Historic Building Analysis & Rehabilitation Case Study
For
City of Cheyenne, Wyoming

August 1, 2012

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>3</td>
</tr>
<tr>
<td>STUDY TEAM</td>
<td>5</td>
</tr>
<tr>
<td>FOREWORD</td>
<td>7</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>9</td>
</tr>
<tr>
<td>- Executive Summary</td>
<td>9</td>
</tr>
<tr>
<td>REHABILITATION CASE STUDY / ASSESSMENT</td>
<td>13</td>
</tr>
<tr>
<td>- Subject Property</td>
<td>13</td>
</tr>
<tr>
<td>- Building Assessment</td>
<td>14</td>
</tr>
<tr>
<td>- Rapid Visual Screening</td>
<td>17</td>
</tr>
<tr>
<td>- Assessment Photos</td>
<td>25</td>
</tr>
<tr>
<td>- Code Analysis Introduction</td>
<td>53</td>
</tr>
<tr>
<td>- Occupancy Scenarios</td>
<td>54</td>
</tr>
<tr>
<td>- Scenario 1 Code Requirements</td>
<td>56</td>
</tr>
<tr>
<td>- Scenario 2 Code Requirements</td>
<td>57</td>
</tr>
<tr>
<td>- Code Comparison Matrix (IBC vs. IEBC)</td>
<td>59</td>
</tr>
<tr>
<td>- General Rehabilitation Cost Data</td>
<td>63</td>
</tr>
<tr>
<td>REHABILITATION FINANCING STRATEGIES</td>
<td>67</td>
</tr>
<tr>
<td>- Existing Strategies</td>
<td>67</td>
</tr>
<tr>
<td>- Potential Strategies</td>
<td>68</td>
</tr>
<tr>
<td>RESULTS &amp; RECOMMENDATIONS</td>
<td>71</td>
</tr>
<tr>
<td>- Public Feedback from Worksession</td>
<td>71</td>
</tr>
<tr>
<td>- Common Pitfalls to Rehabilitation of Historic Properties in Cheyenne</td>
<td>72</td>
</tr>
<tr>
<td>- Common Pitfalls to Rehabilitation of Historic Properties</td>
<td>73</td>
</tr>
<tr>
<td>CONCLUSION / RECOMMENDATIONS</td>
<td>75</td>
</tr>
<tr>
<td>- Action Items for Improvement</td>
<td>75</td>
</tr>
<tr>
<td>APPENDIX (Building Assessment Samples)</td>
<td></td>
</tr>
<tr>
<td>- Appendix A: Overview Survey</td>
<td></td>
</tr>
<tr>
<td>- Appendix B: Rapid Visual Screening (RVS)</td>
<td></td>
</tr>
<tr>
<td>- Appendix C: Colorado State Historic Fund Guidelines for Historic Structures Assessment (HSA)</td>
<td></td>
</tr>
</tbody>
</table>
STUDY TEAM

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City Staff:

- Jim Flesher, Senior Planner
- Matt Ashby, Director of Planning
- Bruce Wilson, Chief Building Official
- Jon Narva, Fire Prevention Chief
FOREWARD

The Cheyenne Historic Building Analysis & Rehabilitation Case Study was funded by the Wyoming State Historic Preservation Office - administered Wyoming Certified Local Government program for identification and protection of historic properties. The focus of this project was to:

- identify a vacant or underutilized historic building in downtown Cheyenne as a case study for rehabilitation;
- evaluate the building’s rehabilitation under two different use scenarios;
- apply the family of standard, International Building Codes (including the International Existing Building Code, not yet adopted by the City of Cheyenne);
- present the findings in a public forum (May 10, 2012) that includes a candid discussion of the impediments to historic building rehabilitation in Cheyenne; and,
- recommend action items and create a “Rehabilitation Worksheet” that will reside with the city’s Building Official and that will provide a roadmap for historic building owners who are contemplating rehabilitation.

This report summarizes the goals of the project, findings of the rehabilitation case study, outcomes from the public workshop and recommendations for facilitating the rehabilitation for Cheyenne’s historic buildings.

Nanon Adair Anderson, AIA, LEED AP BD + C
Principal
Anderson Hallas Architects, PC

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EXECUTIVE SUMMARY

The City of Cheyenne has a rich architectural heritage that is representative of a variety of styles dating back to the 1870s. The Downtown Historic District is a key component in defining Cheyenne’s character and exemplifies the architectural heritage of Cheyenne with links to westward expansion, the railroad, early pioneers, the development of ranching and mining and Wyoming’s independent spirit that lives on today. The Downtown Historic District is comprised of approximately seven city blocks and contains an impressive stock of well-crafted, high style and vernacular commercial buildings; unfortunately many of these buildings have sat vacant and underutilized which negatively impacts the district as a whole.

In recent years, Cheyenne has begun to better understand the value of its historic buildings as more focus has been placed on strategies to revitalize downtown. Tremors of revitalization in the Downtown Historic District are evident in a number of buildings being repurposed for new uses but revitalization has been slow to gain traction. There are a number of reasons contributing to the downtown’s slow turnaround: a lack of financing options, few incentives for rehabilitation, price of real estate, a focus on suburban development, the general complexity of restoring a historic structure and general inertia. However, many of these challenges are common to any city revitalization.

Through previous downtown planning efforts, property owners have also brought up city codes, including building and fire codes as they relate to historic structures as a possible disincentive to rehabilitation. Building owners contemplating rehabilitation must interpret a myriad of building codes to determine the requirements necessary to meet code and no historic building perfectly addresses current concerns for health and life safety. Reviewing recent redevelopment projects in the downtown, it has become clear to the city that uncertainty regarding building code requirements exists as related to adaptive reuse of historic buildings. The intent of building codes is not to act as a road block to rehabilitation, but rather to protect the lives of the people who inhabit those buildings. The purpose of this report is to dispel some of the uncertainties regarding the application of building codes for the rehabilitation of historic buildings and to recommend a process to generally improve interest in revitalizing the Downtown Cheyenne Historic District. A case study example of a building in the Historic District is provided to clearly articulate the process.

Downtown Historic District / Rehabilitation Context:

The Downtown Cheyenne Historic District is located within the traditional commercial area of Cheyenne and comprises Cheyenne’s central business district. The historic district boundaries have been modified over the years but currently extend from the Cheyenne Depot Museum on the south to Nineteenth Street on the north and from Warren Avenue on the east to Pioneer Avenue on the west.
The majority of buildings are two-story brick buildings, but many multi-story structures are interspersed within the district. Architectural styles are representative of the various building periods and architectural preferences throughout Cheyenne’s history. They include Italianate, Richardsonian Romanesque, Neo-Classical Revival and many simple brick buildings that are categorically “vernacular.” Many street level storefronts were modified to reflect the Art Deco Movement during the 1920s and 1930s. Unfortunately, during the 1960s and 1970s period of urban renewal, many historic structures were razed and replaced with mostly undistinguished structures. In total, the Downtown Cheyenne Historic District contains 96 buildings of which 67 are considered to be contributing to the character of the district.

Of the 96 buildings within the district, the current condition and use of the buildings range as widely as the architectural styles that comprise the district. Some have been restored or well-maintained and are operational and currently occupied. Others are currently undergoing comprehensive rehabilitation in which the use of the building has changed, necessitating significant code upgrades to comply with current building codes. The Dinneen and Grier Buildings are examples of this condition. Other buildings are completely vacant, in some cases for as long as 25 years. Vacant buildings can present a hazard to adjacent occupied buildings as their condition deteriorates; they can attract vandalism and can pose a fire hazard. As buildings remain vacant, the cost to
rehabilitate them increases dramatically as deterioration is often not seen and addressed expeditiously (see Figure 1).

![Cost of Rehabilitation (Vacant vs. Occupied Buildings)](image)

*Figure 1: Building Rehabilitation Cost vs. Time*

Whether a building is occupied, underutilized or vacant, the common denominator among all the buildings within the Historic District is their undeniable value to the city’s heritage and vitality. Buildings today cannot be constructed, within a reasonable budget, with the same level of craft as those found in the district. Likewise, the common misconception that historic buildings cannot be energy efficient or “green” does not factor in current building system technologies and the relative stability of historic materials nor does it take into account the embodied energy of an existing building in comparison to the energy cost of tearing it down, disposing of the resultant waste and constructing the new.

The intended outcome of this case study is to clarify the process a building owner should follow to rehabilitate a historic building and to provide recommended steps to undertake such a project. Also included are recommended action items for the city to consider in support of the rehabilitation of Cheyenne’s historic core buildings. Although rehabilitating historic buildings can be challenging, the reward of restoring a piece of history is immeasurable.
REHABILITATION CASE STUDY / ASSESSMENT

Introduction:

The case study provides an example of a historic building downtown which was analyzed by design and code professionals to determine the subject properties’ current condition and code deficiencies based upon two different reuse scenarios. The results of the case study exemplify issues that arise when rehabilitating a historic building and attempt to clear uncertainties regarding what is typically required when adaptively reusing an existing building. The study examines the rehabilitation process for potential building owners viewed through the lens of permitting-processes and codes that are pertinent to the Downtown Cheyenne Historic District.

After touring three buildings in the historic core of Cheyenne, the study team selected the Carey Building, located at the northwest corner of 17th and Carey, to focus the evaluation upon for the following reasons:

- The building is currently vacant.
- Much of the original historic fabric remains.
- Alterations have been made, covering up original historic fabric; this allows the study team to make recommendations regarding restoring those elements.
- The building is generally in good condition.

The Carey Building is a 40,000 square foot brick and stone masonry structure originally built in 1876 in the Italianate style. Initially the building consisted of many different retail spaces on the main level that were entirely separate from one another, while the 2nd and 3rd levels were used as apartments. Effectively, the original building consisted of 4
separate bays (as shown in the above Sanborn map; the highlighted area is the Carey building), however, at some point the basement and 1st floor were modernized and the demising walls between bays were opened up. Over the years the building changed hands but the primary use of space stayed consistent: retail on the basement and 1st floor and residential on the 2nd and 3rd floors. In the 1950s, in an attempt to modernize the building, the original façade was significantly altered when the tenant installed metal paneling over the 2nd and 3rd story facades and a polished terrazzo cladding with aluminum storefront windows at the main level. This rendered the 2nd and 3rd floors useless as all the windows were covered up. A clothing department store inhabited the basement and 1st floor followed by a furniture store; the building has been un-occupied for the last 10-15 years. While the basement and 1st floor were significantly altered in the 1950s and little historic fabric exists, the 2nd and 3rd floors have not been occupied since the 1950s and all of the original historic fabric remains. The building is located in the heart of the Downtown Cheyenne Historic District; however, it’s currently listed on the National Register as a non-contributing structure to the district as the modernized façade has been deemed intrusive to the character of the district. If the metal cladding were to be removed to reveal the original building exterior, the building would be listed as a contributing structure to the Historic District.

Assessment:

On May 2nd, 2012, the study team assessed the current condition of the Carey Building. The assessment team included architects and a structural engineer reviewing all components of the building including:

- Roof
- Exterior walls
- Windows & doors
- Finishes
- Structural systems
- Mechanical, electrical and plumbing systems
- Code and ADA compliance

For the purposes of this assessment, the study team used a Rapid Visual Screening (RVS) form to evaluate the property. The RVS is a form that itemizes each component of a building which is reviewed individually and subsequent recommendations are made relating to their current condition, useful life and recommendations for repair. This process allows the study team to gather a significant amount of information in a short period of time. The RVS process is a valuable tool to utilize when seeking to determine a baseline condition of a building for a potential owner/developer considering redevelopment. Many hidden issues that would require remediation and potentially cost significantly more if discovered later in the process, can be identified upfront and factored into an owner’s redevelopment decisions. If a more exhaustive analysis of
Historic features is desired, an owner would want to consider conducting a Historic Structures Assessment. This is a detailed assessment conducted over many days that thoroughly investigates every component of a building, from the buildings’ structural system down to the hinges on each door. A report is generated providing history and background of the building, recommendations for treatment and opinions of probable cost.

Essentially there are three types of building assessments commonly used: An overview survey, which is a checklist covering the broad strokes of a building’s existing condition and can be completed in a short amount of time; the rapid visual screening, used for this project; and finally the Historic Structures Assessment. Samples of the overview assessment and RVS and guidelines for an HSA as published by the Colorado State Historic Fund can be found in the appendix.

The completed RVS form and assessment photos for the Carey Building are included in the following pages. The photos are keyed to items listed in the RVS.
### A. Substructure

<table>
<thead>
<tr>
<th>Building Component</th>
<th>Component (Description)</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Life Span (Yrs)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Structural Walls</td>
<td>Exterior and interior finishes are not visible. Exterior basement walls typically 18' to 24' thick masonry block. Interior bearing walls are typically brick but significant quantities of stone and concrete (color as well). Cracking observed in finishes is typical of a building of this type and age. This indicates that finishes are located on relatively stable soil and are reasonably sized.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Safety, Structural</td>
<td>Remove all finish on exterior walls. Hire an architect and engineer to document and quantify damage. Clean and paint walls with masonry degradation. Replace exterior walls with new masonry with a minimum thickness of 2.0 inches.</td>
<td>2000 SF</td>
</tr>
</tbody>
</table>

### B. Shell

<table>
<thead>
<tr>
<th>Building Component</th>
<th>Component (Description)</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Life Span (Yrs)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 Floor Construction</td>
<td>Concrete slab-on-grade of unknown thickness and reinforcing.</td>
<td>Slab typically covered by finishes so complete condition assessment was not possible.</td>
<td>X</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>14,600 SF</td>
</tr>
<tr>
<td>1st Floor</td>
<td>Floor framing typically consists of 2x4 wood floor sheathing over 2x12 wood joists at 12’ centers. Most of the joists are rough sawn. Non-compliant notches and holes were observed in numerous joists. Minor moisture damage were observed in a few isolated locations. Joists do not meet current Code for capacity.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Use materials matching existing in repairs</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>2nd Floor</td>
<td>Floor joists in west bay</td>
<td>Not visible for assessment</td>
<td>X</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>2nd Floor</td>
<td>Floor framing at entries</td>
<td>Slab and supporting framing was not fully accessible for assessment. No obvious problems for the visible area.</td>
<td>X</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>2nd Floor</td>
<td>First floor framing in west bay</td>
<td>Bottom of untreated joists less than 6” clear of soil in crawl space. Code requires 18” clear between soil and untreated wood members to prevent delamination due to moisture.</td>
<td>X</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>2,640 SF 100 CV</td>
</tr>
<tr>
<td>2nd Floor</td>
<td>Floor framing typically consists of 2x4 wood floor sheathing over rough sawn 2x12 wood joists at 12’ centers. Non-compliant notches and holes were observed in numerous joists. Minor moisture damage was observed in a few isolated locations.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>Use materials matching existing in repairs</td>
<td>None</td>
<td>12,100 SF</td>
</tr>
</tbody>
</table>
## City of Cheyenne

### Historic Building Analysis & Case Study - Rapid Visual Screening

#### Existing Condition Assessment

**Building Condition: City Hall**

**Building Type:** Government

**Date of Inspection:** 5/2/2013

**Historical Significance:**

- **Historical Context:** The City Hall building was constructed in 1931 as part of the Works Progress Administration (WPA) during the Great Depression. It served as the central administrative and community hub for the City of Cheyenne.

### Component Descriptions

<table>
<thead>
<tr>
<th>Building Component</th>
<th>Component Description</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Life Span (Yrs)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
<th>Photo Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Slab</td>
<td>Floor slab in southeast corner of building</td>
<td>Not visible for inspection.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Floor</td>
<td>Floor framing, typical consists of 2x12 wood floor joists at 10'-0&quot; centers</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Deck</td>
<td>Roof framing is secured into brick walls</td>
<td>Minor moisture damage observed in some areas.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Historic Building Analysis & Case Study
City of Cheyenne

### Historic Building Analysis & Case Study

#### Building: Camp Building

<table>
<thead>
<tr>
<th>Building Component</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Life Span (Yrs)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
<th>Photo Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Floor</strong></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brick and Stone Masonry Walls 18&quot; to 24&quot; thick</td>
<td>Typical minor cracking observed</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Rout out and repair cracks</td>
<td>800 LF</td>
<td>S3</td>
</tr>
<tr>
<td><strong>2nd Floor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typically 3 wythe brick walls</td>
<td>Typical minor cracking observed</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Rout out and repair cracks</td>
<td>800 LF</td>
<td>S9</td>
</tr>
<tr>
<td><strong>3rd Floor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typically 2 or 3 wythe brick walls</td>
<td>Typical minor cracking observed</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Rout out and repair cracks</td>
<td>800 LF</td>
<td></td>
</tr>
</tbody>
</table>

#### Exterior Components

<table>
<thead>
<tr>
<th>Exterior Component</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Life Span (Yrs)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
<th>Photo Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Floor</strong></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original exterior walls at the south and east elevations are clad with terra cotta, approximately 5'-1/2&quot; thick. The north elevation (wall) is painted brick masonry.</td>
<td>The terrazzo is in good condition but is visually distracting. The condition of the underlying brick substrate is unknown. The brick at the north elevation is in good condition</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Remove the terrazzo flooring and survey the underlying damage to the masonry. Repair the brick where necessary as a result of the terrazzo removal process. Replace the brick as needed</td>
<td>100% of the terrazzo</td>
<td>A36 A37 A38 A39 A40</td>
</tr>
<tr>
<td><strong>2nd &amp; 3rd Floor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South and west elevations are clad at 3'-2&quot; thick, 4x4 enameled metal panels over original red brick masonry (162 panels - south; 198 panels - west); panels are secured to a masonry facing system; furring system is secured to the building with 3/8&quot; diameter through bolts through original masonry walls at 2'-6&quot; x 6'-0&quot; o.c.; horizontal and 4'-0&quot; o.c. - vertical. South wall of 3rd story is in 1½&quot; lap wood siding; east wall of 3rd story is brick masonry; north wall and light wall walls are original red brick masonry (some painted) and (CMU) painted; the west wall of the 2nd story is a masonry exterior wall.</td>
<td>Buffalo sandstone window sills were left intact but keystones in the window heads were chiseled back to accommodate furring for the window system. The metal panels are in fair condition but their attachments have punched through the exterior floor in a dozen locations; the underlying brick is in good condition. The 1½&quot; wood siding is weathered; exposed brick masonry is in fair condition with areas of mortar erosion, water damage and cracks. The CMU at the first floor (north elevation) is in good condition</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Remove the panel system and survey the underlying damage, repair the brick by replacing mortar or solid brick replacement (matching in kind); replace sandstone keystones or investigate reusing the existing; replace the wood siding at the exterior and paint; inspect the remainder of the masonry walls and repair cracks; replace failed bricks and repoint</td>
<td>100% panels, 100% keystones, 100% wood siding, 25% brick repair and repointing</td>
<td>A11</td>
</tr>
</tbody>
</table>

#### Exterior Windows

<table>
<thead>
<tr>
<th>Exterior Window</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Life Span (Yrs)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
<th>Photo Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Floor</strong></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum storefront glazing with 1/4&quot; single pane glass.</td>
<td>Steel and frames are functional but offer no insulating properties; glass is questionable</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>At minimum the glazing should be replaced with higher efficiency, insulated glazing. Restoring the first floor glazing to the original historic condition should be considered</td>
<td>8-16 1/2</td>
<td>A11</td>
</tr>
<tr>
<td>2nd Floor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-over-4 and 1-over-1 double-hung windows</td>
<td>Windows have broken glass, heavily weathered rails, sills and frames; windows are original to building</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Patch and exterior wood members require extensive restoration or replacement. All glazing could be replaced; retain all hardware; address energy efficiency with glazing; weatherstripping and/or window treatments</td>
<td>35 ea</td>
<td>A12</td>
</tr>
<tr>
<td>3-over-2 double hung windows</td>
<td>Windows have some broken panes and deteriorated wood sills at exterior; keystones have been defaced to fit exterior metal sash system; metal sash attachments have damaged interior and exterior wood members</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Remove the applied metal panel sash; replace the damage to the window sash frame, trim and masonry surrounds; restore windows; replace glazing; replace or epoxy stabilize wood sills; epoxy stabilize exterior wood trim; replace all keystones (or possibly mortise and reset); repair the exterior and repaint or repaint and refinish the interior</td>
<td>12 ea</td>
<td>A13</td>
</tr>
</tbody>
</table>
### Historic Building Analysis & Case Study
City of Cheyenne

#### Building: Camp Building

**Historic Hallmark Architectural Firm, PC**

#### Rapid Visual Screening

<table>
<thead>
<tr>
<th>Building Component</th>
<th>Reviewer</th>
<th>Component Description</th>
<th>Observations</th>
<th>Condition</th>
<th>Expected Use Life Span (yr)</th>
<th>Category (Issues)</th>
<th>Recommendations</th>
<th>Quantity</th>
<th>Photo Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Floor, South West Entry Door</td>
<td>AH</td>
<td>Pair of 3-3/4&quot;-0&quot; bronze anodized aluminum storefront doors</td>
<td>Door is in good condition but finishes are weathered. Glazing is 1/4&quot; single pane, gaskets are questionable. Slope begins immediately at door threshold and ramps down to sidewalk level which does not meet current code or ADA standards.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door glazing should be replaced with proper safety glazing. The ramp down to sidewalk level may need to be removed and a proper ADA entry installed.</td>
<td>1 Store-front system</td>
<td>1A4</td>
</tr>
<tr>
<td>1st Floor, Middle South Entry Door</td>
<td>AH</td>
<td>Single 3-3/4&quot;-0&quot; aluminum storefront door with sidelights</td>
<td>Door is in good condition but aluminum is weathered. Glazing is 1/4&quot; single pane, gaskets are questionable. Slope begins immediately at door threshold and ramps down to sidewalk level which does not meet current code or ADA standards.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door glazing should be replaced with proper safety glazing. The ramp down to the sidewalk level may need to be removed and a proper landing at the entry installed.</td>
<td>1 Store-front system</td>
<td>1A5</td>
</tr>
<tr>
<td>1st Floor, Main Entry Doors at East Side</td>
<td>AH</td>
<td>Entry vestibule with (2) pair of 3-3/4&quot;-0&quot; aluminum storefront doors and sidelight glazing</td>
<td>Vestibule does not meet ADA required 7'-0&quot; between sets of doors. Aluminum storefront is weathered, glazing is 1/4&quot; single pane, and weatherstripping and gaskets are questionable. Grade slopes down toward sidewalk in vestibule which does not meet ADA requirements.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>The vestibule may need to be altered to meet ADA requirements for 7'-0&quot; between sets of doors. The ramp inside the vestibule also may need to be installed. 1/4&quot; glazing should be replaced with safety glazing and have better thermal properties.</td>
<td>1 Alum. Store-front vestibule</td>
<td>1A6</td>
</tr>
<tr>
<td>Door to Second Floor accessed at Southeast</td>
<td>AH</td>
<td>Single 3-3/4&quot;-0&quot; aluminum storefront door</td>
<td>Aluminum is weathered and furred glazing is in poor condition. Glazing is 1/4&quot; single pane. Door is accessed by an 8&quot; stair from sidewalk level onto a 20&quot; deep landing and thus does not meet code. Stairs to 2nd floor begin immediately on other side of door.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>The landing on the exterior side of the door may need to be altered to meet current code and ADA requirements. The door should be replaced with a new storefront system with proper safety glazing.</td>
<td>1 Alum. Store-front door</td>
<td>1A7</td>
</tr>
<tr>
<td>1st Floor, Middle East Entry Door</td>
<td>AH</td>
<td>Pair of 3-3/4&quot;-0&quot; aluminum storefront doors</td>
<td>Door is in good condition but aluminum has a dated appearance. Glazing is 1/4&quot; single pane. Slope begins immediately at threshold down to grade level.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door should be replaced with a new storefront system with proper safety glazing. Stairs may need to be remodeled to accommodate ADA.</td>
<td>1 Store-front door</td>
<td>1A8</td>
</tr>
<tr>
<td>Northeast door at Alley</td>
<td>AH</td>
<td>4'-0&quot;-0&quot; steel door</td>
<td>Door is in good condition given the use and alley placement. 1-1/2&quot; step up to the threshold level.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door could continue as is, the 1-1/2&quot; step may need to be remedied to meet ADA.</td>
<td>1 Store-front door</td>
<td>1A9</td>
</tr>
<tr>
<td>North Central door at Alley</td>
<td>AH</td>
<td>4'-0&quot;-0&quot; steel door at loading height (2'-0&quot; above grade level)</td>
<td>Door is heavily weathered but in fair condition</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door frame should be repaired to be better attached to wall. Install new weatherstripping and seal all the way around perimeter of door frame.</td>
<td>1 Store-front door</td>
<td>1A10</td>
</tr>
<tr>
<td>Northwest Door at Alley</td>
<td>AH</td>
<td>3'-0&quot;-0&quot; steel door in 33&quot; deep recess</td>
<td>Door is set back in a 33&quot; recess and has one step up 5.5&quot; from grade level. Door is in good condition but frame appears to be loose from wall.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door frame should be repaired to be better attached to wall. Install new weatherstripping and seal all the way around perimeter of door frame.</td>
<td>1 Store-front door</td>
<td>2X</td>
</tr>
<tr>
<td>Hultsile, metal exit doors</td>
<td>AH</td>
<td>Half the painted metal exit doors at 2nd and 3rd floor fire escapes, located in &quot;light well&quot;</td>
<td>Doors are weathered but operate. Fire escapes do not comply with code and do not provide egress.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Door location, size and associated fire escapes require further study.</td>
<td></td>
<td>2X</td>
</tr>
</tbody>
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## Historic Building Analysis & Case Study

### City of Cheyenne

### Anderson Hallas Architects, PC

#### Rapid Visual Screening

##### Existing Condition Assessment

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### B7 Roof Openings

| Skylight | A1H | Wiring less, slighty in metal frame at 2nd floor roof, southeast. N/A | Entire element is compromised, coated sealing, rusted frame, and failed sealant and flashing appears to be original to this building. | X | X | X | X | Skylight provides daylight to 2nd floor hallway; replace with similar. | 1 ea | A19 |

| Skylights (overbuilt) in waterfront bay | A1H | There are (3) 5’ x 6’ skylights within the fourth (westmost) building bay. | The skylights are roofed over completely but appear to be partially clad with the possibility of some broken or missing panes, and damaged/renewed pipe structure; skylights appear to be original to the building. | X | X | X | X | | | A20 |

### C INTERIORS

| C1 Interior Doors | Basement Doors | A1H | Basement doors are hollow core, 2”x6” wide wood doors with wood slab lowers. | The doors are very dated and have non-ADA compliant hardware. Many doors show signs of mold/moisture/damage. | X | X | X | X | All doors at the basement level should be removed. | 100% | A21 |

| 1st Floor Doors | A1H | Most doors are closed type doors at 1st floor and are hollow core, 2”x6” wide wood doors with wood slab lowers similar to those found in the basement. | The doors are very dated and do not have ADA compliant hardware. | X | X | X | X | All interior doors at the 1st Floor level should be removed. | 100% | A22 |

| 2nd Floor Doors | A1H | 2’10” x 6’9” x 1’36” raised panel wood doors with elaborate wood trim, painted, typical. | Doors are original to the building and retain their Eastlake hinges and hinge hardware. | X | X | X | | No work is required at this time; looking at mechanisms that require further study. | N/A | |

| 3rd Floor Doors | A1H | 2’10” x 6’9” x 1’36” raised panel wood doors with elaborate wood trim, painted, typical. | Doors are original to the building and retain their Eastlake hinges and hinge hardware. Room numbers may be original. | X | X | X | | No work is required at this time; looking at mechanisms that require further study. | N/A | |

### C2 Restroom Constructions

| Eastern Stair from 1st Floor to Basement | A1H | Wood stair with carpet, 5-1/2” wide with 2’0”x0’-0” landing after 2 risers. Floor to floor height is 8’5”. | 14 risers at 8’0”; 10 treads at 11” each. However, last tread is 14”, handicap at one side of stair only, no guardrail on open side of stair. Handrails do not meet required extensions. | X | X | X | | Last tread and handrails may need to be altered to meet code and ADA requirements. | A23 |

| Central Stair from 1st Floor to Basement | A1H | Wood stair with carpet, 3-1/2” wide with 2’0”x3’-3” risers to Intermediate landing; 13 treads and 13 risers from landing to basement level. All treads are 17”, all treads are 11”. | Floor to floor height is 8’5”. | Handrail does not meet code requirements. | X | X | X | | Handrails should be replaced with ones that meet extension requirements. | 1 |

| Western Stair from 1st Floor to Basement | A1H | Wood framed stair with vinyl sheet covering, 3-5/16” wide with 14 treads at 11’9”, 15 risers at 7”. Floor to floor height is 8’0”. | Handrail on one side of stair only and is 32” above railing of brass; decorative do not meet code requirements. Top tread is 10” and top rise is 8” and thus do not meet code. | X | X | X | X | Top stair tread and rails should be removed to meet code; Handrails meeting code requirements should be installed on both sides of stair. | A24 |

| Star from street level to Second Floor | A1H | 30 stairs at 0’7”/0’10” (Rise) x 5’-10” 1/2” wide; wood; total rise is 10’; (3) handrails at 26” above tread nosing. | Stairs provide no intermediate for bottom landing; (1) handrail (original to the building) is broken, the other does not appear to be original | X | X | X | X | The stair’s depthness and lack of landing may constitute a “dangerous condition”; under the IRC, handrails should be taped to 36” and repeated hand railings require further study of existing conditions. | A25 |

| Star from Second to Third Floor at South Side of Second Floor | A1H | 23 treads at 0’5”/0’10” (Rise) x 4’-4” wide; wood; total rise is 13’; (3) handrail at 26” above tread nosing; lacquered finish | Character-defining feature with original, decorative banisters and newer, intermediate landing | X | X | X | X | FTF could mandate adjustments to the guardrail at the top landings | A26 | A27 |
**Rapid Visual Screening**

**Existing Condition Assessment**

**City of Cheyenne**

**Anderson Hallas Architects, PC**

### Historic Building Analysis & Case Study

#### City of Cheyenne

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<tbody>
<tr>
<td><strong>Wall Finishes</strong></td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shale from Second to Third Floor at North Side of Second Floor</td>
<td>AH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A22</td>
</tr>
<tr>
<td>20 years at 6' x 6' (WR) x 2&quot; x 10&quot; wood: total this is 13&quot; x 13&quot;, 2&quot; on center, wood configuration at top of stairs</td>
<td>Railing and guardrail are missing</td>
<td>X X</td>
<td>The slate awareness and lack of landing may constitute a &quot;dangerous condition&quot; under the BIC, handrails and guardrails should be installed</td>
<td>1 handrail/ guardrail</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Floor Finishes** | C        |          |                           |                  |                 |          |            |
| Basement | AH |           |                           |                  |                 |          | A21        |
| 60% of the walls are gray and varnished. | 80% of the walls have black doors, signs of moisture damage. This is especially prevalent at the built-out bearing walls. 75% of the gray-painted walls are either suffered or damaged. | X X | Replace 100% of the gray-painted walls. |          |            |
| 1st Floor | AH |           |                           |                  |                 |          | A29        |
| 60% of the walls are gray and varnished. Most of the bearing walls have been built out with gray-painted wood. 10% of the walls have face wood paneling or wood paneling. 10% of the walls are exposed plaster or brick. | 80% of the gray-painted walls are not good condition and would only require painting. 40% of the walls have been damaged by moisture or other damage. Exposed plaster walls on the north side of building are showing signs of moisture damage and plaster is beginning to fall off. | X X | All interior gray-painted wall panels should be repaired. All wallpaper and other wall finishes should be replaced. 60% of exposed plaster & masonry walls need to be repaired or replaced. | 75% |            |
| 2nd Floor | AH |           |                           |                  |                 |          | A20        |
| Painted plaster on wood laths (interior walls) and painted plaster on ceiling (interior walls), much of which has multiple wood paneling layers.  | Painted plaster is sound and shows a "preserved" finish with elaborate wood trim. | X X | Remove all wall coverings; repair plaster, trim and wood trim. | 20% repair | 100% trim |            |
| 3rd Floor | AH |           |                           |                  |                 |          | A20        |
| Painted plaster on wood laths (interior walls) and painted plaster on ceiling (interior walls), much of which has multiple wood paneling layers.  | Painted plaster is sound and shows a "preserved" finish with elaborate wood trim. | X X | Remove all wall coverings; repair plaster, trim and wood trim. | 20% repair | 100% trim |            |

**Ceiling Finishes** | C        |          |                           |                  |                 |          |            |
| Basement | AH |           |                           |                  |                 |          | A21        |
| Gypsum board ceiling throughout. | The gypsum board ceilings are in fair condition. The ceilings are exposed to low (15-30) as you step in the basement toward the north side of the building. Many places along the north and the ceilings are heavily soiled. | X X | Replace 100% of the ceiling in the basement. |          |            |
| 1st Floor | AH |           |                           |                  |                 |          | A34 A35   |
| The original ceiling in the first floor above the dropped ceiling is a 18" ceiling over lath and plaster. The ceiling varies from 14" on the finished floor to 11 1/2" depending on the bay. | The ceiling tiles are in extremely poor condition and in many places have suffered extreme water damage. The ceiling tiles are 18" in the eastern portion and 24" in the remainder. gypsum board ceiling is in fair to good condition. | X X | All ceilings at the first floor should be removed to expose the original ceiling. Approximately 10-20% of the ceiling will require repair or replacement. | 100% |            |

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22
## Historic Building Analysis & Case Study
City of Cheyenne

### Mechanical, Electrical & Plumbing Systems

<table>
<thead>
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<tr>
<td>2nd floor</td>
<td>Plaster on lath, painted - type</td>
<td>Several sections of plaster have failed, due to roof leaks and 2nd floor radiator leaks.</td>
<td>X X X</td>
<td>Remove all plaster and replace with gypsum board; this allows for installation of new wood, etc., and insulation systems and provides visual access to structural framing damage caused by leaks and plaster infestations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd floor</td>
<td>Plaster on lath, painted - type</td>
<td>Several sections of plaster have failed, due to previous roof leaks.</td>
<td>X X X</td>
<td>Remove all plaster and replace with gypsum board; this allows for installation of new wood, etc., and insulation systems and provides visual access to structural framing damage caused by leaks and plaster infestations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

#### Item Descriptions:
- **D1. Drain Water Entry & Distribution:**
  - Plumbing (P): The existing water main appears to be a "T" line into the building. There is no backflow preventer on the line currently. X X X
  - The existing water main line will need to be replaced with a domestic water main large enough to service the building. 100% of water main replaced.

- **D2. Sanitary System:**
  - P: The existing sanitary line is a 4" cast iron line. X X X
  - The main sewer line into the building will need to be checked depending on the intended function of the building. An entire new sanitary line should be provided. 100% of sanitary sewer line.

- **D3. Plumbing Systems:**
  - P: The existing plumbing lines are a mixture of galvanized and copper. X X X
  - All plumbing will need to be replaced or retrofitted to accommodate any new designs. 100% of plumbing.

- **D4. Heat Generating Systems:**
  - M: The existing mechanical system for heat consists of a gas fired boiler. X X X
  - The heating system is in poor condition and has surpassed its useful life. A new mechanical system which is capable of providing outside air to meet current codes should be provided for the building. 100% of existing mechanical heating system.

- **D5. Cooling Generating Systems:**
  - M: There are several cooling systems for the building including a cooling tower, DX condensing unit, and a packaged air handling unit. X X X
  - The cooling tower is non-functional and the remainder of the cooling equipment is beyond its useful life. Remove and replace the cooling system for the whole building. 100% of existing mechanical cooling system.

- **D6. Sprinklers:**
  - M: No fire sprinkler system exists in the building. X
  - Depending on the future use of the building, a fully compliant fire sprinkler system should be installed.

- **D7. Standpipes:**
  - M: No standpipes currently exist in the building. X

- **D8. Electrical Service:**
  - E: The existing electrical service consists of two 400 amp, 250v, 3-phase electrical services. X X X
  - Electrical service is provided via an overhead primary line along the alley. 100% of the existing service is provided to the building. X X X

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23
### Historic Building Analysis & Case Study

**City of Cheyenne**

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<tr>
<td>09</td>
<td>Lighting &amp; Power Devices</td>
<td>E</td>
<td>Lighting and power devices range from floor to floor. At the basement and 1st floor level, lighting is predominantly fluorescent (other surfaces painted or in droplights). At the 2nd and 3rd floor some of the original incandescent light fixtures remain.</td>
<td>The lighting at the basement and 1st floor are dated and in need of replacement. The lighting at the 3rd and 2nd floors are beyond their useful lives.</td>
<td>X X</td>
<td></td>
<td></td>
<td>All lighting and power devices should be removed and replaced throughout the building. Original light fixtures at the 2nd and 3rd floors should be investigated for potential salvage and retrofit.</td>
<td>100% of lighting and power systems</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Voice/Data/CATV</td>
<td>E</td>
<td>The building has phone lines with significant capacity for expansion.</td>
<td>Significant capacity for phone lines is available from the alley overhead distribution lines and a large bundle currently extant in the building.</td>
<td>X</td>
<td></td>
<td></td>
<td>Depending on building usage Voice/Data/CATV should be upgraded. Band capacities for tenant usage should be coordinated with utility service providers.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Assessment Photos:

S1 – Typical wall damage due to rising damp

S2 – Non code compliant conduit bored through first floor joist
S3 – West bay floor framing less than 18” clear of soil

S4 – Non code compliant notch in second floor joist
S5 – Cracking in wall above south girder at third floor

S6 – Damaged roof framing
S7 – Water damage at roof framing pocketed into brick walls

S8 – Typical minor cracking in first floor masonry walls
Historic Building Analysis & Case Study
City of Cheyenne

**S9** – Typical minor cracking in 2nd floor masonry walls

**A1** – EPDM roofing @ 3rd floor roof
Historic Building Analysis & Case Study
City of Cheyenne

A2 – EPDM roofing @ 1st floor roof (bay #2)

A3 – Granulated – surface and plain roll roofing @ 4th bay (west)
A4 – Roll roofing @ 4th bay (west)

A5 – Built-up roofing with pea gravel ballast @ 1st bay (east)
A6 – *Built-up roofing with pea gravel ballast @ 1st bay (east)*

A7 – *Glazed tile parapet caps – typical*
A8 – Glazed tile parapet caps – typical

A9 – Metal parapet cap – typical @ metal facade
A10 – Conductor heads and downspouts

A11 – Aluminum storefront windows at 1st floor – typical
A12 – Wood windows @ 2nd floor “light well”

A13 – Wood windows @ 2nd floor (behind metal façade)
A14 – Wood windows @ 3rd floor

A15 – Aluminum storefront main entry doors @ east side
A16 – Aluminum storefront main entry doors @ east side

A17 – Door to main level (center east side)
A18 – Northeast door & north central door @ alley

A19 – Skylight @ 1st bay (east)
A20 – Underside of overbuilt skylight @ 2nd floor / 4th bay (west).

A21 – Interior door @ 3rd floor
A22 – Interior door @ 3rd floor

A23 – Main stair from 1st floor to basement
A24 – Stair from 1st floor to basement @ 3rd bay (west)

A25 – Looking down to street level @ top of stairway to 2nd floor
A26 – Stairway to 3rd floor

A27 – Looking down to landing @ stairway from 2nd to 3rd floor
**Historic Building Analysis & Case Study**

**City of Cheyenne**

A28 – Stairway to 3rd floor from 2nd floor

A29 – Typical interior wall @ 2nd floor
A30 – Typical interior & exterior walls @ 3rd floor

A31 – Typical flooring and finishes @ basement
A32 – Typical flooring & finish condition throughout the 1st floor

A33 – Typical flooring & floor finishes @ 2nd and 3rd floors
A34 – Typical condition of moisture rotted dropped ceiling @ 1st floor

A35 – Original tin ceiling beyond dropped ceiling @ 1st floor
A36 – 4’x4’ metal panels @ south & east facades

A37 – Metal furring system supporting metal panels
A38 – East wall of 2nd & 3rd floors of light well

A39 – Exterior wall of bay #1 (north)
A40 – Exterior wall of 2nd & 3rd floors / bay #3

A41 – Lap siding @ south side of 3rd floor
**Historic Building Analysis & Case Study**
City of Cheyenne

**P1** – *Existing domestic water entry – 1” line*

**P2** – *Existing 4” sanitary sewer line*
M1 – Existing gas fired boiler

E1 – Main electrical service (2, 400 amp, 208v panels)
Historic Building Analysis & Case Study
City of Cheyenne

Code Analysis:

One of the most frustrating topics for owners rehabilitating historic buildings is interpreting building codes and determining what code upgrades will be required of their building. Working with trained professionals – architects and engineers – helps navigate the system. Historic buildings can be difficult and costly to retrofit to address the presiding code as these buildings were built during a time in which building codes were much more lenient or non-existent. The fact that some provisions in the current code may be impossible to meet in an existing building is recognized by the family of International Building Codes and some leeway is given for existing buildings. However, many of the issues that have a direct impact on life safety for the building occupants, such as fire suppression and egress, are strictly enforced in certain situations, regardless of building age.

In concert with the building assessment it’s important that an initial code evaluation be performed in the early stages of a project to determine what major and minor upgrades will be required. As a part of the case study, the study team performed an initial code analysis of the subject property based on two different building use scenarios. The analysis was primarily focused on the following issues related to critical life safety:

- Building occupancy and use (to determine code requirements)
- Fire protection
- Building exiting / egress
- Stairways
- Building accessibility (ADA)
- Structural compliance

Building codes are more or less restrictive based on physical characteristics of a building such as the material it’s constructed of, adjacency to neighboring properties and the activities that will take place inside, referred to as building occupancy. Some occupancies are deemed more dangerous than others due to the nature of the activity taking place; as a result, less building area is allowed for that occupancy and typically stricter requirements come into play, such as installing a fire sprinkler. Occupancies like restaurants and theaters, that group a large number of people in one space (Assembly occupancy) or buildings that contain hazardous items such as fuel and chemicals (High Hazard occupancy) evoke stricter requirements to protect the building occupants. Below is a list of building occupancies as defined by the International Building Code (IBC):

- Business (B)
- Educational (E)
- Factory and Industrial (F-1, F-2)
- High Hazard (H-1, H-2, H-3, H-4, H-5)
- Institutional (I-1, I-2, I-3, I-4, I-5)
- Mercantile (M)
- Residential (R-1, R-2, R-3, R-4)
- Storage (S-1, S-2)
- Utility and Miscellaneous (U)
As occupancies change, so do the code requirements (e.g. after rehabilitation or as a result of different tenants' business endeavors). Many buildings attract a variety of occupancies within the same structure, triggering code requirements to separate one occupancy from another with fire-protected walls and ceilings.

Change of use is another important topic for building code enforcement. A building can change its use without changing its occupancy and still be required to perform alterations to satisfy the code. For example if a building changes use from a movie theater (occupancy group A-1) to a nightclub (occupancy group A-2), certain code restrictions may be imposed on the A-2 occupancy that were not imposed on the A-1 occupancy. The building is still considered to be an Assembly occupancy, but the use has changed causing additional code requirements to be imposed. The important concept to note is that anytime a building changes use or occupancy, the building will probably need to be upgraded to meet the requirements of the adopted code. Alternatively, if a building does not undergo a change of use and no significant alterations are undertaken, no code upgrades are required by the International Building Code; even if the structure has been vacant for a considerable length of time. However, if a 100 year old building has been vacant for many years, it is likely that the local building authority will require a certain level of upgrades to make it safe to inhabit.

When performing a code evaluation on an existing building it is imperative that the use is defined to accurately determine the necessary code requirements. For the purposes of the case study, the study team selected two different building use scenarios to evaluate.

**Occupancy Scenarios & Code Requirements:**
For the subject property the study team evaluated two different occupancy scenarios to highlight the differences in code requirements. The two scenarios are:

- **Scenario 1: Change of occupancy**
  - Basement Floor: Restaurant (A-2)
  - First Floor: Restaurant (A-2) and Retail (M)
  - Second Floor: Apartments (R)
  - Third Floor: Apartments (R)

- **Scenario 2: No change in occupancy** (i.e. original occupancy)
  - Basement Floor: Retail (M)
  - First Floor: Retail (M)
  - Second Floor: Apartments (R)
  - Third Floor: Apartments (R)
Occupancy Scenario 1:

Occupancy Scenario 2:

KEY:
- RESTAURANT
- RETAIL
- RESIDENTIAL

THIRD FLOOR PLAN
SECOND FLOOR PLAN
FIRST FLOOR PLAN
BASEMENT FLOOR PLAN
THIRD FLOOR PLAN
SECOND FLOOR PLAN
FIRST FLOOR PLAN
BASEMENT FLOOR PLAN
Scenario 1 Code Requirements:

The following is a list of code requirements for occupancy scenario 1. The list is divided into items that a building owner “must do”, items that an owner “should do” and items that are “recommended but not required”. Order of magnitude costs for the upgrades are included.

<table>
<thead>
<tr>
<th>SCENARIO 1 - CHANGE OF OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement: Restaurant (A-2)</td>
</tr>
<tr>
<td>First Floor: Restaurant (A-2), Retail (M)</td>
</tr>
<tr>
<td>Second Floor: Residential (R)</td>
</tr>
<tr>
<td>Third Floor: Residential (R)</td>
</tr>
</tbody>
</table>

**CODE UPGRADES**

**MUST DO:**

- Install full building fire suppression system including sprinklers and alarms due to lack of separation between occupancies (IBC) \( $$$ \)
- Emergency responder radio coverage (IFC) \( $$ \)
- Emergency illumination power & exit sign illumination (IFC) \( $$ \)
- Guardrails 42" H (IFC) \( $ \)
- Stairs to second floor - must meet IFC required 8.25" rise, 9" run as space won't allow for standard 7" rise, 10" run geometry. \( $$ \)
- Accessible entrance from street to main level (ADA) \( $$ \)
- Accessible restroom (ADA) \( $$ \)
- Strengthen 1st floor at restaurant use including joists girders, columns, & foundations below columns (IBC) \( $$ \)
- Repair moisture damaged framing & foundation walls (IBC - dangerous condition) \( $$ \)
- Strengthen 90% of roof framing (assumes roof is insulated) (Engineer's judgement) \( $$$ \)
- Strengthen floors, roofs & walls to meet current code where new access & mechanical openings introduced (IEBC) \( $ \)
- Assume 10% of floor & roof framing will require repair due to non-compliant notching & boring for plumbing & electrical (IBC - dangerous condition) \( $ \)
- Strengthen girder at south end of 3rd floor (IBC - dangerous condition) \( $ \)

**SHOULD DO:**

- Add 2 fully enclosed stairs (IBC) \( $$ \)
- Provide full egress requirements as required by chapter 10 of IBC - including two exit stairways from the second and third floors (IBC) \( $$$ \)
- Verify and correct interior finishes to determine their flame spread rating per chapter 8 of the IBC (IBC) \( $$ \)

**RECOMMENDED BUT NOT REQUIRED:**

- Add elevator for disabled access \( $$$ \)
**Scenario 2 Code Requirements:**

The code requirements for scenario 2 are essentially the same, except for a significant issue: because there is no change of use in scenario 2, the building would not be required to have a full automatic sprinkler system. As previously mentioned, sprinkler systems can be costly to install in a historic building. It’s important to note the value of an early meeting between a building owner and the city’s building to lay the groundwork for expectations on code upgrades as some requirements may be negotiable.

<table>
<thead>
<tr>
<th>SCENARIO 2 - NO CHANGE IN OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement: Retail (M)</td>
</tr>
<tr>
<td>First Floor: Retail (M)</td>
</tr>
<tr>
<td>Second Floor: Residential (R)</td>
</tr>
<tr>
<td>Third Floor: Residential (R)</td>
</tr>
</tbody>
</table>

**CODE UPGRADES**

**MUST DO:**

- Emergency responder radio coverage (IFC) $$
- Emergency illumination power & exit sign illumination (IFC) $$
- Guardrails 42" H (IFC) $
- Stairs to second floor - must meet IFC required 8.25" rise, 9" run as space won't allow for standard 7" rise, 10" run geometry. (IFC) $
- Accessible entrance from street to main level (ADA) $$
- Accessible restroom (ADA) $$
- Repair moisture damaged framing & foundation walls (IBC - Dangerous Condition) $$
- Strengthen 90% of roof framing (assumes roof is insulated) (Engineers judgement) $$$
- Strengthen floors, roofs & walls to meet current code where new access & mechanical openings introduced (IEBC) $
- Assume 10% of floor & roof framing will require repair due to non-compliant notching & boring for plumbing & electrical (IBC - Dangerous Condition) $
- Strengthen girder at south end of 3rd floor (IBC - Dangerous Condition) $

**SHOULD DO:**

- Add NFPA sprinkler throughout (IBC) $$$
- Provide full egress requirements as required by chapter 10 of IBC - including two exit stairways from the second and third floors (IBC) $$$
- Verify and correct interior finishes to determine their flame spread rating per chapter 8 of the IBC (IBC) $$

**RECOMMENDED BUT NOT REQUIRED:**

- Add elevator for disabled access $$$

---

Historic Building Analysis & Case Study
City of Cheyenne

57
**Code Evaluation – IBC (Chpt. 34) vs. IEBC:**

The code evaluation was based on Chapter 34 of the International Building Code (IBC) and Chapters 5-13 of the International Existing Building Code (IEBC). Chapter 34 of the IBC is the only chapter dedicated to existing buildings in the IBC and is largely performance based; as such, many historic buildings do not meet the minimum requirements set forth. This leaves much of the code interpretation up to the discretion of the building official as to what is deemed a distinct life safety issue. Chapters 5-13 of the IEBC provide much clearer direction on code scoping for existing buildings. As a result, many of the requirements for the two occupancy scenarios were derived from the IEBC. The International Fire Code (IFC) also plays a significant role in upgrading existing buildings and focuses heavily on fire suppression, emergency detection systems and egress. Many times there can be overlap among all of the various codes in regard to a single issue; and in such a case, it is typical that the most restrictive requirement is enforced. To highlight the distinctions between the IBC and IEBC the study team performed a side by side analysis to identify different in requirements for the primary life safety issues. As scenario 1 requires more code upgrades due to the change of occupancy, scenario 1 was the predominant driver in determining the following comparison.
## Code Comparison (Scenario 1 Case Study) – IBC (Chapter 34) vs. IEBC:

<table>
<thead>
<tr>
<th>IBC – Chapter 34</th>
<th>IEBC – Chapter 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>408.1 Historic buildings</td>
<td>1201.1 Scope</td>
</tr>
<tr>
<td>The provisions of this code relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety hazard.</td>
<td>It is the intent of this chapter to provide means for the preservation of historic buildings. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy. Clear direction on code scoping. Reference to IEBC Chapter 10 for Scoping (1012).</td>
</tr>
<tr>
<td>Allows extreme latitude in enforcement. However, code officials will tend to see egress and fire safety issues as “life safety hazards”. This is not intended as an absolute code compliance exclusion.</td>
<td>Height and Area</td>
</tr>
<tr>
<td>Assessment required by change in occupancy</td>
<td>Assessment required by change in occupancy from A-2 from M (1012.5)</td>
</tr>
<tr>
<td>Building assumed to be Type III-B Nonseparated using Group A will demand a sprinkler for the height increase (stories) Area is compliant using open space increase without sprinkler ((9500 + (9500 \times 0.375)) = 13062\text{sf per story.})</td>
<td>Building assumed to be Type III-B Nonseparated using Group A will demand a sprinkler for the height increase (stories) Area is compliant using open space increase without sprinkler ((9500 + (9500 \times 0.375)) = 13062\text{sf per story.})</td>
</tr>
<tr>
<td>Height and Area</td>
<td>Assessment is not required from change from R to B. (1012.5)</td>
</tr>
<tr>
<td>Change in Occupancy (A-2 Restaurant) Refers to Chapter 9 IBC for change Fire Sprinkler Throughout Fire Alarm Throughout Fully compliant egress (basement and first) Stair Enclosure</td>
<td>Change in Occupancy (A-2 Restaurant) Presuming two hour separation between First and Second floor. Two hour separation between A-2 and M. Fire Sprinkler in Group A only 1012.2.1 Fire Alarm in Group A only 1012.2.2 If less than 2 hour separation, sprinkler and alarm extends to the whole building. Egress – Use existing from basement assuming that widths are adequate for OL density 1012.4 and 1012.4.3</td>
</tr>
<tr>
<td>Egress – Full compliance with IBC Ch. 10 except stair geometry may meet IFC 8.25 rise, 9&quot; run if existing envelope will not permit more compliant geometry.</td>
<td>Group R</td>
</tr>
<tr>
<td>Group R Fire and smoke alarms per IFC Ch. 11</td>
<td>Presumed an existing use. Retrofit required per 1012.1.1 based on IBC Ch. 9 requirements</td>
</tr>
<tr>
<td>Lack of 2 hour occupancy separations will mandate fire and smoke alarm installation in Group R</td>
<td></td>
</tr>
<tr>
<td>Wall and Opening Protection Assumes that existing masonry walls achieve a 2 hour fire resistance rating (multiple wythe masonry). One hour required where adjacent to building on one side. Street fronted sides have sufficient fire separation distance. Alley width dimension is critical to assess opening protection. Reassessment of openings will be required due to change in occupancy. Alley ROW &lt;20’ 10% unprotected openings allowed &lt;30’ 15% unprotected openings allowed &lt;40’ 25% unprotected openings allowed &lt;50’ 45% unprotected openings allowed</td>
<td></td>
</tr>
<tr>
<td>Wall and Opening Protection</td>
<td></td>
</tr>
<tr>
<td>Change in occupancy from Group M to Group A/R 1012.6.1 does not require reassessment for wall and opening protective. The fire loading has been reduced in the occupancy change per Table 1012.6.</td>
<td></td>
</tr>
<tr>
<td>Vertical Shafts All must comply with the IBC due to the change in occupancy. Generally, this will mandate that all stairs be enclosed (per IBC 1022) and that all floor openings be closed (per IBC 712).</td>
<td></td>
</tr>
<tr>
<td>Vertical Shafts</td>
<td></td>
</tr>
<tr>
<td>Stairs will not be required to be enclosed per 1012.7.2 and Table 1012.4. Vertical shafts will not be required to be enclosed per 1012.7.3 and Table 1012.4.</td>
<td></td>
</tr>
<tr>
<td>Accessibility Provisions are derived from the ADA. The extent of barrier removal will be predicated on the value of the cost of alteration (20% additional on top of project cost used for accessible route and toilet room barrier removal). The first goal will be to provide an accessible entrance from the street to the first story level. Then routes to primary functions within that level need to be accessible. Restrooms will then need to be remodeled as needed to make them accessible. Where technical infeasibility exists and historic fabric threatened, a single unisex facility is permitted. Additional fund availability will require</td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td></td>
</tr>
<tr>
<td>Provisions are derived from the ADA. The extent of barrier removal will be predicated on the value of the cost of alteration (20% additional on top of project cost used for accessible route and toilet room barrier removal). The first goal will be to provide an accessible entrance from the street to the first story level. Then routes to primary functions within that level need to be accessible. Restrooms will then need to be remodeled as needed to make them accessible. Where technical infeasibility exists and historic fabric threatened, a single unisex facility is permitted. Additional fund availability will require</td>
<td></td>
</tr>
<tr>
<td>Access to levels above and below the first story. This may be affected by use of a platform lift. Section 410.9.</td>
<td>Access to levels above and below the first story. This may be affected by use of a platform lift. Sections 1012.1.4, 1012.8 and 1205.15.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Interior Finish</strong>&lt;br&gt;All interior finishes in the existing building may be evaluated for compliance per IBC Ch. 8.</td>
<td><strong>Interior Finish</strong>&lt;br&gt;Interior finishes in the area undergoing alteration shall comply with IBC Ch. 8.</td>
</tr>
<tr>
<td><strong>Structural Provisions / Code Requirements</strong></td>
<td><strong>Structural Provisions / Code Requirements</strong></td>
</tr>
<tr>
<td><strong>Scenario 1 Only:</strong>&lt;br&gt;Change in Occupancy&lt;br&gt;The first floor will experience a change in use from mercantile to assembly where restaurant use is introduced. This results in an increase in live load (100 psf) which exceeds the existing capacity. Therefore, the floor framing would require strengthening in compliance with current IBC for new construction (3404.3).</td>
<td><strong>Change in Occupancy</strong>&lt;br&gt;Same as Prescriptive (1007.1)</td>
</tr>
<tr>
<td><strong>Both Scenarios:</strong>&lt;br&gt;Change in Loading&lt;br&gt;Roofs will see an increase in snow load with the addition of insulation. 90% of roof framing will require strengthening to comply with current Code (3404.3)</td>
<td><strong>Change in Loading</strong>&lt;br&gt;Same as Prescriptive (1007.1)</td>
</tr>
<tr>
<td><strong>Dangerous Conditions/Structural Damage</strong>&lt;br&gt;The westernmost bay of the first floor is untreated wood framing with less than 1'-6&quot; clear to soil in crawl space. Remove and replace floor sheathing. Repair damage to framing. Hand excavate soil to provide required clearance. (3401.5. IBC 2304.11 - Building Authority may waive requirement per 3409)&lt;br&gt;Roof and floor framing is damaged due to moisture, overload and non-compliant notches and holes. Damage is less than substantial structural damage. Therefore, repairs can be made to restore the framing to its undamaged state. New structural members and connections must comply with current IBC for new structures. Overloaded conditions require strengthening to comply with current IBC</td>
<td><strong>Dangerous Conditions/Structural Damage</strong>&lt;br&gt;Same as Prescriptive (1202.2)</td>
</tr>
<tr>
<td></td>
<td>Same as Prescriptive (606.2.1)</td>
</tr>
</tbody>
</table>
for new structures. (3405.4)  
Repair moisture damaged masonry walls. Damage is less than substantial structural damage. Therefore, repairs can be made to restore the framing to its undamaged state. (3405.4)  

<table>
<thead>
<tr>
<th>Voluntary Seismic Improvements</th>
<th>Voluntary Seismic Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect floor and roof framing to masonry walls for resistance to out of plane loads. Voluntary unless significant changes were made to masonry walls in the past or will be made in the proposed new use (3404.5 voluntary, 3404.4 mandated)</td>
<td>Same as Prescriptive (807.6)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Addition or Replacement of Roofing</th>
<th>Addition or Replacement of Roofing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No structural work required as long as the new roofing material does not exceed the weight of the existing roof material and no new mechanical equipment is placed on the roof. (3404.3)</td>
<td>More than 50% of roofing materials are anticipated to be removed and replaced. The design wind speed is 100 MPH. Therefore, the roof diaphragms and their connections must be checked for compliance with 75% of current IBC wind loads. This will likely require sheathing the roofs with new plywood or OSB and new connections from all rafters to masonry walls. (706.3.2)</td>
</tr>
</tbody>
</table>

**Other Code Requirements**  
The change in occupancy provision of Ch. 4 states, “No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of the International Building Code for such division or group of occupancy.” This allows the building official to require code upgrades outside of those indicated above. This may include:

- Structural assessment for current design loads
- Incidental Use separation
- Occupancy separation
- Fire resistance integrity upgrades
- Plumbing fixture upgrade to Ch. 29
General Rehabilitation Cost Data:

Rehabilitation of historic buildings can be prone to increasing costs when thorough, initial investigation is absent and as unknowns within the building are discovered as the project progresses. This makes it all the more essential to follow the recommended steps in building rehabilitation, starting with a thorough analysis of the existing building. Rehabilitation costs vary in similar ways as standard construction projects; that is, the cost is dependent on the level of rehabilitation that’s sought and quality of finishes desired. Some examples:

- Full Building Rehabilitation – High End:
  - $250 - $300 per square foot.
  - Includes full replacement of mechanical, electrical and plumbing systems as well as upgrading the structural system to current codes.
  - Full architectural rehabilitation of interior and exterior including preservation and repair of all historic building components.
  - High level of finishes and expert level of craftsmanship.
  - This type of rehabilitation effort would be intended for an income producing property in which the income generated can justify the level of finishes provided.
    - Examples would include a Class AA office space or luxury boutique hotel or residences.

- Full Building Rehabilitation – Moderate:
  - $150 - $200 per square foot.
  - Replacement or repair of existing mechanical, electrical and plumbing systems.
  - Upgrading structural system to current codes.
  - Upgrading building and architectural components to current codes.
  - Full rehabilitation of exterior and interior elements.
  - Interior public spaces would be restored to the original historic character; private spaces receive a lower grade of finish.
This type of rehabilitation effort would be utilized for a Class A or B office space or municipal functions such as city halls, libraries, courthouses, etc.

- **Exterior Rehabilitation:**
  - $50 - $75 per square foot depending on condition of exterior.
  - This type of rehabilitation effort is commonly utilized when the interior is functioning, occupied and generally in good condition while the exterior is in need of work to restore the historic character of the building and extend the life of the exterior façade.
  - This effort assumes that no upgrades to structural, mechanical, electrical or plumbing systems would be required.

In the case of the Carey Building, the costs would be heavily dependent on the desired outcome of the building, but would likely be in the $200 - $250 range for a comprehensive building rehabilitation. The use of the building directly relates to the rehabilitation cost. For example, adding a restaurant will drive the mechanical costs up as larger systems are required to properly ventilate a restaurant. Lighting costs can be more expensive for retail purposes as higher light levels are required per square foot in a retail space. The following are costs for full removal and replacement of mechanical and electrical systems based on building use:

<table>
<thead>
<tr>
<th>BUILDING USE</th>
<th>MECHANICAL/PLUMBING $</th>
<th>ELECTRICAL $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (R)</td>
<td>+/- $ 45 / SF</td>
<td>+/- $ 15 / SF</td>
</tr>
<tr>
<td>Restaurant (A-3)</td>
<td>+/- $ 75 / SF</td>
<td>+/- $ 65 / SF</td>
</tr>
<tr>
<td>Retail (M)</td>
<td>+/- $ 30 / SF</td>
<td>+/- $ 30 / SF</td>
</tr>
</tbody>
</table>
While the ultimate cost to rehabilitate the interior spaces and structure will depend heavily on the desired use of the building, the exterior rehabilitation costs will tend to be more fixed regardless of use. Below is a conceptual cost estimate to restore the exterior of the Carey Building to its historic appearance:

Carey Building - Exterior Rehabilitation
Conceptual Construction Cost Estimate
Anderson Hallas Architects, PC

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Unit</th>
<th>Unit ($)</th>
<th>Total ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Storefront</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Demo Existing</td>
<td>2,420</td>
<td>$ 3</td>
<td>$ 6,050</td>
</tr>
<tr>
<td>3</td>
<td>Install New Storefront</td>
<td>2,420</td>
<td>$ 60</td>
<td>$ 145,200</td>
</tr>
<tr>
<td>4</td>
<td>Restore Windows</td>
<td>75</td>
<td>$ 2,000</td>
<td>$ 150,000</td>
</tr>
<tr>
<td>5</td>
<td>Restore Skylights</td>
<td>4</td>
<td>$ 15,000</td>
<td>$ 60,000</td>
</tr>
<tr>
<td>6</td>
<td>Masonry Restoration (refer to BRS quote)</td>
<td></td>
<td></td>
<td>$ 166,911</td>
</tr>
<tr>
<td>7</td>
<td>New Fire Escape (allowance)</td>
<td>1</td>
<td>$ 40,000</td>
<td>$ 40,000</td>
</tr>
<tr>
<td>8</td>
<td>Roofing (retain existing EPDM @ 1st &amp; 3rd floor roofs)</td>
<td></td>
<td></td>
<td>$ 61,950</td>
</tr>
<tr>
<td>9</td>
<td>Demo Existing (built-up and roll roofing)</td>
<td>10,325</td>
<td>$ 2</td>
<td>$ 20,650</td>
</tr>
<tr>
<td>10</td>
<td>Install New TPO or EPDM</td>
<td>10,325</td>
<td>$ 6</td>
<td>$ 61,950</td>
</tr>
<tr>
<td>11</td>
<td>Gutters &amp; Downspouts (allowance)</td>
<td>1</td>
<td>$ 15,000</td>
<td>$ 15,000</td>
</tr>
<tr>
<td>12</td>
<td>Install new sheet metal parapet to match historic</td>
<td>242</td>
<td>$ 200</td>
<td>$ 48,400</td>
</tr>
<tr>
<td>13</td>
<td>Subtotal - Subcontract Work</td>
<td></td>
<td></td>
<td>$ 714,161</td>
</tr>
<tr>
<td>14</td>
<td>General Conditions @ 13%</td>
<td></td>
<td></td>
<td>$ 92,841</td>
</tr>
<tr>
<td>15</td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>$ 807,002</td>
</tr>
<tr>
<td>16</td>
<td>Overhead &amp; Profit @ 15%</td>
<td></td>
<td></td>
<td>$ 121,050</td>
</tr>
<tr>
<td>17</td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>$ 928,052</td>
</tr>
<tr>
<td>18</td>
<td>Performance Bond @ 1%</td>
<td></td>
<td></td>
<td>$ 9,281</td>
</tr>
<tr>
<td>19</td>
<td>Subtotal</td>
<td></td>
<td></td>
<td>$ 937,333</td>
</tr>
<tr>
<td>20</td>
<td>Contingency @ 10%</td>
<td></td>
<td></td>
<td>$ 93,733</td>
</tr>
<tr>
<td>21</td>
<td>TOTAL - EXTERIOR REHABILITATION CONSTRUCTION COST</td>
<td></td>
<td></td>
<td>$ 1,031,066</td>
</tr>
</tbody>
</table>
REHABILITATION FINANCING STRATEGIES

Existing Strategies:

As historic buildings are a part of a city’s cultural heritage, a variety of public financing strategies are available to assist in their rehabilitation. Building owners and developers should be aware of these opportunities and utilize them whenever possible. Funding opportunities may come in the form of tax credits for a portion of the project cost or grant funding for building assessments and bricks and mortar. Regardless of the size, all funding sources help ensure a successful project outcome. The following are funding programs that are currently in place.

- **Federal Historic Preservation Tax Credit:**
  
  ([www.nps.gov/tps/tax-incentives.htm](http://www.nps.gov/tps/tax-incentives.htm) ; [wyoshpo.state.wy.us/tax/](http://wyoshpo.state.wy.us/tax/))
  
  - A tax credit program used to incentivize and support the rehabilitation of historic properties.
  - A 20% federal tax credit (i.e. 20% of the qualifying rehabilitation costs) is available for properties that comply with the program’s requirements.
    - The rehabilitation must be substantial in nature (cost of rehabilitation must be more than the adjusted basis of the property) and the building must be a certified historic structure.
    - The building’s end use must be income producing.
    - The work must follow a rehabilitation plan.
    - The work must conform to the Secretary of the Interior’s Standards for Rehabilitation.
  
  - A variety of buildings in and near Cheyenne’s Downtown Historic District have utilized the federal historic preservation tax credit, including the Dinneen Building, Deming Building and Plains Hotel.

- **Wyoming Certified Local Government (CLG):**
  
  ([wyoshpo.state.wy.us/clg/](http://wyoshpo.state.wy.us/clg/))
  
  - Grant amounts range from $1,000 - $15,000.
  - A CLG, such as the City of Cheyenne, may apply for grants offered through the National Park Service and administered by the Wyoming State Historic Preservation Office (SHPO).
  - These grants require a 40% cash or in-kind match. Funds are reimbursed by the SHPO after the CLG has paid for the project.
  - Historic preservation activities that can be funded through the CLG include:
    - Public education.
    - Inventory, survey and evaluation of historic properties.
    - National Register nomination.
    - Historic preservation planning.
    - Bricks and Mortar:
      - Funding for restoration or rehabilitation that requires construction can only be used on a publicly-owned building listed on the National Register.
  
  - Annual deadline is in November.
• **Wyoming Cultural Trust Fund:**  
  (wyospcr.state.wy.us/ctf/)  
  o Provides grant funding for all forms of arts and culture.  
    ▪ Includes historic and architectural preservation.  
  o Rehabilitation related tasks that can be funded through this program include:  
    ▪ Surveys  
    ▪ Preservation Planning  
    ▪ Restoration and rehabilitation  
  o Any non-profit or government agency may apply for grant funding.  
  o Annual deadline is May 1st.

**Potential Strategies:**

While the funding opportunities listed above are currently in place and available to pursue, there are also a variety of financing strategies that could potentially be available given the right circumstance. Wyoming Main Street is an organization that has funds available for historic building assessments and similar evaluations of historic properties. The program provides grant funding to communities that are a part of the Main Street program. Presently, Cheyenne is not a part of the Main Street program but is seeking membership which would make grant funding from Main Street programs available to downtown historic buildings in Cheyenne in the future. The following is a list of other potential grant funding sources:

• **Historic Architecture Assistance Fund (HAAF):**  
  (www.wyomingbusiness.org/program/downtown-financing/1254)  
  o Grant amounts range from $1,000 to $5,000.  
  o HAAF is a fund that is administered by Wyoming Main Street and provides grant funding assistance to historic properties. Typical projects that can be funded include:  
    ▪ Building assessments  
    ▪ Structural analysis  
    ▪ Analysis of building code and ADA requirements  
  o Projects utilizing HAAF funding must maintain or restore the historic integrity of the property.  
  o The fund is intended to support private and non-profit property owners.

• **Wyoming Main Street Loan Participation Program:**  
  (www.wyomingbusiness.org/program/downtown-financing/1254)  
  o Wyoming Main Street can participate in a loan program for building owners in which Main Street and local lenders provide a loan for building improvements to maintain a structure’s historic character.  
  o Main Street can participate in up to 75% of the loan, up to $100,000, in a shared note and collateral position with the local lender.  
  o The owner/developer must provide a minimum of 15% of the total project cost.
Community Development Block Grant (CDBG): (www.cheyennecity.org/index.aspx?NID=185)
  o Cheyenne receives CDBG funding directly from the U.S. Department of Housing and Urban Development and therefore is not eligible for CDBG funds from the Wyoming Business Council.
    ▪ Because CDBG funds in Cheyenne come from HUD, projects that are funded must meet at least one of the following national objectives:
      • Benefit very low to moderate income
      • Prevent or eliminate slum and blight areas
      • Increase home ownership
    ▪ Eligible project types that are applicable to downtown Cheyenne historic properties would include:
      • Removal of architectural barriers
      • Completion of urban renewal
      • Interim assistance to arrest deterioration until permanent repairs can be made
    ▪ Downtown historic properties considering applying for CDBG funding would likely need to consider a residential use and prove that the project is meeting one of the national objectives.
    ▪ Eligible applicants include non-profit organizations, government agencies, school districts and universities and for-profit organizations. Individual applicants will not be considered.
Public Feedback in the Work Session:

City staff emailed invitations to 87 people and organizations whom they thought may be interested. Notice was also posted on the City website and the following organizations’ websites: WYOPASS, APA Colorado, Wyoming Conference of Building Officials, SHPO, and Alliance for Historic Wyoming (AHW). AHW also sent out notice of the workshop in its regular email to subscribers. Attendance was approximately 30 people including staff.

At the conclusion of the public work session meeting on May 10th, 2012, the study team asked those in attendance three questions intended to get a sense of the public’s perception of local impediments to rehabilitation. The questions posed at the meeting were:

- What additional ideas do you have for creative rehabilitation funding?
- What are the current barriers to rehabilitating existing buildings in downtown Cheyenne?
- What ideas do you have to address the barriers to rehabilitation?

The responses relating to redevelopment barriers were primarily focused on costs of existing real estate and lack of incentives for redevelopment of historic properties rather than building codes being the impediment as originally anticipated. The specific public responses were as follows:

- The average price of real estate does not reflect actual market rates. Essentially, real estate prices are overvalued given what the market can support. Demand is low but prices are remaining high.
  - Potential developers present at the meeting expressed that they have money ready to invest in rehabilitating downtown historic properties, but cannot get the projects to produce the desired cash flow based on current real estate prices and market conditions.
- Wyoming is a non-disclosure state, the prices of recently sold properties are not made public. Only real estate professionals have access to real estate sales prices which can result in misrepresented prices.
- There is not much opportunity for residential development in the downtown historic core as historic downtown does not have much of a residential presence and is not a desirable place to live.
  - Downtown Cheyenne lacks common services that a residential population would rely on, such as grocery stores.
  - One way streets are seen as a detriment for residential and commercial purposes and exposure.
- There are not enough incentives for rehabilitation of historic properties.

Following the discussion of the perceived impediments to downtown revitalization, the public engaged in a short brainstorming session where potential solutions to help spur more interest in redevelopment were offered.
To help incentivize downtown rehabilitation the city could help with installation of fire sprinkler mains that feed the property from the city main.

Upper downtown should be enhanced (streetscape, facades, etc.) to encourage development.

Eliminate one way streets.

To encourage more residential development in downtown, the city should consider free or reduced parking in garages for residents.

The city should consider implementing a 10 year property tax to set aside funds for rehabilitation efforts and to help incentivize redevelopment.

Look at opportunities for financial blending. It would be nice if there was a “one stop shop” for all funding sources that may be available to a potential owner.

Wyoming Main Street program offers opportunities to fund small portions of work on historic properties. Cheyenne should consider becoming a part of Main Street.

The City of Rock Springs is reportedly considering implementing a fee for buildings that are left vacant and unkempt. The fee would be charged to the building owner on a monthly basis and money would be set aside for downtown revitalization projects. Cheyenne could consider implementing this kind of program to initiate building owners to take better care of their vacant buildings.

Common Pitfalls to Rehabilitation of Historic Properties in Cheyenne: (As experienced by City Officials)

In working with building owners actively rehabilitating historic properties in downtown Cheyenne and those considering rehabilitating a historic property, city officials also noted common pitfalls to rehabilitation. These issues were not expressed as impediments by those in attendance at the public meeting. While the public believes that a lack of incentives for rehabilitation is a common barrier, the city has experienced that building codes as applied to existing buildings, and the associated cost for compliance is a strong impediment. The following is a list of common pitfalls as experienced by city officials:

Thinking the building official is the designer:
  o Too often owners come to building officials with only an idea for a building and inquire as to which code regulations will be enforced. This is an impossible question for a building official to answer without a preliminary design illustrating the project intent and scope of work. If a preliminary design is furnished, the building official may then begin to interpret the code as it relates to the design.

Not performing a preliminary code evaluation for a given project:
  o Many code violations that will likely need to be remedied should be professionally evaluated early in the process to give the building owner a sense of what might be required. Issues such as fire protection, egress, accessibility and structural capacity should be assessed early in the process.
• Not performing a historic building assessment to educate the owner on the condition of the building being considered for purchase or rehabilitation:
  o Similar to a preliminary code evaluation, a building assessment can answer a lot of questions that are otherwise not apparent. Building assessments go a long way to help define the scope of work required to rehabilitate the building to the desired level and can potentially save money in the long run.
• Having unrealistic expectations of the work required to rehabilitate a historic building:
  o Restoring a historic building is a complex process that can take a significant amount of time. Owners need to be familiar with the process and ready for the challenge.
• Change of Use:
  o There is understandably some confusion among property owners that a certain use may be allowed under zoning, but still be considered a “change of use” and require site upgrades and building improvements.

Common Pitfalls to Rehabilitation of Historic Properties:
(As generally experienced by the Study Team)

Working in the field of historic preservation for 22 years, the study team has been involved with countless rehabilitation projects of all different shapes and sizes. The study team has observed first hand the common pitfalls to rehabilitation. The following is a list of typical mistakes to be aware of when undertaking a rehabilitation project; both from an architectural and code enforcement standpoint.

Rehabilitation Pitfalls:
• Owners want things done and problems solved expeditiously and inexpensively as opposed to seeking the long term solution:
  o For example: selecting an unwarranted roofing product can lead to continued deterioration of the structure.
• There’s a misconception that it is more cost effective to remove and replace building features rather than repairing them in place.
• The assumption that it’s more sustainable to tear an existing building down than to preserve it:
  o The most sustainable option is to reuse an existing building as you are not using virgin materials to construct an entirely new building and you are not adding building debris to landfills.
• Qualified craftsman for historic building repair are hard to find.
• Certain materials that were used in older buildings cannot be found anymore.
  o For example: tin ceilings, marble wainscot, terracotta features, etc. are still being manufactured.
• It’s more expensive to rehabilitate an existing historic building than it is to build a new one.
  o On a direct cost comparison; it would be impossible to build a new building in today’s construction dollars to the same level of
character and quality that a historic building was constructed. The intrinsic value in historic buildings is an asset that’s difficult to measure.

Code Enforcement Pitfalls:

- Enforcing new construction code requirements on existing buildings:
  - The most common pitfall is enforcement of new construction code requirements without understanding the code scoping limitations provided for existing buildings. An enforcing official must understand that they must start with the existing buildings provisions and determine if specific work is then required to meet new construction standards.

- Fire sprinklers in existing buildings:
  - A common misapplication is mandatory retrofit of fire sprinklers based on new construction scoping. The existing buildings provision provides for very limited fire sprinkler retrofit.
  - Another common misapplication is mandatory placement of sprinklers throughout a structure (outside the work area) when the code will permit partial building retrofit. The IEBC intends that sprinklers be integrated into a building in an accretive manner as construction proceeds over time.

- ADA accessibility in existing buildings:
  - Anything related to retroactivity of disabled accessibility provisions can be confusing due to the complexity of the language from its roots in the ADA.

As evidenced by the public comments, the city’s experience with rehabilitation in downtown Cheyenne, and the study team’s experience with rehabilitation projects across the country; many barriers are present when attempting to undertake a historic rehabilitation project. It’s important to not be deterred by these obstacles as any construction project comes with its difficulties. The most important step to take is the first one; an owner should ensure that a well-conceived plan for rehabilitation is being followed and communication with the building department is frequent.
CONCLUSION / RECOMMENDATIONS

At the completion of the project it has become clear the impediments to downtown revitalization go beyond a mis-understanding of code requirements as they relate to existing buildings. While uncertainty regarding building codes contributes to the hurdles surrounding historic rehabilitation; it was expressed that financing alternatives, incentives for historic preservation, real estate prices and lack of knowledge in rehabilitation processes are all major contributors to the apprehensive rehabilitation climate that exists in downtown Cheyenne. The following section will serve as a list of action items or recommendations that the city might consider to help improve the downtown environment.

Code Recommendations:

- **Adopt the IEBC:**
  - The IEBC code scoping is more clearly articulated which results in better enforcement and more opportunities for negotiation with property owners. Chapter 34 of the IBC can be convoluted and will leave many issues up to the building authority’s interpretation.

- **Adopt new codes with public input:**
  - The reason there is so much uncertainty regarding building codes is because of the degree of regulation each subsequent code is adding to the gauntlet a building owner must run. Public input for the adopted code is critical. An ad hoc committee comprised of designers, contractors, and a property owner has been formed to review the 2012 codes and make recommendations to staff and City Council regarding their amendment and adoption.

- **Continued code enforcement training:**
  - Building and fire department staff should ensure that everyone receives proper training as to their legal limitations of enforcement authority. The code provides the legal basis to work within and working outside of that legal basis has ramifications.

- **Amend code requirements to meet the expectations of Cheyenne:**
  - If there are code requirements, such as those in Chapter 11 of the International Fire Code (IFC) that exceed the expectations of Cheyenne, the city should consider amending them to a condition that is acceptable. Rules followed by building owners need to be black and white and the enforcing official must be on notice that only the adopted rules can be enforced.

- **Conduct a legal aspects of code enforcement seminar with city staff:**
  - It would be advisable for the Cheyenne City Attorney to conduct a legal aspects seminar for building and fire department staff members. Emphasis should be placed on legal citations and reference to the adopted laws of the city (building and fire code). The seminar should include a discussion on when performance is within “good faith” and when it strays outside those boundaries. Operating outside the letter of the code does not always constitute good faith. This would help ensure that the staff is working for the benefit of the community and promotion of the downtown core.
Financing Opportunities:

- The City of Cheyenne should consider making more avenues for financial assistance available:
  - Joining Wyoming Main Street would open the door for individuals to pursue grant funding for building assessments and similar sized projects.
- The State of Wyoming could consider implementing Tax Increment Financing (this would require legislative action).
  - Tax increment financing is an instrument used in a majority of other states to subsidize redevelopment. The completion of a public project often results in an increase to the value of surrounding real estate, as real estate values increase so do property taxes. The increased cost of property taxes is used to pay off the debt used to finance the original project.

General Rehabilitation Recommendations:

- The City of Cheyenne should consider implementing any reasonable incentive programs specific to the Cheyenne Downtown Historic District that would help revitalize the area.
- Owners and city officials should stay in communication with one another throughout the life of a project.
- Communicate the importance of beginning a rehabilitation project on the right track:
  - Owners should begin rehabilitation projects by conducting a building assessment and code evaluation.
- Following a rehabilitation plan from the outset will set a project up for a greater level of success.

The following page includes a rehabilitation worksheet that can be utilized by building owners as a suggested step-by-step process to undertake a historic rehabilitation project. Highlighted in yellow are important milestones that would benefit from building department input and review.
APPENDIX A:

OVERVIEW ASSESSMENT EXAMPLE
HOME INSPECTION ENGINEERS, INC.
REPORT NO: __________________

LOCATION: ____________________________ DATE: ________________ TIME: ________________
CLIENT NAME(S): _______________________
MAILING ADDRESS: ______________________

FAX: YES ____ NO ____ FAX #: E-MAIL ADDRESS: ______________________
EC/FC: _____________________________ FAX #: E-MAIL ADDRESS: ______________________
FEE: _________ PAID _______ BILL _______ VACANT _______ OCCUPIED _______

YEAR BUILT/APPROXIMATE AGE: _______________________

RADON TESTING: YES ____ NO ____ FEE: _______ MOLD TESTING: YES ____ NO ____ FEE: _______

WEATHER CONDITIONS: ________________________

BUILDING STYLE: TWO STORY _____ MULTI-LEVEL _____ SLAB _____ CONTEMPORARY _____
BI-LEVEL _____ BUNGALOW _____ RANCH _____ SPLIT LEVEL _____
COLONIAL _____ TOWNHOUSE _____ CONDO _____ OTHER _______________________

OUTSIDE AND GARAGE:

1. GROUND SLOPE: Satisfactory ____ Fair ____ Poor ____
LOW SPOTS: Yes ____ No ____ Location ______________________

2. EXTERIOR WALLS: Brick ____ Composite Siding ____ Wood Siding/Shingles ____
Stucco ____ Stone ____ Other ____ May be Asbestos ____
CONDITION: Satisfactory ____ Fair ____ Poor ____

3. EXTERIOR PAINT: Satisfactory ____ Fair ____ Poor ____
PAINTING NEEDED: On trim ____ On exterior walls ____ On gables ____
TREATMENT NEEDED: On deck ____

4. TRIM:
REPAIR/REPLACEMENT: Yes ____ No ____ Location ______________________

5. GUTTERS AND DOWNSPOUTS:
None ____ Galvanized ____ Other ____ Need Cleaning ____

6. DRAINS/EXTENSIONS:
Yes ____ No ____ Missing ____ Disconnected ____
CONDITION: Satisfactory ____ Fair ____ Poor ____
REPAIR/REPLACEMENT: Yes ____ No ____
REARRANGE/RELOCATE: ______________________

7. FOUNDATION WALLS:
Cracks ____ Not Visible __________

8. CAULKING:
Serviceable ____ Required ____ Needs Touch Up ____
NEEDED AT: Chimney ____ Doors and Windows ____
Between Different Materials ____

9. GARAGE:
Serviceable ____ Poor ____
GARAGE FLOOR: Heaved ____ Cracked ____
OVERHEAD DOOR: Automatic Opener ____ Operated ____

10. PATIO/SIDEWALKS:
Heaved ____ Settled ____ Cracked ____ Deteriorated ____

11. DRIVEWAY:
Heaved ____ Settled ____ Cracked ____ Deteriorated ____

12. TRIM BACK TREES/LIMBS:
Location: ______________________

13. REMOVE TREES:
Location: ______________________

COMMENTS AND SUGGESTIONS:

__________________________________________________________________________
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WINDOWS

TYPE: Single Pane_____ Double Pane_____ Storm Windows_____
STYLE: Casement_____ Sliding_____ Sash_____
FRAMES: Wood_____ Aluminum_____ Steel_____ Vinyl_____
GLASS CRACKED: Yes____ No____ Number Noted_____
CAULKING: Serviceable____ Needed____ Needs Touch Up_____
PUTTY: Serviceable____ Needed____ Needs Touch Up_____
WEATHERSTRIPPED: Yes____ No____
MOISTURE STAINED/ENTRAPPED: Number Noted_____
SCREENS: Missing: #:_______ Damaged: #:_______

COMMENTS AND SUGGESTIONS: __________________________

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......
BASEMENT AND CRAWL AREA

1. FINISHED:
   - Yes _____ No _____ Completely _____ Partially _____

2. FOUNDATION WALLS:
   - Condition:
     - Satisfactory _____ Fair _____ Poor _____ Cracks _____

3. PARTITION WALLS:
   - Condition:
     - Satisfactory _____ Fair _____ Poor _____ Cracks _____

4. FLOOR:
   - Condition:
     - Satisfactory _____ Fair _____ Poor _____ Cracks _____

5. MOISTURE SEEPAGE/ PENETRATION:
   - Yes _____ On Walls _____ On Floor _____ None Noted _____

6. COLUMNS:
   - Condition:
     - Satisfactory _____ Fair _____ Poor _____

7. BEAMS:
   - Condition:
     - Satisfactory _____ Fair _____ Poor _____

8. FLOOR JOISTS:
   - Size/Spacing:
     - at _____ “ Center to Center

9. CRAWL AREA ACCESS:
   - Cover _____ No Cover _____ Not Accessible _____

10. CRAWL AREA VENTILATION:
    - Yes _____ No _____ Needs Improvement _____ Fan Operating _____

11. SUMP:
    - Yes _____ No _____ Water Noticed _____ Has Sump Pump: Yes _____ No _____
        Pump Operated: _____ Pump Repairs Needed: _____

12. TERMITES:
    - None Apparent _____ Evidence of _____ Not Reviewed _____

COMMENTS AND SUGGESTIONS:

PLUMBING

1. WATER SERVICE PIPING:
   - Condition:
     - Operating _____ Poor _____

2. MAIN WATER PIPING:
   - Condition:
     - Adequate _____ Inadequate _____ Need to Provide _____

COMMENTS AND SUGGESTIONS:

HEATING SYSTEM

1. TYPE:
   - Forced Air _____ Hot Water _____ Electric Baseboard _____

2. FUEL TYPE:
   - Natural Gas _____ Propane _____

3. MANUFACTURER:

4. RATED BTU INPUT:

5. CONDITION:
   - Satisfactory _____ Not operating _____ Needs Service _____ Old _____

6. COMBUSTION AIR:
   - Adequate _____ Inadequate _____ Need to Provide _____

7. FILTER:
   - Acceptable _____ Needs Replacement _____ Need cleaning _____

8. HUMIDIFIER:
   - Yes _____ No _____ Needs repair _____

COMMENTS AND SUGGESTIONS:
## COOLING SYSTEM

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Winterized: __
Cold Outside Temp.: __

**COMMENTS AND SUGGESTIONS:**

---

## WATER HEATER

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Leaking PRV: Yes__ No__
Catch Pan: Yes__ No__

**COMMENTS AND SUGGESTIONS:**

---

## SMOKE DETECTORS

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**COMMENTS AND SUGGESTIONS:**

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## ATTIC AREA

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**INSULATION:**

Type: __

Floor: __ R Value: __ Not Visible __
Walls: __ R Value: __ Not Visible __
Roof: __ R Value: __ Not Visible __

**VENTILATION:**

Adequate Just Adequate Inadequate None |
Recommend additional vents: Gable Roof Soffit |

**WHOLE HOUSE ATTIC FAN:** Yes Operated |
**ATTIC VENTILATION FAN:** Yes Operated |

**ROOF LEAKS:** None Apparent Evidence of Location |

**COMMENTS AND SUGGESTIONS:**

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| **1. CEILING:** | **Plaster** __ **Sheetrock** __ **Other** __ **Painted** __ **PAPERED** __

**CRACKED:** Yes ____ No ____

**LEAKAGE EVIDENCE:** On wall ____ On ceiling ____ Investigate ____

**2. WALL:**

**Plaster** __ **Sheetrock** __ **Tile** __ **Other** __ **Painted** __ **Papered** __

**CRACKED:** Yes ____ No ____ Location __________

**3. FLOOR:**

**Wood** __ **Tile** __ **Carpet** __ **Vinyl** __ **Laminate** __ **Other** __

**CONDITION:** Satisfactory ____ Fair ____ Poor ____ Sloped: Yes ____ No ____

**4. WINDOWS:**

**CONDITION:** Satisfactory ____ Fair ____ Poor ____

Moisture entrapped ____ Weatherstripped: Yes ____ No ____

**5. INTERIOR DOORS:**

**Number Noted:** __________

**CONDITION:** Satisfactory ____ Fair ____ Poor ____

Need adjustment/repairs: Yes ____ No ____

**6. EXTERIOR DOORS:**

**Number Noted:** __________ Weatherstripped: Yes ____ No ____

**CONDITION:** Satisfactory ____ Fair ____ Poor ____

Need adjustment/repairs: Yes ____ No ____

**7. ELECTRICAL OUTLETS:**

**Number noted:** __________ GFCI/GFI: Yes ____ No ____

**8. APPLIANCES:**

**STOVE/COOKTOP:**

**TYPE:** Electric ____ Gas ____

**OPERATED:** Yes ____ No ____

**CONDITION:** Satisfactory ____ Fair ____ Poor ____ Needs repairs ____

**OLDER____

**DISHWASHER:**

**OPERATED:** Yes ____ No ____

**CONDITION:** Satisfactory ____ Fair ____ Poor ____ Needs repairs ____ Noisy ____

Stained ____ Leaking ____ Older ____ Rusted ____

**MICROWAVE:**

**TYPE:** Counter top ____ Hood/combination ______

**OPERATED:** Yes ____ No ____

**CONDITION:** Satisfactory ____ Fair ____ Poor ____

**OLDER____

**REFRIGERATOR:**

**OPERATING:** Yes ____ No ____

**GARBAGE DISPOSAL:** Yes ____ No ____ Operated: Yes ____ No ____

**9. PLUMBING FIXTURES:** Yes ____ No ____

**CONDITION:** Satisfactory ____ Fair ____ Poor ____

Faucet Leak ____

**REPAIRS/REPLACEMENT NEEDED:**

**WATER PRESSURE:** Normal ____ Below Normal ____

**10. HEATING:** Grills ____ Convectors ____ Radiators ____

Baseboard ____ Radiant Heat ____ Pipe Riser ____

**11. CABINETS:**

**CONDITION:** Satisfactory ____ Fair ____ Poor ____

**COMMENTS AND SUGGESTIONS:**

__________________________

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**Comments and Suggestions:**

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**Comments and Suggestions:**

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(Rapid Visual Screening
City: ___________________________ A - New C - Fair
Existing Condition Assessment
Building: ___________________________ B - Good D - Poor
GSF: ___________________________ Acres: ___________________________
Anderson Hallas Architects, PC)
### Rapid Visual Screening

**City:**

**Building:**

**GSF:**

**Date:**

---

**Existing Condition Assessment**

Anderson Hallas Architects, PC

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### Rapid Visual Screening

#### City:

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<tr>
<th>A - New</th>
<th>C - Fair</th>
<th>GSF: Date:</th>
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#### Existing Condition Assessment

Building: [ ] A - Good [ ] D - Poor

Acres:

Anderson Hallas Architects, PC

### Item Building Component | Reviewer | Components (Description) | Observations (Unusual) | Condition | Expected Life Span (Yrs) | Category (Issues) | Recommendations | Quantity | Repl. | Total # | Repl. # |
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### SERVICES Components (Description) | Observations (Unusual) | Condition | Expected Life | Category (Issues) | Recommendations | Quantity | Repl. | Total # | Repl. # |
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<tr>
<td>Elevators &amp; Lifts</td>
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| Plumbing Fixtures                   | M                      | Review for ADA |                |                   |                |          |      |         |        |

| Domestic Water Entry & Distribution | Plumbing |                |                |                   |                |          |      |         |        |

| Domestic Water Heater               | P                     |                |                |                   |                |          |      |         |        |

<p>| Sanitary System                     | P                     |                |                |                   |                |          |      |         |        |</p>
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<tr>
<th>Item</th>
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<td>D6 Rain Water Drainage</td>
<td>P</td>
<td>Coordinated w/ Architect</td>
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<td>A B C D Now 5-10 20-25</td>
<td>Code Repair/ Maint. ADA Other</td>
<td>Repl. Total</td>
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### Item Building Component | Reviewer Components (Description) | Observations (Unusual) | Condition | Expected Life Span (Yrs) | Category (Issues) | Recommendations | Quantity | Repl. | Total # | Repl. # |
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<td>General Power Devices</td>
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<td>A B C D</td>
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<td>D1 8</td>
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<td>D2 4</td>
<td>Other Electrical Systems</td>
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**Anderson Hallas Architects, PC**
This Annotated Scope of Work was developed to assist grant applicants, building owners, stewards, and consultants in collecting and organizing the information needed to develop a comprehensive assessment and plan for the preservation, rehabilitation, or restoration of a historic property. This document is intended to be used as a tool and a reference and provides specific details regarding the expectations and requirements for completing a Historic Structure Assessment funded by the State Historical Fund (SHF).

The purpose of a Historic Structure Assessment (HSA) is to fully document the physical condition of a historic resource. A complete assessment contains photographs, illustrations, and information in narrative form that reflects a comprehensive understanding of the condition and needs of the resource. This information will include details specific to the historic character and significance; specific materials, features, elements, and spaces; and the intended use. The existing conditions will dictate the amount of information contained within any given assessment. Ideally, a resource will be assessed during different seasonal conditions (wet, dry, hot, cold) to ensure a complete evaluation (some conditions may not be evident in one visit under one set of weather conditions). Destructive investigation is acceptable as a means of obtaining information, but it is not required. In some instances, the need for additional and (or) destructive investigation may be included in the treatment recommendations discussed in Section 3.0.

Although a HSA can provide valuable support documentation when making application for grant funding from the SHF, the assessment should not be seen as merely a prerequisite to making application for that funding. The HSA should be considered an important planning tool for future rehabilitation, restoration, and/or maintenance of a resource (regardless how the work might be funded in the future).

Scope of Work: In order to ensure a comprehensive assessment, the State Historical Fund has developed a standard Scope of Work for HSAs funded under the special non-competitive grant program. This Scope of Work is included in the application packet. All HSAs submitted to the SHF must follow this Scope of Work. Specific details on the expectations and requirements are provided in this Annotated Scope of Work.

Who can prepare a HSA? The Historic Structure Assessment must be prepared by an architect or a structural engineer working under the direct guidance of an architect. Please consider the following when deciding who will prepare the HSA:

- Architect, and structural engineer if applicable, must be licensed in the state of Colorado.
- Architect must be the primary consultant on the project.
- Architect, and structural engineer if applicable, must be able to interpret and apply The Secretary of the Interior’s Standards for the Treatment of Historic Properties.
- Architect, and structural engineer if applicable, is required to attend an initial on-site consultation with a State Historical Fund Historic Preservation Specialist at the commencement of the grant contract.

Other professionals including engineers, archaeologists, historic preservation consultants, contractors, historians and cost estimators may also be members of the assessment team.

Historic Structure Assessment reports are on file in the SHF office for reference. If you would like to review any of these, or if you have any questions, please contact a preservation specialist at 303.866.2825.
**ANOTATED SCOPE OF WORK**

**FORMATTING & CONTENT:** The HSA report should mirror the Scope of Work provided by SHF. Information specific to details and requirements for content is provided below. If you have any questions about how or what to include, please contact the Historic Preservation Specialist assigned to the project. **Two final copies must be submitted to SHF;** both copies must be 3-hole punched and submitted in white 3-ring binders (with clear overlay for title sheet). Please call with any questions about submitting final copies.

**MULTIPLE BUILDINGS/STRUCTURES & ADDITIONS:** For assessments that include more than one structure, or for single structures that have multiple and/or distinct additions, please address each structure or addition **individually** in the assessment. This can be accomplished in several ways. Please contact the Historic Preservation Specialist for more specific direction and/or suggestions.

**PHOTOGRAPHIC DOCUMENTATION:** Please include photographic documentation to illustrate the features and conditions described in the narrative. Always include **in-text references** to specific photos when addressing the element, feature, or space in the narrative. For specific guidelines, see Section 6.0.

i. **COVER PAGE**
The Cover Page of the report must include:

1. The State Historical Fund Project number
2. The name and address of the property
3. The date of report completion
4. The required acknowledgement of SHF as a funding source (“This project was paid for by a State Historical Fund grant from History Colorado, the Colorado Historical Society”)
5. Site Number, if applicable

ii. **TABLE OF CONTENTS**
Please number pages in the report, and include the pages in the Table of Contents.

1.0 **INTRODUCTION**

1.1 **RESEARCH BACKGROUND / PROJECT PARTICIPANTS**
Discuss the purpose of the project and describe the process taken to complete the report, including:

1. List consultants involved in preparing the report, and what their roles were.
2. Note weather condition(s) experienced during all field (site) visits.
3. List funding partners (include SHF, but full acknowledgment noted above is not required).
4. Include sources of information used to complete this report, including available historical documentation and interviews with building users/managers as relevant (see Section 2.0).

1.2 **BUILDING LOCATION**
Please provide the following:

1. Vicinity map
2. Site plan (Site plans should show the property lines, as well as the designated area, and display all of the improvements, features, and landscape elements within the property boundaries. Indicate a north arrow and scale or NTS. Google satellite maps are not permitted as a site plan.)
3. Legal description

2.0 **HISTORY AND USE**
The research and analysis of the structure’s history and use determines the basis for the preservation treatment recommendations prescribed in the assessment section. This portion of the HSA includes a history of the resource, the architectural significance and construction history, and a detailed discussion of the proposed use.

**Potential sources for information:**
State, federal, or local register nominations of historic properties, historical photographs, historical plans/specifications, oral histories or interviews, History Colorado’s Steven H. Hart Library, Denver Public Library’s Western History Collection, local (county) assessor’s office records, and local library history collections.
2.1 ARCHITECTURAL SIGNIFICANCE & CONSTRUCTION HISTORY:
Describe the structure’s architectural style, including character-defining exterior and interior materials, features, and spaces. Include a brief chronology of additions and alterations to the original structure, and discuss past and current use(s) in relation to these modifications. This information will provide the basis for recommendations for appropriate treatments and design of suitable modifications for use.

1. Note whether or not the building is listed on the National, State or Local Register.
2. Include historical photographs of the structure’s exterior and interior, if available.
3. Excerpt portions of referenced documents that are relevant to the building/resource.

2.2 FLOOR PLAN:
The structure(s) should be graphically represented in accurate proportions. The plan(s) should be drawn with measurements, but it is not required to be drawn to scale. In this section, you must:

1. Label individual rooms for reference within the narrative of Section 3.0.
2. Note/identify within the plan or illustrations significant spaces and/or spatial relationships.
3. Illustrate the existing configuration vs. the historical configuration (if known).
4. Include copies of original drawings if they are available.
5. Indicate a north arrow and scale or NTS.

2.3 PROPOSED USE(S):
Discuss any proposed use(s), including the functional needs and potential impact to the existing structure, and evaluate whether or not the intended use is appropriate for the structure in accordance with The Secretary of the Interior’s Standards.

3.0 STRUCTURE CONDITION ASSESSMENT (SECTIONS 3.1-3.9)
Each section below should be addressed in a comprehensive narrative. In order to provide a more user-friendly and organized document, please include a separate sub-heading under each section for the three main components of the narrative: (1) Description, (2) Condition Evaluation, and (3) Recommendations. (For example, when discussing the Roof Framing System in section 3.3, you will include a Description of the system, a Condition Evaluation of the system, and a Recommendation of what to do with the system based on The Secretary of the Interior Standards and future plans/use.) The sections describing materials, features, elements, and spaces should follow the specific order listed in the Historic Structure Assessment outline provided below (e.g., 3.1 Site; 3.2 Foundation; 3.3 Structural System; etc.). If the resource does not have a component, simply indicate this in the narrative (e.g., “Perimeter foundation drainage: There is no perimeter foundation drainage.”).

**DESCRIPTION:** Please describe each element, feature or space. The intent of this subsection is to identify the elements, features, and spaces that make up the resource. The narrative should first indicate whether the element, feature, or space is original, historic or non-historic, and should then provide a detailed description of what it is, what it looks like, the materials from which it is made, and the methods used in its construction.

The Description sub-heading should not include information about the condition: Perhaps one of the most common mistakes is to include a discussion of the condition of each material, element, feature, or space as part of the description narrative—it is important to avoid this. The intent is to describe the element, feature, or space as it exists at this point in time (e.g. “Interior walls are plaster over wood lath, with a smooth texture and painted finish [see photos #2, 3, 12 and 15].”). This serves the purpose of documenting the material, element, feature, or space as it exists now so that in the future, users of the assessment will have a clear understanding of how this looked prior to any treatment.

**Significance:** Please identify each element’s, feature’s, or space’s relationship to the age of the structure and identify its significance as it relates to the integrity of the resource overall. It is important to remember that all materials, elements, features, and spaces of a structure impact the resource’s historic integrity (contributing to or detracting from); therefore, each component should be described regardless of its historic significance. A significant element, feature, or space should be described in greater detail and include photographic documentation to illustrate that description.
Windows, doors, and other repetitive elements or features: Often an element or feature is a series of similar, repetitive items, such as windows or doors. In this case, the feature should be described as one feature and then specific discrepancies should be noted or highlighted—for example, “all nine windows on the 3rd floor are historic, the six 1st floor windows are not.” Although describing as one, please include the total quantity of the element or feature in the description. A schedule to augment the narrative may be included. Remember to include even small repetitive elements such as hardware, lighting, and security.

**Condition Evaluation:** Please evaluate the condition of each feature, element, or space. Please provide a detailed discussion of the existing condition and integrity of each element, feature or space based on the comprehensive physical evaluation. As noted above, destructive investigation is acceptable as a means of obtaining information, but it is not required. The Condition Evaluation must include photographic documentation to illustrate the condition (or range of conditions for repetitive elements or features). Please use the following terms in your evaluation and discussion of the condition of each element, feature, or space: **Good Condition, Fair Condition, and Poor Condition.**

Criteria/guidelines for each are as follows:

**Good Condition:** An element, feature, or space is evaluated in *good* condition when it meets the following criteria:

1. It is intact, structurally sound, and performing its intended purpose.
2. There are few or no cosmetic imperfections.
3. It needs no repair and only minor or routine maintenance.

Please note: Elements, features, or spaces that are in *good* condition do not need lengthy narratives; state that they were examined and found to be in *good* condition, and why you have made that determination.

**Fair Condition:** An element, feature, or space is evaluated in *fair* condition when one or more the following are evident:

1. There are early signs of wear, failure, or deterioration, although the feature or element is generally structurally sound and performing its intended purpose.
2. There is failure of a sub-component of the feature or element.
3. Replacement of up to 25% of the feature or element is required.
4. Replacement of a defective sub-component of the feature or element is required.

Please note: When an element, feature, or space is in *fair* condition, it is important to provide a comprehensive discussion of this evaluation; do not simply state that the condition is “fair” without explaining that evaluation. Also, please avoid using generic descriptors such as “weathered” or “damaged” without a more specific explanation (e.g. how/why is it weathered/damaged).

**Poor Condition:** An element, feature, or space is evaluated in *poor* condition when the following is evident:

1. It is no longer performing its intended purpose.
2. It is missing.
3. It shows signs of imminent failure or breakdown.
4. Deterioration/damage affects more than 25% of the feature/element and cannot be adjusted or repaired.
5. It requires major repair or replacement.

Please note: When an element, feature, or space is in *poor* condition, it is important to provide a comprehensive discussion of this evaluation; do not state that the condition is “poor” without explaining that evaluation. Also, please avoid using generic descriptors without a more specific explanation.

**Recommendations:** Please provide a recommendation for each element, feature or space, based on (1) the evaluation of existing conditions and (2) the significance or importance of the building and its associated features and elements. Recommended treatments should comply with, and specifically address, The Secretary of the Interior’s Standards for the Treatment of Historic Properties and the recommendations in the Guidelines (e.g., “recommendation is based on Preservation Brief 9: The Repair of Historic Wooden Windows…”).

If an element, feature, or space has been evaluated in *good condition*, and there is no recommendation, state, “No recommendation at this time.” For all others, consider the following when making a recommendation:
1. The needs of the resource should be considered the first priority (sometimes a proposed use or treatment is contrary to the best interest of the resource).

2. Recommendations should discuss a specific course of action (not: “Repair according to the Standards”).

3. Clearly explain and substantiate recommended treatments within the context of the selected treatment approach.

4. If more than one treatment is viable, discuss the pros and cons of each approach/option.

5. Provide sufficient information and analysis to aid in the preparation of future construction documents.

6. Research and provide alternative solutions when the recommendation conflicts with the guidelines for The Standards. Consult the NPS Preservation Briefs and Tech Notes for potential solutions/alternatives.

7. Consider the future welfare of the resource, and the practicality of maintenance, when recommending treatments.

8. Do not present the quickest, easiest, or most economical solution as the only recommendation.

3.1 SITE:
- Associated Landscape Features
- Parking
- Archaeology (Archaeological monitoring/mitigation is required by a number of state and federal regulations when any ground disturbance results from preservation activities where there is state and/or federal involvement.)

3.2 FOUNDATION:
- Foundation Systems
- Perimeter Foundation Drainage

3.3 STRUCTURAL SYSTEM:
- General Structural System Description
- Floor & Ceiling Systems
- Roof Framing System

3.4 ENVELOPE – EXTERIOR WALLS:
- Exterior Wall Construction
- Exterior Finishes
- Exterior Masonry
- Exterior Appendages—Porch, Stoop, Portico, etc.

3.5 ENVELOPE – ROOFING & WATERPROOFING:
- Roofing Systems
- Sheet Metal Flashing
- Drainage System, Gutters & Downspouts
- Skylights / Cupolas

3.6 WINDOWS & DOORS:
- Doors (including Hardware, Casing/Trim, and Finishes)
- Windows (including Hardware, Casing/Trim, and Finishes)

3.7 INTERIOR FINISHES:
- Wall Finish Materials
- Ceiling Finish Materials
- Floor Finish Materials
- Trim and Built-Ins (not previously addressed in Section 3.6)

3.8 MECHANICAL SYSTEMS:
- Heating & Air-Conditioning
- Ventilation
- Water Service, Plumbing, & Sewer Utilities
- Fire Suppression—Sprinklers

3.9 ELECTRICAL SYSTEMS:
- Electrical Service & Panels
- Electrical Distribution System
- Lighting
- Fire Detection System
- Security Alarm System
4.0 ANALYSIS AND COMPLIANCE
In-depth code review and materials analyses may be completed for the structure. However, at a minimum, general observations on each of the following are required, and should be based on the information in Section 2.0, History and Use, and Section 3.0, Structure Condition Assessment.

4.1 HAZARDOUS MATERIALS:
- Provide observations of likely sources (e.g., lead paint, asbestos); materials testing may be recommended.

4.2 MATERIALS ANALYSIS:
- Suggest further testing as warranted for creation of specifications (i.e., paint, mortar, masonry, finishes).

4.3 ZONING CODE COMPLIANCE:
- Identify potential conflicts between zoning requirements and the proposed use(s).

4.4 BUILDING CODE COMPLIANCE:
- List the code(s) referenced. Consider alternate codes (UCBC, IEBC) and possible variances.
- Identify potential conflicts between applicable building codes and retention of historic elements, features, materials and spaces.

4.5 ACCESSIBILITY COMPLIANCE:
- Identify potential conflicts between meeting ADA Accessibility Guidelines and retaining the building’s historic integrity.
- Recommendations for alterations needed to meet accessibility requirements should reflect an effort to minimize material loss and visual change to a historic building.

5.0 PRESERVATION PLAN
The Preservation Plan should take the recommended treatments prescribed in section 3.0 Structure Condition Assessment and prioritize the work into a logical order. This order should rank the most urgent work, such as deterioration, structural weakness, and/or life safety issues, over less urgent repairs. In the discussion provided for sections 5.1-5.3, please remember the following:

1. All recommended treatments should be included in the Preservation Plan.
2. The first priority of the Preservation Plan should be to address the needs of the historic building/resource.
3. Programmatic needs of building owners and/or clients need to be represented as secondary priorities.

5.1 PRIORITIZED WORK:
Recommended Treatments for elements, features, or spaces should be prioritized and identified utilizing the following terms: Critical Deficiency, Serious Deficiency, and Minor Deficiency.
Criteria/guidelines for each are as follows:

- **CRITICAL DEFICIENCY:** One or more of the following indicate a critical deficiency:
  1. Advanced deterioration has resulted in failure of the building element, feature, or space, or will result in its failure if not corrected within two years.
  2. Accelerated deterioration of adjacent or related building materials has occurred as a result of the feature or element’s deficiency.
  3. The feature or element poses a threat to the health and/or safety of the user.
  4. The feature or element fails to meet a code/compliance requirement.

- **SERIOUS DEFICIENCY:** One or more of the following indicate a serious deficiency:
  1. Deterioration, if not corrected within two to five years, will result in failure of the feature or element.
  2. Deterioration of a feature or element, if not corrected within two to five years, may pose a threat to the health and/or safety of the user.
  3. Deterioration of adjacent or related building materials and/or systems will occur as a result of the deficiency of the feature or element.

- **MINOR DEFICIENCY:** One or more of the following indicate a minor deficiency:
  1. Standard preventive maintenance practices and building conservation methods have not been followed.
  2. A reduced life expectancy of affected or related building materials and/or systems will result.
  3. A condition exists with long-term impact beyond five years.
5.2 **PHASING PLAN:**
If work is to be completed in more than one phase, propose a logical and sequential phasing plan.
- Phased plans need to consider mobilization, seasons, sequencing, protection of building, and current uses.

5.3 **ESTIMATE OF PROBABLE COST OF CONSTRUCTION:**
Dated cost estimates should reflect the current market and include a percentage cost increase to account for inflation if the project is phased or delayed. (If applicable, please include cost estimates for archaeological monitoring, hazardous materials testing, and/or abatement.)

6.0 **PHOTOGRAPHS AND ILLUSTRATIONS**
Historic and current photographs and illustrations should be included with the assessment to illustrate and support the information provided in the narrative. Where the photographs and illustrations are located in the report is optional (in each section, after each section, at the end of the report, etc.). Follow the guidelines below for photographs and illustrations:

1. Provide comprehensive and “readable” (i.e., high quality and clear) photographic documentation.
2. Photographs and illustrations should be clearly numbered and captioned.
3. Provide at least one view of each elevation.
4. Provide clear pictures of specific conditions and deficiencies that are discussed.
5. In the narrative, include in-text references to the numbered photographs (for example, “Due to poor drainage, the lower portion of the column is significantly deteriorated [see photos 3, 5, and 6]”).
6. Black and white photographs may be acceptable for the Draft HSA; please contact the Historic Preservation Specialist for specific direction. Color images must be used in the final HSA.

7.0 **BIBLIOGRAPHY**
List all consulted sources. All the sources you have utilized should be listed alphabetically following a recognized bibliographic style (e.g., Chicago Manual of Style/Turabian, Modern Language Association (MLA), American Psychological Association (APA).
- Indicate if the consulted sources did, or did not, contain pertinent information.

8.0 **APPENDICES**
Drawings and other information should be included in the appendices
- Historical/original plans (if available) may be included.
- Schematic design, design development, construction drawings, or measured drawings (previously prepared, or prepared outside the scope of this HSA) may be also included in addition to the sketch plans provided under Section 2.2, but are not required.
CHOOSING THE APPROPRIATE TREATMENT

THE SECRETARY OF THE INTERIOR’S STANDARDS are neither technical nor prescriptive, but are intended to
promote responsible preservation practices that help protect our nation’s irreplaceable cultural resources. For
example, they cannot, in and of themselves, be used to make essential decisions about which features of the resource
should be saved and which can be changed. But once a treatment is selected, the Standards provide consistency to
the work.

FOUR TREATMENT APPROACHES

1. **Preservation** places a high premium on the retention of all historic fabric through conservation,
maintenance, and repair. It reflects a building’s continuum over time, through successive occupancies, and
the respectful changes and alterations that are made.

2. **Rehabilitation** allows for a compatible new use for the resource but still emphasizes the retention and
repair of historic materials. More latitude is provided for replacement because the treatment assumes the
property has suffered more deterioration prior to work. (Both Preservation and Rehabilitation Standards
focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships
that, together, give a property its historic character.)

3. **Restoration** focuses on the retention of materials from the most significant time in a property’s history,
while permitting the removal of materials from other periods.

4. **Reconstruction** establishes limited opportunities to re-create a non-surviving site, landscape, building,
structure, or object in all new materials.

OTHER CONSIDERATIONS: Choosing the most appropriate treatment for a building requires careful decision-
making about a building’s historical significance, as well taking into account the following:

- **Relative importance in history.** Is the building a nationally significant resource—a rare survivor or
  the work of a master architect or craftsman? Did an important event take place in it? National Historic
  Landmarks may warrant a different treatment approach than buildings that contribute to the
  significance of a historic district but are not individually listed on the National Register.

- **Physical condition.** What is the existing condition—or degree of material integrity—of the building
  prior to work? Has the original form survived largely intact or has it been altered over time? Are the
  alterations an important part of the building’s history? Are distinctive materials, features, and spaces
  essentially intact and convey the building’s historical significance? Are alterations or additions necessary
  for a new use? These key questions play a major role in determining which treatment is selected.

- **Proposed use.** Will the building be used as it was historically or will it be given a new use? Many
  historic buildings can be adapted for new uses without seriously damaging their historic character;
  special-use properties such as grain silos, forts, ice houses, or windmills may be extremely difficult to
  adapt to new uses without major intervention and a resulting loss of historic character and even
  integrity.

- **Mandated code requirements.** Code requirements will need to be taken into consideration. But if
  hastily or poorly designed, a series of code-required actions may jeopardize a building’s materials as well
  as its historic character. Abatement of lead paint and asbestos within historic buildings requires
  particular care if important historic finishes are not to be adversely affected. Recommendations for
  alterations and new construction needed to meet accessibility requirements under the Americans with
  Disabilities Act of 1990 should reflect an effort to minimize material loss and visual change to a historic
  building.
TERMS AND DEFINITIONS

**AS-BUILT DRAWINGS:** produced after completion of the structure showing how it was actually built by incorporating changes that were made as construction progressed. Alterations made to the structure in subsequent years should be clearly identified as later changes.

**CHARACTER-DEFINING FEATURE:** a prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. Structures, elements, objects, vegetation, spatial relationships, views, furnishings, and decorative details and materials may be such features.

**CONSTRUCTION DOCUMENTS:** Drawings, Plans, Technical Specifications, Addenda, Supplemental Instructions and Change Orders created by an architect that set forth in detail the requirements for the construction of the project.

**DESIGN DEVELOPMENT DRAWINGS:** produced to work out details, aesthetics, dimensions, and estimated probable costs for construction or manufacture. They often include detail drawings of design features.

**ELEMENT:** may be an architectural feature, structural component, engineering system, or a functional requirement.

**EXISTING CONDITION DRAWINGS:** produced to record the configuration, physical fabric, and conditions of a structure at a given point in time. They are often produced as the first step in a project.

**IN-KIND:** in the same manner, with the same material, or with something equal in substance creating a similar or identical visual appearance or effect.

**MATERIAL:** the physical elements that were combined or deposited to form a property. Historic material or historic fabric is that from a historically significant period, as opposed to material used to maintain or restore a property following its historic period(s).

**PERIOD OF SIGNIFICANCE:** the length of time when a property was associated with important events, activities, or persons, or attained the characteristics which qualify it for historic designation.

**PRESERVATION:** the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a building, site, structure, or object.

**RECONSTRUCTION:** 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. Treatment should be based on documentary or photographic evidence.

**REHABILITATION:** the act or process of making possible a compatible new use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

**RESEARCH DESIGN:** a statement of proposed activities (identification, documentation, evaluation, investigation, or other research) that identifies the project’s goals, methods and techniques, expected results, and the relationship of the expected results to other proposed activities or treatments. The research design is specific to each project.

**RESTORATION:** 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.

**SCHEMATIC DESIGN DRAWINGS:** also known as conceptual drawings, they are diagrammatic drawings of the essential elements of a design; they are not used to estimate costs.

**SKETCH PLAN:** site plan or building plan drawn with measurements but often not to scale, although the structure and site features should be represented in accurate proportions.

**TREATMENT RECOMMENDATION:** based on The Secretary of the Interior’s Standards. The degree of intervention recommended depends on the existing condition of the element and its significance or importance to the property.