.

6.4 Historical Research

The Historical Investigator will lead the historical research. Research should be divided into two groups: the building's history and construction history. The buildings history can be attained by numerous methods, but must include and is not limited to information from the campus archives in Cushing Library. This should include both

written history along with photographs. Photographs are incomparable to developing changes that occurred throughout the building's history. The information gathered should focus on what is necessary to understand the evolution of the structure, its significance, and justification for the treatment selected. It is also important to note the buildings use throughout its life. For example if a building had academic classrooms, then laboratories, then used as business administration offices, it is important to understand the evolution of the building, and how that effected the structure today.

The construction history section should focus solely on the structure, renovations, additions, and alterations to date. The contractors who performed the work should also be noted in this section, no matter how old the work. This information is available through Texas A&M Systems. The information can include binders of information on projects or in some cases only floor plans or drawings. This information is just as significant as a written history of the building.

6.5 Existing Condition Survey

As stated in Preservation Brief 43 "A survey should be performed to document the physical spaces and elements, and assess the current condition of the building materials and systems." This should include but not be limited to: the building's exterior and interior materials, features and finishes, structural systems, interior spaces, mechanical, electrical, and plumbing systems, and fire detection and security systems. The university has and will continue to complete deferred maintenance reports. Information from these reports on the specific heritage building should be complied and utilized in this report.

During this portion of the research and information gathering process it may be useful to utilize students. Additional information on the building should be gathered by various means and can cross various disciplines at the university. The "documentation can include photographs, sketches and measured drawings, computer-aided design and drafting (CADD), video records, and written notes and field measurements" (Slaton 2005). Texas A&M has various classes on all of these documentation tactics and more. The use of students as operatives for the documentation of these buildings will benefit both the university and the student. When students are utilized it is important that they have a clear understanding of their scope of work.

It is also important to identify current issues with buildings at this time. Most historic buildings have code compliance issues, these should be identified. The utilization of professionals that understand the expectations of the Americans with Disabilities Act and Fire and Safety Code will be beneficial in helping identify these concerns. Students should also work together to identify possible solutions to the concerns.

6.6 Materials Investigation and Testing

Materials in the building should be investigated with diligence. The historic fabric of the buildings should be limited in damage during this process. Utilizing non-intrusive measures is preferred. Intrusive measures should be limited to areas where testing materials, components or a system is necessary. If the investigations lead to laboratory testing of materials the findings of these investigations should be documented in the

report. Hazardous materials such as lead, other heavy metals, asbestos, and mold and mildew should be sought after throughout the building.

6.7 Evaluation of Significance

As the information for the historic structure report is gathered, compared, and reviewed the evaluation of the significance begins to take place. "Historical data and physical evidence are reviewed to help evaluate the historical, architectural, engineering, and cultural significance of the property, its construction and use, and occupants or other persons associated with its history and development. The evaluation includes determination of the period(s) of primary significance" (Slaton 2005). By defining the period of significance, the character defining features are more easily found.

6.8 Selection of Treatment

The building's evaluated history, significance, and physical condition along with the university's proposed use for the next 20 years should be considered when establishing the approach to treatment. The selection of treatment should be clearly defined for both the overall building and individual character defining features as to preserve, restore, rehabilitate or reconstruct.

6.9 Development of Work Recommendations

"The work recommendations are the central feature of the report. They are developed only after the research and investigation has been completed and the overall project cost established" (Slaton 2005). The specific work recommendations need to be consistent with the selected treatment. The project budget will play a significant factor in determining the extent of the recommended work and preservation. The treatment of

the historic features should be prioritized according to importance. The cost estimate for the work recommendations should be created as well. It is crucial to the survival of the character defining features and the building that means and methods for the implementation of the work is discussed and spelled out. The work recommendations should be written with the help of a contractor to ensure the feasibility of the means and methods used.

6.10 Report Preparation and Organization

The style and format of each historic structure report for the university should be uniform in nature. This style and format must be user-friendly and easily accessible. "Ease and economy of report preparation should be considered but should not take precedence over clarity and thoroughness of documentation." The report should be presented both digitally and physically to the University, the university's archives (Cushing's Library) and Texas A&M's Center for Heritage Conservation. The report should then be used "as a basis for design and construction documents" and "readily available and extensively used during implementation of the work."(Slaton 2005)

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Bibliography. "It is highly recommended that a post project record of all work performed later be added as a supplement to the historic structure report. This record may consist of annotated drawings, photographs, and other documentation of the work performed."(Slaton 2005)

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The *Executive Summary* is an opportunity for the team leader to pull together all of the findings and unify the historic structure report. "An Effective Executive Summary should include the following:

- A statement of the goals for the HSR. This statement merely summarizes the more detailed discussion of those goals contained in the introduction.
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"An effective summary of the findings of the report will transform what would otherwise be merely a collection of standalone reports that happened to have been produced concurrently and packaged together into a powerful, action-oriented document that can be used to guide the future of the structure it describes and analyzes." (Arbogast 2010)

7. CONCLUSION

This study identifies how the creation and use of HSRs impact the construction industry on historic or heritage buildings. The research helped understand what information goes into HSRs, and how the information can benefit the contractor in their work environment. By understanding the importance of the salvaged architecture of these buildings, the individuals involved can reduce the risk of accidently damaging or losing more. This research is beneficial to the university, the historic preservation community and the construction industry for better understanding of the concepts of historic importance in these buildings.

This research focused on the use of historic structure reports used on heritage buildings. The main objectives of the study created a modified HSR that is beneficial to both the university (or owner) and contractor. While also identifying what steps general contractors are taking when working on these buildings, and any additional steps that would be beneficial for them.

Historic Structure Reports are typically created by a diverse team of experts. In most cases the professionals producing the HSR are "designers", for example architects or engineers. When this becomes the case the implementation practices are left to the contractor; thus, leaving a wide range of means and methods to achieve the work. In delicate historic settings the fabric is highly sensitive. How the work is preformed should not be jeopardized or left to the contractor.

Prior to this research typical HSRs identify historical features, the building's history, and suggested work. The modified HSR requires additional information in the identification of how the proposed work should be accomplished, this is the most vital part of an HSR. There should not be a great deal of independence given to contractors working on historic buildings. It should be the HSR's role to designate how to implement the suggested work; this will hold contractors accountable. There should be value perceived in the modified HSR by both the university and contractors. The modified report leads to less unnecessary damage to historic fabric, more efficient bidding, and less guess work in the implementation of the suggested work.

Currently general contractors working on historic structures are left with ambiguous methods of how to implement or protect the work prescribed in HSRs. The general contractors interviewed in this study understand the importance of taking extra steps to ensure the quality of work and continued preservation of features. If another contractor were awarded the project, the level of detail or importance placed on the protection of features could be less, leading to detrimental loss of historic fabric forever. The employment of the modified HSR ensures nothing is left to chance, proving the HSR and preservation of character defining features is not problem to overcome, but a standard to be held to.

7.1 Future Research

This study employed a small population in qualitative research. Future research should expand to a larger population, ensuring the trends are correct. The expanded population will also allow a better understanding of how contractors are handling the

indistinct protection and preservation prescribed in a standard HSR. It would also be beneficial to understand how much money could be saved by employing the modified HSR in a classroom setting versus a standard HSR paid for by the university or owner. In an academic setting the money saved will be the driver in fully implementing the research. Also, creating a standard and modified HSR for a given building or project. Then allowing contractors to evaluate each on which is more beneficial would also build upon this research. In the end, this and future research will have continued value to both the university and contractors.

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APPENDIX

INSTITUTIONAL REVIEW BOARD APPROVAL FORM

Study Summary

Study Status:	Active
Principal Investigator:	**Escamilla, Edelmiro F, PhD**
IRB Number:	**IRB2013-0486**
Study Title:	Preserving a Heritage
Expiration Date:	09/01/2014

Study Title:	Preserving a Heritage
Status:	Active
Investigator Defined Description:	Creating a Modified Historic Structure Report and Understanding the Impact of the Construction

Animal Research:	No	**Study Classification:**	
FDA Regulated:	No	**Has IND/IDE:**	No

⊟ Study Department(s)

Name	Is Primary
TAMU - College Of Architecture - Architecture	No
TAMU - College Of Architecture - Construction Science	Yes

⊟ Study Personnel

Principal Investigator:	Edelmiro F Escamilla, PhD
Study Contact:	Edelmiro F Escamilla, PhD
Faculty Advisor:	Edelmiro F Escamilla, PhD

Protocol Director:	Evan Ellis

⊟ TAMU IRB

IRB Number:	IRB2013-0486
IRB of Record:	Yes
Committee of Record:	
IRB Initial Approval:	09/02/2013
IRB Expiration:	09/01/2014
Last Continuing Review Approved:	
Continuing Review Due:	08/01/2014
Study Closure:	
Temporary Closed:	No
Temporary Closure Start:	
Temporary Closure End:	
Risk Assigned:	Expedited
Review Cycle:	12 Months
Exempt:	No
Subject Approved:	12
Termination:	
Termination Reason:	

Risk Level:
- ☐ Greater than Minimal Risk under 45 CFR 46 / 21 CFR 56
- ☐ Not Greater than Minimal Risk under 45 CFR 46 / 21 CFR 56

Exempt:
- ☐ N/A
- ☐ Category 1: Instructional strategies in established educational settings

- ☐ Category 2: Educational tests unlinkable to individuals and no risks from disclosure
- ☐ Category 3: Educational tests on public officials, or absolute federally mandated confidentiality
- ☐ Category 4: Existing data/specimens, publicly available, unlinkable to individuals
- ☐ Category 5: Demonstration projects concerning public benefit or service programs
- ☐ Category 6: Taste and quality evaluation of foods without additives exceeding regulated levels

Expedited Review Category:

- ☐ N/A
- ☐ Category 1(a): Clinical studies of drugs for which an investigational new drug application is not required
- ☐ Category 1(b): Clinical studies of medical devices for which an investigational device exemption application is not required or the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling
- ☐ Category 2: Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture (healthy non pregnant adults 110lbs or more, no more than 550mL in 8 weeks and no collection more than 2x a week OR other adults and children not exceeding the lesser of 50 ml or 3 ml per kg in an 8 week period and no collection more than 2x a week)
- ☐ Category 3: Prospective collection of biological specimens for research purposes by noninvasive means
- ☐ Category 4: Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be

cleared/approved for marketing

- ☐ Category 5: Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis)
- ☐ Category 6: Collection of data from voice, video, digital, or image recordings made for research purposes
- ☑ Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Continuing Review Expedited Review Category:

- ☐ N/A
- ☐ Category 8(a): Continuing review of research previously approved by the convened IRB where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects
- ☐ Category 8(b): Continuing review of research previously approved by the convened IRB where no subjects have been enrolled and no additional risks have been identified
- ☐ Category 8(c): Continuing review of research previously approved by the convened IRB where the remaining research activities are limited to data analysis
- ☐ Category 9: Continuing review of research, not conducted under an IND or IDE where categories two (2) through eight (8) do not apply but the IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk

and no additional risks have been identified

Investigational Drug Use:

- ☐ IND use approved under 21 CFR 312
- ☐ IND Exempt as per 21 CFR 312

Investigational Device Use:

- ☐ Non-Significant Risk Device under 21 CFR 812.6
- ☐ Significant Device Use under 21 CFR 812.6
- ☐ IDE Exemption under 21 CFR 812.2 (c)
- ☐ Humanitarian Use Device (HUD)

Documentation of Consent:

- ☑ Written consent in accordance with 45 CF 46.116/ 21 CFR 50.27
- ☐ Waiver approved under 45 CFR 46.117 (c) 1 or 2/ 21 CFR 56.109 (c)1
- ☐ Partial waiver approved under 45 CFR 46.117 (c) 1 or 2/ 21 CFR 56.109 (c)1
- ☐ Short form-oral presentation approved under 45 CFR 46.117 (b) (2)/ 21 CFR 50.27 (2)

Waiver of Consent:

- ☐ Waiver/alteration approved 46.116(c) or (d)
- ☐ Partial waiver/alteration approved 46.116(c) or (d)
- ☐ Emergency research waiver approved under 21 CFR 50.24

HIPAA:

- ☐ No PHI collected, accessed, used or distributed under 45 CFR 164.514
- ☐ HIPAA Authorization for research approved under 45 CFR 164.508 (a) (1)
- ☐ Limited Data Set under HIPAA Privacy Rule
- ☐ Waiver of HIPAA Authorization for Research approved under 45 CFR164.512 (i) (2) (ii)
- ☐ Partial waiver of HIPAA Authorization for Research approved under 45 CFR164.512 (i) (2) (ii)
- ☐ Prepatory to research PHI use approved under 45 CFR 46.164.512 (i) (1) (ii)
- ☐ Use or disclosure of decedents' PHI approved under 45 CFR 46.164.512 (i) (1) (iii)

Minor Risk Assessment:

- ☐ 45 CFR 46.404/ 21 CFR 50.51): Not greater than minimal risk
- ☐ (45 CFR 46.405/ 21 CFR 50.52): Greater than minimal risk, but prospect of direct benefit to the subject - Risk represents a minor increase over minimal risk
- ☐ (45 CFR 46.405/ 21 CFR 50.52): Greater than minimal risk, but prospect of direct benefit to the subject - Risk represents more than a minor increase over minimal risk
- ☐ (45 CFR 46.406/ 21 CFR 50.53): Greater than minimal risk, with no prospect of direct benefit to the subject but likely to yield generalizable knowledge about the subject's disorder or condition - Risk represents a minor increase over minimal risk
- ☐ (45 CFR 46.407/21 CFR 50.54): approvable after secretarial review, risk represents more than a minor increase over minimal risk
- ☐ Because the adolescents being enrolled in this study are legally entitled to consent to the treatments and procedures involved in the study, Subpart D of 45 CFR 46 does not apply. Parental consent is not required.

Assent:

- ☐ Assent waived under 45 CFR 46.408/ 46.116/ 21 CFR 50.55
- ☐ Assent from Some or All under 45 CFR 46.408/ 46.116/ 21 CFR 50.55

Parental Permission:

- ☐ 1 parent signature
- ☐ 2 parent signature
- ☐ requirement for Parental permission waived under 45 CFR 46.408/ 46.116/ 21 CFR 50.55

Wards:

- ☐ Wards- inclusion approved under 45 CFR 46.409/ 21 CFR 55.56

Pregnant Woman/Fetuses/Neonates:

- ☐ inclusion of Pregnant Women approved under 45 CFR 46.204
- ☐ inclusion of Neonates approved under 45 CFR

46.205

- ☐ inclusion of Placenta/fetal materials approved under 46 CFR 46.206
- ☐ inclusion of Pregnant women/Neonate/Fetuses approved after secretarial review under 45 CFR 46.207

Prisoners:

- ☐ Prisoners - inclusion approved under 45 CFR 46.306
- ☐ 45 CFR 46.306(a)(2)(i) Study of the possible causes, effects, and processes of incarceration, and of criminal behavior, provided that the study presents no more than minimal risk and no more than inconvenience to the subjects.
- ☐ 45 CFR 46.306(a)(2)(ii) Study of prisons as institutional structures or of prisoners as incarcerated persons, provided that the study presents no more than minimal risk and no more than inconvenience to the subjects.
- ☐ 45 CFR 46.306(a)(2)(iii) Research on conditions particularly affecting prisoners as a class (for example, vaccine trials and other research on hepatitis which is much more prevalent in prisons than elsewhere; and research on social and psychological problems such as alcoholism, drug addiction, and sexual assaults).
- ☐ 45 CFR 46.306(a)(2)(iv) Research on practices, both innovative and accepted, which have the intent and reasonable probability of improving the health or well-being of the subject.
- ☐ HHS Secretarial Waiver (68 FR 36929, 6/20/03) Epidemiological research with prisoners: The research must have as its sole purpose (i) to describe the prevalence or incidence of a disease by identifying all cases, or (ii) to study potential risk factor associations for a disease. The study poses no more than minimal risk and presents no more than an inconvenience to the prisoner subjects,

and prisoners are not the focus of the research.

Termination Comments

Comments

Master Lay Summary

1.Background

According to the National Center for Education Statistics, enrollment in the United States institutions of higher education grew 37% from 2000 to 2010, and is expected to grow an additional 14% by 2021. This advancement in higher education will cause a significant "boom" in university campuses. "It is estimated that the campuses of America will have to accommodate $20 billion of construction within a decade to provide facilities for the expected enrollments alone."(Dober 2008) These increases will stress historical heritage buildings on campuses to accommodate growth.

Historic preservation is a vital to a college campus. "Since American colleges and universities are dedicated to the preservation of the best of the past, serving as instruments for conveying our common heritage, it seems highly contradictory to the institutions' basic purpose that buildings, landmarks and memorials of historical and cultural significance would be placed in danger."(Dober 2008) The importance of historical preservation is documentation for future use, while also retaining the building as an asset for future use. Preserving the college campus of old, promotes heritage that is character defining for many

universities.

Texas A&M University was established in 1876 “as Texas' first public institution of higher learning” (website). Today Texas A&M has 49,862 students enrolled, which is a 13.5% increase in the last 5 years, and 18.3% in 10 years. The campus has grown to have over 830 buildings with 21.8 million square feet in its 137 years of existence. Of these buildings 30% were constructed prior to 1960(DMTF Report). Buildings that have been constructed over 50 years ago, have been recognized as important and deemed “Legacy” buildings. These buildings give to the campus heritage and the overall environment of the university.

According to the university’s Deferred Maintenance Task Force report in 2010, there are an estimated $720 million in backlog projects or deferred maintenance (DMTF Report). With the increase in deferred maintenance, the likelihood of rehabilitation is greater than new construction. “A major building rehabilitation is equivalent to a multiple-organ transplant: it is invasive, dangerous, and risky. The ultimate goal is the long-term preservation of the patient, but first the patient has to survive the operation.”(Lynch 2003) Preserving the Texas A&M’s buildings promote its heritage, that is crucial to a university who’s culture is steeped in traditions and legacy.

“From a construction standpoint, historic preservation has several advantages over new construction. For example, structural costs on an old building usually make up 5 to 12 percent of total project costs, half

the average for new construction."(– Historic Preservation in the 1990s.) Preserving the campus' integrity with its authentic buildings is both economical and beneficial to its reputation of heritage and tradition. A heritage building loses its authentic design and benevolent heritage through two acts "Redesign" and "Renovation." During the "redesign" phase important character defining authentic features are blatantly discarded and lost forever. As for "renovation" we often "forget that a structure is at greatest risk *during* the project."(Lynch 2003) In many cases general contractors and subcontractors are not aware of the importance of historic and heritage buildings under construction. Therefore, placing more risk on the building than necessary. The evaluation of the design and construction processes on these structures is an imperative step in the preservation of these buildings and universities overall heritage.

Statement of the Problem

Through analysis of heritage buildings on the campus of Texas A&M and interviews, the proposed study will identify historical aspects of buildings, and how contractors work in these environments. Ultimately it will identify how contractors work in highly sensitive historical settings on campus to ensure additional features will not be lost.

Research Objectives

This research project focuses on the historic aspects of heritage buildings

in the historic core on the Texas A&M campus and the contractors that work on them. The main objectives of the study are as follows:

Analyze the exterior and interior aspects of heritage buildings(Animal Husbandry Pavilion, History Building, Chemistry Building, Cushing Library, Francis Hall)

Identify what steps general contractors are taking when working on these buildings.

Null Hypothesis

Null Hypothesis 1

The major historical aspects of the selected buildings have already been preserved over their lifetime.

Null Hypothesis 2

The project participants have the appropriate knowledge to provide applicable data for the study.

Null Hypothesis 3

The honesty of the participants and their unbiased participation.

Limitations

The study is limited to the opinions of the participants being interviewed. It is also limited by how well the chosen projects and participants represent all projects completed on heritage buildings. Since there are no campus wide construction standards when dealing with buildings over 50 years old on campus, many organizations have developed their own standards, if any, when working on these buildings.

Therefore, this study is limited by the ambiguous standards of the individual companies.

2. Significance of Study

The purpose of this study is to identify the impact of the construction industry on the historic or heritage buildings. The research is designed to help understand what original historic features are important, along with how contractors view the features in their work environment. By understanding the importance of the salvaged architecture of these buildings the individuals involved can reduce the risk of accidently losing more. In conclusion, this research will be beneficial to the University, the historic preservation community and the construction industry for better understanding of the concepts of historic importance in buildings.

3.Research design and methods.

The research is designed to understand the important aspects of a historic structure before, during, and after renovations, while also understanding the views of general contractors who work on these same historic buildings, whose background is not in preservation. This understanding will be established through interviews with professionals in the both categories. These individuals will be recruited through contacts of the research committee. Criteria for the preservation community will be individuals with 5 or more years work experience in historic

preservation. These individuals will be from the professions of: architect, engineer, facility manager, and preservation contractor. The general contractors will also be recruited through the research committee but will be managers will 5 years work experience in construction, not specific to historic preservation. All individuals participating in the study will sign the consent form attached to the IRB application.

Known Risks and Potential Benefits

There are no known risks to this study. Possible benefits to the study are building a framework for the university to use to record historic structures on the campus of Texas A&M.

Data and Safety Monitoring

The data for this research will be kept as transcripts from the interviews. This data will be saved for 2 years and will only be accessible by Evan Ellis. Safety will be monitored even though there is no anticipated danger other than daily life activities.

Anticipated Outcomes

The research is expect to show where discrepancies lay between the preservation community and the construction industry. It is too early to say where those discrepancies are.

7.Communication of Study Results

The results of this study will be presented in Evan Ellis' Master Thesis.

8.Literature Review.

The literature review will focus on 3 categories: Creating and using a Historic Structure Reports, Historic Preservation at Universities, Construction on Historic Structures.

Study Details:

Sponsor	No Sponsors have been associated.
Study Drug/Biologic/Chemical agents	No Drugs have been associated.
Study Devices	No Devices have been associated.
Inclusion Criteria	No Inclusion criteria have been associated.
Exclusion Criteria	No Exclusion criteria have been associated.
Treatment Criteria	No Treatment criteria have been associated.
Workup Criteria	No Workup criteria have been associated.

INTERVIEW QUESTIONS

PRESERVATION PROFESSIONAL QUESTIONS

What is your professional title?

Do you have a background in historic preservation? If yes please explain.

Do you have experience working with historic structure reports? If yes please explain.

Do you have experience creating historic structure reports? If yes please explain.

When documenting a historic structures what aspects of the building do you see as the most important to document?

Which parts do you see as least important?

Which aspects do feel are over looked?

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

CONSTRUCTION PROFESSIONAL QUESTIONS

What is your professional title?

Do you have a background in historic preservation? If yes please explain.

Do you have experience working with historic structure reports? If yes please explain.

Do you have experience creating historic structure reports? If yes please explain.

When working in a building on campus that is more than 50 years old, would you take extra steps to prevent unnecessary damage or only follow the scope of work laid out in the plans and specifications?

On these same buildings, what precautions if any do you take to limit unnecessary damages to the structure?

What aspects of a historic structure do you feel are the most important? Please explain.

INTERVIEW MANUSCRIPT

UNIVERSITY PROFESSIONAL #1

Do you have a background in historic preservation? If yes please explain.

We do have historic buildings on campus, ones that are on historic register, and I live in one actually of them that is on the national registry. I know there is a process, and I understand there are limits that you can do to modify the building. I would say that I have a layman's knowledge.

Do you have experience working with historic structure reports?

No

When documenting historic structures what aspects of the building do you see as the most important?

I think the context of a college campus, and its architectural integrity is really important. We celebrate that and have renovated about half of the historic buildings on the mall. It is an important part of what the university is and how we represent ourselves. On the other hand sometimes it is a lot more expensive to do these types of renovations.

Which parts do you see as least important?

I think it's a balance that preserving the façade, which is the public face of the building, while taking down other parts that are less visible or architecturally significant is probably the practical way to proceed. Sometimes the historic preservation takes precedent over practical need for building. The practical matter for which the university can afford to spend on these buildings.

Which aspects do feel are over looked?

I don't think so, the attentions to detail and the workmanship is all done at the appropriate level.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

I just think that they just need to be as comprehensive as possible, a lot of photographs, a lot of metrics would be important.

What are your views on Preservation Plans for Universities?

Not sure if they have one. Sensitive to the building.

Are there any steps your administration are doing to preserve the heritage of your campus?

Pretty careful plan to around some of our oldest buildings, to keep them weather tight, and preserved. As we look for money to renovate them for modern uses.

Since administrations change from time to time, do you feel priorities change in regard to historic preservation?

Probably emphasis changes when leadership changes. Most people are sensitive to the historic context of buildings. There definitely is a large public constituency that feels it is important to keep the historic elements. It will be very hard to tear down a historic building.

If there was an opportunity for a public research university to create historic structure reports for the university as a class, do you think this would be beneficial for the university?

It sounds like a lot of work, make a judgment which would vary place to place. How valuable that would be, or how feasible that would be? When you think of the money it makes sense. You really have to look at value for money on these sorts of things.

UNIVERSITY PROFESSIONAL #2

Do you have a background in historic preservation?

Preservation Projects outside of university. No credentials in historic preservation. Practical experience on a 1919 National Registry building renovated in 2006-2007, 1st floor is retail, the rest apartments. Federal funding, all work submitted for approval including cleaning. Preserved where the elevators were and tried to preserve the original atmosphere.

Do you have experience working with historic structure reports?

No have not created, but I do have experience with national park service applications. I have read them and utilized them. The university did a "light" report for "Building X". Contractor X did a full building assessment for the same building, but did not go into depth that you would for a typical historic structure report. [Story of a historic building that they created a detail historic structure report cannot give these details it will identify the individual.]

When documenting a historic structure, what aspects of the building do you see as the most important to document?

Existing conditions, from structural analysis to infrastructures, because that's going to be one of the most costly things to renovate. Conditions of the exterior envelope is extremely important. Pointing ,cleaning, and cleaning with things that are not detrimental to the building. I think we also need to look at the history and cultural side as well. Is there anything in there of historical significance to the university? We should also look at salvaging, whether or not that is old pieces of furniture or components that we may change, but also utilize them somewhere else. If you are going to do an addition to then it should look like an addition, but there should also be a connection. Those to me are going to be the more important things. When looking at the floor to floor heights , what is going to be the best utilization and cost effectiveness. As well as not having to change a lot to reutilize it as offices or other useful spaces at the university academically.

Which parts do you see as least or not as important?

Your site and probably the context of your site work. Not to say that it is the least important but it is most important to bring back the building and it's materials. From a site stand point, your lighting and fixtures from that component add to the structure. To me that might be a little lower on the totem pole. The other thing I would think as least important, Roof spaced, depending, utilitarian. Within the building Back of houses kind of spaces.

Which aspects do feel are over looked?

The conservation aspect, we are looking at preserving and retain finishes some of the historic finishes, but we are not looking at conserving or restoring. It will be overlooked in areas where flaking and repainted are taking place. The area will be scraped, painted and made to look okay. The details will be overlooked. Donations for actual conservation practices for things like this. The allocated money goes towards infrastructure and safety. Falling through the cracks is that conservation. A mural or elaborate molding at the top will be lost because of cost. [Looking at funding for a specific building on campus, due to lack of funding for preserving some great finishes. Also reusing period lighting and preserving certain features, but only those features in that time period] Pick and choose what is saved and overlooked.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

Anything that is going to cost the project, it's going to be high dollars, that's going to be your infrastructure your hvac, all of your code issues. How you put in a new set of stairs, how do you do that? Do it in a way that is sensitive to the building. How do you put a ramp in that doesn't detract from the original building, creating a blending of the two. Also looking at structural is there any water damage. If there was water damage then is there structural or any other damage to the structure. These will be the high dollar amounts take away from preservation. If it is a building that has spaces that give to the legacy of that building, you don't want to change the corridors. It will limit you in what you can do .

Other Comments: Heritage buildings on campus do resonate with older students to preserve and renovate these buildings. In a university setting it gets difficult on a money stand point. It is very important to get the existing conditions down.

UNIVERSITY PROFESSIONAL #3

Do you have a background in historic preservation? If yes please explain.

By background do you mean technically trained or educational background? Not technically trained, have worked on several buildings that have historic designation in my career.

Do you have experience working with historic structure reports? If yes please explain.

Work with not built. I haven't done design, I have always worked in management. I have worked on projects that have had historic structure reports.

When documenting a historic structure what aspects of the building do you see as the most important to document?

Key characteristics for those reports were identifying the historic aspects and why they were important, and to what extent do we protect those aspect of the building. Particularly, when you are trying to renew a building for another purpose and trying to bring it up to current codes. Always the challenge, of to what extent do we preserve the current character of the building or a building that was built to a code standard that is not acceptable, and bringing it up to current code.

Which parts do you see as least important?

Probably hard for me to say any component as least important. Nothing is least important.

Which aspects do feel are over looked?

There is always a lot of different ways to approach things. For me anytime you are dealing with renovation or restoration of an older building, there is always a give and take between how you achieve the effects of the historic character of the building, and the regulatory requirements placed on a building. We're working on a building that the

current fire code requires to add an exit. The evaluation we had to do is "how do you do that?" How do you do it in such a way that you do not damage the historic integrity of the building? I think that what happens sometimes in historic structure reports is that they are often done in a singular purpose, which is to preserve the historic fabric or the historic building. In the real world there are other factors out there that need to be addressed in these reports.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

If those reports acknowledge or a better acknowledgement of the fact that when you renovate a building that is 50-60 years old or more, make it more useful you have to bring it up in regards to codes. Not only in terms of code, but also in the way people learn or teach is quite different now. One thing that is very clear is that technology we depend on to make a building useful programmatically, is quite different than it was in the 1920s or 30s or 1940s. There are adaptations that have to occur, so that we can teach the way teaching is done today. These reports are singular, need to be balanced to achieve the program goals.

What aspects of a historic structure do you feel are the most important? Please explain.

Generally with historic buildings the preservation of the architectural character of the envelope is normally very important. The visible part of the building you see from

the outside. That is normally one of the key characteristics of the building. They are done in such a way that is different from modern buildings. Then I think that public areas. The common areas generally receive greater amount of detailing, architectural articulation, than offices or whatever. If you are going to try to preserve a building keeping the public areas and the particularly the exterior appearance are both key elements. Whatever key elements that make a building historic building unique or rich, those are important characteristics that need to be addressed.

When working in a building on campus that is more than 50 years old, would you take extra steps to prevent unnecessary damage or only follow the scope of work laid out in the plans and specifications?

The extent to which we do that is relevant to how important the architectural character of a space is. If it's a lobby space with rich finishes or something in the public eye, we will take extra steps to protect it. If it is an office that is of less importance you may choose to do some things that are more efficient, even though it may not maintain the same character of the building. Try to do that in a way that is characterized as what is most important, or what should be preserved in its original condition, or restored to the original condition.

On these same buildings, what precautions if any do you take to limit unnecessary damages to the structure or does this fall on the contractor?

No, when there is fabric or whatever that needs to be dealt with in special ways, and we make sure that conditions are prescribed. We will typically have that included in the plans and specifications. It is important to identify and describe how historic fabric will be work on or around, and identifying what you can do and what you cannot do.

From a university systems stand point, do you think that creating these reports from a classroom perspective would be beneficial to your work or the university?

I think that it is an opportunity that can be beneficial to the university. We have worked with some student projects on building programs for new buildings on campus. Now, we used that as a foundation. We still had to do some leg work, but for it to be most best beneficial the documentation and labor would be turned over to say an architect to develop the appropriate documents. There also should be someone willing to put their professional seal of approval on the document; whether it is a professor with architecture credentials or an architect. I believe that it does have merit, even coming from students, if it is done correctly. It could save the university a lot of money, which is beneficial for the university.

PRESERVATION PROFESSIONAL #4

What is your professional title?

Preservation Architect-Principle of a firm

Do you have a background in historic preservation? If yes please explain.

I have a Master's of Science in Historic Preservation, and I have spent my career, 25 years in historic preservation.

Do you have experience working with historic structure reports? If yes please explain.

Yes, as both a producer and also someone who comes in and uses the report. A HSR can take on many different forms but 5 full blown very detailed, 25 mini reports or preservation plans. Could be a couple hundred thousand dollar document or it could be a $25,000 document.

When documenting a historic structures what aspects of the building do you see as the most important to document?

Statement of significance, to give a great meaning as to why this building is important. Next to that I think that prioritization of the materials and spaces, taking into count their significance or historic integrity. So that there is an understanding that yes there was a great lecture hall, but it has been very modified. It does not resemble its original significance anymore. So that it can be put into a hierarchy, which then can be lower on preservation standards.

Which parts do you see as least important?

Defining a treatment, whether it is a preservation, restoration or rehabilitation is least important because it's subject to change over time. You are typically doing an HSR in preparation for a project that is typically spelled out for treatment in the first section. As far as part of a building, I hate to say that mechanical or electrical. I do think they are important, but they just have life spans that are shorter and get replaced sooner.

Which aspects do feel are over looked?

Not necessarily, but the tendency is to include for example of detailed paint analysis. Because of the funding of the HSR is done in a sketchy way or quick. The owner says great and now we know exactly what we need to do to restore areas. It ends up having to be redone, because the initial effort was not there. Because the HSR is a planning document and record document, there is often times not money to do a thorough analysis of everything. That's one of the things owners like to through in, is that it isn't that big of a deal, then they get a poor or sketchy report. I have inherited some of these reports work, and they weren't doing in a poor manner, it's just that funding would not allow for the detail that needed to be done. They did what they could.

The HSR is an important document, or at least it is intended to be. It is important for the author to make clear their scope of work, what level of research, and up to that person to write that out so that it is understood by the readers and owner.

Since we are working on the University's campus and the buildings will continuously be used should the HSR focus on certain aspects?

I think there could be a time on a university's campus when a building is preserved or restored because of its historic importance that is truly restored or preserved. Without much concern given for what it is going to be used for. 99.9% of the time buildings on the campus are being rehabilitated, and not restored. As a result the HSR should make the appropriate task for that treatment of the building. Then to undertake the tasks needed for the suggested treatment. Funding to restore or preserve architectural finishes may not be there, but it is always important to document what is there. One day the money may be there to recreate or restore these features. The values of the buildings may not be the same as owner.

PRESERVATION PROFESSIONAL #5

Do you have a background in historic preservation? If yes please explain.

Not by degree, Civil Engineering Grad, bachelor and masters, so I got into preservation just by the work that I was doing. I do a lot of historic preservation work and I enjoy that work. It goes back to, I grew up in East Texas, the significance of the historic structures in the old towns. And the impact they can have on the community, in these smaller towns, that's what attracts me to it.

Do you have experience working with historic structure reports? If yes please explain.

On the courthouses we have done, our firm has been involved in 41-42 historic courthouses projects. We add the structural and civil components to the historic master plan or historic structure reports. We haven't ever produced an entire report on our own, but given input. Discipline specific. Through the course of our work we do live assessments from a structural standpoint.

When documenting a historic structures what aspects of the building do you see as the most important to document?

One thing is to delineate all of the different systems and to go through the conditions of each of the different systems. That can be the roof system, floor systems, wall systems, foundation systems, and clearly delineate and describe each of those. As far as all of the individual components. Framing systems that are used, and condition of all of those. We tend to start at the base/foundation and work our way up the building describing it. We also get into some site impacts on our systems, mechanical impact on their systems, and that is all done from a structural view point of the project. Other key

part for us, is the level of documentation that you can do . You need a good verbal description of it , but also good drawings and photos that can sometimes offer a better description than the verbal. Interrelate those to get a full description or full package of what we are seeing. So they can be replicated in the future. To have a base point to be able to reference to.

Which parts do you see as least important?

From a structural stand point I don't think that, If we go back to what we see as most important the vertical elements, such as walls just because there are so many aspects to it. Anything that has moisture aspects to it or can have moisture problems is where we see the most problems. It's usually these Interconnects/interface with exterior elements. We usually put more time into reviewing the exterior envelop and the structural components of the exterior elements than we do on the horizontal elements of the structure.

Which aspects do feel are over looked?

I think that the level of degree to which we can see inside the structure. A lot of times our systems are hidden. Architectural finishes and mechanical electrical systems are visible. The structure is covered. There is a limit that I can document and assess. We can't look at the foundations for example, if we do it is a very discrete look in one location. We have to evaluate a lot of our systems, based on the condition of other systems. For instance we evaluate our structural wall systems based on the state of the

architectural finish. Structural foundation based on cracking or movement of the floor slab. There is a lot of extrapolation that we have to do in our investigation. Where some of the other disciplines don't have to extrapolate Normally we are limited to or cannot remove finishes to get a look at the structure for the initial reports. Sometimes when we get into the actual restoration or reuse of buildings that is our first look.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

Some cases we have original construction drawings, we can look at the structure. So that we have some basis to evaluate or look at the structure. Most of the time we do not have access to these. When we do have these documents we can evaluate elements that we cannot see. But sometime the original drawing did not match. Almost every building we look at, we look at a change in use. What we have to do or the assumption we have to make is do the provisions in the building code allow for historic structures, not being brought up to current code if the life safety risk of the new use is no greater than the original use. Most structural engineers interpret that as if we had an office building it was designed and preformed fine. It was designed to the level of loading that code would require. As long as we aren't putting a use in there that exceeds loading then I don't have to do anything about it. Most university buildings are designed for a little higher load than needed or building code minimums.

Do you think that creating a historic structure report through an academic setting will have some merit or be useful as long as there are proper people in place to oversee the creation of the report?

It will be valid, because someone could go in and use it as a baseline or inventory. You could almost create a checklist of 8-10 uses the of orignal building uses on campus, or have a box as office to classroom, engineer needs to review before use occurs. Obviously we will have to do our due diligence. What we have normally found, people understand widows, MEP, but take for granted that the base building is good for use. Definitely see that there is value that the university, any professional that is familiar with code could use.

I think that structural information that can be gained from the creation of these reports. The energy codes are getting so stringent. Private they already know the major systems, they can start understanding the viability of the building. Historic walls mass concrete no thermal break. That gets a little bit in to the structural effect. All the disciplines that are impacted with that. There are more dual use of systems and the walls are part of that. You have 3 feet of brick that both structural and architectural.

PRESERVATION PROFESSIONAL #6

What is your professional title?

President of a general contracting firm, in the preservation field.

Do you have a background in historic preservation? If yes please explain.

No I do not, but I do have, and it seems to have worked out better. I was working on my PhD in archaeology and anthropology. I was hired by [a university] to conduct a survey. For the National Park Service, I was to look at all of the cultural resources in that corridor. So that's what I did. I started going up through the corridor, and I did not find any archeological sites, but was seeing these log structures and other historic buildings, and thought that these are cultural resources. So I documented them just like I would document a "arc" site or a prehistoric site. I didn't know anything about historic buildings. So when I came up to a log house I would draw datum lines like stratigraphy and then try to analyze what I saw. I would draw the hue marks on them and tried to figure out what caused that, then found out the process. I would look at eh hardware and nails. Basically every material aspect in the buildings was analyzed. So finally what happened the Park Service was given my very large report on what I saw. They said that they had gotten an architectural historian to document all of the historic buildings. I thought well I wasted my time, but they said that they like what I did a lot better. The architectural historian would have a photograph of a log house and a paragraph description. I would have 70 pages of analysis on the same building. We had a different approach; I would view it as a material culture, and analyze it as such like I had been trained to do for historic objects. Worked for NPS, then Exxon Corporation, then Corp of engineers, then the Tennessee Valley Authority hired me. I became the old house man I kept documenting buildings and that's all I did for several years.

Do you have experience working with historic structure reports? If yes please explain.

Both experience creating and using these reports. We have had to use HSR's to, in fact I just bid on a project that has a HSR by the NPS. Harpers Ferry, Virginia. I just won the restoration of the Church, where all of the work will be done as described in the report.

When documenting historic structures what aspects of the building do you see as the most important to document?

No, I think that every piece of information is extremely important so that you can analyze and interpret the method and time of construction. Most every house you enter has gone through an evolution. Buildings of every kind, every 20-30-40 years, you renovate them. You update them. And be able to analyze them, it's important that you look at the hardware, then look at the technology, and analyze the nails, the "kirf" marks left behind on the wood, it is very important to understand. If you go from a pit saw to a sash saw to a radial saw, it's important to know what chronologically what has taken place. The nails and saw cuts will tell you how and when the house was built.

Which parts do you see as least important?

There isn't anything that is least important. If you leave something out, particularly the history of some buildings is so fugitive. What I mean by that is that it just doesn't last. People cover it up or remove it. A lot of times all you're left with is bits and pieces of the original fabric, and what you're wanting to do is maintain as much of that original fabric or interpret the original fabric as much as possible.

Which aspects do feel are over looked?

I don't see a lot of emphasis on all of the technology. It really varies a lot. For example the Harpers Ferry report I am working off of now did not pay attention to the technology. What I mean by that is the types of nails, hardware, kerf marks left behind on the wood. I am more concerned, and this happens with architectural firms and even some historic preservation architects. They are more concerned with the style of the house, than the presentation that it makes, more than the nuts and bolts.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

Every structures report should focus on chronology or building episodes. When you restore the building, you want to be able to restore the building to a certain time period. It's hard to say, with each individual building, the demands for the buildings interpretation are different. There is not one answer that fits all. Sometime the emphasis should be in different areas. I think that chronology is a very important thing.

When working in a building on campus that is more than 50 years old, would you take extra steps to prevent unnecessary damage or only follow the scope of work laid out in the plans and specifications?

It will vary and depend on the project, depend on the architect, and it will depend on the engineer. Depends on what they are doing. I am typically involved in the front

end of doing the analysis and interpretation of what we are doing. Right now I am involved working on a 1825 structure, where I was involved in developing a report on the analysis of the building. And all of the components of how it should be restored. In developing these specifications, I use the Secretary of Interiors Standards for the Rehabilitation of Historic Buildings. I follow those rules, I don't always agree with them but I follow them. As well as, as a contractor you need to be aware of those technological needs for certain items. [For example if you have wood mold brick, if you do not use lime mortar.] People do damage to building all the time, because they do not know the technology or why it was done the way it was.

On these same buildings, what precautions if any do you take to limit unnecessary damages to the structure?

One of the things is documentation of things in place, in situ. And you should never disturb historic fabric if you don't have to. Not okay to do it just to make things look better. Not a justifiable thing to do to the building. The age and the character of the building is what it is. The owners of the building have a responsibility for their up keep, need to realize that. And not try to make them more than they can be or were.

What do you find most beneficial for a contractor in a HSR?

Number one thing, preservation. Understanding what is historic, what is not historic about the building? A lot of people don't understand the difference in a building that was built in the late 19th century and the early 20th century. If you point it

out to them, then it makes a big difference. Then you can point out to them that this is an important object, but that is not important. Plunging system vs. Joist system, preserving a plunging system is far more important to keep, than making the floor level, and if it's not damaged, but just out of level. Then keep it that way. Those are the advantages I see in a HSR. A project of any scope should not go forward without some analysis by preservationist. If I am faced with a project that does not have one, then I would talk to the owner, to help them understand the importance. I do not work on buildings that I will destroy. People have asked him to do work that is detrimental to the building.

GENERAL CONTRACTOR #7

What is your professional title?

Project Manager for a national general contractor

Do you have a background in historic preservation? If yes please explain.

Named 2 historic rehabilitations on a university campus.

Do you have experience working with historic structure reports? If yes please explain.

On a current project, I have a historic report form an architectural firm. Conceptual improvement reports, it's basically a shopping list of what needs to be completed.

Do you have experience creating historic structure reports? If yes please explain.

No.

When working in a building on campus that is more than 50 years old, would you take extra steps to prevent unnecessary damage?

Yes, on my current project, the main focus is on the historic finishes. We are doing a lot of selective structural steel demolition and a lot of architectural demotion that is adjacent to these historic finishes. A lot of time and money spent on temporary protection for these historic finishes. All of the terrazzo floors-plastic and Masonite is laid down- over all of the historic floors for moisture. In the hall where there is ornamental plaster, we built a plywood barrier around the whole perimeter, to keep people away from the finishes. There is a lot of preplanning that goes into the protection of these finishes.

Do you only follow the scope of work laid out in the plans and specifications?

There are notes in the drawings that say "protect this, or don't damage that." When we were developing the GMP, it was something we knew that had to be done. We figured the square footages of the plaster and terrazzo, we figured in the GMP the plywood and materials and labor needed to protect the areas. The architects made notes to protect it, it was up to use to figure out how when and how much quantities and such.

What aspects of a historic structure do you feel are the most important? Please explain.

Specifically, the current project has very unique and special historic finishes in the main corridors. The rooms are just regular rooms, there isn't anything special to them. Those are just business as usual, I guess. The historic areas with the historic finishes, that finishes were specially crafted in the 1930's, they are items that you can't treat like just another job or a non-historic job. It is something I really enjoy; it's not your ordinary renovation, or a building out in a middle of a field. It's not a renovation of a building from the 70s or 80s, its historic and was built 80 years ago. For me you can tell, you start looking at things and you can tell they did things a little differently.

Did you receive these reports prior to being awarded the job?

After we secured the job, the architect started giving us these reports. This started out with nothing but narratives, evolving into schematic design.

If you had all of the information from the historic structure reports prior to bidding the job would that have affected the way you bid the job?

Yes, absolutely, when we established the GMP before any information, narratives or anything was given to us. It was before all of this was created and the architect had a chance to create it. The way the project started was a lot of differed maintenance projects, a lot of guessing or just not money in the budget. There are historic finishes that are falling apart and need to be fixed, it's in the reports but it is not in the budgets. So, it's not going to get done. But if this information would have been there, it would have been in the GMP, and could of done the work. It's a challenge of a CM job, and the renovations it's very. The report could help minimize disconnects between the preservation of the building and the work.

GENERAL CONTRACTOR #8

What is your professional title?

I am a vice president of a small general contracting firm, and project manager.

Do you have a background in historic preservation? If yes please explain.

Yes involved in the numerous historic preservation projects [names several projects by name]. We are prequalified by the state for work on historic preservation projects. We are keenly interested in Historic Preservation, what we typically do is

bring in someone to work with us. There are two or three companies here in town that are renowned for their ability and craftsmanship on these types of projects. We typically bring them in as a secondary consultant.

Do you have experience working or creating historic structure reports? If yes please explain.

Working with not creating. On one of our projects we were given a copy HSR that was developed on the building. I used this as a guide for what the expectations were for once it was restored. In addition of the drawings, they gave us a reasonable idea to what the expectation of what the finished project should look like.

When working in a building on campus that is more than 50 years old, would you take extra steps to prevent unnecessary damage or only follow the scope of work laid out in the plans and specifications?

We take protection of the whole facilities in account when we are pricing. On a previous project we had to build a basement under an existing concrete and masonry building. Everything was rigid, inside it was all plaster walls, with plaster cornice with gold leafing. We had to put temporary shores in to hold this building up, and my tolerance for movement was $1/64^{th}$ of an inch. The reason was because if we moved any more than that we would be cracking or damaging irreplaceable finishes. A substantial

amount of time went into the preplanning phase of the project to ensure that the project was completed correctly. Another area had murals on the walls that dated back to the 1940s not to be changed in any way shape or form. We had to construct temporary walls and forms to protect against anytime of bump or anything. Most of the time the specifications have a catch all, generic "do whatever you need to protect his stuff," that's about as far as they go. One is from physical damage, another is environmental damage. Making sure that you have humidity under control, in some cases you have to replace mechanical systems, and some of the finishes cannot take the heat or humidity shifts.

What aspects of a historic structure do you feel are the most important? Please explain.

The understanding of the owner's intent; what remains, what doesn't remain? What needs to be protected and what doesn't? Going back to identification of things that need to be restored, ceramic tile that is missing or severely damaged on a certain project. The new question becomes, how you deal with this tile, you cannot buy new tile to replace it. How do you deal with the tile in those areas where you cannot buy a new tile to match? Something we did with the designer up front was, how are we going to deal with these spaces? We found a company out of New York, and their job was to replica the tile in color. Also, through time tile creates tiny cracks in the surface call crazing. They also had to replicate the crazing to match. So that when we went back in

to put the patches in; it blended in as good as it could. That is one of the things that needs to be defined clearly up front, because if you don't then someone is just going to go look at Dow Tile or something cheap to install. The same thing with black marble, it was very rare, used for base. Do we try to find new to match or salvage every square inch of this to reuse. The other thing you should spend some time thinking about is fi you are retrofitting a building with electrical. These old structures are sometimes wood framed or stoned structure; the ceilings are up tight to the structure. There is not much room for retrofitting. Figuring out how you are going to retrofit sprinklers or electrical in the building. If these reports could help on the front end to help minimize the damage to historic fabric, and/or identify what you can/would/or should damage to retrofit these buildings.

More beneficial to get HSR before bid or after?

Doesn't matter as much, Designer needs to read that front to back and really understand the report. They need to be able to say how close do you want to get to the original? They need to be very specific in identifying these sort of things so that the contractor knows what I need to protect, what do I need to salvage? How much do I need to salvage? Where are these salvage materials going to go? The report was helpful after the fact, but it really did not play a part in the development of my bid. What played a part in that is the architect figuring out how close to the original do we want to get to the

original. So that they could identify what's new? What's staying? What's getting repaired?

Which aspects do feel are over looked?

A lot of times the people that create these reports don't get into the means and methods. How are you going to accomplish this? In a historic restoration, I don't think that the designer should not try to shed that responsibility. I'll go back to the installing the energy efficiently lighting on a historic project. To be able to go from the switch to the new locations of the light fixtures, those walls had to be channeled, where we had large innate plaster cornices. What the designer needs to think about is where we can go that causes the least amount of damage. What's the best path that creates the least amount of damage? In some cases you might not be able to go straight A to B. You may have to go down through the wall into another room then up and over to the other location. If the designer doesn't get involved and offer some guidance then the contractor will do whatever. If its damaged, it can be repaired, but it will never be the same. It won't be repaired to the same quality as before. When working on something that is precious, the designer needs to somewhat define and deal with means and methods, either in the report or in the drawings. The architect is in a good position to do this. They know the owner and understand the reports, they are in a great position to be able to clarify those things.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

When you start looking at the repurposing of buildings, it happens a lot. We worked on an Old gym and converted it to a fine arts center, only because it had extreme sentimental value. The problem is every time you repurpose, you run the chance of taking out or damaging something that can never be replaced. Flexibility is good when you think that you run the chance of repurposing. That is when you want to go a little more into sophisticated mechanical systems, which take up less space, much easier 4 pipe system. You do less damage by reconfiguration, you do not have as much space wasted with new systems like you do with old systems. If you are going to repurpose the building you may look at the front end cost, and try to maintain flexibility on those buildings along with the maintaining costs.

Other notes: One thing I like is being able to understand the dialogue from the designer and the owner on a restoration project, and being able to be involved in that dialogue. Refining the scope of the project, what's important, why it's important. Why we are using them, other than them say go find someone to do this. Having a good understanding of the dialogue that went into why we are going to use this company from New York. What are our goals? It would have been most helpful to us other than saying you need to go find someone that can match this tile. What is important to the client. Sun porch-be careful in this area. Tile was impossible to match. If that tile was damaged no fixing it. Protection means a lot of different things. But understanding why

is very important and ramifications if it is damaged. There should always be some sort of prequalification on these types of jobs.

GENERAL CONTRACTOR #9

Do you have a background in historic preservation?

Not a formal background-Degrees in business and civil engineering. Practical experience, the last 25 years 67 national register projects, 25 national landmark projects, and a national monument.

Do you have experience working with historic structure reports?

Certain projects they were with the design team as project managers and used them. Reading through and understanding the changes in the building through time. To me the more times a building has changed through its life the more risk there is. You're more likely to find stuff. It has changed structurally. Using an HSR as a Project Manager you understand the project better, and what is more important in the project. If it weren't for us being a project manager for a general contractor, then we would never see an HSR.

Do you have experience creating historic structure reports?

They have been a consultant on many projects, a lot of early planning but not specifically an HSR.

When documenting a historic structures what aspects of the building do you see as the most important to document?

It is going to very depending on the type of building, but in general (this will be the 80% rule), it's going to be shell of the building understanding what has happened to that, repairs to the building. The basic structure of the building, understanding what the progression has been on that. Those are the big ones. Basic Interior configuration this one from a cost and schedule stand point, holds the most surprises. Additional layers of walls and flooring. When electrical and mechanical systems have been changed out 3 -4 times, every one of those have a tendency to affect the structure. The progression of the building can be exposed in the HSR, and help us understand the building better.

Which parts do you see as least important?

I would normally say the landscaping, but sometimes it can be very important. If it is included in the HSR we can schedule where we layout the project , where the utilities go. Nothing really tops out at least important. Could be the mechanical systems, as a less priority. Code changes those so much. Project specific.

Which aspects do feel are over looked?

Been very lucky, most projects they have worked with, and those that do have HSR were very well written. They have been documented very well. Always look at the HSR as the history report of the building. Wish it was taken one step further look for solutions, how are you going to fix what is there. I can't think of anything that comes up short.

Since we are working on the University's campus and the buildings will continuously be used what should the HSR focus on?

My thought process on this is to focus on the areas that have the most potential to change or will change the most in the future. By that I mean electrical and mechanical systems. I don't care what you put in today, in 20 years it's going to be shot. When we start doing that certain things are going to be impacted. Thinking of the future may dictate what is going to need to be changed. If there isn't an HSR on a building that has not been brought up to code. Then handicap ramps, elevator shafts, and ADA requirements. Granted this is asking for a solution before there is a problem. Looking at the outside water table, and issues should be documented well. This indicates that we should make changes.

One of the things that if it is not picked up in the HSR then it'll be cost driven. Paint Analysis, detailed paint analysis, very costly. If not done prior to demolition, nobody will ever know what was in those places. Piece of plaster fell, governor's office, repaired it, repainted ceiling and didn't document what was already there. Replaced

never documented, the HSR was done on the building. It wasn't done in that space. Now no one will ever know what was in those spaces.

When working in a building on campus that is more than 50 years old, would you take extra steps to prevent unnecessary damage or only follow the scope of work laid out in the plans and specifications?

We have several tools that we use. Majority of our work is construction managers; we do a full risk matrix. We define the historic fabric and the potential risks of the project , determine methodology, and how we are going to do the protect . Typically all you see is don't damage the marble floors or don't hurt this area. We will go through all the areas and lay out exactly what each area needs(the floors are going to have Masonite, rubber mat, plastic sheeting, etc.) This could be several pages long of different item. We like to think that we are not the norm, but it is because we have a group of guys that understand what the important stuff is. Having the HSR will help you identify some of these things. Commonly architects leave it to chance; the best architects do not leave it to chance. We still have to battle with some of our contractors to do what we have specified. Most contractors won't do it, better to specify it to leave it to chance.

What do you find most beneficial for a contractor in a HSR?

I'm definitely going to say Pre-Construction Services. 99% is where the HSR is valuable, after that it needs to be in the construction documents. The HSR is too little

too late once you hit the construction phase. It cannot serve its purpose once you hit the construction phase.

Is there any other comments or ideas that would be more beneficial as a contractor in an HSR?

This is my quirk, the contractors are very seldom given credit for what they do in history. Frank Lloyd Wright built this house, he didn't have a tool belt on, he designed it. If you do an HSR document who did the work. Nothing that I can think of. It really comes down to identifying technical problems are and getting the solutions in the construction documents. They can be used by a construction manager, if you get one that understands what he is reading. There has been a history of water leaks in the roof 20 times, and the gutters have been replaced 10 times. If you can understand the documents, as a manager you can come up with a lot bet solution for the owner. That is a very valuable; looking at a university client stand point if they have maintenance record would be helpful to shed some light on the building. This can add value to the HSR in regards to coming up with conclusions. Getting the right contractor in early to work with the designer. If they have maintenance records for major repairs be able to help changes to buildings can add values for conclusions for the design. Definitely seen these reports that have the history of construction, that help tell why they were done. Snap shot in time, may not be useful today. Helpful in the future, and will serve as a benchmark, as well.