The historic rehabilitation of the E.E. Warren Opera House in Greenfield, Iowa: Design of a café©, chamber of commerce, and art gallery focused on wayfinding and adaptability

Brittany Noel Dieleman
Iowa State University

Follow this and additional works at: https://lib.dr.iastate.edu/etd
Part of the Graphic Design Commons

Recommended Citation
Dieleman, Brittany Noel, "The historic rehabilitation of the E.E. Warren Opera House in Greenfield, Iowa: Design of a café©, chamber of commerce, and art gallery focused on wayfinding and adaptability" (2014). Graduate Theses and Dissertations. 13741. https://lib.dr.iastate.edu/etd/13741

This Thesis is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.
The historic rehabilitation of the E.E. Warren Opera House in Greenfield, Iowa: Design of a café, chamber of commerce, and art gallery focused on wayfinding and adaptability

by

Brittany Dieleman

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF FINE ARTS

Major: Interior Design

Program of Study Committee:
Çigdem T. Akkurt, Major Professor
Jihyun Song
Arvid Osterberg

Iowa State University
Ames, Iowa
2014

Copyright © Brittany Dieleman, 2014. All rights reserved
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF FIGURES</td>
</tr>
<tr>
<td>APPENDIX: LIST OF FIGURES</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
</tr>
<tr>
<td>ABSTRACT</td>
</tr>
<tr>
<td>CHAPTER 1. INTRODUCTION</td>
</tr>
<tr>
<td>Purpose of Study</td>
</tr>
<tr>
<td>Scope of Study</td>
</tr>
<tr>
<td>Objectives</td>
</tr>
<tr>
<td>Methodology</td>
</tr>
<tr>
<td>CHAPTER 2. LITERATURE REVIEW</td>
</tr>
<tr>
<td>Historic Buildings</td>
</tr>
<tr>
<td>Terminology</td>
</tr>
<tr>
<td>“Road” Classification of Buildings</td>
</tr>
<tr>
<td>Aged Buildings</td>
</tr>
<tr>
<td>Building Layers</td>
</tr>
<tr>
<td>Why Re-use?</td>
</tr>
<tr>
<td>Revive Main Street Movement</td>
</tr>
<tr>
<td>Present Challenge in Re-use</td>
</tr>
<tr>
<td>Wayfinding</td>
</tr>
<tr>
<td>Definition</td>
</tr>
<tr>
<td>The Process</td>
</tr>
<tr>
<td>Wayfinding Design</td>
</tr>
<tr>
<td>Wayfinding Design in an Adaptive Reuse Project</td>
</tr>
<tr>
<td>Wayfinding Analysis Using UCL Depthmap</td>
</tr>
<tr>
<td>History</td>
</tr>
<tr>
<td>Greenfield</td>
</tr>
<tr>
<td>E.E. Warren Opera House and Hetherington Buildings</td>
</tr>
<tr>
<td>Classification of the E.E. Warren Opera House and Hetherington Buildings</td>
</tr>
<tr>
<td>E.E. Warren Cultural Center</td>
</tr>
<tr>
<td>CHAPTER 3. ANALYSIS</td>
</tr>
<tr>
<td>Demographics</td>
</tr>
<tr>
<td>Site</td>
</tr>
<tr>
<td>Approach to the Site</td>
</tr>
<tr>
<td>Location of Selected Site</td>
</tr>
</tbody>
</table>
Experiential Approach to the Site
UCL Depthmap Analysis of the Site
66
Structures
UCL Depthmap Analysis of Buildings
Existing Exterior and Alterations
Square Footage
Existing Interior and Modifications
Experiential Analysis of the Buildings
70
70
78
79
79
80

CHAPTER 4. DESIGN

Design Program
Café Space Planning
Chamber of Commerce Space Planning
Art Gallery Space Planning
Design Solution
Cultural Oasis Definition
Design Challenges
Design Principles
Café Design
Chamber of Commerce Design
Art Gallery Design
Recommendations for Opera House Design
Recommendations for the City of Greenfield, Iowa
83
83
89
90
92
93
93
94
95
96
110
125
133
134

CHAPTER 5. CONCLUSION

Objectives of the Thesis
Research Procedures
Further Research
Conclusions
135
135
135
136
137

APPENDIX. ADDITIONAL FIGURES

140

BIBLIOGRAPHY

160
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure 2-1</th>
<th>Building Layers</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2-2</td>
<td>All-Line Axial Map Analysis</td>
<td>35</td>
</tr>
<tr>
<td>Figure 2-3</td>
<td>Fewest-Line Axial Map Analysis</td>
<td>36</td>
</tr>
<tr>
<td>Figure 2-4</td>
<td>Intervisibility Graph</td>
<td>37</td>
</tr>
<tr>
<td>Figure 2-5</td>
<td>Step Depth Graph</td>
<td>38</td>
</tr>
<tr>
<td>Figure 2-6</td>
<td>Visibility Graph Analysis</td>
<td>39</td>
</tr>
<tr>
<td>Figure 2-7</td>
<td>Isovist Graph</td>
<td>40</td>
</tr>
<tr>
<td>Figure 2-8</td>
<td>Convex Map Inter-Connectivity</td>
<td>41</td>
</tr>
<tr>
<td>Figure 2-9</td>
<td>Convex Map Step Depth</td>
<td>41</td>
</tr>
<tr>
<td>Figure 2-10</td>
<td>Convex Map Visual Graph Analysis</td>
<td>42</td>
</tr>
<tr>
<td>Figure 2-11</td>
<td>Original Basement Floor Plan</td>
<td>46</td>
</tr>
<tr>
<td>Figure 2-12</td>
<td>Original Ground Floor Plan</td>
<td>47</td>
</tr>
<tr>
<td>Figure 2-13</td>
<td>Original Auditorium Floor Plan</td>
<td>48</td>
</tr>
<tr>
<td>Figure 2-14</td>
<td>Original Balcony Floor Plan</td>
<td>49</td>
</tr>
<tr>
<td>Figure 2-15</td>
<td>c.1903 Photograph, looking southeast</td>
<td>54</td>
</tr>
<tr>
<td>Figure 2-16</td>
<td>: c.1910 Postcard, looking southeast</td>
<td>54</td>
</tr>
<tr>
<td>Figure 2-17</td>
<td>c.1915, Looking southeast</td>
<td>55</td>
</tr>
<tr>
<td>Figure 2-18</td>
<td>c.1937 Newspaper Clipping, looking southeast</td>
<td>55</td>
</tr>
<tr>
<td>Figure 2-19</td>
<td>c.1961 Des Moines Register Clipping, looking southeast</td>
<td>56</td>
</tr>
<tr>
<td>Figure 2-20</td>
<td>c.1975 Photograph, looking east</td>
<td>56</td>
</tr>
<tr>
<td>Figure 2-21</td>
<td>c.1986 Photograph, looking east</td>
<td>57</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>2-22</td>
<td>c.2012 Photograph, looking southeast</td>
<td>57</td>
</tr>
<tr>
<td>2-23</td>
<td>Restored Parquet Wood Floors, Paint Colors, and Stenciling in the E.E. Warren Opera House Living Quarters</td>
<td>60</td>
</tr>
<tr>
<td>2-24</td>
<td>Evidence of Original Stenciling in E.E. Warren Opera House</td>
<td>61</td>
</tr>
<tr>
<td>2-25</td>
<td>Evidence of Original Stenciling in E.E. Warren Opera House</td>
<td>61</td>
</tr>
<tr>
<td>2-26</td>
<td>c.2012 Wood and Copper Edgings</td>
<td>61</td>
</tr>
<tr>
<td>2-27</td>
<td>c.2012 Restoration of Opera House Stenciling and Paint</td>
<td>62</td>
</tr>
<tr>
<td>2-28</td>
<td>c.2012 Restoration of Hetherington Building Plaster Walls and Paint</td>
<td>62</td>
</tr>
<tr>
<td>3-1</td>
<td>Greenfield Location Map</td>
<td>65</td>
</tr>
<tr>
<td>3-2</td>
<td>Lancaster Style Square</td>
<td>66</td>
</tr>
<tr>
<td>3-3</td>
<td>All Line Axial Map</td>
<td>68</td>
</tr>
<tr>
<td>3-4</td>
<td>All Line Axial Map Zoomed In</td>
<td>69</td>
</tr>
<tr>
<td>3-5</td>
<td>Reduced Line Axial Map</td>
<td>69</td>
</tr>
<tr>
<td>3-6</td>
<td>Reduced Line Axial Map Zoomed In</td>
<td>70</td>
</tr>
<tr>
<td>3-7</td>
<td>Intervisibility Graph: Basement</td>
<td>71</td>
</tr>
<tr>
<td>3-8</td>
<td>Intervisibility Graph: Ground</td>
<td>72</td>
</tr>
<tr>
<td>3-9</td>
<td>Intervisibility Graph: Auditorium</td>
<td>72</td>
</tr>
<tr>
<td>3-10</td>
<td>Intervisibility Graph: Mezzanine</td>
<td>73</td>
</tr>
<tr>
<td>3-11</td>
<td>Step Depth Graph: Ground 1</td>
<td>74</td>
</tr>
<tr>
<td>3-12</td>
<td>Step Depth Graph: Ground 2</td>
<td>75</td>
</tr>
<tr>
<td>3-13</td>
<td>Step Depth Graph: Auditorium</td>
<td>75</td>
</tr>
<tr>
<td>3-14</td>
<td>Visibility Graph Analysis: Ground</td>
<td>77</td>
</tr>
<tr>
<td>3-15</td>
<td>Visibility Graph Analysis: Auditorium</td>
<td>77</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>4-1</td>
<td>Schematic Floor Plan: Basement</td>
<td>86</td>
</tr>
<tr>
<td>4-2</td>
<td>Schematic Floor Plan: Ground</td>
<td>87</td>
</tr>
<tr>
<td>4-3</td>
<td>Schematic Floor Plan: Auditorium</td>
<td>88</td>
</tr>
<tr>
<td>4-4</td>
<td>Schematic Floor Plan: Mezzanine</td>
<td>89</td>
</tr>
<tr>
<td>4-5</td>
<td>Café Option 1</td>
<td>98</td>
</tr>
<tr>
<td>4-6</td>
<td>Café Option 2</td>
<td>100</td>
</tr>
<tr>
<td>4-7</td>
<td>Café Option 3</td>
<td>102</td>
</tr>
<tr>
<td>4-8</td>
<td>Café Option 4</td>
<td>104</td>
</tr>
<tr>
<td>4-9</td>
<td>Café Final Detailed Plan</td>
<td>106</td>
</tr>
<tr>
<td>4-10</td>
<td>Chamber of Commerce Option 1</td>
<td>113</td>
</tr>
<tr>
<td>4-11</td>
<td>Chamber of Commerce Option 2</td>
<td>114</td>
</tr>
<tr>
<td>4-12</td>
<td>Chamber of Commerce Option 3</td>
<td>116</td>
</tr>
<tr>
<td>4-13</td>
<td>Chamber of Commerce Option 4</td>
<td>118</td>
</tr>
<tr>
<td>4-14</td>
<td>Chamber of Commerce Final Detailed Plan</td>
<td>121</td>
</tr>
<tr>
<td>4-15</td>
<td>Art Gallery</td>
<td>128</td>
</tr>
<tr>
<td>4-16</td>
<td>Art Gallery Final Detailed Plan</td>
<td>130</td>
</tr>
</tbody>
</table>
APPENDIX: LIST OF FIGURES

| Figure A-1 | Cafe Detailed Floor Plan | 140 |
| Figure A-2 | Cafe Reflected Ceiling Plan | 141 |
| Figure A-3 | Cafe Rendered Floor Plan | 142 |
| Figure A-4 | Cafe Section Looking North | 143 |
| Figure A-5 | Cafe Rendered Perspective Looking East | 144 |
| Figure A-6 | Cafe Rendered Perspective Looking West | 145 |
| Figure A-7 | Cafe Artwork on South Wall | 146 |
| Figure A-8 | Chamber of Commerce Detailed Floor Plan | 147 |
| Figure A-9 | Chamber of Commerce Reflected Ceiling Plan | 148 |
| Figure A-10 | Chamber of Commerce Rendered Floor Plan | 149 |
| Figure A-11 | Chamber of Commerce Rendered Perspective Looking East | 150 |
| Figure A-12 | Chamber of Commerce Timeline | 151 |
| Figure A-13 | Art Gallery Detailed Floor Plan | 152 |
| Figure A-14 | Art Gallery Reflected Ceiling Plan | 153 |
| Figure A-15 | Art Gallery Rendered Floor Plan | 154 |
| Figure A-16 | Art Gallery Rendered Perspective Looking East | 155 |
| Figure A-17 | Art Gallery Rendered Perspective Looking West | 156 |
| Figure A-18 | Chamber of Commerce and Art Gallery Section Looking South | 157 |
| Figure A-19 | Chamber of Commerce and Art Gallery Section Looking North | 158 |
| Figure A-20 | Café and Chamber of Commerce Wayfinding Plan | 159 |
LIST OF TABLES

| Figure 2-1 | Building Tenants       | 52 |
| Figure 2-2 | Inventory of Physical Changes | 53 |
ABSTRACT

The purpose of this thesis is to explore the application of two frameworks, historic rehabilitation and wayfinding, to a practical interior design project. It forms a bridge between interior design, historic rehabilitation, and wayfinding. The objective of the study is to create a successful historic rehabilitation project that will be a catalyst for the rehabilitation of the historic town square of Greenfield, Iowa, by applying the wayfinding and rehabilitation framework discovered through in-depth research. The study also reveals the potential use of the computer program UCL Depthmap in future rehabilitation projects and interior design in general.

First, this thesis analyzes the original E.E. Warren Opera House Building, the Hetherington Building, and the town of Greenfield, Iowa, in order to assess the existing conditions and use the information to transform the two historic buildings. The analysis uses a computer program called UCL Depthmap to analyze wayfinding and visual connectivity. Second, the learned framework and research is applied as a case study to an actual design process for a historic rehabilitation of the E.E. Warren Opera House and Hetherington buildings into a retail and mixed-use space. Following the initial schematic design, UCL Depthmap is used again to analyze the design and determine its level of interconnectedness. After the analysis, a schematic design is chosen and developed fully into a finished floor plan. The design implements the frameworks previously researched and the information learned from the computer analysis. It focuses on historic rehabilitation and adaptation to new functions and requirements by responding to existing conditions in a positive and respectful way.
while still conforming to user needs. The design also focuses on creating successful wayfinding within the buildings and city.
CHAPTER 1. INTRODUCTION

Purpose of the Study

The purpose of this academic research is to explore the application of two frameworks, historic rehabilitation and wayfinding, to a practical interior design project. It forms a bridge between interior design, historic rehabilitation, and wayfinding. The objective of the study is to create a successful historic rehabilitation project that will be a catalyst for the rehabilitation of the historic town square of Greenfield, Iowa, by applying the wayfinding and rehabilitation framework discovered through in depth research.

Scope of the Study

This study is part of a proposal for the renovation project of the E.E. Warren Opera House Building and the Hetherington Building located on the town square in Greenfield, Iowa. The E.E. Warren Opera House Building is made up of five main floors: the basement, the ground floor, the theater floor (referred to as the auditorium from here on out), the mezzanine, and the attic. The Hetherington Building is made up of three main floors: the basement, the ground floor, and the second story, which was originally offices (also referred as the auditorium level from here on out).

This thesis analyzes the original E.E. Warren Opera House Building, the Hetherington Building, and the town of Greenfield in order to assess the existing conditions and use the information to transform the two historic buildings. The design proposal focuses on using UCL Depthmap, a computer program that analyzes wayfinding and visual connectivity, to analyze and aid in designing an adaptive reuse and historic rehabilitation project for the E.E. Warren Opera House and Hetherington
Buildings. The design converts the ground floor of the E.E. Warren Opera House to a café, the ground floor of the Hetherington Building to a new chamber of commerce, and the auditorium level of both buildings to a museum and art gallery. The design focuses on historic rehabilitation and adaptation to new functions and requirements by responding to existing conditions in a positive and respectful way while conforming to user needs. The design also focuses on creating successful wayfinding within the buildings and city. The final design is re-analyzed by UCL Depthmap to assess its level of success in visual connectivity, integration, and wayfinding.

The first stage of this thesis attempts to understand theoretical frameworks and research already present in the areas of historic rehabilitation and wayfinding. The second stage of this thesis analyzes the relative connectivity of the city layout of Greenfield, Iowa, and the visual integration of the E.E. Warren Opera House Building and the Hetherington Building using a computer analysis program called UCL DepthMap. The third stage of this thesis implements the research, city visions, and objectives in the design of commercial, mixed-use, and office spaces for the E.E. Warren Opera House Building and Hetherington Building. In the final stage, the design is re-analyzed for visual integration using UCL DepthMap.

The design solution presents computer generated plans, elevations, and sections as well as rendered drawings and illustrations of perspectives so knowledgeable viewers and novices alike can understand the designed spaces. This thesis is part of a larger project aimed at spurring tourist attraction to the town of Greenfield. In order to aid attractions to the town square, additional analysis and recommendations will be
made to improve wayfinding to the town square and possible additional attractions for visitors.

**Objectives**

The research objectives are to design a café, chamber of commerce, and art gallery that can be utilized as mixed-use spaces in the historic E.E. Warren Opera House Building and the adjoining Hetherington Building. The design respects the historical structure but also contrasts with it. It suggests progress while the original structures suggest stability and permanence. Not only does the design beautifully juxtapose the original, historic buildings, but it also works serendipitously with it. Finally, the design aids wayfinding and allows for adaptations to be made.

**Methodology**

The information of this study is divided into four main parts. The first part is a literature review of historic rehabilitation, wayfinding, and historical background of the city of Greenfield, the E.E. Warren Opera House Building, and the Hetherington Building. The second part is an analysis of the town of Greenfield, Iowa, as well as a more in-depth analysis of the selected site. The analysis was done through Internet research, book research, observations, personal experience, and a computer analysis program called UCL DepthMap. The third part of this thesis is the design of the café, chamber of commerce, and art gallery, and the re-analysis of it using UCL DepthMap. The final portion of this thesis is further recommendations to the city of Greenfield to encourage more tourist activity throughout their city.
CHAPTER 2. LITERATURE REVIEW

“’Creative Re-use’ is more than just the conversion or rehabilitation of a property for a new or continued use. It is a process that harnesses the energy and quality of the original building, whether of special architectural or historic interest or simply a work-a-day redundant building, and combines this with the new energy and activity that the new use brings. The balance between the existing building and the new use is variably dependent upon character, condition, and the needs of the user. The aim is to achieve a harmonious balance, celebrating both.” ~ Derek Latham

The literature review consists of three aspects of study. The first portion reviews terminology related to historic buildings, research on historic buildings, rehabilitation, and adaptive reuse. The research supports the need for an adaptive reuse project in the E.E. Warren Opera House Building and the Hetherington Building. The third section reviews wayfinding research and the importance it plays in a user’s experience. The final section covers the historical background of Greenfield and the E.E. Warren Opera House building and the Hetherington Building. The background information presents possible new uses for the selected site and suggestions for design.

---

1 Derek Latham, Creative Re-Use of Buildings, v.2. (Shaftesbury, Dorset: Donhead, 2000) xi.
Historic Buildings

Terminology

Before one can proceed in thesis research about anything related to the use of historic buildings, some simple terminology must first be understood. As the use of older buildings has risen in popularity, the jargon of historic preservation, restoration, and rehabilitation has become very misused. To add to the confusion are words such as reconstruction, adaptive reuse, renovation, and façadism. Here we will take a look at each of the terms and define them individually to clear up their meanings.

According to the Secretary of Interior Standards, historic preservation is:

“the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.

New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.”

In layman’s terms, historic preservation is the work performed to maintain a historic structure and save it from general deconstruction or deterioration.

---

Historic restoration is the process of restoring a building or object to a certain period in history by removing anything added past the predetermined period and adding anything that is missing from that period. According to the Secretary of Interior Standards, historic restoration is:

“the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.”

Historic rehabilitation is restoring a building or object to modern day use while preserving the properties that are important to its past. The Secretary of Interior Standards defines historic rehabilitation as:

“the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.”

Reconstruction is the act of rebuilding a non-surviving object to a period of time through evidence found in photos and notes of historic buildings. Renovation is the modernization of an old or historic building that may produce inappropriate outcomes. Adaptive re-use is converting a building to something other than it was designed for. In adaptive reuse, the building may be restored, renovated, or rehabilitated. Finally,

3 Dickenson. *ARCHEOLOGY AND HISTORIC PRESERVATION.*
4 Dickenson. *ARCHEOLOGY AND HISTORIC PRESERVATION.*
façadism is the act of demolishing a building but leaving only the façade intact in order to build new structures in and possibly around the façade.\(^5\)

Now that a basic understanding of terminology has been reached, one can begin to further comprehend historic buildings, why Americans have such an enchantment with aged buildings, and why they are so important to support and maintain in communities.

**“Road” Classification of Buildings**

In his book *How Buildings Learn: What Happens After They’re Built*, Stewart Brand creates a classification system for buildings. According to Brand, a building is High Road, Low Road, or No Road. High road buildings are high-visibility, high-rent, high-style, low-turnover buildings: the exact opposite of low road buildings. They acquire their character through tenants who have a serious purpose and intent for their use that put a lot of care, time, and money into them. High road buildings seldom have a change of owners and tenants, and because of all the time and energy put into them, they begin to express a confidence and character of their own. Their ability to span time and generations allows them to transcend style and create a history that is all their own. This transcendental style is also what gains the loyalty of their occupants and visitors and allows them to rise to new freedoms that low road buildings cannot. High road buildings show a deep history, but also show an equally inviting future that beckons long-term responsibility from its occupants, which low road buildings will never acquire. The long-term responsibility from occupants summons refinement after

---

refinement and allows the high road building to become highly evolved. The level of success a high road building reaches can be measured in its level of intricate refinements.\(^6\)

Of course, there are disadvantages to high road buildings that must be dealt with as well. It is difficult to maintain a building that was built during affluent times when present times are not as plush. Updating anything on a high road building can be expensive; in fact, often high road buildings and their high visibility and high style are synonymous with high cost. This is why the aged oddities found within high road buildings are preserved until new uses are found for them, and they are no longer considered obsolete. Instead of complete guts, high road buildings are refined to lower costs but in turn become more complex, but also more specialized. As a result, high road buildings cannot help but become unique because they must respond to so many hidden forces and subtleties present in their refinements and updates.\(^7\)

Low road buildings are low-visibility, low-rent, no-style, high-turnover buildings. A few examples of low road buildings are warehouses, space rented in commercial buildings, trailers, windowless storage rooms, and temporary add-ons. They are buildings that often have new tenants and are continually transforming, and as a result, economic activity tends to follow low road activity. Although low road buildings are often viewed as having very little worth, they are actually invaluable to the public because they are disposable, empowering, and encourage creativity.\(^8\)

---


\(^7\) Brand 35.

\(^8\) Brand 38.
The final category that Stewart Brand speaks of is the no road building. No road buildings are also called magazine architecture. They are void of the characteristics that define both low road buildings and high road buildings. They avoid any relationship whatsoever with time and with what is considered to be its damages. No road buildings don’t care about how a building adapts or how it is used. What they are concerned with is how they look void of all inhabitants in photographs. Of all the “road” buildings, a structure that could be categorized as a “no road” building is the most insulting.9

This thesis focuses on the E.E. Warren Opera House Building, which is a high road building that has the possibility of becoming a no road building. It was originally built to be enjoyed by its patrons and to command respect through its high style and character. It would be easy to transform the Opera House building from a high road building to a no road building through a rehabilitation project, and especially a preservation project, but it is of utmost importance to the researcher to do everything in her power to keep the building high road while enjoying the perks, such as creativity, empowerment of its users, and high economic activity of low road buildings.

Aged Buildings

When one thinks of the most loved buildings in the world, perhaps the first structures that often come to mind are the Taj Mahal, the Colosseum, The Eiffel Tower, Hagia Sofia, the Great Pyramids of Giza, St. Paul’s Cathedral, the Chrysler Building, and the Parthenon. What do all of these buildings have in common? They are all older

---

9 Brand 52.
buildings. So, the answer to the question what makes a building come to be loved, is perhaps Stewart Brand’s response, “Age.”

Stewart Brand found in his research that people, especially Americans, love older buildings. People have a respect and love for the maturity and wear aged buildings show. Muted bricks, stained roofs, flourishing vines growing on facades, worn stairs, and patina-stained details covet a respect all their own. In fact, they often commission a financial investment that a perfectly manicured building never could.

Age is so valued in the United States that we go so far as to manipulate the appearance of age rather than wait the time it takes for buildings to don real age.

On the other hand, Stewart Brand also found there seems to be an ideal degree of aging that is preferred and admired. Things can neither be too old nor too new. They should not be sparkling with perfection nor rotting with age. Buildings must be perfectly ripe. “Worn, but still fully functional.” In fact, truly old buildings are constantly being refreshed to a degree, but not so far as to look like a new building, and new buildings are being forced to mature quickly. All of the forced maturing has created an honest appreciation for true aging. The kind of aging that shows layers of complexity and traces of an interesting evolution, not the single layer, glossy surface of forced age. The true age of a building rewards its patrons and on-lookers for becoming involved in its completion and its story. This is what makes old buildings particularly interesting to people. They involve their users and passers-by in the process of aging and yet are still actively involved in their own evolution. “They are not dead yet.”

10 Brand 2.
11 Brand 10-11.
12 Brand 10-11.
When a building is designed for one purpose and is put to a completely different use, Jane Jacobs says the building’s intrinsic value deepens. These are the types of buildings that come to be admired by visitors and loved by communities. They are the treasures to be found among the hundreds of new buildings in cities.13 And we need to honor the buildings that are loved and not just admired. Admiration is so finite and lasts for only a second, but love is intimate and lasting. Love of a building is understanding and appreciating its history and potential. It doesn’t judge what a building is, but admires what it is capable of becoming and has been through. Love for a building is an appreciation for architecture of process and improvisation.14

We need loved architecture in order to save buildings from the wrecking ball. It used to be nationally understood that old buildings were less valuable than new buildings, but now it is almost universally understood that old buildings are more valuable than new buildings. An old building contains the potential of improvisation for a foreign use, and it is filled with opportunities to solve seemingly impossible problems. It encourages creativity because design solutions can’t be forced on a rigid existing building like they can on new construction. Solutions must be finessed into an existing building as you work around existing constraints. Instead of putting all of his creative force into forming a completely new building on a blank site, the designer can put his full effort into a smaller more manageable task, which in turn may actually be more freeing. The designer no longer needs to imagine the building, but instead has it at his fingertips to experience the existing space and visualize the new design. The building

14 Brand 71.
already has its own story, one just has to continue it and perhaps change the road it is going down.\(^{15}\)

Freezing a building in time through preservation was once a very popular approach to existing buildings. While it is appropriate in some cases, it will not work for all cases. Preservation does not allow a building to evolve for improvisation to occur, and eventually its inhabitants will fall out of the love with it. Then, it will face a future with a wrecking ball. Even in architecture, change must be embraced, not lamented. However, change does not require the total abandonment of the past that was so popularly seen in the 1960’s during the urban renewal movement. New is not necessarily better. Embracing change in architecture requires adaptive reuse and rehabilitation.\(^{16}\)

Although the Taj Mahal and Eiffel Tower are truly loved buildings around the world, what makes an “average” building in an “average” town come to be loved? Age, adaptivity, and improvisation. All buildings age. All buildings change, but only some buildings improve with age and change. The buildings that improve learn from their occupants and adapt to their needs, and in turn the occupants learn from the buildings and come to love them. This is the difference between a building that gets steadily better and one that gets steadily worse.\(^{17}\)

\(^{15}\) Brand 105, 109.


\(^{17}\) Brand 23.
Building Layers

In order to help a building get steadily better with time, it is important to be sensitive to the history of a building, but it is also important to be sensitive to its possible future re-use. The first step in preparing for rehabilitation is to understand that buildings are made up of layers, and each layer changes at different rates. It is important to understand what are life-long elements and what are temporary. The life-long elements form the core of the building and are common to a wide range of users. The temporary elements are specific to users and dependent on current technology or patterns of occupation. The life-long and temporary elements determine the building’s ability to accept change for new uses.\(^{18}\)

Each element and layer found in the building has a differing life expectancy. The largest layer is the site. Site is the geographical urban location that a building is sitting on. The site is a legally defined external lot and is often the slowest layer to change. The next layer is the structure. The structure is the foundation and load-bearing components that are time-consuming, difficult, and often expensive to change. They are the building and often last for 30-300 years. The skin, or weathering material, is the exterior surface of the building. It can be replaced and upgraded. The skin needs to be the third most durable layer, lasting for around 20-60 years.\(^{19}\) The next layer, known as the services, is the working interiors of the building. It includes heating, ventilation, and air conditioning (HVAC), electricity, plumbing, communications wiring, the fire sprinkler system, and moving parts like escalators and elevators. Because of their reliance on mechanical and electronic working parts and the expectation for upgrades

\(^{18}\) Latham 81-84.
\(^{19}\) Brand 12-13.
and improved standards, services don’t last nearly as long as the skin and structure. Services should last for around 30 years. The space plan is the next layer and is the interior layout of the walls, ceilings, floors, and doors. It generally only last 15 years because the elements relate to changes in the working practices, living habits, fashion, and whim.⁰ The final layer is the “stuff.” It includes the furniture, accessories and corporate image. This layer is the most frequently changed layer and will probably only have a life expectancy of 5 years because of the likely change in fashion, marketing, and possible building users.¹ Figure 2-1 shows a visual representation of the layers of components found in each building. In this image the thickness of the line demonstrates the level of change generally found in that layer: the thinner the line the more malleable the layer; the thicker the line the more stable the layer.²²

---

⁰ Latham 81-84.
¹ Latham 81-84.
It is foolish to assume that a building will cease to change once your project is complete; therefore, it is very important to prepare for change. The most secure way to allow for future re-use and adaptability is to respond to the building's structure and protect as many of the original elements as possible.\textsuperscript{23}

\textbf{Why Re-Use?}

Although it is easy to tear down existing buildings falling into disrepair, many persuading reasons exist to re-use buildings, other than the population's affinity for aged buildings. The first reason to rehabilitate buildings is a concern that buildings are pieces of historic evidence that are being lost. Therefore, rehabilitation of the historic

\textsuperscript{23} Latham 81-84.
buildings is encouraged so our future generations can enjoy the intrinsic value they possess.24

A second persuading feature for re-use is an aesthetic appreciation for old buildings. Society has a subjective enjoyment of old buildings’ visual environment and is not concerned with what should or should not be preserved. It encourages positive improvements and exploitation of buildings for their own enjoyment. Cultural aesthetic appreciation is concerned with the speed and scale of modern redevelopment and how it causes a loss of local identity. Therefore, aesthetic appreciation supports keeping all that we have, including old buildings that have a potential to be re-used in order to maintain a sense of community.25

A third persuading feature that has popularized the re-use of aged buildings is financial gain. Old buildings have the ability to save owners money because they can often be bought rather cheaply. Although rehabilitation of old buildings may be very expensive, the cost is often significantly less than building a comparable structure as new construction.26 Developers can save up to 40% on construction costs as well as cash-in on the tax benefits that were developed for rehabilitation.27 The rehabilitation work can often be completed in stages to allow portions of the building to be occupied and become profitable for tenants. It can also be done in less time than new construction and requires fewer materials than new construction, thus protection from

24 Latham 3-13.
26 Brand 93.
rising material costs. Many old buildings are energy-efficient enough to be brought within 80 percent of state-of-the-art efficiency just doing inexpensive work to the windows and roof, and they contain valuable energy resources that are nonrenewable. Re-use is generally cheaper, quicker, and a good investment in the identity of a community.

A fourth reason for rehabilitation is a functional value called “urban husbandry.” Urban husbandry is a public-private partnership working in a small-scale organization to “reinvigorate and build on existing community assets in order to stimulate a place-based rejuvenation.” It exists when a revitalization process is self-financed by local businesses, initiated by innovative public-private partnerships, and typified by an attention to historic preservation, consumer marketing, small business development, and pedestrian access. Urban husbandry believes historic buildings creatively rehabilitated can become a catalyst for an entire community. A design problem never concerns only a single structure. Each building affects one another through a large operating environment that continuously interacts with one another. A revitalized neighborhood attracts new investments, new businesses, and new tourists. The rehabilitation of one structure may begin a course of action that regenerates the entire surrounding area by introducing alternative functions into an area otherwise saturated by market competition. Besides being cheaper to construct, rehabilitated buildings

---

28 Brand 93.
29 Latham 7-9.
30 Forrant 209.
31 Forrant 209.
32 Latham 3-13.
33 Luther 50.
34 Latham 10.
also bring money to towns and neighborhoods they are located in. Rehabilitated buildings have the potential to revive entire neighborhoods and cities, which may result in higher rents and tax revenues as well as being a source of renewal and hope for struggling communities and neighborhoods.\textsuperscript{35} Suddenly, the least attractive part of town becomes the most attractive part simply through rehabilitation and historic preservation.\textsuperscript{36}

Another persuading argument for rehabilitation is that commercial tenants looking for large spaces in downtown markets have greater options when they consider re-use as well as new construction.\textsuperscript{37}

The final motive for rehabilitating old buildings is for psychological needs. According to David Woodcock, there is a clear psychological desire in humankind to preserve. We, as a society, cling to that which is familiar and secure.\textsuperscript{38}

**The Main Street Movement**

In 1976, the National Trust for Historic Preservation developed the Main Street Program to focus on small towns that are often forgotten about and to highlight and promote all of the benefits of the preservation and rehabilitation movement.\textsuperscript{39} The Main Street Program’s goal is to promote the use of aged buildings and transform the way communities think about revitalization and management of downtowns and

\textsuperscript{35} Luther 50.
\textsuperscript{36} Brand 94.
\textsuperscript{37} Forrant 209.
\textsuperscript{38} Latham 12.
neighborhood commercial districts.\textsuperscript{40} It also assists in economic development within the context of historic preservation. The Main Street Iowa movement was designed with the mission “to improve the social and economic well-being of Iowa’s communities by assisting selected communities to capitalize on the unique identity, assets and character of their historic commercial district.”\textsuperscript{41} The Main Street movement emphasized that historic preservation and rehabilitation are capable or realizing new possibilities of hope for the future of buildings, towns, and populations at large.

The Main Street movement was developed by preservationists when old downtowns were emptied by migrating retail traffic out to the new suburban shopping centers on the edges of town. The movement provides money and tax benefits to developers willing to rehabilitate old buildings. In fact in 1981, a 25\% tax credit on the cost of rehabilitating certified historic buildings and 20\% credit on any building more than thirty years old was offered. The Main Street movement enticed developers to rehabilitate not only large old buildings but also entire blocks, turning them into new commercial centers celebrating the town’s historic themes.\textsuperscript{42}

In the 1980s more was being spent on changing and rehabilitating buildings than was being spent on building new ones. Home renovations had more than doubled the previous decade’s numbers. Commercial rehabilitation had grown from three-fourths of new construction to one-and-a-half times that of new construction.\textsuperscript{43} By 1987 around $14 billion had been spent on rehabbing 21,000 historic buildings in 1,800

\textsuperscript{40} http://www.iowaeconomicdevelopment.com/IDRC/MainStreetIowa
\textsuperscript{41} http://www.iowaeconomicdevelopment.com/IDRC/MainStreetIowa
\textsuperscript{42} Brand 96.
\textsuperscript{43} Brand 5.
In 1989, 5% of the gross national product, approximately $200 billion, was spent on renovation and rehabilitation, and historic preservation accounted for $40 billion a year of goods and services. Rehabilitation became such a popular form of construction that 96% of architects were involved in some form of rehabilitation, and one-quarter of their income came from rehabilitation.\textsuperscript{45}

Investments swarmed to preservation and rehabilitation projects so rapidly and at such great numbers that the tax credits could not last. In 1986 tax reforms were made that not only killed the real-estate market but also reduced the benefits to commercial rehabilitation that ultimately reduced the activity of rehabilitators by two-thirds in the late 1980’s.\textsuperscript{46} Although activity was greatly reduced, lasting effects from the Main Street movement and tax credits are still present today. Now, people in the building business are aware of a set of guidelines for rehabilitation called the Secretary of Interior Standards for Rehabilitation, which had to be met in order to receive the tax credits. These standards give rules and guidelines to follow when doing an historic rehabilitation to allow the building to maintain its historic features.\textsuperscript{47}

The Main Street program follows the Secretary of Interior Standards but also has its own Four Point Approach. It includes economic restructuring/business improvement, design, organization, and promotion. Economic restructuring and business improvement involves diversifying the commercial district economy by recognizing potential market niches, developing new uses for underused spaces, and improving business practices. Utilizing appropriate design concepts can enhance the

\textsuperscript{44} Brand 96.  
\textsuperscript{45} Brand 5.  
\textsuperscript{46} Brand 96.  
\textsuperscript{47} Brand 97.
visual appearance of the downtown through appropriate design in signs, buildings, window displays, landscaping, and the general environment. Improving the organization of the community by coordinating the public sector, private groups, and individual citizens to work more efficiently brings together the various groups interested in and willing to revitalize the commercial district. Finally, promotion of the commercial district in a positive manner can bring a new sense of pride to the community that will in turn promote social activity and economic development. These four guiding principles should be found in each Main Street project.48

Present Challenge in Re-Use

Attitudes have clearly changed towards historic buildings, and this is evident in the increased number of buildings listed as having special historic or architectural significance. Instead of having to convince people that buildings are worth saving, the present challenge in re-use is to change attitudes about what needs to be housed in historic buildings. The new use for an historic building shouldn’t have to be “special enough” or “precious enough” to be worthy of saving a building from destruction. Rather, buildings should be seen as “special enough” and “precious enough” to be worthy of saving just because buildings are useful and can be re-used. Buildings are important enough to be saved just because they are historic or existing. Buildings do not have to be “special” to be reused. They don’t have to be listed on the National Register of Historic Places in order to be rehabilitated. Even modest buildings are suitable for creative re-use. This change in attitude is imperative to guarantee that new

48 http://www.iowaeconomicdevelopment.com/IDRC/MainStreetIowa
uses are seen as opportunities rather than threats, and to guarantee that the diverse re-use of buildings will become more widely accepted.49

**Wayfinding**

**Definition**

The term “wayfaring” has been in the English language since the 16th century and refers to traveling by foot. The term spatial orientation first appeared over a century ago in neuropsychologocial literature. It refers to a person’s ability to understand where they are and how to get to a given location. However, the term “wayfinding” was not used until 1960.50 In his book *The Image of the City*, architect Kevin Lynch defines wayfinding as “a consistent use and organization of definite sensory cues from the external environment.”51 Wayfinding focuses on spatial orientation and its reliance on the cognitive map, or as he calls it, the image. An environmental image is an overall mental representation of the external physical spaces and their relation to one another. It is not made from just one vantage point but is rather a combination of many different views. It is the mental integration of the perceived immediate sensation plus the perceived memory of past experience into one whole complete image. The ability to create a cognitive map allows one to interpret information, guide action, and be spatially oriented to understand one’s location within the given setting. In order to create an environmental image, people focus on Lynch’s

---

49 Brand 93.
noted elements within a space, such as paths, edges, landmarks, nodes, and districts, found within a city.\footnote{Arthur & Passini v \& 23.}

**The Process**

In the early 1970s, cognitivists such as Steven Kaplan, Roger Downs and David Stea jumped on board with Lynch and argued that in order to understand what people do and how they find their way, one has to understand the process. Their focus no longer lay on spatial orientation, but on wayfinding. Spatial orientation is different from wayfinding because it focuses on abilities rather than the process. Wayfinding focuses on the perceptual, cognitive, and decision-making processes that are necessary to find one’s way in either a familiar or unfamiliar environment. It is often called spatial problem-solving and is made up of the following three interrelated processes: decision making, decision execution, and information processing.\footnote{Arthur & Passini v, 23, \& 25.}

Per Mollerup also expanded on Lynch’s work and focused on wayfinding as a spatial problem solving process. In order to wayfind, one must seek for external information, which may be off-route (i.e. maps, verbal directions, etc) or on-route (signs, environmental cues, etc), and combine it with internal information. A wayfinding strategy is a rational principle for search, decision, and motion that includes intelligent seeking. According to Per Mollerup, there are nine different wayfinding strategies that one may employ when getting around in an unfamiliar location. They include track following, route following, educated seeking, inference, screening, aiming,
map reading, compassing, and social navigation, and each of these strategies may be found throughout the three interrelated wayfinding processes.\textsuperscript{54}

The wayshowing technique of screening can be found in the decision making process. Screening is a technique that searches an area systematically for something, and it will always lead to a solution, but it may take a long time. Screening can either be for a destination or a cue to a destination. There are two types of screening: total screening and limited screening.\textsuperscript{55} Total screening is an optimizing model of decision-making and occurs when a searcher screens everything and stops once the best, most optimal solution is found. Limited screening is a satisficing model of decision-making and occurs when the searcher chooses the first acceptable solution that will work without seeking the optimal solution.\textsuperscript{56}

When executing a decision, one matches a mental image or idea of something specific in the environment with what he perceives.\textsuperscript{57} Route following is a wayshowing technique that executes decisions. In route following the user gets information off of the location and then must keep the information in his mind or on a piece of paper and then translate it to direction on the spot. It is simply a matter of following the rules. Route following can either be oral or written and demands careful perception. Because route following is more about perception and less about thinking, it is important for designers to incorporate clear and distinct landmarks and intersections into their

\textsuperscript{56} Arthur & Passini 28-29.
\textsuperscript{57} Arthur & Passini 31.
designs so perception can work well to convert previously given instructions into action without allowing thinking to muddle the information.\textsuperscript{58}

Map reading is also a wayshowing technique that implements decision execution. Map reading is a wayshowing technique that allows its users to find the best route to get from where they are to where they want to be using a map. Map reading is one of the most commonly used wayshowing techniques that when not available puts many searchers in distress. Handheld maps and You-Are-Here maps are the two most commonly used maps to choose the best route. Map reading also uses the route following technique because a map does not give the user information on the route, but rather makes him interpret the map and be perceptive of his surroundings in order to get to the correct place.\textsuperscript{59}

Educated seeking is another wayshowing technique that uses decision execution. It forces wayfinding to use past experience and reason to find the way. The seeker uses information from one situation to solve another by employing a validity of premises or logic to solve a question. For example, if A is true and B is true, then C must be true. A good example of this is someone looking for an elevator lobby in an unknown hotel. If this is a busy hotel (A is true), and elevators are normally located in the center of the hotel just off of the lobby (B is true), then I should go towards the center of the hotel just off of the lobby to find an elevator (solution for C). Educated seeking can be a very large asset for designers to keep in mind when designing a building. Knowing where

people expect things to be located can help designers determine where to place certain things.60

Cognitive mapping can be found in the broader processes of both decision making and decision executing. Cognition occurs when one knows, understands, and manipulates information, specifically spatial information. In environmental cognition, one must have knowledge about the given components of a setting and understand the spatial characteristics of the setting, i.e. the cognitive map. There are two distinct ways in which people cognitive map. The first way one may structure the environment is in terms of routes. This type of structuring is referred to as egocentric and sequential. It requires one to map where he changes direction, the angle of the directional change, and the distance from one point to another in order to create a strip or route map. The second way one may structure the environment is in terms of topological relationships between critical elements of the explored environment directly, without relying on a specific route or decision plan. This type of structuring is referred to as coordinate and leads to the creation of a survey map.61

Finally, the last of the three interrelated processes in wayfinding, information processing is made up of both perception and cognition. Perception occurs when one gains information through the senses. Environmental perception is based on the process of scanning and glancing. Scanning identifies objects or messages of interest in a complex setting. Glancing then allows the objects to be focused upon for a short period of time in order to store them in short-term memory. Because scanning and glancing occur so quickly, it is especially important that information and graphic

material be very clear and legible to be proper wayfinding cues. Many of the wayshowing techniques are labeled under information processing. They include track following, inference, aiming, compassing, and social navigation.62

Track following is the most basic form of wayfinding that can use more than one sense, but often it does not. It can use visual, tactile, olfactory, aural, or kinesthesia to help users determine where to go. Track following provides information to the seeker on his route wherever it is needed such as signs at appropriate turns or a colored line on the ground to follow like a track throughout a building.63

Inference is a wayfinding technique that allows one to infer the way the larger environment is set up from continuous smaller cues throughout. Inference uses a lot of logic to help find the way. Some of the most popular systems to infer from are numerical, alphabetical, or ordinal systems. A good example of inference can be found in institutional buildings with many room numbers. Once a wayfinder sees the numbers four and five, he is led to believe number six is next, followed by seven, eight, nine, etc.64

Aiming is a wayshowing technique that allows the searcher to go in the path of something perceptible. There are two types of aiming, direct and indirect. In direct aiming, the wayfinder can see the destination; in indirect aiming, the wayfinder goes in the path of something known to be near the destination. Aiming is not the most efficient technique of wayshowing because one does not know the exact path to get to the location he desires, but instead aims towards it physically and hopes he gets there.

62 Arthur & Passini 33-34.
64 Mollerup 54-57.
quickly. Aiming does not have to be only a visual technique. It can also use other senses such as touching, smelling, and hearing. One example of aiming uses music in a concert hall. A faint noise can be heard when one walks into the building and the louder the music gets the closer a seeker is to the source. It allows patrons to know where the concert hall is without ever needing to use a map.\textsuperscript{65}

Compassing is a wayshowing technique that uses cardinal directions. This technique is primarily used for outdoor navigation. Maps, the sun, other natural phenomenon such as moss growing on trees or cloud movement, and names or signs using cardinal directions such as ‘South Overlook’ and ‘West Auditorium’ can deliver helpful clues to a wayfinder using compassing.\textsuperscript{66}

Social navigation is the wayshowing technique that one uses when he follows a crowd. It occurs when one does what everyone else is doing or has done. Social navigation occurs when a line is formed for ordering at a café, or when one goes from a computer lab to another room and comes back with prints. This points out to new building users that there may be a printer that can be used located in another room. All the new user has to do is follow someone from the lab to the new room to figure out what to do. Social navigation may be the easiest wayshowing technique to design for because it doesn’t involve a lot of design at all. All that is needed are consumers using perceptible paths that can be picked up on by new users.\textsuperscript{67}

Although there are nine distinct wayshowing strategies and three interrelated wayfinding processes, a wayfinder generally uses mixed strategies and incorporates

many of these techniques. Generally, he will begin using off-route information and continue using on-route information, as he gets closer to his destination. Each strategy calls for certain considerations and clear identification of functions and places. These nine wayshowing strategies and three interrelated wayfinding processes are important background knowledge for designers to keep in mind in order to help patrons make their way around buildings.68

**Wayfinding Design**

Wayfinding design is made up of two components, spatial planning and environmental communication. Spatial planning affects the ease of understanding people will experience within a space and also their ability to cognitively map the setting. Environmental communication provides relevant and necessary information along a given route in order to aid users in making decisions and cognitive maps.69

The process of spatial planning includes three phases: identification of the constituent spatial units, grouping of spatial units into destination zones, and organization and linkage of units and zones. As previously mentioned, people attempting to find their way in complex settings will try to form a cognitive map. In order to do this, they have to identify things to map called spatial entities. The spatial entities can only be mapped if they are distinct, and if they have an identity that distinguishes them from surrounding spaces. Lynch’s districts would be classified as a spatial entity. Clear identities and distinguished spaces are also essential for decision making and executing. A place has to be recognized before a decision can be made to

---

69 Arthur & Passini 43.
elicit behavior. Therefore, distinctiveness is a major requirement for wayfinding. It can be achieved by the form and volume of the space that defines architectural and decorative elements and by the use of finishes, light, colors, and graphics. Activities and the atmosphere created by people’s behavior can also create a form of distinctiveness. Although this is a very strong factor to which people are sensitive, it is not the best factor to rely on because it is not permanent. Designers have a variety of ways to create distinctiveness, but it should be noted that users will not recognize them all. Therefore, it is very important to be redundant in the design of distinction so the various elements cannot be missed.\(^{70}\)

In the second phase of the planning process, similar functions tend to be grouped together according to the need for human contact or privacy, the necessity for information exchange, and the sharing of certain services. Users think of destinations and see them as specific facilities distinct from one another (i.e. an office, the restrooms, a shop, etc.). Each specific facility is a potential destination. Therefore, it is critical that potential wayfinders are able to identify spatial characteristics and group them into destination zones. In order to do that, two forces are at work: identity and equivalence. Identity is the characteristic that allows us to differentiate one space from another. Equivalence is the characteristic that allows us to group them into zones along some common traits. The zones must have distinct features, but the spatial units within the zone have to have some common characteristics.\(^{71}\)

The third step in spatial planning is to link spatial units that have been identified as having functional relationships. This is the most difficult planning step. In order to

\(^{70}\) Arthur & Passini 85-86.  
\(^{71}\) Arthur & Passini 87.
link the units, the form and circulation must be closely related with one another. The circulation system, as the name suggests, is the space in which people move, try to find their way, and understand the greater layout of the structure. It is the space in which they make their wayfinding decisions. Circulation is the backbone of wayfinding and determines the spatial organization and architecture. In relation to overall wayfinding, the form of the building’s volume is a large cue to users about the internal organization and circulation system. Wayfinding and circulation are the two most controlling factors to consider when spatial planning and often completely determine the spatial organization of a complex building.72

The second major component in wayfinding design is environmental communication. Environmental communication occurs when the environment provides all relevant and necessary information along a given route in order to make wayfinding decisions and gain a representation of the setting. The information can be provided both architecturally and graphically and includes all of the five senses.73

Even though many of the wayshowing techniques appear to focus on vision alone, it is a multisensory experience. In wayfinding, vision is the most used sense for those with no impairments, and hearing is the second most used sense. Hearing can be a particularly difficult sense to use in wayfinding in a busy environment because sound is exceptionally more difficult to screen than visual stimulus. Tactile perception can be found in wayfinding design only on proximal objects. Therefore, it is also difficult to design for because the visually impaired must know where to locate the objects with the information. One way that tactile stimulus can be used successfully is by locating it

72 Arthur & Passini 43 & 89.
73 Arthur & Passini 45.
on flooring surfaces or using it to alter kinesthesia. Smell and taste are also very difficult senses to focus on in wayfinding design because smells can mix together very easily. However, smell can be a very powerful stimulus when done successfully and will engage the sense of taste if strong enough.\textsuperscript{74}

**Wayfinding Design in an Adaptive Reuse Project**

Although the appreciation of historic circumstances is required by both wayfinding design and adaptive reuse design, it is needed in different ways. Wayfinding design must understand experiential history, and adaptive reuse must value experiences, energy, and existing tangible materials. Wayfinding design demands an understanding of spatial orientation and environmental images, and it requires an understanding of personal historic experiences in space. Then, it integrates them into a complete image and comprehension of the space, which gives the user the ability to appreciate their location within an environment. Wayfinding is not located only in the here and now, but requires an appreciation and comprehension of historic context. Adaptive reuse design also requires an appreciation of experiential history, but also the historic energy and existing tangible materials. Successful historic rehabilitation demands more than just the conversion of an existing property, but requires an understanding of the existing building. According to Derek Latham:

“Creative Re-use is more than just the conversion or rehabilitation of a property for a new or continued use. It is a process that harnesses the energy and quality of the original building, whether of special architectural or historic interest or simply a work-a-day redundant

\textsuperscript{74} Arthur & Passini 35-36.
building, and combines this with the new energy and activity that the new use brings. The balance between the existing building and the new use is variably dependent upon character, condition and the needs of the user. The aim is to achieve a harmonious balance, celebrating both.”  

Although there are differences between the types of appreciation for history wayfinding design and adaptive reuse demand, both are very important and can easily collaborate and influence one another. As a result, the design solution for the café, chamber of commerce, and art gallery implements both techniques to create a harmonious result. It begins with an analysis and comprehension of the existing buildings. Then, it works with the existing buildings instead of fighting against them to implement subtle yet effective wayfinding cues. The design does not impose too much of itself on the buildings so that they are lost, but implements enough that the new uses can function effortlessly in the historic buildings of Greenfield.

**Wayfinding Analysis Using UCL Depthmap**

Clearly there are many ways in which you can design for wayfinding, but how does one analyze whether or not a successful wayfinding plan was employed? One successful way to do that would be to do a post-occupancy evaluation in which one would observe how new wayfinders try to find their way around a city or building. Another way would be to observe people in a store and record sales numbers to see if implemented wayfinding directed users to the location it was intended to and influenced sales numbers. Another way would be to use a computer program called

---

75 Latham xi.
UCL Depthmap before design is completed to help interpret how wayfinding design will influence the use of a space.

UCL Depthmap is a software program that performs a set of spatial network analyses in order to understand the social processes within the built environment. It works at a variety of scales from city scale down to building scale. At each scale a map is produced that analyzes various relationships within open spaces, and then a graph analysis can be produced of the resulting network. The objective of the analysis is to derive variables that may have social or experiential significance. At the small-medium urban scale, Depthmap can be used to create an axial map (a reduced line network of open spaces in the city) of a layout. The axial map is an objective map that can be analyzed to research the formal and functional attributes of cities and buildings. At the building or small urban scale, Depthmap can be used to assess the visual accessibility in a number of different ways.\(^76\)

At the urban scale, a few different graphs can be made. The first graph that can be made is called an All-Line Axial Map analysis. The All-Line Map joins all pairs of inter-visible vertices in the map. Therefore, the number of lines varies based on the level of detail within the map, causing this map to have limited use. Figure 2-2 is an example of the All-line Axial Map. The All-Line Axial Map can be reduced down to the second graph that can be made which is called the Fewest-Line Axial Map analysis. It tries to cover the map with as few lines as possible in order to allow any part of the map

---

to be seen from a single line and it minimizes the depth between all pairs of lines.

Figure 2-3 is an example of the Fewest-Line Axial Map.\textsuperscript{77}

\textsuperscript{77} "DepthmapX."
At the building scale many different types of graphs can be created. The first graph is an Intervisibility Graph. This graph shows the number of locations visible from all of the points throughout the graph. The connections representing the inter-visibility of points is not shown because there are too many of them, but instead the points are colored according to how many locations are visible from it. The color range runs from red (the most visible with many visible locations) to green to yellow to blue (the least visible). In Figure 2-4, point A is highly visible as it is shaded red and point B's visibility is very low as it is shaded dark blue.\textsuperscript{78}

\textsuperscript{78} “Depthmap\textsuperscript{X}.”
The second graph that can be made to analyze a building's interior is the Visibility Step Depth Graph. This graph is a further analysis of intervisibility. It measures the visible distance from one of the locations to all of the other locations. The Step Depth Graph shows the number of steps/changes of direction it would take to get from the selected location to any of the other locations in the graph. The selected location has a step depth of 0. All locations that are directly visible from the selected location have a step depth of 1. All locations directly visible from those at set depth 1 have a step depth of 2, etc. The Step Depth Graph can be seen in Figure 2-5. In this particular graph, the red arrow shows the selected location that the analysis is made from. The yellow portions show locations with a step depth of 1; the green portions
have step depths of 2. The teal portions have step depths of 3, light blue is 4, and dark blue has a step depth of 5.79

Figure 2-5: Step Depth Graph

While the Step Depth Graph only shows depth values for one location, the Visibility Graph Analysis shows the step depth to all locations in the graph. With this graph one is able to compare them to each other. Figure 2-6 is an example of a Visibility Graph Analysis that shows how well a location is integrated with all of the other locations. A well-integrated location is colored red and means that one does not have to turn often to get from that location to any other location in the system. It is considered a “shallow” location. A poorly integrated location is colored blue and is considered

79 "DepthmapX."
“deep” in respect to other locations because one must turn often to get to other locations in the graph.80

![Visibility Graph Analysis](image)

Figure 2-6: Visibility Graph Analysis  
Source: Introduction to Depthmap

Depthmap can also create polygons, called Isovists, which approximate the potential field of view from a certain chosen location within a building. Figure 2-7 shows a graph with Isovists in place. The white circles indicate where a viewer would be located.81

---

80 "DepthmapX."
81 "DepthmapX."
Within a building it is also possible to analyze the space by room instead of dividing the room up into sub-spaces. This analysis is called a Convex Space Analysis. It works in a similar way as the Visual Graph Analysis. You can analyze each room according to inter-connectivity, step depth, and the integration of all of the convex spaces. Figure 2-8 – Figure 2-10 demonstrate each of these graphs.82

82 "DepthmapX."
Figure 2-8: Convex Map Inter-Connectivity
Source: Introduction to Depthmap

Figure 2-9: Convex Map Step Depth
Source: Introduction to Depthmap
History

Greenfield

Greenfield, Iowa, is a small city located in Southwest Iowa, just 14 miles from Interstate 80 and 60 miles from the state’s capital, Des Moines. Greenfield was first developed in 1856 just five years after the development of Adair County. The name Greenfield was chosen because of the location’s green, fertile, lush fields that make up all of the land surrounding it. The rolling farm country proved to be a key to the success of the Greenfield population, as farmers found them to be an endless source of
The original population of Greenfield was 150 people, and now, 157 years later, the population is nearly 2000. Greenfield's original town square was created on a plot of land owned by Milton Munger and plotted by D.M. Valentine. The town square has a very rare design that is known as the Lancaster style square. A street entering the center of each side of the square and an alley exiting at each corner creates this unique form of town square that is rarely found in the Midwest. In fact, it is the only known Lancaster style square in Iowa.

As the county seat of Adair County, Greenfield is a self-proclaimed progressive and growing community that is proud of its history and deep roots and is supported by a healthy agricultural and industrial economy. The town boasts of its attractions such as museums, lakes, parks, and a historic downtown (containing the E.E. Warren Opera House, Hotel Greenfield, and historic Adair County Courthouse) that make it a tourist destination. The downtown also consists of a variety of retail stores, services, and entertainment businesses. In addition, Greenfield contains an industrial park that is home for industries such as Cardinal IG, an insulated glass manufacturer, and CR/T, an ink making company that is a division of Quad Graphics.

**E.E. Warren Opera House and Hetherington Buildings**

In September of 1883, Greenfield lost its first courthouse and most of the southeast quadrant around its town square in a fire. A new frame structure was

---

86 "History." *Greenfield: There's Nothing Like It.*
87 "History." *Greenfield: There's Nothing Like It.*
erected above the surviving underground vault for court purposes, but the lost courthouse was finally rebuilt in the center of the town square in 1891.\textsuperscript{88} Edward Ernest Warren, one of the leading business men of Adair county and an important factor in the commercial expansion of Greenfield, purchased the former courthouse property in May 1892 but was unable to do anything with it until 1896 because of economic hard times.\textsuperscript{89} In 1896, Edward E. Warren and Eva Warren commissioned the construction of the $20,000 E.E. Warren Opera House and store, later named in 1913 the Warren Dry Goods Company, from architects Charles Emlen Bell and John Hackett Kent.\textsuperscript{90} At the same time, John J. Hetherington also began building his new pharmacy beside the E.E. Warren Opera House. By May of 1896, Mr. Warren and Mr. Hetherington combined their two projects to create a cohesive brick structure that would be “the ornament to the town” and “the finest architectural design of any in the city,” as well as decrease their construction costs.\textsuperscript{91}

The E.E. Warren Opera House building housed the Warren Dry Goods Company, a double storeroom for his stock of general goods, the latest home supplies, and fashion apparel items, on the first floor and the opera house and a personal apartment on the second and third floors. The opera house occupied most of the second story as well as half of the third story, and the Warren’s personal apartment occupied a fraction of the

\textsuperscript{88} E.E. Warren Opera House: Historical Building Components, Historic Structures Report (September 3, 2009,) 12.

\textsuperscript{89} Kilburn 231.

\textsuperscript{90} Bell had no formal architectural training or apprenticeship. He worked as a carpenter for 7 years and then worked for his more renowned brother Mifflin E. Bell, who served as Supervising Architect of the US Treasury Department. Kent graduated from Cambridge University in 1873 and was an apprentice under T.C. Hine, one of the leading architects in England. Bell and Kent went on to become a great partnership and design many courthouses throughout the country.

\textsuperscript{91} E.E. Warren Opera House: Structures Report 1-17.
second story as well as half of the third story (See Figure 2-11 – 2-14). The building is 44’ X 102’ and 48’ tall, and contains a 9’ deep basement. It was heated throughout by steam and has a turret on the northwest corner of the building that reaches to 60’ high. The exterior is made of local brick with Bedford stone trimmings and cornices around the windows and oxidized copper ornaments. The entire West façade of the building is made up of 44’ of glass, while the North façade also has 16’ of glass. The entrance to the Warren Dry Good Company was placed in the center of the West façade. The entrance to the Opera House was placed between Mr. Warren and Mr. Hetherington’s buildings and could be reached by a five-foot wide stairway. The stairway led to three suites of rooms in the front of the second story as well as to the Opera House. The Opera House had a seating capacity for 500 chairs in the 80’ X 44’ area.

The Hetherington Building is a 22’ X 80’ two-story building reaching 48’ tall, the same height as the E.E. Warren Opera House building. The front of this building is also finished with brick, Bedford stone, and oxidized copper so that it appeared cohesive in every way with the front of the E.E. Warren Opera House. There is also a basement under the entire building, and the second story consisted of six rooms to be used as offices or living space (See Figures 2-11 – 2-14).

---

Figure 2-11: Original Basement Floor Plan  
Source: Brittany Dieleman
Figure 2-12: Original Ground Floor Plan

Source: Brittany Dieleman
Figure 2-13: Original Auditorium Floor Plan
Source: Brittany Dieleman
After less than one year of construction, the E.E. Warren Opera House and the Hetherington building were complete. The Warren store had its grand opening on December 1, 1896. Throughout construction, the storefront windows had been curtained off to raise the public anticipation and drama of the grand opening. When the string quintet began playing at 7:30 pm, and the curtains were raised for the grand

---

opening, the restless crowd rushed the front door with enough force to break it.\textsuperscript{96} The grand opening was so successful that the store was too crowded to complete the inspection circuit.\textsuperscript{97} Unfortunately the Opera House portion of the building was not yet ready for the grand opening because the chairs had not arrived. One week later the Opera House had its grand opening with “a first class dramatic company.”\textsuperscript{98} The Opera house was filled to capacity with 400 seats on the main floor and another 100 in the balcony, although it was claimed that another 200 seats could be squeezed in.\textsuperscript{99,100}

The town of Greenfield had a lot of pride about its beautiful public hall and playhouse, and they had much reason to. The fact that Greenfield gained a new opera house was statewide news and became a very popular spot for entertainment.\textsuperscript{101} The Opera House was used for live entertainment and public events, such as dances, until its last documented performance in 1930.\textsuperscript{102} In 1979 The E.E Warren Opera House and the Hetherington Building were placed on the National Register of Historic Places.\textsuperscript{103} After the final performance, the Opera House entered a period of neglect until 1991 when a concerned Greenfield resident named Yvonne Schildberg bought the deteriorating opera house building and gifted it to Main Street Greenfield with the intention of

\begin{flushright}
\textsuperscript{96} Howe.\\
\textsuperscript{97} E.E. Warren Opera House: Structures Report 15.\\
\textsuperscript{98} E.E. Warren Opera House: Structures Report 15.\\
\textsuperscript{100} E.E. Warren Opera House: Structures Report 15.\\
\textsuperscript{101} E.E. Warren Opera House: Structures Report 12 & 15.\\
\textsuperscript{103} Howe.
\end{flushright}
preserving the historic fabric of the city. Greenfield joined the Main Street Iowa Community in 1995, and in 1996, the E.E. Warren Opera House Association was formed to restore and retain the historic integrity of the E.E. Warren Opera House building.

Classification of the E.E. Warren Opera House and Hetherington Building

The detailed description of the E.E. Warren Opera House Building and the Hetherington Building indicates they are high road buildings. They have taken on a life of their own with all of their different uses. They have been constantly refined and contain many subtleties. They have also suffered the casualties of the high road buildings. Table 2-1 shows the many different uses and businesses that have occupied the buildings, yet they remain largely unchanged. Yes, the stuff, space plan, services, and a very small part of the skin have been changed, but largely the skin, site, and structure all remain intact. Table 2-2 is a table showing all of the physical changes that have been made to the two buildings. Figures 2-15 – 2-22 are photographic documentation of the changes made to the exterior of the two buildings. The lesson from the documentation of the changes made to the building is that the original building was seen as the best façade, and the buildings were returned back to nearly original condition. Many of the interiors were also restored to original conditions in 2011 and 2012.

105 "History." Greenfield: There’s Nothing Like It.
106 "'Turret Talk’ Article #11 – The Stage is Bare."
Table 2-1: Building Tenants
Source: Historical Building Components, Historic Structures Report p 27-28

<table>
<thead>
<tr>
<th>Year(s)</th>
<th>Basement</th>
<th>First Floor</th>
<th>Second Floor</th>
<th>Hetherington Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>1896</td>
<td>Warren Dry Goods</td>
<td>Warren Dry Goods</td>
<td>Officers, Theater</td>
<td>Taylor Drugs</td>
</tr>
<tr>
<td>1897</td>
<td>Tracy Maguire, ice cream, west basement</td>
<td>Warren Dry Goods, Opera House Drugs (Jim Leach)</td>
<td>Dr. Means, dentist, over drug store</td>
<td>Will Vandiver, shaving parlor in basement (Democrat, January 28, 1897)</td>
</tr>
<tr>
<td>1898</td>
<td>Warren Basement Sale, (Democrat, January 20, 1898)</td>
<td>Warren Dry Goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1899</td>
<td>Warren Dry Goods</td>
<td></td>
<td>Drugs, Jewelry (Sanborn)</td>
<td></td>
</tr>
<tr>
<td>1907</td>
<td>Warren Dry Goods</td>
<td></td>
<td>Drugs, Jewelry (Sanborn)</td>
<td></td>
</tr>
<tr>
<td>1910</td>
<td>Warren Dry Goods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1911</td>
<td>Cassill &amp; Stephens buy from Coats &amp; Boyd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1913</td>
<td>Warren Dry Goods</td>
<td></td>
<td>Edward and Eva Warren</td>
<td></td>
</tr>
<tr>
<td>1916</td>
<td>C. F. Kunath, wall paper, paints, brushes, Tea Room (Mrs. Ferguson) in northwest corner, in front part of beauty parlor (Short), all of space occupied by Tea Room end of year, beauty parlor in front part of tea room, Mrs. Richard Short</td>
<td>Warren Dry Goods, Grocery in back of dry goods store, McCreight or Van &amp; Mac's</td>
<td>Edward and Eva Warren</td>
<td></td>
</tr>
<tr>
<td>1917</td>
<td>Warren Dry Goods, Van &amp; Mac Grocery in northeast corner, partition removed</td>
<td></td>
<td>Edward and Eva Warren</td>
<td>Edward and Eva Warren to 1922</td>
</tr>
<tr>
<td>1922</td>
<td>Warren Dry Goods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1926</td>
<td>Pool hall</td>
<td>Wallace Adams and Roy Jeffries grocery</td>
<td></td>
<td>Drugs (Sanborn)</td>
</tr>
<tr>
<td>1928</td>
<td>Golden Rule Dept. Store</td>
<td></td>
<td></td>
<td>New business</td>
</tr>
<tr>
<td>1948</td>
<td>Golden Rule Dept. Store (Westering)</td>
<td>Raymond Green and mother for many years</td>
<td>Fry’s Pharmacy</td>
<td></td>
</tr>
<tr>
<td>1959</td>
<td>Bowling alley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>Greenfield Archery and Lanes</td>
<td>Golden Rule Dept. Store</td>
<td>Fry’s Rexall Drug (Dwight Fry)</td>
<td></td>
</tr>
<tr>
<td>1980-82</td>
<td>Inez’ Fashion Shop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983-1991</td>
<td>Turner’s Clothing Store, Irene Starr as manager</td>
<td></td>
<td>Mather Pharmacy (Bill and Cheryl Mather), basement as storage, upstairs vacant</td>
<td></td>
</tr>
<tr>
<td>1999-2000</td>
<td>Dance Studio</td>
<td>Ki Ki Felix artist</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*It is stated that J. C. Penny operated under this trademark, beginning in 1928 so this likely was not at this location. Earl Westering purchased the building and trademark in 1948 and appears to have then located The Golden Rule to this building.*
Table 2-2: Inventory of Physical Changes  
Source: Historical Building Components, Historic Structures Report p 29

<table>
<thead>
<tr>
<th>Date</th>
<th>Alteration</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1896</td>
<td>Original construction, well bored north of Warren Block</td>
<td></td>
</tr>
<tr>
<td>1897</td>
<td>Surface of covered sidewalk in front of Warren Block bricked</td>
<td>Democrat, May 6, 1897</td>
</tr>
<tr>
<td>1916</td>
<td>Partition with Warren Block removed between grocery and dry goods areas, full-length balcony built along east side wall, cashier’s desk and altering department in same, close off basement stairs</td>
<td>Free Press, September 15, 1916; Free Press, September 15, 1916; Free Press, September 15, 1916; January 1, 1917</td>
</tr>
<tr>
<td>1948</td>
<td>Earl Westering remodels east half of store area in Warren Block</td>
<td></td>
</tr>
<tr>
<td>1956</td>
<td>New aluminum storefront, display windows lowered and modernized</td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>Building temporarily gains clock atop “cupola” for filming of Cold Turkey.</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>Photo shows stage completely removed, dressing room walls and some side stairs behind stage also removed</td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>Exterior brickwork sandblasted, cleaned and repointed by Larry Williams Construction Co.</td>
<td>Local clipping, August 18, 1971</td>
</tr>
<tr>
<td>1973</td>
<td>New aluminum storefront, both buildings</td>
<td>Assessor’s record, 152 Public Square</td>
</tr>
<tr>
<td>1983</td>
<td>Car crashes through north side display window in winter, city removes concrete hitching post along north wall</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>Roof replaced</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Tuckpointing</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>Second floor windows replaced? Repaired?</td>
<td></td>
</tr>
<tr>
<td>2000-01</td>
<td>Basement work, sump, sewer work</td>
<td></td>
</tr>
<tr>
<td>2002-04</td>
<td>Turret windows repaired or replaced</td>
<td></td>
</tr>
<tr>
<td>2002-05</td>
<td>Turret exterior repaired</td>
<td></td>
</tr>
</tbody>
</table>
Figure 2-15: c.1903 Photograph, looking southeast
Source: Historical Building Components, Historic Structures Report p 30

Figure 2-16: c.1910 Postcard, looking southeast.
Notice new awning on the Hetherington Building
Source: Historical Building Components, Historic Structures Report p 31
Figure 2-17: c.1915, looking southeast. Notice new awnings on E.E. Warren Opera House. Source: Historical Building Components, Historic Structures Report p 32

Figure 2-18: c.1937 Newspaper Clipping, looking southeast. Notice new Golden Rule signage. Source: Historical Building Components, Historic Structures Report p 34
Figure 2-19: c.1961 Des Moines Register Clipping, looking southeast. Notice new storefront and pharmacy signage. Source: Historical Building Components, Historic Structures Report p 35

Figure 2-20: c.1975 Photograph, looking east. Notice metal fire escape is missing from North Side and upper windows are covered and sealed. Source: Historical Building Components, Historic Structures Report p 38
Figure 2-21: c.1986 Photograph, looking east.
Notice new signage
Source: Historical Building Components, Historic Structures Report p 41

Figure 2-22: c.2012 Photograph, looking southeast.
Restored to 1910 style
Source: Brittany Dieleman
E.E. Warren Cultural Center

The trend to re-use existing buildings has found its way through many small towns in Iowa, and Greenfield is no exception. Perhaps the growing trend helps demonstrate the point that small towns can be more successful at a building preservation project than larger towns because of their citizens’ intimate connection and mutual interest in the community. Typically, small towns have a main street or a town square that is the core of the community where people gather and socialize, much like Greenfield’s Lancaster Style Square. The Main Street or town square often becomes a memorable place in a person’s life because he/she spent a significant part of their transition from youth to adulthood making memories there. It becomes important to the town’s citizens to retain and improve their historic buildings surrounding the square, and a preservation or rehabilitation project is begun.\(^\text{107}\)

Greenfield is no different from the other small Iowa towns and began their own rehabilitation and adaptive reuse project. Led by the E.E. Warren Opera House Association, the E.E. Warren Opera House building, the Hetherington Building, and the Taylor Building were preserved and rehabilitated to create the Warren Cultural Center. In 2012, the new Warren Cultural Center opened its door to the public. The Warren Cultural Center was envisioned as being a place to promote all forms of arts and as a multi-use facility.\(^\text{108}\) The center was created to support live theater performances, concerts, art exhibits, as well as many more entertaining opportunities such as weddings, receptions, and personal parties. The retail space and dining venue were


designed to enhance the visitor’s experience in the Warren Cultural Center as well as the town square of Greenfield. Finally, the Warren Cultural Center was envisioned with the belief that it would be extremely beneficial to both Greenfield and Adair County to bring more tourists to the area as well as create an economic and cultural boost.\footnote{109}

In order to house all of the intended uses for the Warren Cultural Center, multiple structural and aesthetic improvements to both the exterior and interiors have been made. The buildings have been weatherized, made accessible, and structurally stabilized. Also, many of the interiors have been returned to their original colors, finishes, and stenciling.\footnote{110}

When the E.E. Warren Opera House Building, the Hetherington Building, and the Taylor Building were first restored, many of the interior finishes were found partially intact. In the E.E. Warren Opera House building, the original floors on the main level were beautiful oak floors, and the rooms on the theater level were finished with parquet floors in each of their own patterns (Figure 2-23). The walls were mainly finished with paint coatings or wallpaper over plaster walls, and topped with decorative wood edging. Decorative original stenciling, which is presumed to have been present at the building’s grand opening, was found above the wood or copper edgings in each room (Figure 2-24 – 2-27). The Hetherington building’s original interior finishes were very similar to the E.E. Warren Opera House but were much less ornate. The floors were solid oak wood flooring. The walls were paint coatings over plaster, but there were no decorative stenciling or parquet floors to be found (Figure 2-

\footnote{110} Howe.
28). The Taylor Building finishes were very similar to those in the Hetherington Building.

Figure 2-23: Restored Parquet Wood Floors, Paint Colors, and Stenciling in E.E. Warren Opera House Living Quarters
Source: Brittany Dieleman
Figure 2-24: Evidence of Original Stenciling in E.E. Warren Opera House
Source: Brittany Dieleman

Figure 2-25: Evidence of Original Stenciling in E.E. Warren Opera House
Source: Brittany Dieleman

Figure 2-26: c.2012 Wood and Copper Edgings.
Source: Brittany Dieleman
Figure 2-27: c.2012 Restoration of Opera House Stenciling and Paint.
Source: Brittany Dieleman

Figure 2-28: c.2012 Restoration of Hetherington Building Plaster Walls and Paint
Source: Brittany Dieleman
CHAPTER 3: ANALYSIS

Adaptive reuse must consider the context of the site and situation of the project. Avoiding an appropriate analysis of the site and context surrounding an adaptive reuse project will ultimately result in a failed project, not because of structural issues, but because of psychological and integrative issues. Therefore, the following section includes both objective and subjective analysis of the site, context, and structures.

Demographics

According to the 2010 census, Greenfield, Iowa, has 1,982 residents. 96.9% of the population is White and 2.2% is Hispanic. The remaining .9% of the population is two or more races, Asian, Black, or American Indian. The median resident age is 45.2 years old, compared to the median Iowa resident age of 38.1 years old. This shows that Greenfield is a slightly older community than the average Iowa town, but not remarkably older.

In 2011, the estimated median household income for Greenfield residents was $44,079 compared to the Iowa estimated income of $50,451 and the U.S. estimated median income of $52,762. The estimated per capita income was $23,671.

111 "History." Greenfield: There's Nothing Like It.
116 "American Fact Finder - Results."
compared to the U.S. estimated per capita income of $27,915.\textsuperscript{117} The 2012 cost of living index in Greenfield is 83.5 while the U.S. average is 100.\textsuperscript{118} 88.2% of the population has a high school degree or higher and 8.5% has a bachelor’s degree or higher.\textsuperscript{119} When comparing the incomes of Greenfield residents to those of United States citizens, it can be said that Greenfield residents make about 16.5% 
\[
(100-((\$48,044/\$52,762)\times100)=16.5%)
\]
less than the average U.S. citizen makes, but their cost of living is 16.5% (100-83.5=16.5%) less as well. These demographics demonstrate that Greenfield is a rather homogenous population with an average amount of income available to be spent on entertainment.

**Site**

**Approach to the Site**

Two main roads approach Greenfield. State Highway 25 passes by the east side of town and State Highway 92 passes through the south side of Greenfield. Iowa Street from State Highway 25 and 1\textsuperscript{st} Street from State Highway 92 enter into the town square. The Warren Cultural Center is located on the corner of SW Court Drive and East Iowa Street and its entrance faces the courthouse on SW Court Drive. Since the town square is accessible from N 1\textsuperscript{st} Street, S 1\textsuperscript{st} Street, E Iowa Street, and W Iowa Street, the E.E. Warren Opera House is approachable from all four main roads (Figure 3-1).

\textsuperscript{117} "State & County Quick Facts."
\textsuperscript{119} "Greenfield, Iowa." City Data.
Location of Selected Site

The town square is a very rare design known as a Lancaster style square. All streets entering the town square enter in the center of each side of the square and point directly to the historic Adair County Courthouse, originally built in 1892, located in the center of the square. The E.E. Warren Opera House is located just to the east of the courthouse on the plot of land that was the original Adair County Courthouse of Greenfield before it burned down in 1910. To the east of the Opera House just off of the town square is the historic Hotel Greenfield that was recently rehabilitated (Figure 3-2).

---

Figure 3-2: Lancaster Style Square.
Blue rectangle is the Adair County Courthouse. Yellow rectangle is the E.E. Warren Opera House and Hetherington Building. Green rectangle is Hotel Greenfield.
Source: Google Maps (edited by Brittany Dieleman)

**Experiential Approach to the Site**

The researcher visited the town of Greenfield to get a better feel for its aesthetics, sense of place, and wayfinding. The first thing the observer noticed when driving to Greenfield headed South on Highway 25 was that she had no idea where to turn to get to the town square. She knew the town was on the west side of the road, but she did not know exactly where the square was located. The observer didn’t see any signs indicating what road to turn on to reach the downtown, and none of the roads entering the town appeared larger or as more of a main road entering Greenfield. The researcher chose a random road to turn on and figured she would find it eventually.
She was correct in her assumption and eventually happened upon a sign as she was winding her way to the town square. After taking too many turns to get downtown, the researcher continued to drive around the square and observe the town. Then, she made a visit to the E.E. Warren Opera House Building, the Hetherington Building, the Taylor Building, and a few other attractions around town. She did not see the Adair County Museum or the Aviation Museum while in town and later found out they are located on the outskirts of town.

**UCL Depthmap Analysis of the Site**

UCL Depthmap was used to analyze the city as a reduced line network of open spaces to research its formal and functional attributes. Depthmap was used because the researcher wanted to see if it would indicate a lack of inter-visible vertices (a lack of intersecting roads) on the main roads entering Greenfield. In other words, she wanted to see if the computer program would indicate the wayfinding issue that she experienced while trying to locate the town square. In order to do this, a map of Greenfield was taken from GoogleMaps. Next, the map was imported into AutoCAD and traced to create an outline of all of the roads in Greenfield. The far ends were all connected to create a closed loop. Then, the file was saved as a dxf and imported to UCL Depthmap.

UCL Depthmap analyzed the file and an axial map was created and reduced to a fewest line map. Figure 3-3 to Figure 3-6 are images of the axial map and the fewest line axial map. In order to read these maps, one must understand that dark blue indicates the least connected color and red is the most connected. As experienced, the computer analysis indicated the downtown is not very interconnected to the rest of the
city by designating it the dark blue color. The roads that enter into the square (N 1\textsuperscript{st} Street, S 1\textsuperscript{st} Street, E Iowa Street, and W Iowa Street) are also not very connected as they are analyzed as light blue and teal blue colors. The roads that are analyzed as the most connected by Depthmap are the ones running North and South on either side of the downtown square Highway 25 and Highway 92.

Figure 3-3: All Line Axial Map
Source: Brittany Dieleman
Figure 3-4: All Line Axial Map Zoomed In
Source: Brittany Dieleman

Figure 3-5: Reduced Line Axial Map
Source: Brittany Dieleman
Structures

UCL Depthmap Analysis of Buildings

The next step in the research was a more in depth analysis of the E.E. Warren Opera House Building and the Hetherington Building. UCL Depthmap was used to analyze the building’s visual accessibility in a number of different ways. Again, Depthmap was used because the researcher wanted to see if it would indicate a lack of visual accessibility. In order to do this, a floor plan was needed. The architecture firm Invision Architecture provided the researcher with a floor plan of the E.E. Warren Opera House building and the Hetherington buildings. Next, the floor plan was imported into AutoCAD, traced, and the outline of all of the walls was closed off to create a closed loop. Then, the file was saved as a dxf and imported to UCL Depthmap.
Next, a series of different maps was composed. The first map was an intervisibility graph. An intervisibility graph shows the number of locations visible from all of the points throughout the graph. The connections representing the intervisibility of points is not shown because there are too many of them, but instead the points are colored according to how many locations are visible from it. In all of the building analysis graphs the color range runs from red (the most visible with many visible locations) to green to yellow to blue (the least visible). Figure 3-7 to Figure 3-10 are images of the intervisibility graphs. In them, one can see that wayfinding destinations such as staircases and restrooms are not very connected to the rest of the spaces. However, the auditorium of the opera house is highly connected to the rest of the spaces, as it should be. Otherwise, just doorways are very connected.

Figure 3-7: Intervisibility Graph: Basement
Source: Brittany Dieleman
Figure 3-8: Intervisibility Graph: Ground
Source: Brittany Dieleman

Figure 3-9: Intervisibility Graph: Auditorium
Source: Brittany Dieleman
The second map is called the step depth graph. It is a further analysis of intervisibility. It measures the visible distance from one of the locations to all of the other locations. In other words, it shows the number of steps/changes of direction it would take to get from the selected location to any of the other locations in the graph. The selected location has a step depth of 0. All locations that are directly visible from the selected location have a step depth of 1. All locations directly visible from those at set depth 1 has a step depth of 2, and so on and so forth. Figure 3-11 to Figure 3-13 are images of the step depth graphs of the Opera House Building and the Hetherington Building. One positive is that the restrooms are rather connected in the Opera House ground level. In the Hetherington Building ground level there is no visual hierarchy and everything is equally visible, which gives no privacy to users. However, the auditorium of the opera house is highly connected to the rest of the spaces, as it should be. The step
depth graphs show adequate visual distances from entrances to desired locations on the auditorium level of both buildings. The only area that could use improvement are connectivity to restrooms and exits.

Figure 3-11: Step Depth Graph: Ground 1
Source: Brittany Dieleman
Figure 3-12: Step Depth Graph: Ground 2
Source: Brittany Dieleman

Figure 3-13: Step Depth Graph: Auditorium
Source: Brittany Dieleman
The third map is called the visibility graph analysis. It is similar to the step depth graph, but instead of only showing depth values for one location, the visibility graph analysis shows the step depth to all locations in the graph. With this graph one is able to compare all of the locations to each other. The visibility graph analysis shows how well a location is integrated with all of the other locations. A well-integrated location is colored red and means that one does not have to turn often to get from that location to any other location in the system. It is considered a “shallow” location. A poorly integrated location is colored blue and is considered “deep” in respect to other locations because one must turn often to get to other locations in the graph. Figure 3-14 to Figure 3-15 are images of the visibility graph analysis of the Opera House Building and the Hetherington Building. In them, one can see that wayfinding destinations such as staircases and exits are not very visibly connected. Major entrances into each large room are very connected in the Opera House Buildings, which is a positive for wayfinding. Again, the Hetherington building lacks hierarchy or definition of spaces and all of the locations are about equally connected, which makes wayfinding more difficult.
Figure 3-14: Visibility Graph Analysis: Ground
Source: Brittany Dieleman

Figure 3-15: Visibility Graph Analysis: Auditorium
Source: Brittany Dieleman
Isovists were also made for each level of the buildings, but were found to not be very helpful at this point in the research. Uses for each space are not staying the same, so potential fields of view are not helpful. Convex space analyses were also not used because it is not helpful in this building to analyze the space by room instead of subspaces. These analyses are helpful in more complex building layouts.

Existing Exterior and Alterations

The E.E. Warren Opera House Building and the Hetherington Building are three and two story buildings, respectively, and are merged into a single brick structure with limestone trims and copper details. The main entrance façade on SW Court Drive, facing the courthouse, is a large expanse of glazing. The E.E. Warren Opera House Building has a direct entrance to the second story theater from the west façade splitting the main façade of the Opera House Building and the Hetherington Building. Butted up to the two buildings is the Taylor building. It is a one-story brick structure that also is mainly composed of glass on the west façade. All exterior walls are in good condition, as they have been cleaned, tuck pointed, weatherized, and had some copper ornamental details replaced where restoration could not be completed. Other improvements that were made include structural stabilizing, returning the interiors to their original colors and stenciling, and restoring original wood floors.

The renovations for the E.E. Warren Cultural Center also include a new addition on the east side of the Hetherington and Taylor buildings as well as new stairways in the existing buildings. Additions to the original buildings and new additions will not be used for this thesis. Only restorative improvements to the buildings are used.
Square Footage of Each Space

Each level of the E.E. Warren Opera House Building and Hetherington Building has a different floor footage and ceiling height. These differences create individual character that helps define the space. The total square footage is not enough space for the desired functions, so an addition is made on the east side of the Hetherington and Taylor buildings, as well as a roof garden on top of the Taylor Building that is accessible from the addition. The total square footage on the ground level of the E.E. Warren Opera House Building used for the café is 3,945 square feet. The total square footage used on the ground level of the Hetherington Building for the Chamber of Commerce is 1,940 square feet. 1,500 square feet of the total square footage for the Chamber of Commerce is original to the Hetherington Building, and 440 square feet are part of an addition. Total existing square footage on the second story of the Hetherington Building used as an art gallery for local Iowa artists is 1,240 square feet. Total square footage added onto the second story of the Hetherington Building in the addition for gallery space is 1,215 square feet. Finally, the total square footage used for an outdoor roof garden on the second story of the Taylor Building is 1,335 square feet.

Existing Interior and Modifications

The present interiors of the E.E. Warren Opera House and Hetherington buildings are beautifully restored to their historic state. They include original wall colors and stencils, beautiful wood floors, and intricate ceiling tiles. However, the interiors have also been altered for an historic rehabilitation project. The project was done to turn the two buildings, as well as the Taylor Building, into the E.E. Warren Cultural Center. The Center houses an art gallery, guest suite, private meeting rooms,
auditorium, Iowa State University extension office, and Empowering Adair County offices. All changes and additions made to the historic context of the buildings will not be used for this thesis. It will be assumed that only restorative work was done to the buildings and any changes beyond never occurred.

Keeping that in mind, the E.E Warren Opera House building ground level is split into two large areas and has a ceiling height of 14’2”. The eastern-most area houses five smaller rooms. The eastern façade is made of mostly glazing. The second story, the auditorium level, contains a large open auditorium that includes a stage, original ticket booth, and lobby for the auditorium, as well as three additional rooms and a restroom. Edward and Eva Warren mainly used the west rooms in the auditorium as an apartment in the early 1900s. Each room faces the public square and looks to the County Courthouse. The windows in the room reach nearly to the ceiling, and all surfaces have been restored to their original glory. Finally, the third story, the mezzanine level, of the Opera House was used mainly as a residential space that includes three rooms and one restroom. The rest of the third story was used as a balcony space for the theater. Again, all surfaces have been restored to their historic conditions. The ceilings are lower in third story and the window expanse is not as large as on the auditorium level. The ground floor of the Hetherington is one large open expanse, and the second story has four private rooms, one small closet, and one large room. The ceilings on the ground floor are 14’2”, and the ceilings in the second story are 10’. (Figure 2-12 – 2-14)

**Experiential Analysis of the Buildings**

When the researcher visited Greenfield and the buildings, she dropped objectivity and let subjectivity take hold for a while. The researcher became absorbed
in the atmosphere of the buildings to understand what their personalities are, and what they mean to the public. How do they make people feel, and why do they love the E.E. Warren Opera House and Hetherington Buildings? Not many people in the general public think about buildings objectively, but they do know how buildings make them feel. It is important to understand the feeling and personalities buildings induce in their users so they are still present when the re-use project is complete.121

The E.E. Warren Opera House and the Hetherington buildings make their users feel important, proud, and excited. When they were first under construction, they were the talk of the state because the Opera House was one of only a few in the state. The Opera House became a destination for entertainment, not only for the Greenfield citizens, but also state residents. The Opera House made Greenfield an important town in Iowa and put it on the map for other state residents. The buildings were designed to become a cohesive “ornament to the town” and “the finest architectural design of any in the city.”122 The grand opening continued to demonstrate the buildings’ importance to Greenfield when the citizens were so excited about the buildings that they broke through the doors at the grand opening, just so they could get a glimpse of what was inside. Historically, the buildings were a point of pride and beauty to the city and continue to remain that way. This is evident through the many different uses and number of changes each building has seen. Residents didn’t want to see the buildings go to waste, so they made them work for their needs through refinements. Although the refinements were not all positive changes to the buildings, they did allow the

121 Latham 78-79.
buildings to continue receiving care and repairs so they could remain in decent condition.

It is still evident that the E.E. Warren Opera House and Hetherington buildings make their users feel very important, proud, and excited when talking with them about their new Warren Cultural Center. Excitement and pride were pouring out of them when the researcher conducted interviews. Their excitement was about the revived interior surfaces, the new intended uses for the spaces, and the influence the rehabilitation project could have on future projects downtown. Their pride was for all of the same reasons as the original patrons, but they were also proud to have their buildings on the National Register of Historic Places, to have been chosen as a Revive Main Street Project, and to have such a beautiful piece of history in their town. Finally, they clearly feel the importance of the E.E. Warren Opera House and Hetherington buildings or else they wouldn’t put such effort and work into the structures to bring them back to their historic glory.

The researcher also felt the importance and excitement when walking through the buildings. She felt a sense of awe, a comfort, and distinction emanating from the walls of the structures. It was also very evident that the buildings are important structures in Greenfield, as they are the first buildings one views after he peeks around the courthouse in the center of the square. These feelings and the buildings’ role in the surrounding context are all very important to understand and became guiding principles in the rehabilitation project.
CHAPTER 4. DESIGN

“The challenge of creative re-use is to take those constraints and turn them into opportunities; to transform the apparently greater constraints of historic buildings into value celebrated by the new use.” ~ Derek Latham

Design Program

This thesis suggests a possible solution for attracting people to the E.E. Warren Opera House, Hetherington, and Taylor buildings, as well as the town of Greenfield. Historic rehabilitation and adaptive re-use are implemented because the buildings are still in very good shape and are jewels on the town square. Therefore, demolition is not a viable option. The buildings are not currently being used in their original intended ways, as an opera house, pharmacy, or dry goods store, and the town believes a true restoration would not be a good use for the buildings. Also, preserving the buildings in their current states would not allow them to be used by the public.

Adaptive reuse projects often face a great risk of attracting insufficient demand if they house smaller niche markets where the demand is unproven. One strategy for minimizing the risk of a possible insufficient demand is to make the project a mixed-use building. Retail uses seem to fit exceptionally well in renovated older buildings because retail complements both a living and working community. Retailers also often like the ambience and individuality that can be found in older buildings. A common result of stores, restaurants, and service establishments rehabilitating old buildings is that they

---

123 Latham 85.
create individuality, community, and vitality to their neighborhoods and that helps attract other residents and commercial tenants.\textsuperscript{124}

Although there are many options for what could be housed in the E.E. Warren Opera House Building and the Hetherington Building, this thesis project is no different from the many adaptive reuse projects. It will also become a mixed-use building that meets the city’s needs and desires. The E.E. Warren Opera House Association wants the buildings to become a “cultural oasis” that reflects Greenfield’s quality and pride. They desire for them to become a social center for the arts and a marketplace for Iowa artists. Main Street Iowa is mostly concerned that whatever is housed in the buildings creates jobs and economic advantages for Greenfield citizens, increases tourism, and boosts business development. Finally, a 1980 Iowa Appraisal and Research Corporation Market Feasibility Study found that Greenfield could use another retail commercial enterprise or restaurant.\textsuperscript{125} Further research found there are only 7 restaurants and lounges located in Greenfield, 0 of which are cafes. There are 7 meeting facilities, 23 retail stores, which include auto part, hardware, and Casey’s convenience stores, and 2 major industries. There are also 2 museums, an aviation museum and a county museum, located on the outskirts of town.

The researcher took into consideration all of the desires of the project contributors as well as the research suggestions in order to ensure the adaptive reuse and historic rehabilitation project would be fully integrated into the town.\textsuperscript{126}

\textsuperscript{124} Gause et al. 67-68.
\textsuperscript{126} Gause et al. 73.
Therefore, this thesis focuses its work on transforming the E.E. Warren Opera House, the Hetherington, and the Taylor buildings into four main functions: a café, a new Chamber of Commerce, an art gallery, and a museum for the town of Greenfield. The museum houses the Adair County Museum, which is currently positioned on the outskirts of town, exhibitions about the famous filming of the movie *Cold Turkey*, restoration of part of Edward and Eva Warren’s residence, and history of the E.E. Warren Opera House and Hetherington buildings. It can also be used for weddings, receptions, theater, and musical performances. Art by Iowan artists will be on display in the art gallery, and a roof-top garden extends onto the roof of the Taylor Building.

The primary users of the café, chamber of commerce, gallery, and museum will be citizens of Greenfield and the surrounding area. However, it is intended to bring patrons from a broader area to Greenfield. The belief is that locating these multiple uses in the heart of the downtown will bring more tourism to the city of Greenfield, as well as allow people access to the beautiful Opera House. Relocating the Chamber of Commerce into one of the city’s most prized possessions encourages visitors and residents alike to experience the beauty and history that is housed within. The café draws people into the buildings and has the capability of displaying local art for sale as well as housing live music, poetry, drama, and comedy acts. Figure 4-1 to Figure 4-4 are schematic plans of the proposed new uses for the Opera House and Hetherington buildings.
Figure 4-1: Schematic Floor Plan: Basement
Source: Brittany Dieleman
Figure 4-2: Schematic Floor Plan: Ground
Source: Brittany Dieleman
Figure 4-3: Schematic Floor Plan: Auditorium
Source: Brittany Dieleman
The café contains a kitchen, service zone, two public restrooms, and seating areas. The main entry to the café is on the ground level of the west side of the E.E. Warren Opera House in the center of the storefront windows. The emergency fire exit is located on the east wall. The café must contain a piano, wall display space for art, an
area for performance art, and areas for community socializing. Many different configurations are possible and are explored further in the study.

Area: Café
Size: 3,945 square feet

Area: Kitchen
Size: 600 square feet

Area: Service zone
Size: 350 square feet

Area: Public Restrooms
Size: 300 square feet

Area: Seating and circulation
Size: 2,700 square feet

**Chamber of Commerce Space Planning**

The Chamber of Commerce contains a front desk, two offices, one public restroom, one elevator core, and an emergency exit core from the second level. The main entry to the Chamber of Commerce is located on the ground level of the west side of the Hetherington Building on the south end of the storefront windows. The emergency fire exit is located on the east wall. The Chamber of Commerce must contain
a stairway to the art gallery, lobby space, display space, and an office staff break zone.

Many different configurations are possible and are explored further in the study.

Area: Chamber of Commerce
Size: 1,940 square feet

Area: Front Desk
Size: 50 square feet

Area: Private Office x 2
Size: 120 square feet

Area: Public Restroom
Size: 50 square feet

Area: Elevator Core
Size: 60 square feet

Area: Emergency Exit
Size: 105 square feet

Area: Lobby, break zone, display wall, and circulation
Size: 1,435 square feet
**Art Gallery Space Planning**

The art gallery contains two public restrooms, one elevator core, and one emergency exit core. The main entry to the art gallery is coming from the first story Chamber of Commerce. The emergency fire exit is located on the east wall. The gallery is connected to the Opera House auditorium. It must contain an entrance from the first story Chamber of Commerce, wall art display space, sculptural art display space, and artist reception space. Many different configurations are possible and are explored further in the study.

Area: Art Gallery
Size: 2,735 square feet

Area: Public Restrooms
Size: 145 + 115 = 260 square feet

Area: Elevator Core
Size: 90 square feet

Area: Emergency Exit Core
Size: 105 square feet

Area: Entrance, art display space, reception space, and circulation
Size: 2,280 square feet
Design Solution

Cultural Oasis Definition

The first step in the design process for this thesis was to figure out what exactly a cultural oasis is. The E.E. Warren Opera House Association wanted it to be a social center and marketplace for arts, but that doesn’t give a very accurate description of what a cultural oasis is. Therefore, the two words were looked up separately.

Culture has many different meanings. The most well known definition of culture comes from 17th century Europe meaning the betterment or refinement of individuals. According to the 20th century anthropology, culture is “the capacity to act imaginatively.” According to Cicero, culture is the “cultivation of the soul.” Velkley describes culture as “the full expression of the unique or authentic self.” After looking at the many descriptions of culture the key words to guide the design of the historic rehabilitation are refinement, range, cultivation, imaginative, creative, unique, and authentic.127

Oasis also has a few different meanings. According to Merriam Webster an oasis is “something that provides refuge, relief, or pleasant contrast.” An oasis can also be a dwelling place.128 Although the E.E. Warren Opera House and Hetherington Buildings are not going to become physical places of residence, they are intended to become a place of residence for art, artists, museums, and patrons as well as become a place of refuge and relaxation for customers. Putting the definitions culture and oasis together

means the E.E. Warren Cultural Center should be an authentic, creative, and unique refuge for the cultivation of the soul that provides a pleasant contrast from reality.

**Design Challenges**

One of the biggest obstacles faced in this project is how do you combine the design of a high road building with a new style? Character has been acquired over years, and designing within that character without combating it is a challenge. Finding a way to meld the time and generations of use with the present and future is a difficult task.

The second biggest obstacle faced in this project is designing for adaptation. Theaters have large, oddly segmented spaces with very few horizontal surfaces. They are difficult to subdivide and often stand empty because of the challenge. Even beyond the theater portion of the project, buildings are designed, budgeted, built, maintained, and remodeled to not adapt well. However, all buildings adapt anyway because buildings are constantly being shaped and formed by their users.\(^{129}\)

Another challenge faced in this project is making a high road building behave like a low road building. That is, how do you foster creativity in a high road buildings and have them become a place with a high rate of inhabitance and economic activity? How do you allow inhabitants to take possession of the building and feel a part of its history and not just an observer of its history?

According to Brand, the way to grow and evolve a high road building is to take it in stages and grow it over time by making constant minute refinement. However, that is not always useful advice as many times there is not the benefit of vast amounts of

\(^{129}\) Brand 2 & 109.
time to allow buildings to evolve slowly. That is why it is extremely important to not impose anything upon the buildings and allow adaptations to feel comfortable and unforced within the buildings. Brand believes this practice will result in a human building: “a building by the people, for the people, and of the people.”  

He believes a good high road building adapts overwhelmingly well and acquires layers of soul through the process. If done right, Brand promises time will teach buildings and they will teach us.  

**Design Principles**

Before any design work could begin, a few guiding principles need to be established. The first principle the designer kept in mind when designing the E.E. Warren Cultural Center was to have sensitivity to the original design aesthetic. That means sometimes “new construction needs to become a supportive backdrop to the original, while at other times the old and new must successfully juxtapose one another.”  

The second principle that helped direct the design was to create a sense of place by incorporating the community and buildings’ needs, visions, and hopes. The third principle that was important to the researcher was to create an adaptive reuse project that feels integrated into the original building and into the community. The fourth and final principle was to make wayfinding as paramount and intuitive as possible.

---

130 Brand 44.
131 Brand 49 & 77.
132 Woodcock ix.
Café Design

The café is located on the ground floor of the E.E. Warren Opera House building. The seating area, service zone, kitchen and public restrooms compose this floor. Dining, socialization, and creative outlets are the three main functions of the café. The intention of the design for this floor is to provide customers with a cultural oasis – an authentic and creative refuge from their everyday life – in one of the most historic, treasured, and previously under-used buildings in Greenfield.

The café design process began by designing many optional floor plans that located the kitchen, service zone, two public restrooms, and seating areas in different locations. Locations for a piano, wall art, performance art, and socialization were also designed. Then, each plan was critically analyzed to identify their strengths and weaknesses and the researcher chose the designs that would function the best in the space and seemed the most harmonious with the existing historic structure. These plans were then reduced to their bare bones of full height walls and open spaces (all furniture and half walls were omitted) and turned into a dxf file with closed loops to put into UCL Depthmap. The creation of multiple plans was the designer’s way of applying the user’s needs and wayfinding options in multiple ways to the existing structure.

The many different proposed plans were then put into DepthMap and analyzed to see which plan best met the café’s needs and which plan was analyzed to be easiest to wayfind in. The researcher looked at only two of the graphs produced for the café design. Those two graphs were the intervisibility graph and the visibility graph analysis. This is because the intervisibility graph shows the number locations that are visible from each location in the floor plan and the intervisibility graph analysis shows
how integrated each location is with the next and the number of turns one must make in order to get to each location. In all of the building analysis graphs the color range runs from red (the most visible with many visible locations or the most integrated) to green to yellow to blue (the least visible and least integrated). Figure 4-5 to Figure 4-8 are images of the Café floor plan options with their respective intervisibility graph and visibility graph analysis.

Café Option One (Figure 4-5) was the researcher’s first intuition of how the café should be laid out. The kitchen is located in the back of the building when you walk in because it is a private space reserved for only staff and is not meant to be very visually connected to the rest of the area. The public restrooms are attached to the south side of the kitchen so they can share a plumbing wall with the kitchen, but they are also still very visible to the public. The service zone is located in the back center of the open floor plan so that it will be one of the first things patrons notice when entering the café. This was intended so that workers can see when new customers walk in, and it will also encourage sales numbers by being the most visually dominate area when entering the cafe. Art wall space was intended to hang on the north and south walls, and performance art was intended to take place in the storefront window coves on the west side. The location of the performance art is free advertisement for the café as anyone driving or walking by can see what is taking place at the café that day.

The Depthmap analysis of Café Option One shows that the researcher’s instincts were not far off, but the most alarming finding is that the service area is not the most visually integrated location in the plan, but rather the art gallery wall is. It shows that the service area is highly visually connected, meaning the staff behind the counter can
see many different locations throughout the café, but it is not the most visually integrated, meaning it takes more turns and maneuvering to reach this location than it does to reach the art gallery wall.

Café Option 1

Café Option Two (Figure 4-6) was the researcher’s next intuition of how the café should be laid out based on the analysis of Option One. The kitchen is located on the south side of the building when you walk in because it could nestle into the original bump-out in the wall. It is a private space reserved for only staff and is not meant to be very visually connected to the rest of the areas so it is okay if it is slightly recessed into the wall. The public restrooms are attached to the east side of the kitchen so they can
share plumbing services with the kitchen. They are slightly less visible to the public but should be noticed when ordering at the service zone. The service zone is located in the center of the south side of the open floor plan. It will still be one of the first things patrons notice when entering the café. Art wall space is intended to hang mainly on the north wall, and performance art is intended to take place in the storefront window coves on the west side. Again, the location of the performance art is free advertisement for the café, as anyone driving or walking by can see what is taking place at the café that day. In this floor plan, an additional entrance was created to enter the café from the north side off of East Iowa Street. This is so walkers-by and people driving on East Iowa Street will be able to identify what is located in the E.E. Warren Opera House building on the ground floor and so patrons don’t have to walk all the way around the building. It also makes for a more visually interesting floor plan and allows light to penetrate into the back of the space.

The Depthmap analysis of Café Option Two shows that the researcher’s instincts to change the floor plan based on Option One’s analysis results were not far off. Again, the most alarming finding is that the service area is not the most visually integrated location in the plan, but rather the art gallery wall is. It shows that the service area is not even as visually connected as Option One, meaning the staff behind the counter cannot see as many different locations throughout the café. It is also not the most visually integrated, meaning it takes more turns and maneuvering to reach this location than it does to reach the art gallery wall. The art gallery wall is still very visually connected and integrated, but the performance art space on the southern most storefront cove is not as connected or integrated as Option One.
In Café Option Three (Figure 4-7) the kitchen was relocated on the east side of
the space. The kitchen is located on the east-most side of the building when you walk in
because it is a private space reserved for only staff and is not meant to be very visually
connected to the rest of the areas. The public restrooms are attached to the south side
of the kitchen so they can share a plumbing wall with the kitchen. They are visible to
the public but located out of the dining area so smells and direct visuals will not
penetrate the space. The service zone is located in the center of the north side of the
open floor plan. It will be one of the first things patrons notice when entering the café,
but the total expanse of it is not as visible as Café Option One. Art wall space is intended
to hang mainly on the south wall, but an art corner is also created by the arrangement of the kitchen and restrooms. The performance art is intended to take place in the storefront window coves on the west side of the space. In this floor plan, the additional entrance is taken out because there was no space for it.

The Depthmap analysis of Café Option Three shows the intentions of the floor plan could be carried out. The service area is more visually connected and integrated in this location than in any other option. The art gallery wall is also very visually connected and integrated. The performance art space on the western storefront coves is not as connected or integrated as Option One, but the southern cove on the western storefront is as connected and integrated. This will work well because only one cove is needed for performance art. Although, this plan makes the service zone, art gallery walls, and performance art zones the most visually connected and integrated, the art corner is not as connected and integrated as desired and creates an awkward space between the kitchen wall and the column line.
In Café Option Four (Figure 4-8) the kitchen is expanded slightly to integrate the column line running through the center of the space. Every thing else in Café Option Four is the same as Café Option Three. The kitchen is located on the east side of the building. The public restrooms are attached to the south side of the kitchen so they can share plumbing services with the kitchen. The service zone is located in the center of the north side of the open floor plan. Art wall space is intended to hang mainly on the south wall, but an art corner is also created by the arrangement of the kitchen and restrooms. Finally, the performance art is intended to take place in the storefront window coves on the west side of the space.
The Depthmap analysis of Café Option Four shows the intentions of the floor plan can be carried out. The service area is as visually connected and integrated in this option as it was in Café Option Three. The art gallery wall is almost as visually connected and integrated as Option Three but doesn't reach as far east. This is okay since once the art is noticed, it will carry viewers on to the rest of the display. The performance art space on the northern cove of the western storefront is not as connected or integrated as Option Three, but the southern cove on the western storefront is slightly more connected and integrated. This will work out because only one cove is needed for performance art. This plan makes the service zone, art gallery walls, and performance art zones the most visually connected and integrated of all the plans. Café Option Four also provides an art corner that is connected and integrated as well as cozier and less awkward than Café Option Three.
After looking at all of the analyses, the researcher chose to continue with Café Option 4. Choosing a floor plan was a difficult yet surprisingly easy decision to make. Subjectivity was set aside, and the researcher focused on the Depthmap analysis rather than her emotional preference. This was an important step in the thesis research because it meant that wayfinding was truly one of the most influential factors being used in the design. Café Option 1 was not used because of its lack of service zone visual integration. Café Option 2 is the most visually appealing and interesting plan to the researcher, but it was not used because it had poorer visual connectivity and integration results than the other options. Café Option 3 was not used because of the
awkward space that was created in the lounge art corner with the floating column. Café Option 4 was chosen because it had good visual connectivity and integration for the service zone, the art gallery walls, and the performance art location. This floor plan was used to continue on with to create a final detailed plan of the café.

Figure 4-9 is the final detailed plan of the café. One must enter through the entrance on the west storefront. As he enters, a seating lounge with sofa pieces and chairs by Verner Panton is located to his north and south. To the south is also a grand piano. As he walks down the center of the room, he will run directly into a large custom-made Parson’s table with Harry Bertoia chairs. To the north of the table is the custom made service zone, and to the south are two rows of dining seating. The tables and chairs are Eero Saarinen pieces, and Ray and Charles Eames designed the booth seating. To the east of the dining seating is the lounge art corner with pieces by Arne Jacobsen and continuing down the walkway on the southern wall are the restrooms and emergency exit. To the east of the service zone is the kitchen. Above each seating area is a ceiling cloud with various lighting options such as George Nelson Bubble Lamps, downs lights, linear lights and ambient lighting. Clouds were used to bring down the apparent height of the ceiling, as it is 14’2”. Above the service zone is a custom made lighting fixture that makes the ceiling feel lower, but does not block the beautiful original porthole windows. All of the flooring is original oak floors with some new oak flooring feathered in where walls or elevator shafts were previously placed. The north wall is exposed brick to highlight the historic structure and the south wall is drywall painted white so that it can be used for art display. Original artwork has been designed for the south wall in the renderings, but could be replaced by local artwork if desired.
A few of the goals in the detail design of the café were to create a floor plan that worked with the existing building architecture and not against it, that was easy to wayfind in, and that was a cultural oasis with an emphasis on art. One way that the design of the café worked with the existing historic structure and not against it was to design the café as an open floor plan. A large scale open building like the Opera House building will immediately lose its interior qualities when divided into small units. Therefore, it was determined that it would be best to group the kitchen and restrooms together so they would appear as one solid unit. This allowed the rest of the area to remain open. An open floor plan also allowed for the researcher to take advantage of
the available natural light and not break up the rhythm of the windows in the façade.

Another way the design worked with the historic structure is by integrating the column line into the walls that define spaces and furniture design rather than having them create awkward spaces and interfere with circulation. Another way the design of the café worked with the existing historic structure was to center the service zone under the three porthole windows on the north side of the structure. This allowed the historic details to be highlighted and appreciated. Exposing the north brick wall and placing the limestone details around the portholes also helped to further emphasize the existing historic structure. The exposed brick wall and details also help ground the café and give it a sense of place so that it is distinct from any other cafe.

In order to make wayfinding easy in the café, the first step that was taken in the design was to focus on emergency exits. It is known that people normally exit from the same door they used to enter a building, and emergency situations are no exception. People move towards the familiar because they are using a decision plan that has already been successful. Therefore, the emergency exit was placed in a rather wide hallway with the restrooms so the route would be made more familiar to users. The placement of the emergency exit in a wide hallway also ensures that it can be directly identified by a majority of the patrons in the café. The emergency exit and restrooms were also placed in locations that were familiar. The fire escape was placed on the opposite wall of the entrance and in a fairly wide walkway so that it or the light streaming through it could be seen from a majority of people in the building. However, for those patrons who could not see the exit or the daylight penetrating through the

---

133 Arthur & Passini 127.
door, it was placed in a rather common location so they could use educated seeking to find the additional exit. The restrooms were placed with similar logic. They are placed on the south side of the kitchen in the wide walkway as well. They were put here because wayfinders could use social navigation or aiming to locate them. The rest of the café is an open floor plan, therefore it is believed that customers would be able to infer that the bathrooms must be in the one place that I cannot see directly that is still in the very public sphere. Another wayfinding tactic that was employed in the development of the plan was to create districts or spatial identities within the café. Articulating the circulation system and creating expressive destination zones or districts creates distinctiveness and gives landmark quality to these elements. The districts include the staff area (private), the service zone, the restrooms, the lounge seating, the dining seating, and the art corner lounge. If one has knowledge of furniture design, he can also notice that each seating zone is further broken down into smaller districts. The furniture designed by five famous midcentury furniture designers defines and distinguishes each smaller district, while the lighting design unites them. The designers include the following: Harry Bertoia, Ray and Charles Eames, Arne Jacobsen, Verner Panton, Eero Saarinen, and George Nelson (lights). Another wayfinding strategy used was to put mosaic hexagonal tiles in wet zones like in the service zone and restrooms. These tiles are stretching out from the restroom into the walkway so that it can give users a clue from a distance as to what is located in those rooms. It is a track following sign that users can pick up on after aiming towards the restrooms located in the back of the cafe.

---

134 Arthur & Passini 140.
In order to create a cultural oasis within the café, the designer focused on the selected definitions of the words. They specified that the E.E. Warren Cultural Center and café should be an authentic, creative, and unique refuge for the cultivation of the soul that provides a pleasant contrast from reality. This definition was infused into the design of the café in many ways. The multiple locations of lounges encourage the “cultivation of the soul” through conversations with others, reading, relaxing, and enjoying live performance art. Placing a grand piano in the café encourages community involvement, creativity through performance, and collaboration between musicians that maybe otherwise would not have access to one another (cultivation). The large Parson’s table down the center of the café also encourages “cultivation of the soul” through community dining and conversation. It is also reminiscent of old farm tables that are authentic to the community. Clearly, art display space and live art, whether it be music, poetry, or acting foster creativity and the unique self. Finally, the furniture styles were chosen because they were thought of as art within the café. Famous designers created all of the different pieces of furniture, and all of the furniture is famous midcentury pieces. I chose pieces from the 1950s and 1960s during the modernism movement because they were designed with the intent to experiment in order to improve and reshape their environment. Modern furniture design often used advanced scientific practices and had the goal of finding what was holding back progress. The entire modernism movement emphasized the power of human beings. That thought process felt fitting for a café that promotes creativity, cultivation, and development of its customers. Midcentury furniture also worked nicely with the existing historic structure because it doesn’t compete with what originally existed or
try to blend with it. The furniture, lighting, and ceiling design perfectly juxtapose the original 1850’s work and create a “pleasant contrast.”

**Chamber of Commerce Design**

The Chamber of Commerce is located on the ground floor of the Hetherington Building. The front desk, lobby, display area, sculptural staircase, two private offices\(^{135}\), public restroom, worker’s break area, elevator core, and emergency exit core compose this floor. Education, promotion, and welcoming visitors are the three main functions of the Chamber of Commerce. The intention of the design for this floor is to provide employees with an inviting and comfortable work environment and to provide visitors with a welcoming atmosphere that gives them access to one of the most historic, treasured, and previously under-used buildings in Greenfield, knowledge of the community of Greenfield, and encouragement to visit the historic Opera House, its museums, and the art gallery upstairs.

The Chamber of Commerce design process also began by designing many optional floor plans that located the sculptural staircase, public restroom, offices, emergency exit core, and elevator core in different locations. Locations for a lobby, front desk, display area, and break area were also designed. Then, each plan was critically analyzed to identify their strengths and weaknesses and the researcher chose the designs that would function the best in the space and seemed the most harmonious with the existing historic structure. These plans were then reduced to full height walls and open spaces (all furniture and half walls were omitted) and turned into a dxf file

---

\(^{135}\) Private offices were used because it was determined that privacy was needed for the museum director and art gallery manager as they would be on the phone a lot and don’t want the sound permeating the Chamber of Commerce and the art gallery above.
with closed loops to put into UCL Depthmap. The creation of multiple plans was the
designer’s way of applying the user’s needs and wayfinding options in multiple ways to
the existing structure.

The many different proposed plans were then put into DepthMap and analyzed
to see which plan best met the Chamber of Commerce’s needs and which plan was
analyzed to be easiest to wayfind in. The researcher looked at only two of the graphs
produced for the chamber’s design. Those two graphs were the intervisibility graph
and the visibility graph analysis. This is because the intervisibility graph shows the
number locations that are visible from each location in the floor plan and the
intervisibility graph analysis shows how integrated each location is with the next and
the number of turns one must make in order to get to each location. Again, the color
range runs from red (the most visible with many visible locations or the most
integrated) to green to yellow to blue (the least visible and least integrated). Figure 4-
10 to Figure 4-13 are images of the chamber of commerce’s floor plan options with
their respective intervisibility graph and visibility graph analysis.

In Chamber of Commerce Option One (Figure 4-10) the lobby is located in the
front of the building beside the west storefront windows. The front desk is located
directly to the east of the lobby, and the two private offices are directly east of the front
desk. The sculptural staircase is east of the two offices and punches into the walkway
on the south side of the building. The southern wall was intended for historic display
space about the city of Greenfield. The public restroom and elevator core are in the far
east corner of the building in the addition space. An addition is used for all of the
Chamber of Commerce Options because the original Hetherington Building did not
provide enough space. No additional emergency stairs or storage is located in this plan. Storage would be located in the level below and accessed by elevator or an original staircase.

The Depthmap analysis of Chamber of Commerce Option One shows that the historic display wall is the most connected and visually integrated. The entrance to the staircase is also very connected and integrated, which was the intent of the design. However, the elevator core and restroom are not very connected and integrated. This is a problem as wayfinding is a key goal of this research. Also, the front desk is not very visually connected to the rest of the space, which would be less than convenient when visitors are in the space. The location of the restroom and elevator core on the south wall is both negative and positive because it blocks natural light penetration, but it does break up a long narrow hallway.
In Chamber of Commerce Option Two (Figure 4-11) the lobby, front desk, and two private offices are located in the same spot as Option One. The sculptural staircase has been moved to the southern wall so that it is highlighted when visitors walk into the space. The public restroom and elevator core have also flipped walls and are now located in the northeast portion of the building. The southern wall was intended for historic display space as well as the small nook behind the private offices. No additional emergency stairs or storage is located in this plan. Storage would be located in the level below and accessed by elevator or an original staircase.
The Depthmap analysis of Chamber of Commerce Option Two shows that the core going down the center of the building is the most connected and visually integrated. This means the stairs are much more connected and integrated in this plan as well as the restroom and elevator core. However, the nook behind the offices is now an awkward no-man’s-land that the person at the front desk would not be able to keep an eye on. In fact, the person at the front desk would not be able to see very much of this floor plan at all since the stairs also block the east portion of this plan too. However, this plan is a better option for wayfinding than Option one because the key wayfinding elements, stairs and elevator, are much more visually integrated and connected in the space.

**Chamber of Commerce Option 2**

![Chamber of Commerce Option 2 Diagram]

**Connectivity**

**Visual Integration**

Figure 4-11: Chamber of Commerce Option 2
Source: Brittany Dieleman
In Chamber of Commerce Option Three (Figure 4-12), the lobby still is located in the front of the building beside the west storefront windows. The front desk has moved back slightly to fit into the nook created by the original wall. This gives the lobby a little more space. Located directly to the east of the front desk are the two private offices. The sculptural staircase is on the south wall and is a prominent feature when visitors walk through the front door. The southern wall just west of the stair case was intended for historic display space about the city of Greenfield. The public restroom is located east of the offices followed by a storage room and elevator core in the addition. No additional emergency stairs are located in this plan. Additional storage would be located in the level below and accessed by elevator or an original staircase.

The Depthmap analysis of Chamber of Commerce Option Three shows that the walkway going down the center of the building is the most connected and visually integrated. The entrance to the staircase is also very connected but not as integrated because it would take more turns to get there from the east end of the building. However, because it is located right beside highly integrated and connected spaces and there are no floor-to-ceiling walls beside it, it should still be very connected to the rest of the building. The elevator core and restroom are not as visually connected or integrated in this option as they were in Option2, but the front desk is more connected and integrated in this option. It also has a wider range of vision to the rest of the space than the previous option. The location of all of the rooms on the north wall is both a negative and positive because it can become visually boring, but it does allow sunlight to penetrate the space. Also, the staircase will breakup the visual monotony of a long narrow space.
Chamber of Commerce Option 3

In Chamber of Commerce Option Four (Figure 4-13) the elevator is located in the front of the building beside the west storefront windows. The lobby is directly east of that in the niche formed by the core walls. The front desk is located directly in front of the entrance to the Chamber and greets guests as they arrive. Behind the front desk is the historic display wall and north of that is the sculptural staircase on display for all to see as they enter the building. Behind the staircase to the east is a display of the city development and behind that are two private offices. In the addition on the north wall is the restroom, employee break area, and the fire escape core.
The Depthmap analysis of Chamber of Commerce Option Four shows that the historic display wall, east of the front desk, is the most connected and visually integrated location in the floor plan. The entrance to the staircase is also very connected and integrated. The lobby is not as connected or integrated in this plan as it is in others, but the walkway down the center of the space is very connected and integrated. The location of the elevator core in this option puts accessibility and wayfinding at the forefront, and the UCL Depthmap analysis confirms this. In Option 4, the elevator core is more connected and integrated than in any other plan. The design still creates a long narrow space for visitors which allows light to penetrate the space from both the west and east sides, but it does not feel as narrow because the west portion of the design is much more open feeling with the lobby and spiral staircase not being very visually heavy. The location of the front desk in this design is also much better because it is very connected and visually integrated, and the person sitting at the front desk will be able to see everyone in the building except those in private offices or the restroom.
After looking at all of the analyses, the researcher chose to continue with Chamber of Commerce Option 4. Choosing a floor plan was not difficult because the researcher focused on the Depthmap analysis, wayfinding, and which space was best for education and promotion. Therefore, it made logical sense to highlight both major wayfinding features that circulate users to the gallery and museums, the stairs and elevator. It was also important to the researcher for the staircase to be a piece of art in the building, so having it front and center when one enters the building is perfect. Choosing the plan that was determined easiest to wayfind in demonstrates that wayfinding is truly one of the most influential design factors being used. Chamber of Commerce Option 1 was not used because the stairs and elevator were not connected.
enough to the rest of the building, and the bathroom and elevator were in a location that created an awkward floor plan with wasted space in the addition. Also the addition did not feel important enough since it would only be used as a place of circulation. Chamber of Commerce Option 2 was not used because of the lack of importance and connectivity placed on the elevator and because of the niche created to the east of the offices. The placement of the offices visually breaks up the building and makes it feel like two separate spaces, and the person at the front desk would not be able to see what was happening there. Again in this plan, the addition does not feel important because it has no purpose other than circulation. Chamber of Commerce Option 3 also places the elevator in the back of the building making is less accessible and integrated into the building. It does not have a very large display area and is a long narrow space with everything stacked on the north wall except the stairs, and there is wasted space towards the back that serves no purpose. Chamber of Commerce Option 3 was not chosen. Chamber of Commerce Option 4 was chosen because it was determined to be the easiest plan to wayfind in and because it was the most visually connected and integrated design. It places a lot of importance on both the stairs and elevator making wayfinding more intuitive. Another positive for Chamber of Commerce Option 4 is that the design places importance on the addition by placing the employee break area in it and not blocking it from visitors when they enter the building. Option Four excels at visually connecting and integrating the display area for the city history while also creating a nook for the city model. Chamber of Commerce Option 4 creates no awkward spaces and all of the square footage has a purpose. This floor plan was used to create a final detailed plan of the café.
Figure 4-14 is the final detailed plan of the Chamber of Commerce. As one walks from the café to the Chamber of Commerce, she sees the elevator up to the art gallery and museum in the storefront window. It is on display for everyone to see. It is located just south of the original staircase entering the Opera House that is no longer used as an entrance. She continues down the sidewalk to the south and must enter the Greenfield Chamber of Commerce through the entrance located on the southern most part of the storefront. As she enters up a ramp, a front desk is located to her east. To the north is a lobby seating lounge and the elevator that she previously spotted in the window. As she walks down the center of the room she must make a decision whether to take the glass and metal sculptural spiral staircase up to the gallery and museum or continue through the ground floor. Continuing east is a table with a model of the city of Greenfield showing the historical development of the city. To the east of the model are two private offices. The walls of the offices are made out of the Steeleease V.I.A system. Currently, the two offices are set up identically with a desk and storage system for personal work on the west wall and a table in the center of the office with a projection monitor on the north wall for collaboration or meetings with clients. After the offices one continues east and enters the addition made with a terrazzo floor and channeled glass walls. Here is the bathroom, fire escape stairway, kitchenette, and employee break area. If one returns to the spiral staircase, she will pass a large graphic timeline that is on the south wall showing the history of Greenfield. As one ascends the spiral staircase, she winds around a hanging sculpture and enters into the art gallery, whose design will follow later in this paper. The ceilings in the Chamber of Commerce are 14’2” tall and are covered with original decorative ceiling tiles painted pale pink. Linear
pendants light up the space with track spot lighting highlighting the timeline on the wall. The offices are lit with recessed lighting. Sofa and lounge chair choices are made of teak and weatherized steel and upholstered with outdoor fabric so they will not fade or be damaged due to sun exposure or other threats from the outdoors. They are cohesive with one another and the furniture chosen for the art gallery and roof garden. The north wall in the space is exposed brick and highlighted with wall grazers to show of the texture. Finally, the ceiling around the spiral staircase and above the city model has been opened up to create a two-story space that connects the Chamber of Commerce with the art gallery and Opera House museum.

Figure 4-14: Chamber of Commerce Final Detailed Plan

Source: Brittany Dieleman
A few of the goals in the detail design of the Chamber of Commerce were to create a floor plan that worked with the existing building’s architecture and not against it, was easy to wayfind in, and was easily adaptable should the needs of the Greenfield Chamber of Commerce change. One way that the design of the Chamber of Commerce works with the existing historic structure and not against it is by designing the floor plan as open as possible. This allows the historic features such as the brick wall and ornate ceiling tiles to be highlighted and also allows both morning and afternoon natural light to penetrate the building. The exposed brick wall and ceiling tiles also help ground the Chamber of Commerce and give it a sense of place so that it is distinct from any other building. The existing structure also determined the placement of the private offices. The second office is butted up against the original Hetherington’s exterior wall. This is because a portion of the wall needed to remain for structural support. The placement of the exterior wall then determined where the bathroom could be placed in the addition. Another example of the new design working with the historic structure is the color scheme. A split complimentary color scheme of red, yellow green, and blue green was used. This color scheme was chosen because the author wanted to used the existing pink ceiling tiles but also wanted to incorporate shades of green because it obviously influenced the naming of the town, Greenfield. Another place the design works with the existing building is in the addition on the east side. It was designed to harmonize with the existing structure by contrasting with it. The design does not impose so much of itself on the Hetherington Building that the original building design is lost but implements just enough that the new uses can function effortlessly in the historic building. The addition suggests progress while the original Hetherington
Building suggests permanence with an apparent past. Because the addition is only visible to the public peeking out atop the Taylor building or from the east alley or from the south, it is a serendipitous surprise to the Chamber of Commerce, art gallery, and museum visitors. It can be seen glowing in the back of the Hetherington Building on the ground floor from the entrance to the Chamber of Commerce and then experienced first hand once the visitor proceeds upstairs to the art gallery.

In order to make wayfinding easy in the Chamber of Commerce, the first step that was taken in the design was to place common circulation elements in locations that were extremely visible. Since vertical circulation is a must when you enter this multi-story building, the elevator and stairs are placed in positions where they can be directly perceived from the entrance, and even the outdoors. They become strong architectural features so that signs can be done away with all together. The elevator is visible from outdoors so that guests can see the new entrance to the historic opera house since the historic entrance is now only a fire escape. Once visitors enter the Chamber of Commerce, the elevator is immediately visible to the north of the entrance and the steel and glass staircase is an artistic, sculptural piece on display in the center of the Hetherington Building. Another wayfinding tactic that was used in the Chamber of Commerce is creating layers of privacy through the floor plan. These layers of privacy define the two districts found in the Chamber of Commerce, the public district and the office district. Finally, common elements were placed where they are expected to be placed so users could use educated seeking to discover where they were. For example, the fire escape was placed on the opposite wall of the entrance and in the addition that is very visible from most locations on the ground floor. However, for those patrons
who could not see the exit, the daylight will glow through the space to inform users of
the exit. The restrooms were placed with similar logic. They are placed on the north
side of the Hetherington Building in the cluster of private rooms that lines the north
wall. They were put here because the rest of the Chamber of Commerce is an open floor
plan; therefore, it is believed that visitors would be able to infer that the bathroom must
be located in one of the private rooms, and the offices have glazing on their south wall
so visitors can see in. Thus, it is believed that users could discover the restroom is in
one of the two closed rooms in the building, and signage can help to clarify which room
is the restroom.

In order to create a space that is easily adaptable should the needs of the
Chamber of Commerce change, the designer made decisions that could easily be undone
and not hurt the historic context of the original Hetherington Building. The wall system
used to enclose the private offices is the first choice that makes the Chamber of
Commerce highly adaptable. The wall system is called the V.I.A. system. V.I.A stands for
Vertical Intelligent Architecture. It is a freestanding wall system that creates private
soundproof offices but does not require securing it to an original building surface. It
allows for adding, removing, and reconfiguring offices as the Chamber of Commerce
needs. Currently, the two offices are set up identically with a desk and storage system
for personal work on the west wall and a table in the center of the office with a
projection screen on the north wall of the office for collaboration or meetings with
clients. However, should the need arise, the two offices could be made into one large
meeting room. Since the private offices are mobile structures, this means the entire
floor plan of the original Hetherington Building can be reconfigured if needed. The
timeline is also adaptable and can be changed or added to as needed. The only surface that is not adaptable in the historic part of the Chamber of Commerce is the plumbing wall on the north wall behind the offices. This wall is needed to service the restrooms on the second story. The fire escape, located in the addition, is also not adjustable. However, the channel glass making up the addition walls can be switched out for different pieces should damage occur, and the horizontal decorative mullions can also be changed.

**Art Gallery Design**

The art gallery is located on the second floor of the Hetherington Building referred to as the auditorium level. The elevator core, spiral sculptural staircase, wall art display area, sculptural art display area, public restrooms, emergency exit core, and roof garden compose this floor. Artistic education, promotion, and commercialism are the three main functions of the art gallery. The intention of the design for this floor is to provide artists with a place to display their artwork and visitors with a cultural oasis – an authentic and creative refuge from their everyday life – in one of the most historic, treasured, and previously under-used buildings in Greenfield. The gallery is also intended to encourage guests to visit the historic Opera House and its museums as well as rent the spaces for their own personal uses, such as receptions, meetings, and parties.

The gallery design process began by designing many optional floor plans that located the elevator core, spiral sculptural staircase, public restrooms, and emergency exit core in different locations. Locations for wall display areas, sculptural display areas, and artist receptions were also thought out. Then, each plan was critically
analyzed to identify their strengths and weaknesses and the researcher chose the designs that would function the best in the space and seemed the most harmonious with the existing historic structure. Only one plan was deemed sufficient. It was reduced to full height walls and open spaces (all furniture and half walls were omitted) and turned into a dxf file with closed loops to put into UCL Depthmap.

The proposed plan was then put into DepthMap and analyzed to see if it could meet the gallery’s needs and if it would be analyzed as easy to wayfind in. Again, the researcher looked at only two of the graphs produced for the gallery’s design. Those two graphs were the intervisibility graph and the visibility graph analysis. The color range runs from red (the most visible with many visible locations or the most integrated) to green to yellow to blue (the least visible and least integrated). Figure 4-15 is the image of the gallery’s floor plan with its respective intervisibility graph and visibility graph analysis.

In the Chamber of Commerce Auditorium Plan (aka the art gallery) (Figure 4-15) the elevator core is located in the northwest corner of the floor plan. The sculptural staircase pierces up through the floor just southeast of the entrance to the opera house. The public restrooms are located on the north wall just east of the historic partition wall. The emergency staircase core is located east of the restrooms in the northeast corner of the floor plan. The south wall of the original Hetherington Building is intended to be used as the display space for wall art. An expanded addition is used for the gallery floor plan because the original Hetherington Building and its ground floor addition did not provide enough space. Therefore, the addition on the auditorium level in the art gallery is above the ground floor addition and is atop the Taylor Building
addition. The addition houses the sculptural display area and is where artist receptions would take place. The roof garden is located just to the west of the addition on the roof of the Taylor Building. Storage would be located in the basement and accessed by elevator or stairs.

The Depthmap analysis of the art gallery floor plan shows that the two pass-throughs to the sculptural display area in the addition are the most visually connected and integrated. The entrance to the public restroom and emergency exit stairway are also very connected which is very important in wayfinding. However, the elevator core and sculptural staircase are not as connected and integrated as is desired, but they are still in the middle range (yellow) of connectivity. This should not prove to be too big of a problem as both the elevator and staircase are the two main entrances into the gallery so users only have to recall how they entered the space. The south part of the addition is not as connected as the other spaces, but that is also okay since the northern part of the addition and sculptures visible from the entrance will draw visitors back into the space.
Figure 4-16 is the final detailed plan of the art gallery. As one circles the hanging sculpture in the middle of the spiral metal and glass staircase, he enters the gallery and turns west to see the elevator and artist statement on the east wall of the elevator core. In the nook created by the elevator core and north wall are two chairs for guests to relax and read the statement and view the artwork. On the west-most wall is a sofa to accommodate those waiting for the elevator or viewing artwork. The southern wall is used for display space for paintings, drawings, pictures, and other wall hung artwork. As one continues east, he will notice the oak wood floor has been cut out around the spiral staircase and continues to the east to the original spatial dividing wall to create a two-story space that connects the Chamber of Commerce with the art gallery. A bench is located near the cut-out so visitors can view the artwork on the south wall or look
down through the open floor to see the city model on the ground floor. The women and men’s public restrooms are located to the east of the floor opening, and east of them is the emergency exit staircase. In the addition are the sculptural artwork and lounge seating for viewing art. This is where the artist receptions would also be located. The addition is enclosed with translucent channel glass and the floor surfaces are oak wood and terrazzo. The terrazzo continues from the addition west to the outside roof garden and becomes the paths. The roof garden has sculptural pieces and a garden with bench and sofa seating. The ceilings in the art gallery are 10’ tall except for the portion of the ceiling that is dropped down to create cove lighting above the sculptural display area. Recessed lighting is used to create ambient lighting, and track spot lighting is used to illuminate artwork in the gallery. The sofas, lounge chairs, and benches are made of teak and weatherized steel and are upholstered with outdoor fabric so they will not fade or sustain damage due to sun exposure or other outdoor threats. The same benches and sofas are used outside as those used in the gallery and Chamber of Commerce to create cohesion throughout. The north wall in the gallery where the floor is open to the Chamber of Commerce is exposed brick and highlighted with wall grazers to show off the texture. Finally, the floor is refinished historic oak flooring in the original Hetherington Building and oak wood and terrazzo flooring in the addition. The oak flooring continued into the addition helps connect the two spaces.
A few of the goals in the detail design of the art gallery were to create a floor plan that worked with the existing building’s architecture and not against it, was easy to wayfind in, and encouraged guests to visit the entire floor including the Opera House and roof garden. One way the design of the gallery works with the existing historic structure and not against it is by designing the floor plan as open as possible. This allows the historic features such as the brick wall and existing windows to be highlighted and also allows morning light to penetrate the space. The exposed brick wall also helps to ground the gallery and give it a sense of place so that it is distinct from any other building. It also connects both the ground floor and auditorium level. Another place the design works with the existing building is in the addition on the east side. It was designed to harmonize with the existing structure by contrasting with it.
The design does not impose so much of itself on the Hetherington Building that the original building design is lost but implements just enough that the new uses can function effortlessly in the historic building. The addition suggests progress while the original Hetherington, E.E. Warren Opera House, and Taylor Buildings suggest permanence with an apparent past. The addition can be seen glowing in the back of the Hetherington Building on the ground floor from the entrance to the Chamber of Commerce, but then it is truly experienced first hand once the visitor proceeds upstairs to the art gallery. The addition is made of channeled glass because it complements the brick structure with its repetition and juxtaposes the bricks repetitive horizontal lines with its repetitive vertical lines. Horizontal decorative mullions were added to the channel glass to help breakup some of its verticality and to complement the bricks horizontality.

In order to make wayfinding easy in the gallery, the first step that was taken in the design was to place common circulation elements in locations that were extremely visible. For example, the elevator and entrance to the opera house are directly visible as one enters the gallery from the spiral staircase. Also, the emergency staircase and restrooms are located in areas that have been analyzed as being highly connected and visibly integrated. Another feature that makes wayfinding easier is having an open floor plan because it forces everything to be out in the open. The few features that are not out in the open are the restrooms and emergency exit. Instead they are placed in locations they are expected to be in so users can use educate seeking or social navigation to discover them. Since the restrooms and emergency exit are not located out in the open floor plan, one can assume they must be located in the bar of organized
rooms on the north wall. Visitors may also be able to determine where they are located based on the location of the restrooms and emergency exit core on the ground floor. Another feature that helps with wayfinding is the flooring and ceiling treatment in the addition and the continuance of the flooring treatment out to the rooftop. The cove ceiling treatment and the flooring change in the addition can be seen from the historic Hetherington Building and is a track following system used in wayfinding. One follows the flooring treatment out to the rooftop garden, around it, and back indoors. The final wayfinding method used was to place items in similar locations on the auditorium level as the ground level. For example the restrooms, staircases, and elevator are located in the same location on each floor plan. A small seating area is also placed on both levels just to the east of the elevator core and. One views the city model from the same location on both floors but the view is very different. A bench used for seeing the model is even placed in the exact same location on each floor. Finally, the art display wall is also placed in the same location on the south wall of each level.

In order to create a space that encourages guests to visit the entire floor including the Opera House and rooftop garden, the designer made design decisions that would pull guests through the space. The drop ceiling with cove lighting and flooring treatment in the addition draws a guest’s eye to the space and encourages her to visit the sculptural display space. The continuance of the terrazzo floor to the rooftop garden, the placement of sculptural pieces in the garden, and the guaranteed view of the historic courthouse located in the city square also help draw her outside. The path design brings the visitor back indoors and the angle of the walkway to the spiral staircase forces the visitor to make a decision to return downstairs rather than enter
the opera house. It is believed that the desire to continue viewing the historic structure will pull guests into the courthouse following their experience in the art gallery.

**Recommendations for Opera House Design**

The Opera House and museums have not been designed in detail, but recommendations for broad level schematic design have. It is recommended to place the County and Opera House museums on the second floor of the E.E. Warren Opera House Building in the original Opera House auditorium and living quarters, respectively. The original entrance to the Opera House Building should now only serve as a fire escape, and the new entrance should require visitors to enter through the Chamber of Commerce and up the spiral staircase in the art gallery and through the opening between the Hetherington and Opera House Buildings. It is recommended that the E.E. Warren Opera House museum be located in the living quarters of the auditorium and mezzanine levels and display history about the Opera House, its founders, and the E.E. Warren Cultural Center. The rooms in the living quarters should be historically restored and decorated as they originally were. It is recommended that the Adair County Museum be located in the large open room that is the original seating area for the opera house. A large-scale open building like the Opera House will immediately lose its interior qualities when divided into small units. Therefore, it is recommended to use a movable and stand alone wall system such as the Clic Wall System by 20x20 Display Company. This wall system is free standing and does not require being anchored into the historic surfaces. Because they are free standing walls and do not close off the Opera House, they allow available light to penetrate the space and do not break up the rhythm of the windows in the façade. The Clic Wall System also
allows for a freedom of range adaptability according to the museum's growing needs.

Finally, the floating wall system means the museum could be taken down for an event that wants to use the E.E. Warren Opera House, such as a wedding, dance, party, or theater performance.

**Recommendations for the city of Greenfield, Iowa**

Although a beautiful rehabilitation and adaptive reuse project has been designed for the E.E. Warren Opera House, Hetherington, and Taylor Buildings, the difficulty locating the town square and ultimately the E.E. Warren Cultural Center remains. Therefore, it is recommended that the city of Greenfield make their route to their main attraction, the city square, more intuitive and connected to the highways. It is recommended that the roads entering the Lancaster style town square be widened to make wayfinding easier for tourists. It is also recommended that lighting design be used to also illuminate the route to the square. If widening the roads is not an option, then it would be recommended to use the existing roads and provide very legible wayfinding signage along the roads that are currently analyzed as being highly connected and continue to provide signage along the route to the downtown. These recommendations will aid future visitors trying to locate the city square so they will not have the same experience the researcher did. It is also recommended that Greenfield have an annual fair, festival, or celebration that encourages non-residents to visit Greenfield. It would hopefully reveal all of the attractions Greenfield has to offer.
CHAPTER 5. CONCLUSION

The goal of this study was to propose a successful historic rehabilitation project that would be a catalyst for the rehabilitation of the historic town square of Greenfield Iowa, by applying wayfinding and rehabilitation frameworks. In this final chapter the objectives and results are summarized and evaluated and implications for further research are discussed.

Objectives of the Thesis

The objectives for the research were the following:

1. Design a café, chamber of commerce, and art gallery that can be utilized as mixed-use spaces in the historic E.E. Warren Opera House and Hetherington Buildings.
2. Design a successful historic rehabilitation and adaptive reuse project that respects the original buildings but also contrasts with it.
3. Create a design that aids wayfinding.
4. Create a design that allows for adaptations to be made in the future.

Research Procedures

This research was carried out based on grounded theories of historic rehabilitation and wayfinding. The found frameworks were then applied to the design process as a case study. The E.E. Warren Opera House Building and the Hetherington Building located in Greenfield, Iowa, were used for the case study. The design process was conducted based on the found framework, in-depth interviews, and research. The existing town structure and building layout were initially analyzed using personal experience and the computer program UCL Depthmap to determine their visual
connectivity and integration. Next, the researched frameworks and history, culture, and objectives of the E.E. Warren Cultural Center and Greenfield were used as guidelines for the researcher to design a creative solution.

The proposed schematic designs were then analyzed using UCL Depthmap to determine their visual connectivity and integration. A final schematic design was chosen based on the results of the analysis. Then, a final detailed design for each area, the café, chamber of commerce, and art gallery, was designed implementing all of the previously learned research.

**Further Research**

This research has provided potential for a lot of future research. One area of possible future work is to design the city layout to make the town square more connected and integrated. This includes research in community regional planning, lighting design, and signage design, among others. Another area of future research and work is the design of the Opera House, including both the Opera House Museum and the Adair County Museum. A third area of future research is to implement a wayfinding design guided by UCL Depthmap and do a post-occupancy evaluation to see if it performs the way the computer program says it will. A fourth potential for future research is to further the researcher’s study comparing wayfinding and historic rehabilitation’s respect for time and history. A final potential for future research is to continue the historic rehabilitation work throughout other buildings on the Greenfield town square.
Conclusions

In this thesis, the author attempts to comprehend the relationship between wayfinding and historic rehabilitation. Both concepts have a respect for time and history, but in very different ways. Historic rehabilitation has the upmost respect for the history of a building and the layers of use it has acquired over time. On the other hand, theories of wayfinding are generally directed towards new construction and how people’s past experiences can be used to guide design. The theories lecture about implementing wayfinding design early in the process to be a guiding factor in determining the ultimate form of the building. However, that was not an option in this thesis. Rather than utilizing Louis Sullivan’s famous quote “form ever follows function,” the researcher had to implement wayfinding into an already existing structure. Therefore, function actually followed form. This battle between allowing wayfinding to guide the design or allowing the existing structure to guide design was constantly ensuing. Ultimately, it was decided that the historic integrity of the structures was the most important factor to maintain, and wayfinding needed to harmonize with it.

Another conclusion the researcher came to when in the process of the design is that UCL Depthmap can be a very good tool for analyzing connectivity, but it is not as useful as it could be in a simple building such as the ones used for this research. It was very insightful when analyzing the entire town structure, but not as useful in the building structures. It was a great tool in guiding the researcher where to place certain elements such as the art wall in the café. It showed what areas were most connected and integrated and that is where elements of great importance or sales were located. Therefore, UCL Depthmap could be very useful if implemented by a company focused...
on sales. However, UCL Depthmap would have the most useful results analyzing a complex building with multiple facets per floor plan, such as a hospital. All in all, it was a useful tool in guiding the design of the E.E. Warren Cultural Center, but would be so much more useful in more complex settings.

The final conclusion is a personal experience of the researcher. The author has a background in both interior design and architecture and a true interest in historic rehabilitation. This interest began after her first trip to Europe when she was 14 years old. She never knew that different places in the world had such historic buildings until this trip, and didn’t understand why the United States did not value buildings the same way Europe did. From then on, the author began taking notice of historic buildings around her and their destruction or re-use. What ultimately spurred the author to choose this topic for her thesis was her desire to use both architecture and interior design skills to save historic buildings in the United States. Ultimately, what was discovered through this research is the true power buildings possess, especially old, adaptable buildings. They attract the love of a community, and when rehabilitated can be a catalyst for an entire town.

Aged buildings create a sense of place for a city, and sense of place has been mentioned as a very important feature by many noted authors such as Jane Jacobs and Kevin Lynch. The integration of the community's hopes, needs, and visions can be seen in many rehabilitated buildings and neighborhoods, and this integration helps form a sense of place. Many streets and city squares are the cores of small towns because they are an “urban living room” enveloped by buildings that have grown, changed, and been modified over time. All buildings, whether old, new, or rehabilitated, represent a
“family of buildings” that are interdependent upon one another. As they grow older, their contributions may change, but their overall good to the community remains.\textsuperscript{136}

The ultimate revelation the author received is best quoted by Sir Winston Churchill, “We shape our buildings, and afterwards our buildings shape us.”\textsuperscript{137}


Figure A-1: Cafe Detailed Floor Plan
Source: Brittany Dieleman
Open net of lighting creates the illusion of a lower ceiling, but allows the original portico windows to be appreciated. George Nelson Bubble lamps are found throughout the cafe. They help create a cohesive design and unify the distinct districts.

High-impact ceiling clouds were used to engage the third dimension of the interior and create more intimate seating areas. Full height 14’ ceilings are also present in the space to show off its grandeur.

Figure A-2: Cafe Reflected Ceiling Plan
Source: Brittany Dieleman
Figure A-3: Cafe Rendered Floor Plan
Source: Brittany Dieleman
Cloud ceiling fixtures lowers the ceiling to create more intimate seating areas.

Exposed brick wall emphasizes the historic structure, provides a sense of place, and offsets the sleek lines of the furniture.

Three historic portico windows are emphasized by the service counter symmetry. The lighting fixture also lowers the "ceiling" but respects the windows.

Kitchen and bathrooms share plumbing wall.
Figure A.5: Cafe Rendered Perspective Looking East
Source: Brittany Dieleman
Figure A-6: Cafe Rendered Perspective Looking West
Source: Brittany Dieleman
Figure A-7: Cafe Artwork on South Wall
Source: Brittany Dieleman
Figure A-8: Chamber of Commerce Detailed Floor Plan
Source: Brittany Dieleman
Track lighting provides spot lighting for artwork
Linear pendants provide ambient lighting for the Chamber of Commerce
Circular pendants mimic the sculptural quality of the spiral staircase and engage the third dimension of the interior

Figure A-9: Chamber of Commerce Reflected Ceiling Plan
Source: Brittany Dieleman
Figure A-10: Chamber of Commerce Rendered Floor Plan
Source: Brittany Dieleman
Figure A-11: Chamber of Commerce Rendered Perspective Looking East
Source: Brittany Dieleman
Figure A-12: Chamber of Commerce Timeline  
Source: Brittany Dieleman
Figure A-13: Art Gallery Detailed Floor Plan
Source: Brittany Dieleman
Track lighting provides spot lighting for artwork.
Curved soffit mimics the spiral staircase and encourages visitors to continue deep into the building into the addition.
Lights wash the exposed brick wall to emphasize its texture and connect to the ground level.
Once in the addition the translucent channel glass encourages visitors to enter the rooftop garden.
Figure A-15: Art Gallery Rendered Floor Plan
Source: Brittany Dieleman
Figure A-16: Art Gallery Rendered Perspective Looking East
Source: Brittany Dieleman
Figure A-17: Art Gallery Rendered Perspective Looking West
Source: Brittany Dieleman
Figure A-18: Chamber of Commerce and Art Gallery Section Looking South
Source: Brittany Dieleman
Two story opening connects the Chamber of Commerce and Art Gallery. Exposed brick wall emphasizes the historic structure and provides a sense of place.

Spiral staircase is reiterated throughout design in light fixtures, soffits, and roof garden paths.

Private office spaces are adaptable to the Chamber of Commerce’s needs using the V.I.A. non-anchoring wall system.
Figure A-20: Café and Chamber of Commerce Wayfinding Plan

Source: Brittany Dieleman

- Elevator is visible from street and sidewalk to inform visitors of new access to Opera House
- The Front Desk is the first thing to greet visitors when they enter the Chamber of Commerce
- The sculptural spiral staircase is highly visible from the storefront windows and upon entry to encourage visitors to venture to the gallery and museums
- Greenfield history wall pulls visitors from the rear of the original Hetherington Building back to the spiral staircase
- Restrooms and emergency exit are placed in locations to aid educated seeking
- Open floor plan emphasizes the interior qualities of the Opera House and allows natural light to penetrate the space
- Exposed brick walls emphasize the historic structure and ground the Café in the Opera House.
- Service counter design works with the existing porthole windows to highlight the building’s history
- Column line defines spaces and is integrated into the walls
- Walls are exposed brick and washed with light to emphasize the rich history and texture of the Hetherington Building
- The addition juxtaposes the original structure. It suggests progress while the original structures suggest stability and permanence.
- V.I.A. wall system allows for adaptability of space should Chamber of Commerce needs change

Articulating the circulation system and creating expressive destination zones on districts creates distinctiveness and gives landmark quality to these elements

Restrooms and the fire escape are in familiar locations to aid educated seeking. Tile reaching out tells users what is located behind the doors.


Howe, Catherine. Personal interview. 26 Mar. 2012


