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City Principles: The Application of the Four Visual Characteristics on Helena, Mt

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CITY PRINCIPLES:

*The Application of the
Four Visual Characteristics on Helena, MT*

A Thesis Presented
By
CIENNA C. CULLEN

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirement for the degree of

MASTER OF ARCHITECTURE

May 2012

Architecture + Design Program
Department of Art, Architecture,
and Art History

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DEDICATION

To the residents of my hometown of Helena, MT.

ABSTRACT

CITY PRINCIPLES:

*The Application of the
Four Visual Characteristics on Helena, MT*

MAY 2012

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The larger architectural context of cities must be understood in order to effectively design buildings. If a building ignores its surroundings, it will not hold up to time and will adversely affect the city in which it stands. This can be seen in multiple of disarrayed cities and their commercial-driven building inventory. So, what makes a good city stand out, and how can this be applied to buildings? There are the four basic principles designers and planners seemed to have forgotten. The first is the layout of basic city components and their influence on current and future identity. The second is the aesthetic principles of scale and proportion. Choosing appropriate material permanence to your location is also important because it enhances or subtracts from the city's identity. And finally, the experience of the observer must be impactful. If these principles are applied correctly and harmoniously, they can effectively heal the conflicting issues of transportation, pedestrian access, social venues, historic reverence and much more. But most importantly, they can be applied to buildings. Buildings can individually initiate the healing of an urban fabric if they are cognizant to their surroundings. Therefore in this thesis, I want to apply these four basic principles in the rehabilitation of a malfunctioning junction in my hometown of Helena, Montana. By designing a singular building with a guiding master plan, I hope to stimulate a chain reaction. This transformation would take the current issues and interweave these principles into an effective solution that will not only revitalize the area but also become a tourist destination.

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CHAPTER I

CITY PRINCIPLES

Introduction:

Imagine walking down the streets of downtown Boston, Massachusetts on a perfect snowy day. The fresh snow has softened if not covered the imperfections of the city, and you, the observer, now has a chance to admire the architecture and the surrounding urban form. What do you notice? Do the tall modern skyscrapers with clusters of historic buildings appeal to you, or does the interaction between the buildings, the street and the people interest you more? Is it the random sculpture of Benjamin Franklin or does the Boston Common's great greens now covered with snow and playing children perk your senses?

In reality, no matter which city you reside in, there are certain common visual characteristics you will notice and these define whether your city is “beautiful” or not. The list includes texture, building height, open space, light, street-edge dimensions, walkable space, sculpture, greenery and much more. This sensory overload of visual characteristics can be organized into four main categories: city components/layout, aesthetic principles, material permanence and individual experience. And these are completely entangled

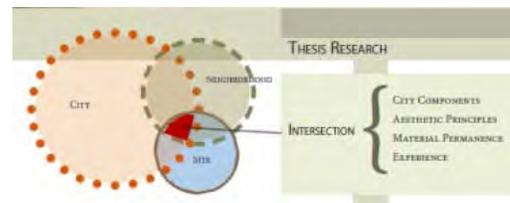


Figure 1: Overlap - Author's Diagram

with the buildings and their relationships to one another. Each structure has its own unique character that, in some way, links it to its surrounding neighbors, and they in turn correlate to the city to create an overall impression. Buildings are the “building-blocks”

of a city, and if they do not consider their surroundings, they denigrate the city. It is the objective of this paper to define these visual characteristics, analyze cities using them, and evaluate buildings employing them, and then apply them to my hometown of Helena, Montana.

CHAPTER II

DEFINING THE VISUAL CHARACTERISTICS

Defining the City Components/Layouts:

Let's first analyze the city some more, because it is a complex system of interwoven social, structural, economic and political layers. Without understanding these intricacies, the visual characteristics that are about to be defined would have limited value. Despite its flaws, the city has evolved with humans as they change their ideals and discover new technologies. It has gone from a simple clustering of "boxes" to a complex interlacing of buildings, streets and open spaces. Therefore, it is time to define the most common components of a city, their origins, and how they are used.

A city is comprised of very few elements used in enumerable ways. Kevin Lynch, author of "Image of the City," breaks these components into five types. They are paths, edges, districts, nodes and landmarks. He clearly explains each:

"1. Paths. Paths are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads..."

2. Edges. Edges are the linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of developments, walls..."

3. *Districts.* Districts are the medium-to-large section of the city, conceived of as having two-dimensional extent... which are recognizable as having some common, identifying character...

4. *Nodes.* Nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling... break in transportation, a crossing or convergence of paths...

5. *Landmarks.* Landmarks are another type of point-reference, but in this case the observer does not enter within them, they are external... building, sign, store, or mountain.”¹

In city planning, these five components are the essential ingredients, but not the dictators of urban form and function. There are two main influences in urban shaping. The first is geographical conditions. This includes topography, climate, and natural resources.² An example of this is Boston’s hilly peninsula surrounded with water. This sets the city as a vital trade port but it also creates an intense drive for more land. Land shape is a dictating force for the location of streets and buildings because it has to be economical. The second primary influence, and the most driving force, revolves around the inhabitants. Human intervention on city planning can be created through trade, politics, social powers and

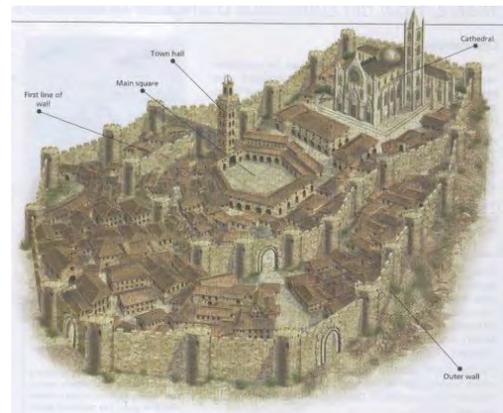


Figure 2: Medieval City

¹ (Lynch, 1970) pg. 46-48

² (Morris, 1994) pg. 10

religion.³ These have more of an influence over the form and the aesthetic quality. An example of this can be seen in the quantity of cathedrals in Europe. After the fall of the Roman Empire, the Christian church had power not only in the religious realm, but also in economics, social avenues and politics. They “took imperial administration districts as the basis of its ecclesiastical organization, each diocese corresponding to a civitas.”⁴ As a result, they had gained major influence, and people gravitated to them because of safety. The Medieval cities were fortified markets comprised of towers, gates, circulatory space, market place, church, general town buildings and private garden spaces.⁵ On the other extreme, the Renaissance was of a different mindset and strove for “worldly ideals, not to the transcendental; to the active, not to meditation; to clarity not to obscure.”⁶ As a result, they pushed beyond the city walls, and integrate balance and regularity into the city. They devised their ideal city to include the “primary straight street,” gridiron based districts, and enclosed spaces like plazas and squares.⁷ These two dictators of urban form, geography and human intervention, can result into two different types of city planning.

Planning of a city can fall into two main classifications determined by the citizens’ mentality; organic growth or deliberate planning. Both of these still consider their geographical constraints, but they are morph by different social, political and economic circumstances. Organic development can be easily correlated to medieval cities. These often have tight streets with densely compacted buildings forming sharp

³ (Morris, 1994) pg. 12

⁴ (Morris, 1994) pg. 93

⁵ (Morris, 1994) pg. 97-103

⁶ (Morris, 1994) pg. 157-58

⁷ (Morris, 1994) pg. 159

turns and unexpected open space. They are an “urban form which has evolved without preconceived planned intervention.”⁸ This isn’t a free-for-all design by happenstance. Organic growth is determined by the needs of the city at that particular time and place. Those designing may or may not consider future evolution. Each building would complete a need in the neighborhood and add to the ambiance. Planned city growth, on the other hand, is the opposite. It is a deliberate attempt to organize and conceive future development.⁹ This is where gridiron has had the most impact. Take New York City for an example. It was planned on a grid with larger rectangular blocks. Though it was a way to organize the vast population and business investments into a coherent system, it did not cater to the needs of the businesses and residents.¹⁰ As a result, the skyscraper was adopted with great gusto. Therefore, planning a city can affect the character and set the stage for future innovations.

Defining Aesthetic Principles:

As seen, the layout of five city components can have a great impact on the overall feel of the city based on just geography and the people inhabiting it. If properly used each component can give a unique base for which a defining atmosphere can be created. However, a human being can not just look at a city from an aerial perspective. This is a modern invention that has led many designers astray. Instead, the observer sees things from the street and expects a comfortable interaction with some if not all of the city components. In order to facilitate this, the highly prized aesthetic principles known

⁸ (Morris, 1994) pg. 10

⁹ (Morris, 1994) pg. 10

¹⁰ (Koolhaas, 1994) pg. 20

widely throughout art and architecture are used. They are: order, unity, proportion, scale, harmony, symmetry, balance, rhythm and contrast.¹¹

These traditional ideologies have been handed down over time to encourage beautiful streetscapes and other surroundings. Let's analyze the picture of Regent Street,

London below. This would be a prime example of Lynch's path. It is a street where people customarily travel to arrive at a particular destination. It is an asymmetrical composition. Its order is maintained through the rhythm of windows (blue tones in the picture), and occasionally broken by significant entry points (orange vertical). Scale of the first and subsequent stories obeys the golden ratio (red horizontal lines), and there is contrast created by the



Figure 3: Regent Street - Modified by Author

curved street. This scene and others do not have to exhibit all of the above principles to be successful, but should have a several working in concert. This street also has a sense of excitement and anticipation of what is around the corner, because of the perspective obtained through orderly facades.

Defining Material Permanence:

Material permanence is an experience that is both felt and seen. Its function in the city, whether it's architecture, sculpture or open space, has a direct impact on the

¹¹ (Moughtin, 1999) pg.25-59

observer. For example, imagine walking down a narrow corridor with tall walls and a light shining at the end. What material would you prefer: flush concrete walls, brick coursing, wood paneling or a mixture of all the above? The answer depends on the use of the space, the visual effect, and the desired emotional reaction (whether forbiddance or curiosity). In a city, the mixture of the region's vernacular materials is ideal. In Montana this is heavy timber, granite, and brick, but in Boston this is brick, brown stone, marble, steel and glass. Depending on your location within the city will also dictate a certain level of desire for a material. The building's function will also facilitate the choice. If you have a government building or a church more durable construction is desired because this personifies permanence and stability. But if you are building a house or a corner store, a more flexible and efficient material like wood is ideal. In this way, each building morphs the urban landscape into a tactile and visual experience suggesting the neighborhood's overall feel and ideals.



Figure 4: Trinity Church



Figure 5: House

Defining Individual Experience:

When discovering a space, the observer innately knows the feeling of a space even if he/she cannot define it. These emotions can range from fear to love to contentment, and the control over these has been the goal of architects since the dawn of design. This can be seen in Hildebrand's Biophilic Architectural Space. He searches for

architectural languages consistent throughout the ages, and describes the reoccurring ones that are in attractive buildings and spaces.¹² These repetitive features are good tools for analyzing cities and buildings because it provides a tangible understanding of our innate reactions. There are five types explained; *complex-order*, *refuge*, *prospect*, *enticement* and *peril*.

Complex-order refers to our desire to control but not be bored by our surroundings. Hildebrand states that our senses are constantly absorbing information, and therefore we are intrigued by settings that initiate our curiosity.¹³ Curiosity is best described by *enticement*.

However, it can't be thoroughly understood without first understanding *refuge* and *prospect*. *Refuge* is the urgent desire to find a safe haven or sanctuary.¹⁴ We create places where we are protected from the wilderness of nature. These are dark and small spaces. The opposite is true for *prospect*. Hildebrand describes these spaces as bright, expansive and revealing. These are the areas where we work, play and socialize, but they are also places of danger. Hildebrand states that we need a little bit of both *refuge* and *prospect*, and the amount of each can be

closely associated with female or male psychological needs. A male may want more *prospect* while a female may want more *refuge*. This simple break-down will

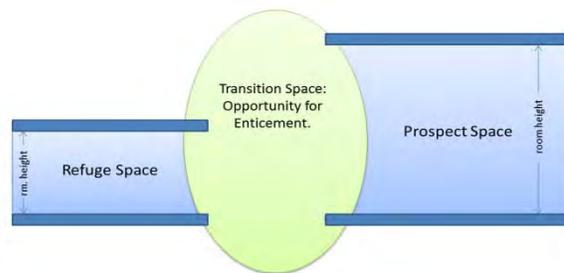


Figure 6: Prospect & Refuge - Author's Diagram

vary depending on the person and moment in time, but the concept still holds.

Hildebrand then describes these relationships in architectural form through Frank Lloyd

¹² (Hildebrand) pg. 263

¹³ (Hildebrand) pg. 264

¹⁴ (Hildebrand) pg. 265

Wright's house Falling Water. Here, the intimate spaces possess low ceilings with dark cozy atmospheres. These give way to airy, light public areas.¹⁵ It is in the transition zone where we encounter *enticement*. *Enticement* is the "promise that more information could be gained by moving deeper into setting."¹⁶ These three concepts are especially desired in city design, because it lures people into spaces different than their norm and creates an investigative movement throughout.

Peril is Hildebrand's last characteristic. It involves the emotions of fear and pleasure intermixed. It is the "thrill of the audacious experience."¹⁷ This can be experienced in nature as well as in buildings. Hildebrand relates peril to the Grand Canyon and the San Francisco Museum of Modern Art. The Grand Canyon is a deep



Figure 7: Peril

chasm cutting through the landscape. To best experience its magnitude, the viewer must move to the very edge of the cliff. The "oh my" feeling can overwhelm and give the thrill. The same exhilaration can be experienced on the glass bridge of the San Francisco Museum of Modern Art. To step onto "air" is

a challenge. Most human adults are skeptical and have little trust in materials. They often convince themselves of "the impossible" before the task is attempted. Chicago's Sear's Tower has a similar floor to the museum's bridge but it is on the 103rd floor. Some thrill seekers (daring adults) will step onto these platforms, but it is the children who enjoy them the most. They trust their surroundings and their initial response. They, therefore, experience *peril* and *enticement* in its purest form.

¹⁵ (Hildebrand) pg. 265

¹⁶ (Hildebrand) pg. 267

¹⁷ (Hildebrand) pg. 269

Hildebrand's five types are helpful in understanding city planning. People rave about cities with a sense of discovery. These are often old and traditionally built, but there are some modern ones as well. In the traditional cities, layer after layer of built form developed a complex web of oddities. These lure people to visit areas they would not normally dare. For example in Victoria British Columbia's Chinatown, there is a unique feature by the name of Fan-tan Alley. It is a narrow brick alley leading to a cluster of store-fronts. In any other location, this would be a deteriorated and dangerous back road. However, it is a clean, safe, welcoming and integral part of this Chinatown. Four of the five of Hildebrand's concepts are at work here. First, peril is present through misconception that all alleys are dangerous places. Next, enticement is prevalent through the promise of interesting shops and legitimizing sign announcing the safety of the corridor. Since the alley is narrow, refuge is present in an uncomfortable fashion. Most refuge spaces are comfortably through close proximity of walls and ceilings. Fan-tan alley does not have a ceiling but very close walls that contain you and force you through the space. As the alley widens for the shops, it provides the much needed relief, prospect, before it once again narrows to intersect with the street edge on the other side. In this way, cities are full of interesting experiences not only in the most public of spaces but also in more intimate and potentially serene locations.



**Figure 8: Fan-tan Alley -
Author's Photograph**

Thoughts on the Visual Characteristics:

Before analyzing the following case studies for all these visual characteristics in use, it is important to note that all four, with their individual requirements, must be used together! This is a lot of information, and it can easily overwhelm the observer. If one aspect overpowers the others, it can mean one of two things. The first is that the designer was solely focused on one aspect of the city. This can be seen in the layout of Brasilia, Brazil where the path component dominates (a below case study). Or secondly, the city has such a unique personality that requires to be handled in a particular way, though this is rare. It is also important to note that the combination of these characteristics does not hinder current/modern design desires. For example, Frank Gehry's Dancing Building in Prague (also a below case study) can complete the all four visual characteristics while still being a "crazy" design. These characteristics serve to enhance our understanding of the ideal cities and how buildings are the linchpin to this.

It is best to note that there are three cities and three buildings analyzed below. For the cities, there is Brasilia Brazil, Chicago Illinois, and Boston Massachusetts. Each city has a significant historic context written because cities are built over time. If a single snapshot is provided, then only one layer of the city is revealed. Likewise included for buildings is a brief description on why the structure was constructed. Many times a building can heal a scar that history created and could not resolve. The buildings studied are the Dancing Building in Prague, Olympic Sculpture Park in Seattle Washington, and the White House in Washington DC.

CHAPTER III

CASE STUDIES OF CITIES

Brasilia, Brazil:



Figure 9: Brasilia Aerial View

Brasilia, Brazil is often looked upon in the architectural world with skepticism for its lack of functionality and bland architectural form. It was designed and constructed during the Modernist era, and is deficient in what most people would consider essential to an ideal city. According to David Underwood, it is the “purist and most refined vision of modernist utopia to take actual form.”¹⁸ It is a useful case study for this paper because it simplifies the influences of politics on visual characteristics.

The political origins of Brasilia must be considered to fully comprehend the city’s shaping forces. After the devastation of the World Wars, Brazil gained its independence from European influences. They went from a “culture of colonial dependency” to a “modern urban society.”¹⁹ This began a frantic search for the nation’s identity which led to a quick adoption of Le Corbusier’s five points of architecture for Brasilia. Economic striation was very obvious. There was the very wealthy elite, and then there was the very

¹⁸ (Underwood, 1994) pg. 100

¹⁹ (Underwood, 1994) pg. 12

poor working class.²⁰ This can be seen in the aftermath of Brasilia's construction. Despite the fact that the new city could accommodate 500,000 people, the migrant construction workers were denied opportunity to live in it, and had formed the surrounding satellite cities.²¹ Those in position had little interest in the social milieu, and were more concerned with "showing off." This "showing off" was particularly a concern when came the country's position in the global economy. Therefore during Brazil's 1940-50 economic prosperity, President Kubitschek pushed the country into the future by promoting manufacturing and other economic changes. His best known accomplishment was the founding of Brasilia. This new city, located at the country's geographic center, would become its capital.²² Not only would it showcase the nation's recent achievements, but it would also encourage economic development. Therefore, President Kubitschek hired the names in the design world; Lucio Costa, urban planner, Oscar Niemeyer, architect, and Roberto Marx, landscape design. When completed, it was to be "unveiled... as if it were without a history of construction and occupation... it [the government] planned to reveal a miracle: a gleaming city, empty and ready to receive its intended occupants."²³

Brasilia is designed with city components as the central focus. The most overriding one of these is path which acts as the main organizing element. Shaped like airplane to symbolize progress, its

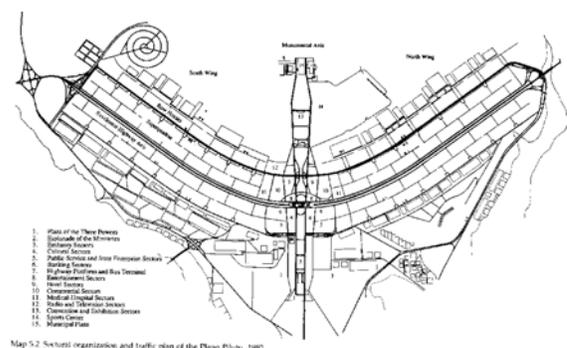


Figure 10: Roads & District

²⁰ (Underwood, 1994) pg. 93

²¹ (The History of Brasilia)

²² (The History of Brasilia)

²³ (Underwood, 1994) pg. 102

central axis (the vertical element in the picture) is the head of all government activity while the “wings” accommodate residential complexes. These are connected with a central vehicular highway system perpendicular to the government axis.²⁴ The use of path defines the edges and districts of the city. Landmarks, another city component, are also very prominent. In the case of Brasilia, their landmarks are their monumental buildings. These include the National Congress, the Ministry of Justice and Metropolitan



Figure 11: Monuments Dispersed

Cathedral. Located in a wide open space of tropical Brazil, they are all located in the central axis. While this creates is good functionally, the quantity of buildings with “presence” in combination with the excessive

open space essentially belittles the impact each building possesses. Monuments need space to make their presence known, but they also need context of surrounding buildings to accentuate their “greatness.” If you looked at many European cities, the most beloved have their monuments within a neighborhood and not isolated. Having these structures within people’s normal daily activities suggests a relationship with the government, but this does not seem to be the case in Brasilia. Landmarks also serve as important way-finding elements within a city, another thing Brasilia lacks. Therefore, dispersing their landmarks with nodes would re-engage some more of the visual characteristic common in good cities.

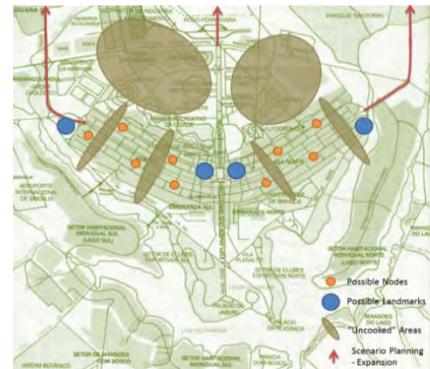


Figure 12: Nodes and Landmarks - Modified by Author

²⁴ (The story of Brasilia's History and its place in the modern world, 2007)

The variety of material permanence, another visual characteristic, is limited in Brasilia, and this is due to the speed in which it was completed. Finished within forty-one months (1956-1960), Brasilia is a modern marvel.²⁵ Very few buildings can be built within a timely one to two years, and this city was created within a very short period. It was the first new city to be erected from scratch using contemporary principles, and this can be partially accredited to concrete. This material is inherently malleable, and it is composed of local resources. Since most of Brasilia's construction workers were unskilled, it was important for the buildings to be easy to erect.²⁶ It is also possess the quality of permanence. This, however, is used so often in Brasilia that it creates a "same-oh, same-oh" experience whether you are in the government axis or in the residential wings. Diversity of materials catches the eye of the observer. If there is a large quantity of material used, then a different material will become the focus of attention. This should have been considered in Brasilia's planning and construction, but Modernists were keen on sleek clean lines.



Figure 13: Cereal Boxes

Aesthetic principles in Brasilia follow those ideals of the Modern Era. The Modernist believed simplicity and functionality. Repetition, unity, and pattern are fulfilled in both the city layout and in the buildings themselves. Yet, this rhythm is cold and impersonal to those residing there. This is strange, because Costa and Niemeyer

²⁵ (The History of Brasilia)

²⁶ (Underwood, 1994) pg. 92

advocated the study of the local baroque architecture for their composition and recommended studying their basic symmetric components. In other words, they were interested in the visual characteristic of aesthetic principles, but desired them in a modern way. A single building in Brasilia has scale and rhythm present, but lacks consideration for the surrounding environment and other buildings. Their relationship to one another is void, because the aesthetic principles do not spill into the street expression or influence other buildings. A neighborhood is a series of straight lines producing a repetition of “cereal boxes.” Though this could have an appealing aspect, it was not used to its best extent, and ultimately created separate entities competing for attention. This neglects the “pleasure” of discovering the city.

Brasilia strict use of city components directly affects the individual’s experiences indicated by Hildebrand’s five characteristics. His first is *complex-order*. Humans want order, but too much of it will bore us. Brasilia easily fulfills order but not complexity. The overwhelming use of city components of “path” helps define edges and districts, but the overly careful layout and building design diminishes the overall appeal. These



Figure 14: Aerial View

buildings are set to oppose one another, and though this looks good from an aerial perspective, it creates vast quantities of *prospect* space. The lack of *refuge* and *enticement* leaves sterile and void environments. People need these characteristics, but do not get them unless they enter the government axis. Costa and Niemeyer recognize this innate human desire to explore, and produced these experiences in the National

Congress, the Ministry of Justice and Metropolitan Cathedral. These landmarks of Brasilia have an “excessive tendency toward originality.” This was Niemeyer’s specialty and the main reason he was hired. The elite wanted “showy and novel creations,” and he was the man. Niemeyer wanted to “rework classicism to capitalize on the interaction between pure sculptural objects and dramatic physical context.”²⁷ The Ministry of Justice tries to exhibit *enticement* by its two building layers directly interacting with beautiful green and water. This space acts as a shading device and cradles the delicate glass structure within its throngs. Another of Hildebrand’s concepts is featured in the Metropolitan Cathedral. *Refuge*, a protective haven, is evident in the ramp descending into the structure. All three of these monuments are very distinctive presence on the landscape.



Figure 15: Ministry of Justice



Figure 16: Metropolitan Cathedral

By analyzing Brasilia, it is obvious that political influences affected the implementation of the four visual characteristics in the overall design and appearance of the city. Emphasis was placed on Modern layouts of city components and exceptional building design, but not enough on a comprehensive city approach. This entails the city environment to interact and engage the human senses in some manner. It is important to keep a city active and diverse on a regular rate. This is not so in Brasilia. While Brasilia has a very distinctive identity through the uniform materials and layout, an observer is unable say that this is a “beautiful” city.

²⁷ (Underwood, 1994) pg. 16

Chicago, Illinois:

Let's now look at Chicago. It is always changing and has experienced a variety of renovations to its original city plan. These changes occurred due to natural and sanitary conditions caused by the progressive growth that occurred in the 19th century and early 20th. Unlike many of its predecessors like New York and Boston, Chicago was built in an "all-firey-hurry." There was no time to wait, and no time to second guess. Land was a premium, and it was taken advantage of just as quickly as any other resource. Innovation was the key to any success, and it had to be big. Chicago made no little plans but flourished in creating everything in large scale. Whether it was rebuilding after the Great Fire, constructing the World's Columbian Exposition, or developing Burnham's Plan, it would tackle any project with gusto. This provided the essential flavor that distinguishes Chicago, and it is this essence that makes this city important in our analysis. Whether in building or repairing, this city transformed itself from a quiet trade post into a hectic city through the implementation of our four visual characteristics.

Chicago began as a small fur trade post in 1772, and continued mostly unnoticed until the introduction of Fort Dearborn on the Chicago River in 1803. The fort protected the western edge of the newly established United States of America, and ensured safe passage along the Mississippi and the Great Lakes.²⁸ Increasingly, Chicago became a hub



Figure 17: Chicago Fire

²⁸ (Zukowsky, 1987) pg. 15-17

for trade and cattle slaughter, and in 1785, the Northwest Ordinance established a quadrangular grid on the flat land that would become Chicago. It wasn't until the 1860s, when the railroads connected the south, east and west coasts, that the city exploded. Initially, balloon framing was the building technique essential for the rapid growth, but as land became more economized, construction of steel/iron masonry buildings became vogue. This type of construction allowed for more stories than the traditional wood frame. The Chicago Fire in 1871, however, temporarily stopped everything. Two thousand acres of the city was destroyed.²⁹ Yet, as with everything in Chicago, this did not slow the people down very much. "After a brief period of shock... businesses sprang up in sheds and stands among the ruins, and traffic started moving again."³⁰ Chicago's entrepreneurial mindset was still alive and strong. They removed the rubble and pushed it into the nearby lake to create new real estate, while setting up little shanties all across the city. The most notable of these was Kerfoot Block. William D. Kerfoot owned a real estate business that burned, and the day after the fire, he reopened in a booth with a sign "All gone but WIFE CHILDREN and ENERGY." He had faith in himself and his city, and ultimately summed up the spirit of Chicago.³¹ This "undaunted determination" brought about innovation in fire protection. While many buildings were re-erected identically to their pre-fire predecessors, the structural steel or iron was now safely behind layers of oak (hard wood to burn), concrete or plaster-of-paris. Later, the Otis

²⁹ (Zukowsky, 1987) pg. 16-18

³⁰ (Fuller, 1965, 1895)

³¹ (Fuller, 1965, 1895)

elevator set the stage for tall office buildings or skyscrapers recognized for their design by the Chicago School of architects.³²

A significant change occurred to Chicago over a period of decades through the application of Burnham's city plan. Burnham, like many architects of his day, was fascinated with European city design, and wanted to implement these design elements into Chicago.

As a result, he became the father of the City Beautiful Movement. The City Beautiful emphasized the "ceremonial" procession of an individual through the built environment to a



Figure 18: City Beautiful

particular point or space.³³ In other words, the individual experience (one of our characteristics) was very important. This meant using city component of landmarks and nodes, referenced by Lynch, at the end of long paths with great vistas. It also included the aesthetic principles of repetition, order, rhythm and symmetry. Burnham had a right to be interested in these kinds of design elements. Having grown up in Chicago since 1854, he was well aware of the filth and grime caused by the "self-interested speculation" and "uncontrolled development."³⁴ He was of the opinion that "Lack of planning had wasted time, effort, and money, and ignoring sanitary precautions had compounded this waste by causing avoidable health problems."³⁵ Therefore, it was time to give Chicago a new life. The Chicago Plan of 1909, also called the Burnham Plan, was an overhaul on Chicago's current state. It addressed not only infrastructural and sanitary issues, but it

³² (Zukowsky, 1987) pg. 18-19

³³ (Hines & Abbot, 1974)

³⁴ (Hines & Abbot, 1974)

³⁵ (Hines & Abbot, 1974)

provided an avenue to which future growth could occur in a more civilized manner. World's Columbian Exposition of 1893, designed by Burnham, was greatly loved for its classical techniques, and as a result, gave him the credentials to revise the existing Chicago grid.

True to the ways of Chicago, Burnham is quoted to say: “Make no little plans, they have no magic to stir men's blood. ... Make big plans.”³⁶ And he did. The Chicago Plan is a masterpiece of planning transposed over an existing grid to give relief to a hectic city. It created boulevards, vistas, nodes, landmarks, and monumentality. It took what the city already had, and improved its functionality, aesthetics and its sense of



Figure 19: Burnham Plan

discovery. The first, and probably most controversial, of these changes was the relocation of certain buildings in order to widen Madison Avenue, the main thoroughfare. It essentially became a “primary straight street” reminiscent of the Renaissance. Additional diagonal paths sliced through the gridiron to bring outlying parts of the city to the government and commercial center. A major change, though, was the amount of open space creating vistas and preventing excessive clustering. Though Chicago had some parks, they were disappearing or in bad repair when Burnham created his plan, and therefore he redesigned their locations and significance. They provided the much needed landmarks for way finding through the traffic chaos and heavily clustered buildings. Peninsulas were also extended into the bay for more real estate and framing of the

³⁶ (Hines & Abbot, 1974)

water's edge.³⁷ Altogether, this was a very comprehensive plan that has been in adoption for many years.

Despite continual campaigning, the Burnham's Plan for Chicago has yet to fully implement while it is widely used elsewhere. Chicago did finalize a couple major items. Madison Avenue was widened, and some diagonals streets have connected other parts of the city. Grant Park now spans the edge of Lake Michigan, with one peninsula jutting out into the water. The Chicago River was also straightened and adjusted for sanitary reasons. New York, though, has used this plan more than Chicago. It adopted the zoning ordinances and devised a regional planning using similar, but better, land use patterns from Burnham. Other leaders in architecture and urban planning have also used it to improve a variety of cities throughout the Northeast.³⁸

However, not all people have liked the Burnham's City Beautiful movement. Sullivan, in reference to the World's Expo of 1893, "saw its influence as a virus that would afflict American architecture for 50 years."³⁹ He was after a uniquely American culture, uninfluenced by Europe. Mario Gandelsonas, in his book X-urbanism, comments "America will not be just a 'sense of the future' where Europe will project its fantasies, but also an urban laboratory for those who wanted to build a new society."⁴⁰ American cities were notorious for their "ugliness" and many planners struggled with viable solutions. The City Beautiful movement therefore sought a balance between American and European principles. They thought "...maturity would consist in an

³⁷ (Hines & Abbot, 1974)

³⁸ (Hines & Abbot, 1974)

³⁹ (Hines & Abbot, 1974)

⁴⁰ (Gandelsonas, 1999) pg. 21

acknowledgment that America was not culturally isolated from the rest of the world.”⁴¹ While a lot of loved cities are reminiscent of the European style, the four visual characteristics are not isolated to this kind of architecture. The observer could explore Ancient Egypt or modern day Cairo and see these basic categories in operation but with a different style. This is a flexible pattern rather than one size fits all.

The alterations to Chicago were based on the four visual characteristics. Despite the discontentment of some scholars and skeptics, these changes had significant impact on not only the city itself, but also the buildings. While the malfunctioning gridiron was addressed, the Chicago School of Architecture paved the way for a new architectural form, the skyscraper. This again proves that the observer innately understands the four visual characteristics and will try to improve their city in accordance to them.

⁴¹ (Hines & Abbot, 1974)

Boston, Massachusetts:

Boston is the last case study for cities. As one of America's most photogenic metropolitan cities, it has rhythm, scale, proportion, and style. It is surrounded mostly by water, and yet has grown exceedingly over its lifetime. Unlike many American cities, Boston's inception began before the push of the industrial age, and is one of the few colonies that made it into maturity. As a result, it has not only an organically applied medieval layout, but also a gridiron. Boston is a unique example, therefore, of city components, aesthetic principles and material permanence in performing in simultaneous harmony with Hildebrand's characteristics.

Boston was first established by the Puritans' who wanted religious freedom from the King of England, but didn't want to completely sever the connection. This was achieved by the Massachusetts Bay Company which brought thousands to America under the pretense of cultivating trade with the new colonies. The Puritans wanted to become a biblical example of what a country could be if ruled according to scripture. This was during 1629.⁴² Since they didn't want completely sever connections with England, they catered to the architectural principles of the time. Boston's initial city design began in an "organic" or non-planned development. As mentioned before, organic means little preconceived outcome while still remaining subject to geographical influences and human intervention. These include topography, climate, natural resources, trade, political and social powers, and religion. The majority of the city was developed under these

⁴² (Lambert) (Wieneke)

influences. P. Aberckombie states that Boston “naturally divides itself under three aspects - parks, architecture, and transport.”⁴³ The city component called path is a major ingredient in Boston’s city evolution. As a trading post, it is surrounded by water on three sides and originally had three hills.⁴⁴ Consequently, the streets wind through the topography from the coast line to the center of town where the Government Center now resides. These radial routes were the basis of the town, and later were filled in with appropriate governmental, commercial and residential occupations. This gave Boston the resemblance of “an English town” with “picturesque haphazard” layout.⁴⁵

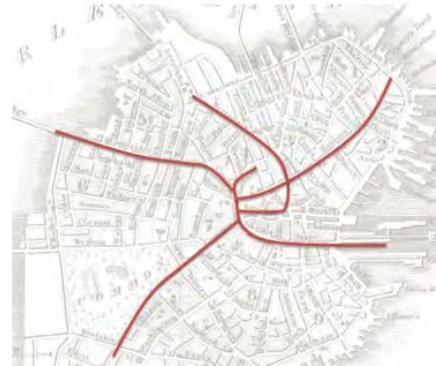


Figure 20: Boston Road Layout – Author Modified

Landmarks and nodes are directly but not completely related to Boston’s thriving religious sect. In the small peninsula of Boston, there remain at least eight churches. This is due to the puritan’s strong belief that a country should be ruled by biblical scripture. Historically, churches contribute to a cities identity. Their style often reflected the values and styles the inhabitants, and the most notable part is the steeple. Cliff Moughtin states that “one church spire when seen in the general landscape presents a unified picture” which is often the case as when using them for way finding.⁴⁶ However, Boston has multiple churches. Moughtin states that multiple spires don’t bring confusion but rather a repetition creating a “unified theme” and a “balanced composition.”⁴⁷ Boston

⁴³ (Aberckombie, 1911)

⁴⁴ (Lambert) (Wieneke)

⁴⁵ (Aberckombie, 1911)

⁴⁶ (Moughtin, 1999) pg. 35-36

⁴⁷ (Moughtin, 1999) pg. 35-36

has a variety of church styles, including a classical basilica (King’s Chapel) and colonial parish (Old North Church). Later, Richardson added to diversity when he built his Romanesque Trinity Church in Back Bay District. Churches are not only landmarks but also nodes. Nodes are “conceptual anchor points” that “can be entered.”⁴⁸ Landmarks are nodes except the observer cannot “enter.”⁴⁹ In Boston, these are used simultaneously, giving resting points throughout the city. The Old North Church is a landmark in the North End with a plaza stretching to the street. The plaza with the statue of Paul Revere serves as a node where people can gather. Boston Commons is similarly set up. It is in the shadow of the State House situated on what is left of Bunker Hill.⁵⁰ The gardens are filled with statues and fountains serving as markers.



Figure 21: Notable Church Locations - Author Modified

The development of the grid came as the Boston’s Back Bay was in-filled and began the first resemblance of urban planning. But even this obeyed the four visual characteristics. Boston’s original land mass was exceptionally smaller than current day, and as population increased, land became more valuable. Therefore, the native hills were excavated to create infill. This had a direct impact on several defining features. Pemberton and Mt Vernon were “scrapped



Figure 22: Hill Excavation

⁴⁸ (Moughtin, 1999) pg. 89; (Lynch, 1970) pg. 47

⁴⁹ (Lynch, 1970) pg. 48

⁵⁰ (Wieneke)

flat” and Beacon Hill was lowered fifty feet.⁵¹ The State House (the one with the gold dome) was then built on Beacon Hill. The dirt was then transported to the coves, and this kind of procedure continued as more land was sought.⁵² The Back Bay however, needed more than what could be provided by the already depleted hills. This extensive project was done during 1820-1870, and filled 580 acres of uninhabitable salt marsh. It took



Figure 23: Boston Infill

“Nine train cars loads of gravel arrived every 45 minutes, day and night for nearly fifty years” from Needham Heights.⁵³ Subsequent heavy buildings had to design their foundation to meet bedrock as a result. It was in this area that the grid first made its appearance in Boston. The creation of Boston’s famous Commonwealth Ave and row houses came as a direct impact from the strict architectural regulations of Arthur Gilman and Gridley Bryant. The emphasis was to develop an “upscale Paris neighborhood.” This attracted influential Bostonians, and today is still a vibrant and fashionable place.⁵⁴ It is however more conducive to the automobile and not for the pedestrian. Yet, even with the gridiron, Boston still included landmarks and nodes. These include a variety of museums, plazas and green spaces that span nearly into Brookline. During the decline of cities in the 1960s, Boston officials focused on quality of education, social activities, their

⁵¹ (Wieneke)

⁵² (Lambert)

⁵³ (Wieneke)

⁵⁴ (Back Bay) (Back Bay)

history and revitalizing the harbor.⁵⁵ It was imperative to create a functional business and social city, and thus many of the above spaces were further developed to fulfill their objectives.

Architecturally, Boston continued to cater to the aesthetic principles of England in its civic and religious buildings. This can be seen in the Old State House originally built in 1657. It housed the stockades and the first trading floor of the city. Situated near the harbor, the original wood structure had a medieval flare, but it burned. It was replaced in 1747 with a distinct High Georgian style with brick, pediments, ornamentation, and symmetry. Rebuilding out of these materials suggested permanence as well as British architecture rather than American. Continued land infill repositioned the Old State House inland, and as a result, it became the center of social and civic activity rather than trade.⁵⁶ This kind of change was and still is common throughout Boston.

The anticipation and curiosity for discovery, the individual experience, is very prevalent in Boston. This makes it a well-loved city. It not only has the old principles of scale, proportion and repetition, but also has a great juxtaposition between the modern day skyscraper and traditional architecture. Walking downtown Boston can get dark and rigid between the tall



Figure 24: King's Chapel

buildings. However, the unexpected relief and surprise can occur around any corner. The King's Chapel exhibits the above. Built in 1754, it was the first chapel in Boston to

⁵⁵ (Wieneke)

⁵⁶ (Lambert) (Wieneke)

be constructed from granite. Its Ionic colonnade flanked by two story arched windows symbolized loyalty to the crown during a time when America was beginning to split from England.⁵⁷ Today however, it creates scale through repetition and proportion easily relatable to the city's inhabitants. It is also perfectly suited to be among the surrounding skyscrapers. Due to its missing steeple, it has the combined experience of prospect and refuge. As a smaller building, it opens space while providing a breather from the towering walls. Further discovery can be experienced in places like Quincy Market. This bar shaped building is one of three markets facing the harbor. It is flanked by skyscrapers, and is a big social gathering location. Prospect and refuge are also here, but enticement is generated through shopping and other interesting activities.

Boston continues to use basic city component, aesthetic techniques and material permanence to facilitate individual experience. As a result, it's medieval and grid layouts are compositionally strong, and express its unique identity. This is what Brasilia and Daniel Burnham were searching for in their designs. These principles in concert have the potential of creating spaces worth exploring while still maintaining efficiency and adaptability.

Thoughts Drawn from Cities for Buildings:

By evaluating Brasilia, Chicago and Boston, it is obvious that a functional and beautiful city is the result of the combination of our four visual characteristics. These are city components, aesthetic techniques, material permanence, and individual experience.

⁵⁷ (Wieneke)

These can be applied to buildings of all sizes on the exterior and interior for an outcome harmonious with its surrounding city. It is no longer acceptable for a building to be master pieces ignorant of the history of the neighbor and the city in which it resides.

Buildings can be viewed as mini cities. They have infrastructure (plumbing and wiring), paths (or hallways), nodes, landmarks (i.e. atriums), districts (rooms) and edges. This means buildings are only an extension of the city itself, and should be treated with forethought. In his book How Buildings Learn, Stewart Brand focuses on the adaptability of buildings. He states that the older buildings get, the more they are loved by their occupants and by the city/neighborhood they reside. This is due to the continual change they endure. Each individual building is never a stand-alone project. It should always include its context and relate to the city in some way. After all, the success or failure of a project can result from the site's surroundings. Often architects see projects as monumental objects in a void. This lack of consideration for the immediate neighborhood was one of the highlights of Modern and International Architecture, and still remains (to a certain degree) in our design strategies today. However, these singular projects will ultimately become part of an urban form. The combination of buildings and the surrounding spaces are the foundations of a city. It cannot exist without buildings, and buildings are meaningless without it. They are inseparable. So if every building in the city magically disappeared, what is left? There would be streets, parks/green spaces,

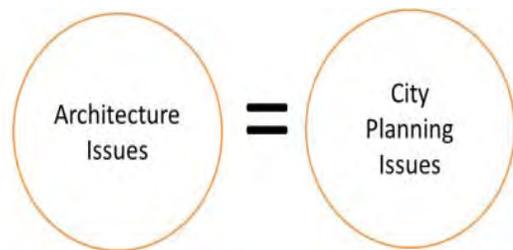


Figure 25: Architecture and City Issues - Author's Diagram

and infrastructure, but the contextual meaning would be lost. Therefore, a city's building inventory is elemental to its physical character and psychological personality.

If cities and buildings are so invariably linked, how will this impact the world of design? It is apparent that cities and buildings are directed, sometimes uncontrollably, by the client. This is sensible on an economic scale. After all, funds must be required to build or improve any structure. However, the lack of comprehending a city's needs and the impact of individual buildings is more of an issue. Since, both desire efficiency and an enticing environment, buildings should therefore be inherently designed to fulfill the gap or need within a city. This is why it is important that architects and city planners should work together to renew blighted areas.

In the following case studies, three buildings will be analyzed for their interactions and improvements to their respective cities. Each project is impacted by its surrounding, and it is reflected in its form, function and aesthetics.

CHAPTER IV

CASE STUDIES OF BUILDINGS

The following case studies were each chosen to represent how buildings can affect cities positively, and how the city can influence the shape and appeal to buildings. This is done using the four visual characteristics, and where applicable, these principles will be used to evaluate their performance. For the Dancing Building, its importance is the unification of Prague's city layout while being innovative in design. Olympic Sculpture Park heals a blight section of Seattle, WA while creating experience and pedestrian circulation. The White House, however, takes our four visual characteristics and expresses them not only on the exterior but the interior as well as. By studying these three case studies, we can see the interrelation between cities and buildings, and vital good thoughtful design is to both. This will establish a good framework to move into application for Helena, Montana.

Dancing Building: Prague



The Dancing Building fills the gap in Prague's harbor district left by the destruction of World War II. It is designed by Frank Gehry, and he is known for his very distinctive structures. Therefore, at first glance, this unique form doesn't seem appropriate in a traditional Renaissance city. Yet, it is

Figure 26: Dancing Building

the building's contrasting nature that stitches the surrounding neighborhood and reunites the district's edge. He uses aesthetic principles and individual experience to successfully blend this unique structure into a traditional setting and heal a broken edge.

During the World Wars, many cities in Europe were destroyed and Prague was no exception. There was devastation everywhere, and as the American writer Kurt Vonnegut observed the “confusion and total disorientation in a world of ruins, where just hours ago the houses and homes had been.”⁵⁸ Photographs of the 'new' cityscape included multi-perspective vistas through buildings to the countryside, “free-standing facades and chimneys,” and structural framing exposed and twisted into “bizarre sculptures.”⁵⁹ These terrible memories of the war were promptly replaced with exact replicas of the original buildings. In fact, most of Europe's building inventory is comprised of structures of fifty years or younger, and Prague was no exception.⁶⁰ However, one site in this city was not cleaned up. This is the site of the Dancing Building. Originally, it possessed a Neo-Renaissance house from the end of the nineteenth century. Destroyed in 1945, the remains weren't removed until 1960. The ex-president of the Czech, Vaclav Havel, used to live in the area as a child, and in the 1990s, he formed a partnership with ING Bank to rebuild the site. They both wanted an iconic structure, and commissioned Frank Gehry to do the design. The construction was completed in 1996.⁶¹

⁵⁸ (Pesch)

⁵⁹ (Pesch)

⁶⁰ (Pesch)

⁶¹ (Dancing House)

The Dancing Building's unusual shape is Gehry's deconstructive interpretation of the famous dancing couple of Ginger Rogers and Fred Astair. When it was first erected, the citizens of Prague were quite disturbed and a controversy broke out. The arguments ranged from its nonconformity to the traditional surroundings to its complicated technical solutions.⁶² However, the main discontentment of Dancing Building was around the memory of the horrible war. Deconstructionist architecture implies destruction, and "recreates [the] effects of destruction."⁶³ Therefore, it was hard for the inhabitants of Prague to ignore. What the citizens really wanted was:

*"To fill a gap like this with a building 'restoring' a unity of style...and to reconstruct a 'historical' ensemble, negates the recent history of this location and pretends that 'nothing has happened... memories of the war were to be erased as fast as possible.'"*⁶⁴

However, Gehry's design was a harsh reminder, because the whole essence of the Dancing Building is a memorial to the war. It even has a mini replica of Hiroshima's A-bomb dome on its roof. This was needed in Prague though it was not immediately recognized. After a stream of tourists continually visited the site and ten long years of debate, the city has now celebrated the Dancing Building. It was commemorated in the

⁶² (Dancing House)

⁶³ (Pesch)

⁶⁴ (Pesch)

Czech National Bank's "final coin of the series '10 Centuries of Architecture.'"⁶⁵ It also won an award from the American Times magazine for the Design of the Year in 1996.⁶⁶

The Dancing Building unifies Prague's streetscape and finishes the district's edge. Each block in this district of Prague contains a distinctive ring of buildings surrounding a courtyard. In the Dancing building's block, this pattern is disrupted by a missing corner. This corner is very prominent to not only the waterfront but also by the roads and bridges coming into this neighborhood. This location need filling, and now, due to the construction of the Dancing Building, it serves as a landmark.



Figure 27: Component Map - Author's Modification over a Google Map

The experience created by Gehry is not only wild but also cognitive of the aesthetic principles of the surrounding neighborhood. In using *enticement* and *peril*, Gehry captivates the observer. *Peril* is obvious in the sharp angles and the leaning elements. Slanted glass and concrete excentuates the inclined structure, and produces an uneasy yet thrilling experience. This creates an unusual vista from the harbor and street. The Dancing Building promises of *refuge* within its walls (especially from it's own leaning columns). *Enticement* happens

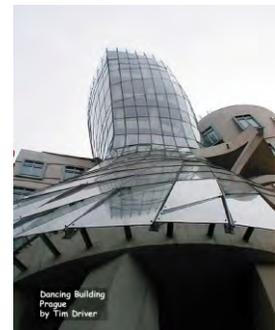


Figure 28: Leaning

in the space created by the wide open areas and more secluded zones. It also happens in the space around its angled columns. There is an irresistible urge to look up, and wonder

⁶⁵ (Dancing House)

⁶⁶ (Dancing building Ginger and Fred on Rasinovo Nabrezi)

how this structure is standing. Despite these bazaar experiences, the Dancing Building connects to the neighborhood by aesthetic principles, especially the use of repetition. Amazing enough, its erratic window placement continues the historic window alignment of the surrounding buildings and creates visual continuity. Likewise, Gehry maintains the spacing of the vertical window alignment within acceptable proportion to other buildings. This is an



Figure 29: Visual Continuity - Author Modified

accomplishment especially since there are ninety-nine concrete panels with different sizes and shapes to create two torqued torsos of Fred and Ginger.⁶⁷ This varying window patterns produces a unique way to continue the local vernacular without impeding creative license. As a result, there is constant tourist attraction that has encouraged the construction of lodgings and transportation within the area.⁶⁸

The Dancing Building is an memorial to the World Wars that has completed and complimented Prague's harbor district. As a result, it brings a healthy remembrance into the local culture, while unifying the urban fabric with two of the four visual characteristics. It even has provided new economic opportunity. While deconstructive architecture can be very potent in large quantities, this special touch brought excitement to an already well-loved neighborhood and city.

⁶⁷ (Dancing House)

⁶⁸ (An Innovative and Architecturally Stunning Building)

Olympic Sculpture Park: Seattle, WA

While the Dancing Building provided for an immediate streetscape solution, Seattle's Olympic Sculpture Park unifies the cities in a more complete fashion. It is a prime architectural example of how to create better urban environments through buildings. This is a reoccurring trend in today's market, and many American cities are encouraging this kind of architecture by infilling blighted areas. These buildings respect the current urban form, re-establish pedestrian connections and create public green spaces. The Olympic Park exemplifies these current goals and demonstrates the visual characteristics in a modern but aesthetically pleasing way.



Figure 30: Olympic Park

A city's form depends greatly upon the ideals of its citizens. It will be either carefully planned, partially planned or allowed it to grow organically. In the United States, rapid growth has been favored and this resulted in employment of the gridiron to prevent American cities from becoming absolute messes. The Land Ordinance of 1785, which established the grid as the norm, affected all new cities including Chicago and Seattle. There was generally no alternative to the adoption.⁶⁹ As a result, the US "missed out on the stage in [our] evolution which could have provided a unified historically centre-city..."⁷⁰ The grid also created uncontrolled outward expansion that has generated

⁶⁹ (Morris, 1994) pg. 335

⁷⁰ (Morris, 1994) pg. 364

multiple “city centers” with little unification beyond their highways.⁷¹ Infill projects, like the Olympic Park, are rectifying this problem. They are “snapping” the city back together and creating districts appealing for the new generation. In the case of the Olympic Sculpture Park, this provides a pedestrian walkway in simultaneous harmony with a modern art museum.

Olympic Park is an art museum located on the edge of Seattle’s Downtown. Finished in 2007, it is located on three parcels of land sliced with a railroad and busy roads. It was a brownfield (a contaminated site) because of an oil transfer facility. As a result, it was the last waterfront property to be developed in Seattle.⁷² The surrounding downtown is famous for the Myrtle Edwards Park, the Spaghetti Factory, and the Space Nettle. Therefore a design of cultural significance was needed. The site has a forty foot drop with a great view of the Puget Sound, the city skyline and the Olympic Mountain range. It also has access to a bike trail along the water’s edge. The creation of a pedestrian connection from the downtown to the water was logical and would capitalize on the site’s assets.

The Olympic Park respects the existing city components/layout of Seattle while providing unique character. It is a wholesome design considering multiple different facets of needs for the city. In the conceptual sketch of the initial museum proposal

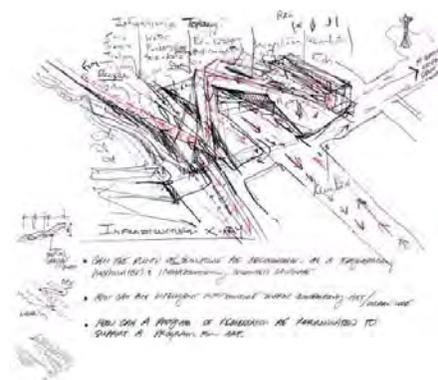


Figure 31: Olympic Concept Sketch

⁷¹ (Gandelsonas, 1999) pg. 37

⁷² (Olympic Park)

there are multiple notes of site conditions, design ideas, environmental protection and city context are considered. A small Space Nettle is even featured in the upper right hand corner along with fish down on the left. It is obvious that the architects wanted to not only connect all three land parcels but also the landmarks of the city. Therefore, the streets could not be ignored. Since Seattle is a giant gridiron connected with vast networks of highways delivering people in and out of its suburbs, Olympic Park's final design had to prevent any interruption by bridging over the existing railroad and busy roads. It accomplished this in a Z-shaped pattern allowing ample room for vehicular height restrictions while providing pedestrian accessibility to the water's edge. "The strategy of Weiss/Manfredi to design a park that crosses and connects



Figure 32: Over Roads

Seattle's urban fabric without denying the energy of the heavily trafficked area running along the waterfront deserves special credit."⁷³ This praise from the Harvard Graduate School of Design was given while presenting the 9th Veronica Rudge Green Prize in Urban Design to the architecture firm Weiss/Manfredi. Harvard was impressed by the architect's sensitivity to the site's traffic realities and using it to enhance the modern art experience.

Like many cities in the US, Seattle lacks good public green spaces which are important for individual experiences and aesthetic principles. Without them, cities become an overload with hard lines and constant movement. Olympic Park fulfills some of this need by becoming the visual relief. Aesthetic principles are present in the

⁷³ (Olympic Park) second one

selection and arrangement of the vegetation and sculpture used in the landscape design.

Olympic Park uses the modern art collection to not only define paths and accentuate artistic experiences, but also to create rhythm, repetition and a variety of scale. Art pieces include Serra's The Wake and a pair of eyeball benches. While the city maintains the aesthetic principles,



Figure 33: Art & Nature

Olympic Park's landscaping is juxtaposed against the hard city skyline, and softens it through regular clusters of trees and plantings. The park cultivates of three different "archetypal landscapes of the northwest." These include densely covered evergreen forests with ferns, deciduous forests of Quaking Aspens, and tidal terraces for salmon habitat.⁷⁴ Marion Weiss states, "The design's vibrant terrain is intended to emphasize and interplay with the things unique to Seattle – rain, mist, reflection – in a series of interconnected precincts."⁷⁵ Olympic Park is part of a reoccurring trend to develop green spaces within cities to soft and enhance their urban fabric.

The Olympic Park uses the visual characteristics to respect the current urban form while establishing unique experiences along a green pedestrian connection. This kind of designing is holistic to the city while attentive to site conditions. As a result, this kind of development encourages new speculation on what a building can accomplish for both the city and for itself.

⁷⁴ (Olympic Park) last one

⁷⁵ Ibid

White House: Washington DC



Figure 34: White House

Olympic Park is very in-tune its surrounding city, but lacks the visual characteristics within the main building. Therefore, it is essential to look into a building that has internalized these concepts throughout its life-time. The White House is one of the monumental structures of the nation's capital, and it is the official home of the president.

Depending on the president and first lady, the building has experienced constant change throughout the years in order to meet their desires. Therefore, it is a great example of how a building can change over time while still using the visual characteristics learned in this paper.

Pierre Charles L'Enfant's 1791 city plan of Washington DC was elaborate. It applied all of city components, aesthetic principles, material permanence and individual experience into its vast vistas. Each building in his plan was significant in size and grandeur, including what he called the President's House or the White House. The home of the president was to be a "palace" five times larger than what was really built.⁷⁶ George Washington, however, wanted a smaller dwelling and being a pious man, he insisted upon a "little" modesty to be brought to L'Enfant's scheme. The White House, therefore, was designed by the Irish born James Hoban. It was "a refined Georgian mansion in the Palladian style."⁷⁷ Costing around \$232,372, it was built out of pale grey

⁷⁶ (White House Historical Timeline)

⁷⁷ (The White House)

sandstone with three floors. Though not as large as a palace L'Enfant wanted, it was quite sizable. The first presidential family to live in it was John and Abigail Adams.⁷⁸

The variety of renovations changed the White House from a simple Georgian mansion into the recognizable icon it is today. It first started in 1814 when the British invaded Washington DC and destroyed everything. It took some strong urging from President Madison to convince Congress to rebuild Washington rather than move it to a new location.⁷⁹ Left with only its foundation and outer wall, the White House was reconstructed to the plans of James Hoban. Weak walls were dismantled and most scorched pieces were replaced, with the exception of the really ornate blocks. President Monroe moved in 1817.⁸⁰ In 1824 and 1829, porticoes for the north and south walls were constructed based off Benjamin Latrobe's proposal. These provided the unique style which everybody now recognizes as the White House. These took the already present aesthetic principles and diversified them with a circular protrusion. Throughout



Figure 35: White House Porticoes

the different presidencies, the interior of the White House changed according to the styles of the time and the tastes of the family. As time progressed, the families were feeling cramped and demanded the removal of the offices.⁸¹ In the 1880, President Arthur “found no charm in the White House” and asked Louis C. Tiffany to redecorate. In the East, Blue, Red rooms and the State Dining room, his work covered practically every

⁷⁸ (The White House)

⁷⁹ (White House Historical Timeline)

⁸⁰ (White House Historical Timeline)

⁸¹ (White House Historical Timeline)

surface with his trademark glass.⁸² Subsequent decades produced more renovation when running water, central heating and electric lights were added.⁸³ In Theodore Roosevelt's presidency, there was another complete renovation of the house. This time changes occurred to the functions as well as aesthetics. The space allocated for the family was doubled and a new wing was added for president and his staff. Later, "Mrs. Woodrow Wilson added guestrooms and a painting studio for herself in 1913..."⁸⁴ The West Wing was built as "temporary office building" in 1902, until President Taft enlarged it and added the oval office. In 1945, President Truman witness cracking plaster throughout the White House caused by the extra weight of the studio and extra guest rooms. Structural steel beams with a new concrete foundation solved the problem but at a cost. The little of the 19th and early 20th century interiors remain. And finally in recent days, there was restoration of the stone walls.⁸⁵

The White House adaption was possible because it uses the four visual characteristics. One of its major successes in its renovation was the wall material and thickness. By choosing stone, it was able to survive fires and constant wear-and-tear. The thickness of the material also provided for those extras that come with time like plumbing, wiring, insulation and additional structural. The floor plans obey the aesthetic principles as well as city components/layout. As seen in the original plans below, spaces were tied together through a variety of doors and passageways. These act as paths along a grid. Districts and nodes are created from the different room location, size and prominence on this grid. A couple of these focal points are seen in the library and the

⁸² (White House Historical Timeline)

⁸³ (The White House)

⁸⁴ (White House Historical Timeline)

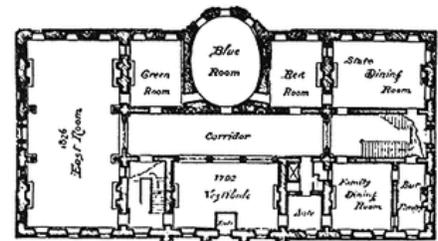
⁸⁵ (White House Historical Timeline)

East Room. A hallway with a connecting staircase becomes the vital artery of the house and is centrally located. Aesthetic principles are most obvious when looking at the plans in concert with the elevations. The rhythm and repetition of windows create logical structural layout while presenting scale and unity on the exterior. This has grandeur to emphasize its function as the home of the President.

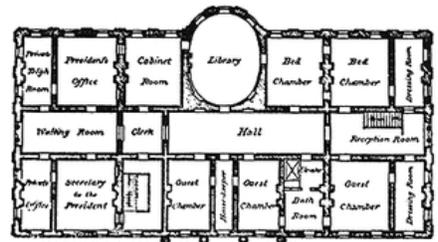
Judging by the number and variety of spaces, the White House also fulfills Hildebrand's *enticement* while still complying with *complex-order*. There are luxurious spaces coupled with intimate rooms and parlors which create diversity of experience depending on the appropriate occasion. Without this combination, the building would be without expression, and consequently be subdivided into random spaces as the family and staff grew.

The extensive renovation of the White House was possible due the early application of the four visual characteristics. George Washington was smart

to not use L'Enfant's palace, because a home needs to be on an intimate scale. While grandeur is important and appropriate for the White House, it didn't need monstrous amounts of wasted spaces. This is a good lesson for many of today's projects. Construct a building with plenty of room, but have a logical structural pattern combined with its aesthetic design. And then, choose a durable material with enough room to add additional equipment. Stewart Brand mentions these ideas as well in his book How



First or main floor of the White House



Second floor of the White House

Figure 36: Early Plans



Figure 37: Exterior Elevation

Buildings Learn. He recommends several strategies; beef-up the structure with lots of room for expansion, use materials close at hand for ease of replacement, diversify room sizes, don't design around technology (it will be obsolete in a few years), and when in doubt, add more storage.⁸⁶ This means that the visual characteristics are not only applicable for good cities but also for building design.

Thoughts about Buildings for Cities:

Buildings and cities both share the visual characteristics on all scales. Whether it is the visual impact, infrastructural improvement or interior adaptability, buildings and cities are interlace and can impact each other in numerous ways. Buildings are constantly changing to modern styles and should be considerate of their city's character to give it best advantage. By doing this, the city can morph to accommodate future development with similar context of the building.

⁸⁶ (Brand, 1995) pg. 186

CHAPTER V

APPLICATION TO HELENA, MT

Author's Passion:

Now that the four visual characteristic have been seen in action, it is time to apply them to Helena, Montana. I chose to apply these principles here because I dearly love my hometown, and want enhance its already rich character. Nestled in the beautiful Rock Mountains, Helena is a treasure trove of historical buildings, wilderness, and friendly people. All towns have their oddities, and Helena's just adds to her unique character. However, three things have always irked me about my hometown. The first is people assume it is a cowboy/mining town with a rugged personality. Tourist and residents alike forget the city's rich heritage of cultivated political, social and economic value of the late 19th century. My second irritation comes from the lack of credit Helena gets as a state capital. To me, a capital city should receive notable recognition from its inhabitants as being a vital part of the state's identity. Helena hardly makes it to the national maps as a town of prominence. Instead our other cities, like Billings and Bozeman, are generally the first to be acknowledged. My third displeasure resides in how Helena has grown in the last few decades. Due to her location in wide open land and desire for economics beyond state jobs, the development has sprawled with very little attention to character and a "sense of place." I believe that all three of these can change, and Helena can grow into a beautiful city where her heritage as the state's capital can be recognized.

Therefore, analyzing Helena through the four visual characteristics is essential to discover her strengths, weaknesses and opportunities.

Helena's History:

Like our precedence studies, the history of Helena must be explored in order to understand her development. In 1864, a group of miners, called the Four Georgians, stroke gold in what is now called Last Chance Gulch.⁸⁷ This gulch was called this because the Four Georgians were about to give up finding gold in Montana.



Figure 38: Early Helena

Like any area that has discovered gold, Helena exploded into a busy town, but unlike other in Montana, her inhabitants were more than just industrious miners. They were entrepreneurs and philanthropists. They were looking to create more out of Helena. They saw unlimited resources, good employee base, rich economics and astounding opportunities. So, they pushed the budding town to become the financial center of the area. This was possible due to the mining industry, quantity of trade, and the vicinity to major transportation lines. Last Chance Gulch then transformed from a series of mining shakes into an official downtown with offices, banks and mercantile. In the 1880s, the Northern Pacific Railroad established itself in the



Figure 39: Helena's Capital Building

⁸⁷ (City of Helena, 2009)

city and created an economic boom.⁸⁸ In 1895, the Caird Steel manufacturing was established and operated for ninety years as “a kind of flagship to the region’s economy.”⁸⁹ When Montana officially became a state in 1889, Helena’s residents steeply pushed for their town to become the state capital. She won this designation, and ten years later, after obtaining appropriate assets, the first cornerstone of the Capital Buildings was laid. But as with all things in 19th century Helena, the rustic appeal was not good enough. The middle to wealthy class of Helenians were advocating and competing with the elite of the East Coast to make Montana the new hub of the West. As a result, those in position commissioned for grand architecture. Therefore, our capital building wasn’t the only beautiful structure in Helena. The Catholic Cathedral, commissioned by the Irish millionaire Thomas Cruse, was constructed and finished in 1914.⁹⁰ It is said to be one of the top one hundred most beautiful cathedrals in the world.



Figure 40: Helena's Cathedral

Helena continued its economic prosperity even through the Silver Panic of 1893, and became the home of the state’s Federal Reserve Bank in 1921. By this time, however, elite class famous for making Helena grand were either dying or moving away to greater economic prospects. The city slowly became focused on its own affairs rather than those of the nations, and when the Great Depression hit, Helena’s economic prosperity and claim to fame diminished dramatically. In 1960, urban renewal revitalized

⁸⁸ (City of Helena, 2009)

⁸⁹ (Wilcox, 1991)

⁹⁰ (History)

the downtown, and in 1970s an economic boom occurred. Subdivision of land brought back some financial security, and Helena began claiming her history and artistic population as her identity.⁹¹ Now, Helena's main economics stem from jobs from the government and its health care industry. While she's no longer an economic powerhouse, her social class is still strong. They have influences in government, historic preservation, philanthropy and much more.

The Visual Characteristics of Helena:

As mentioned before, city components and layout can set the stage for the appeal of a city. Helena is no exception. The downtown was the center of action in the early

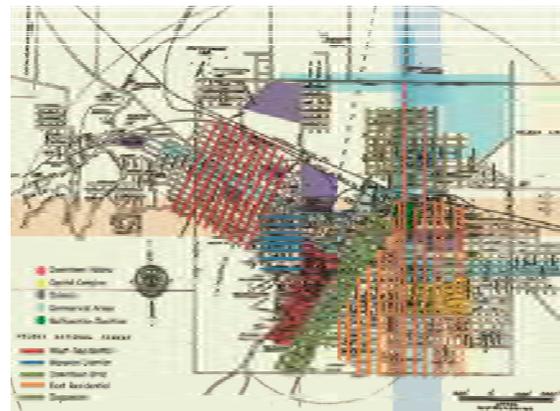


Figure 42: Downtown Helena - Author Modified over Google Map

days, and it grew organically but linearly as well. A gulch is a small ravine or a deep narrow valley generally created by running water.⁹² This is where the Four Georgians found their gold. Due to the topography in this area, some of the streets are cut short while others wound around the base of

hills and mountains. As Helena expanded, the gridiron became the main organizing element. The grid is highly adaptable because it can warp

itself to the curvatures of the landscape. However, even the gridiron has to re-orient itself when the topography demands it, and in Helena, this created three different grids.



50 **Figure 41: Helena's Grid & Districts - Author Modified over Sanborn Map**

⁹¹ (City of Helena, 2009)

⁹² (The American Heritage Dictionary, 2001)

The first one is designated by green lines in the diagram to the right, and it runs along Last Chance Gulch (highlighted in solid red). The second surrounds the downtown with a north-south, east-west axis (this is the orange color). This is the same one the Capital Building resides on (highlighted in yellow behind the orange lines). The third grid runs along the northern side of Mount Helena (red lines on the far left). Where these different grids intersect can be messy, and there are two locations. These nodes are quite busy, and one is the Junction which will be discussed further in the design section below.

There are three notable districts. The Mansion District is where the majority of the old wealth class of Helena built their houses. These mansion are priced anywhere from \$300,000 to \$1 million, and are considered treasures in the whole community. There is the Capital Campus district where the bureaucrats and politicians work. This is also the location for our state museum. The 6th Ward district is positioned near the Junction. This is where the workers of the railroad warehouses and manufacturing lived in the old days, and as a vibrant history of being very social and open neighborhood.⁹³ Recently, another district has emerged with the growing presence of the health care industry. It is some distance east of the capital campus, and includes the main hospital and other medically related fields.

Landmarks are plentiful in Helena. They range from mountain ranges, lakes and buildings. The three main structures that people use for way finding within the city are the Capital Building, the Catholic Cathedral, and the Civic Center. These are the highest points and are well recognized accordingly. Some lesser noted, but still important

⁹³ (Tode, July 30, 2003)

landmarks are Reeder's Alley, Carroll College, The Great Northern Town Center, Women's Park and Memorial Park.

The edges of the city are mainly defined by highly traffic roads like highways and busy thorough fares. Aside from these, the train tracks serve to divide the main part of the city from the rest of the large commercial development further north. Other edges include the mountain ranges, creek beds and rock cliffs.

The aesthetic principles of Helena are solely based on the traditional understanding of good design. This is what ties all the different styles of the downtown and other parts of Helena together. These principles of scale, repetition, and rhythm create a base medium for all sorts of imaginative design to occur. Take this picture of the downtown, in the left foreground there is a series of protruding metal bay windows against pinkish stone. This style is completely different from the building further back in the



Figure 44: Street View of Downtown

picture with the giant cornice. Similarly, further down the street near the center of the picture, another building displaying a slightly different style through its series of windows on brick and granite. Without these aesthetic principles, this downtown would not be cohesive, yet with them, it creates a sense of discovery. The ideal of keeping the buildings pedestrian friendly is also visible through awnings and store fronts. In the picture to the right, not only do the storefronts obey the golden ratio of 3 to 5, but it also maintains a nice sidewalk relationship. There



Figure 43: Downtown Street Edge

is enough room for several people to walk side by side, have plantings, and provide enough room for street lamps and parking meters.

There is a variety of material permanence in Helena and it is changing with modern times. As mentioned before earlier in this paper, the indigenous materials of Montana are heavy timber, granite, and brick. Yet over the years, stucco, EIFS, metal paneling and much more has been added and diversified the building inventory. The most defined districts of Helena are the traditionally built, but the newer construction is beginning to be recognized. Take the picture to right of the Great Northern Carrousel and Ice Cream Shop. It is much loved by all generations of Helena because of its function. Its material is metal siding which is not much different than that found on grain silos, commonly found in rural Montana. The metal suggests longevity and functionality without permanence. This does not detract from Helena's vernacular, because diversifies it. As we found out in analyzing Brasilia, this adds finesse and atmosphere to a place.



Figure 45: Metal Buildings

Helena's individual experience ranges from both inside and outside activities. In the interior of buildings, the observer can feel Hildebrand's concepts of *complex-order*, *refuge*, *prospect*, *enticement* and *peril*. This is in both traditional and newer built construction. The example of the Capital Building's foyer exemplifies the richness Helena's building can offer. Helena's outdoor experience varies from human-made to the natural. Helena is very in tuned to nature, and at regular rates throughout the city, there will be



Figure 46: Capital Interior

parks and open space to gather. The biggest of these are the Capital Building's green, Women's Park, and Memorial Park. Helena also has two lakes in its vicinity; Canyon Ferry Reservoir and Spring Meadow Lake. Activities in these spaces range from our local Farmer's Market to mountain climbing and canoeing. However, the most distinguished activity point is Mount Helena. Designated as a city park in 1905, it is well recognized today as a safe and dynamic place to hike, bike, and photograph.⁹⁴ It also serves as Helena's main natural landmark.



Figure 47: Spring Meadow Lake & Mount Helena

⁹⁴ (City of Helena, 2009)

CHAPTER VI

THE DESIGN PROJECT

The Triangulation:

One of the key locations and the weakest point in Helena is nicknamed Malfunction Junction. Helena's residents call it this because of the four roads and an interstate highway intersecting into a messy string of lights. Its building inventory includes a pawn shop, Mergenthaler's warehouse, a gas station turned gallery, a grocery store turned fitness center, and the closed-down Caird Steel Manufacturing. Overall, it is



Figure 48: Panorama of the Junction - Ron Cullen Photographs

not a pretty or safe location. It, however, has a great deal of potential that many people, both residents and non-residents, don't get to experience when they drive through here on a daily basis. The name Malfunction Junction is demeaning, because this intersection can make Helena a stronger and more vibrant city. Action has already begun to collect these properties, but finances are still an issue. In the following design project, this area will be the focus of the application of our four visual characteristics, and it will be called simply

the Junction. In the proposed vision, a new master plan of the Junction will be developed and a new signature museum building will be designed for the Caird Steel site.

Let's first analyze this area's potential. The Junction & Caird Site used to be on the fringes of Helena but is now located near the center of town. With the construction of Interstate Highway 12 in the 1960s, Helena acquired a great deal of traffic flow but this did not interact with the geometries or the historical value of the city.⁹⁵ This corridor has

since been of little appeal to tourists or residents despite constant interaction. Yet, it is the prime location to capture and lure people deeper into the city. The Junction



has the ability to triangulate not

Figure 49: Triangulation - Author's Diagram over a Sanborn Map

only Helena's visual characteristics with Last Chance Gulch and the Capital Building, but also create an economic, political and social core. With these three points working in concert, they could help Helena grow into a notable city. All that is needed is the right catalyst, and to create this, two things are needed. The first is a new master plan for the Junction and the second is a signature building on the Caird site to stimulate the building process. After all, plans without appropriate action are no good.

⁹⁵ (Blanchard, 1960)

The Junction's New Master Plan:

The first catalyst for this triangulation to occur is the new master plan for the Junction. Currently the intersection is a mess of random buildings with massive quantities of parking. This can be seen in the map below where the grey is designates

parking. The Caird Steel site is tinted a brownish tone because it is a brownfield contaminated with metal and chemicals. The interstate highway is also represented with

the thickest red arrows while other major roads are in orange and yellow. These existing conditions are have

deteriorated the overall appearance of the Junction. In well-loved cities like Boston, buildings will often frame

the street edge and then retract at timely intervals for open spaces, parks and plazas. This does not happen here and it is what needs to occur. Strategic open spaces

and firm street edges must be established. These should also include safer and wider sidewalks to facilitate plantings, pedestrian movement and appropriate lighting/parking

meters. Pedestrian movement has nearly disappeared in this location which is a pity because there are four schools located very close to the Junction. These are

Bryant Elementary, Helena Middle School, Helena High School, and Helena's College of Technology. These can

create a great symbiotic relationship with the future functions of the intersection, and could include tourist attractions, business, retail and educational facilities.



Figure 51: The Junction & Parking - Author's Work

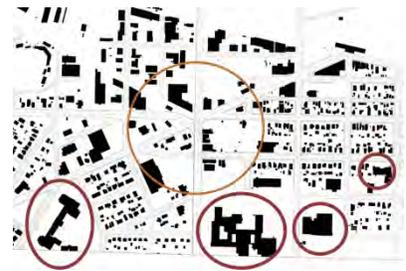


Figure 50: The Junction & Local Schools

With many different aspects colliding in this area, there is a need for a singular concept to facilitate the analysis and organization of the master plan. The solution came from a study model which follows each of the issues linearly across the Junction (first left picture below). These included the desires of pedestrian movement, current vehicular

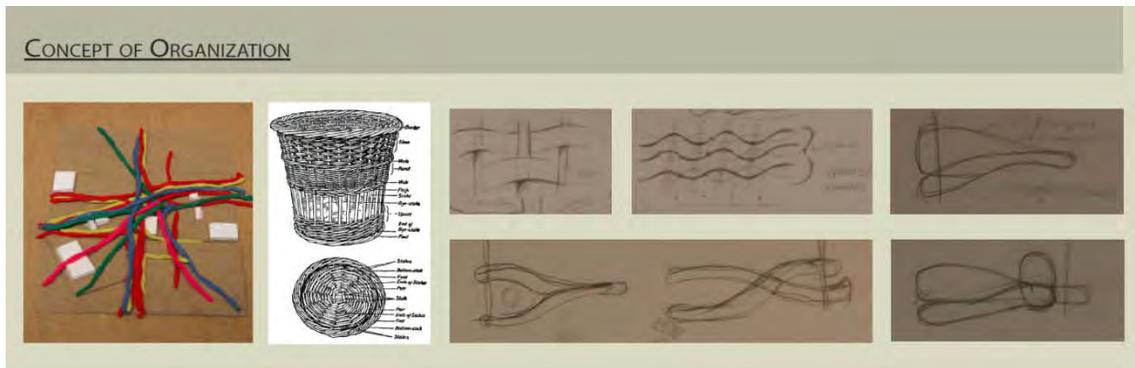


Figure 52: Concepts

traffic, potential social interactions, line-of-sight to the cathedral and the capital, and views to nature. The interaction of these lines was reminiscent of basket weaving. Therefore, studies of basket weaving techniques were performed to understand its organizing elements. These elements are called the spoke and the weaver. The first is the structural element and the foundation of the basket, while the weaver performs as the essential connector and form-making element. This is perfect for the Junction, because it needs structure in its layout, connections and form in its buildings.

Malfunction Junction, Helena MT
• Toppers: 229'



Harvard Square, Cambridge MA
• Triangular Piece: 182'



St Georges Circus, London
• Circle: 103'



Figure 53: Junction Studies - Author Modification over Google Maps

Some studies of other busy junctions reveal some solutions of potential edge conditions and open space allocation for the Junction. To give relative size, the length of the triangular site near the intersection is 229' long. Therefore, other junctions with a radius of 100 feet to 200 feet were needed to examine potential solutions for Helena's. Harvard Square in Cambridge, Ma has a busy intersection framed by buildings. Its' public square, which is butted up against one of these edges, is 182 feet. The opposing edge to this square is another building located on the Harvard Campus. The campus is an interaction of green open space and buildings, and therefore does not create a continual hard edge. Instead, trees visually close the edge and create a softened perforated edge. There are also moments of recess within this plan. In contrast, the St. Georges Circus in London has seven roads intersecting this location, but instead of multiple opportunities to enter into a green space, one block is designated for all of it. The visual impact of continuous edges and then a singular soft space is quite effective. This area appears to be home to a railroad station which leaves an open space behind the building. In the Junction's case, this could act as parking without degrading the street edge.



Figure 54: Weaving Studies for the Junction

The combination of the organizing concept of basket weaving and these precedence studies produced the master plan for the Junction. Though this plan is simple massing, it produces the hard edges, open spaces and potential connections that are needed in this intersection. The weavers and spokes help determine the locations of high profile elements, building heights and connections between



Figure 55: Downtown Helena's City Components

structures while Helena's visual characteristics were considered through the diagram of the downtown to the right. Three main themes were present. The first was the occasional landmark or important building which acted as a way-finding tool (this is depicted in yellow). The second was that despite the business of the street, proper care of the street edge is present. And the thirdly, which most importantly, was the haphazard but conveniently located parks and green space (marked in green). Therefore, in the below master plan, street edges are created with strategic protrusion and recesses. These serve not only to provide proper sidewalk width but also to produce opportunities for café tables, tree plantings and retreats from the busy road conditions. The protruding structures face each other to facilitate the proper breaks and application of aesthetic principles, especially those of rhythm, repetition and scale. Parking has been placed behind the buildings or on side-streets. The primary roads are four lanes in width, and it is possible that these could be narrowed to slow down vehicular traffic, increase pedestrian safety and provide roadside parking. Open green spaces offers not only visual

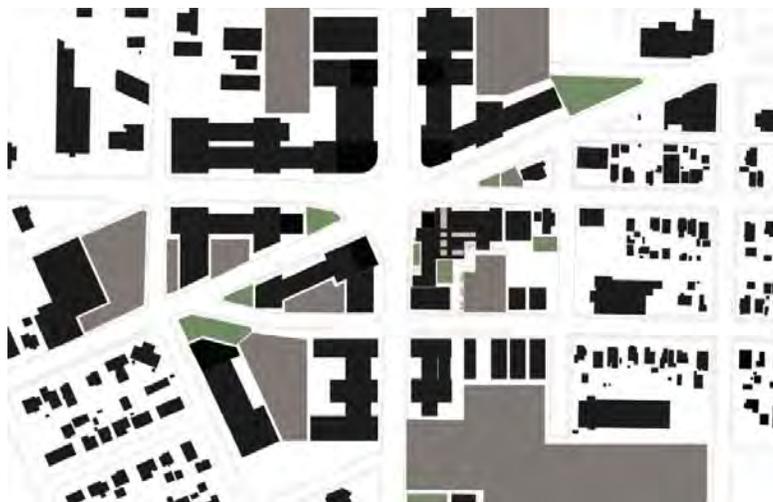


Figure 56: The Junction's New Master Plan



Figure 57: Model - Depiction of Building Heights

reprieve from the hard landscape, but also are conveniently placed on corners and nooks as in accordance with Helena's character. The darker blacks on the plan indicate high points on the Junction for announcement of this location as well as promoting way-finding in Helena's cityscape. The average building height is between 3-5 stories.

The Caird Site's New Virtual Museum:

The Caird Steel site is the other catalyst for the Junction, because it is the action behind the plan. It is conveniently located on the most prominent site of the whole development, and therefore should be the location of the Junction's new signature building. This city



Figure 58: Caird Steel Site - Ron Cullen Photo

landmark will be a local history museum using the master plan's organizing basket weaving principle while capitalizing on the sites assets.

The new local history museum will fulfill a need in the Helena community while providing a new resource to students and residents. Despite having a wonderful history, Helena's team of local historians has been shifting around the city look for a place to display our history. Their collections ranges from pictures to furniture to equipment, but there is no where they can call home. Since the Junction's function is to triangulate the cities assets, it is logical to give them a home in the most prominent place. But like most non-profit groups, there are no assets to build their new home. To facilitate financing retail shops are included in the design, but it will be the virtual aspect that will make this building viable. With this generation's love for technology, it is hard to get them interested in history. Therefore, this museum will partner with the local schools and the

college to create digital simulations to entice students to learn. A research facility is included in the building's program to facilitate interaction with the schools, research and development of technology, and the pursuit of more interactive education. The museum will have a square footage of 46,000 with the following program:

Lobby: 1000 sf

Research (Reserve): 4000 sf combined with curator space

*Exhibition Space: 3000 sf * 3 qty = 9000 sf*

Virtual Reality Room: 2000 sf

Imax Theater: 2000 sf

Observatory combined with Restaurant: 3,000 sf

Gift Shop: 1000 sf

*Shopping Centers: 4000 sf * 6 qty = 24,000 sf*

The experience in a museum can be created through more than just “dusty” artifacts, and this is the goal behind the Caird's Museum. The goal is to make museums interactive. In so doing, the attention span of the visitor increase exponentially and they are more willing to learn. Take Boston's Christian Science Museum for example. Inside resides a three story stained glass



Figure 59: Mapparium in Boston

globe lighted by LEDs. Though this Mapparium was designed to be updated with the time, the curators decided to leave it in its original condition. This is due to the fact that some countries no longer exist, and visitors can learn a great deal from this “map frozen in time.”⁹⁶ They are educated by the lighting display, audio recordings and video features. But it is the unique inherent nature of the globe that teases the senses. Due to the shape of the globe, a whisper chamber is created and even the slightest sound can be

⁹⁶ (Curious Expeditions, A World Frozen in Time)

heard clearly on the other side of the globe.⁹⁷ Though so simple, this kind of interaction is just as powerful as the digital aspect. It causes visitors to linger and experiment. This same museum also features a display of traveling words. In the center of the waiting room, there is a water fountain with digitally produced words floating on the surface. These slip off onto the floor, squiggle across it and then travel up the projector screen to form sentences by Mary Baker Eddy, the founder of the museum. This visual experience is simple but memorable one.

For the Caird sites new Museum, the site's assets must be analyzed. As mentioned before, the Caird Steel site is a brownfield in the need of redevelopment, and on it are two notable buildings. The first is the Pattern House which is a locally owned coffee shop (on site plan below, it is the middle top building). It has adopted the



Figure 60: Pattern House - Ron Cullen Photo

history of the Caird site as part of its interior décor. The second building is the barrel vaulted steel warehouse (on site plan, this is the lower left building). This is the main

building people refer to when they think of the Caird site, and could be easily redeveloped into a series of stores or offices. Both of these structures will remain on-site due to their historic significance. The site conditions are illustrated in the right diagrams. On the top are the weather, solar and field conditions while the bottom shows influences and potentials. The site

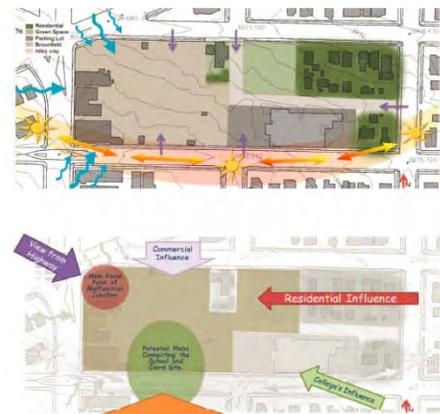


Figure 61: Site Conditions

⁹⁷ (Curious Expeditions, A World Frozen in Time)

has a 12 foot drop that is included in the design, and at the main corner there is a bulletin board featuring Helena businesses, schools and social events.

In the following study models of the museum, city principles and basket weaving ideas can be seen in the design. Much like the master plan, the weaving concept was used to do an impact study to determine locations of importance. This is why the corner



Concept Studies: Respect the grid, hold the edge of the street, and weaving elements around functions.

Figure 63: Concept Models

tower appeared early in the design. This was not only new way-finding element for Helena, but also an externalization of the Museums virtual aspects. Since the current bulletin board residing on site is a desirable thing for the Junction, this tower emulates and produces digital advertisements on its façade. These can range from the museum's exhibits and research findings to the normal advertisement. Imitating the city grid and creating a street edge can also be seen in the museum's early design. This creates a linear motion within and without the structure. This was a nice feature which allows the pedestrian to move from the High School and the Junction's street edge into the



Figure 62: Museum View from the Junction

Let's bring back our visual characteristics. On the first floor plan, we can see the linear fashion of the building working with the same principles of city components and layout while producing individual experience. Since the Junction is has high volumes of traffic, the parking is located in the back giving the street edge to the building. This facilitates more visitors to entering along the High School corridor that determines one of the main linear paths within



Figure 67: Digital Pod Design & Layout

the building. In entering the museum along this path, the observer will encounter the street edge the path, and this intersection creates a node. At this point, *enticement* occurs because of a digital pod displaying a variety of images (purple in plan). There are multiple digital pods throughout the building that are organized by another basket weaving concept. Based on a basket's section cut, the spoke is the path



Figure 68: Interior Views

of travel in the exhibition spaces while the weavers are the displays or pod alternating on either side of the path. These pods could be considered *refuge* spaces for active learning while the brighter gallery spaces would be *prospect* for more traditional exhibition space. The first floor plan also depicts districts allocated along the intersecting paths. These are the stores (blue), the gallery (green), the IMAX Theater (red) and the research center (orange). These concepts continue to the second and third floor gallery where the exhibition roof "weaves" upward.

The choice of material permanence for the façade is tied to the neighborhood's vernacular and creates some aesthetic

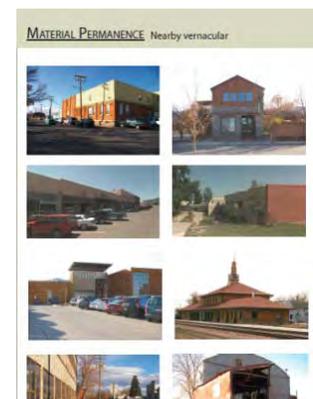


Figure 69: Local Vernacular - Ron Cullen Photos

principles. It would be a disservice to completely deny the Junctions industry background. Therefore, the materials of brick and metal meshing were chosen in combination with digital boards. This kind of presence suggests longevity but functionality. Aesthetic principles are present in the building's facades as well. The brick acts as the foundation material that composes the main body of the structure while the metal mesh works with the digital to emphasize the weaving concepts. By continuing visual lines of the roofs and defining edges, a pedestrian scale is created. Most people find it comfortable to have a break in the facade at a relatable height. The metal mesh and digital boards perform this function. There is also repetition in the façade due to window mullion but more importantly by the shading elements along the façade. These are set from 3-6 foot intervals.



Figure 70: North Elevation

By using the four visual characteristics and basket weaving studies, the many issues on the Caird site were organized into a building that will set the stage for future development of the Junction. This structure not only provides a new home for our local historians but also sets precedence for the future of the digital age in the community. It is the combination of the tourist attraction, shopping and creative collaboration with the



Figure 71: Aerial Perspective & Back Entrance



local schools that makes this project viable. If Helena intends to grow, it will be facilities like this that will create an economic and social hub worthy of recognition.

Conclusion for the Junction and the Caird Museum:

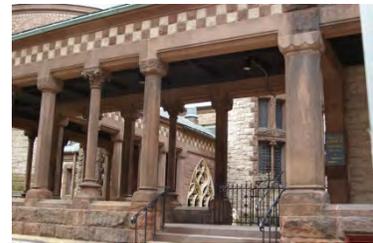
This is only the beginning for the redevelopment process of the Junction. It is assumed these concepts and designs will continue to evolve into the future where the redevelop Caird Steel building could potentially expand into more research based facilities and shops. The other sites around the Junction could include a new shopping mall, convention center, small shops, restaurants and much more. With the involvement of city planners, architects, traffic engineers and public opinions, this Junction will triangulate Helena's best characteristics, and do so while being attentive to her own visual characteristics. Each person innately knows the quality and feel of their hometown, and it is the job of Helenians to use this understanding to encourage proper future growth.

CHAPTER VII

THE CONCLUSION

By studying a city on the larger scale, the average observer can learn vital information about a city; its ideals, aesthetic nuances, economic vitality and much more. In discovering these, they can then observe surrounding neighborhoods and then the buildings in a more holistic way. This can be seen in the case studies of Boston, the Dancing Building in Prague and the Olympic Sculpture Park in Seattle, WA. In these modern times of sustainability, it is no longer appropriate to construct buildings with no relation to their urban fabric. It is vital that architects and designers of all kinds understand that the small scale projects can and will affect the larger city. If we don't pay attention now then our communities will continue to feel disjointed, but if we do, we can slowly encourage better environments for future generations. Some designers are already very cognizant of this and are designing accordingly.

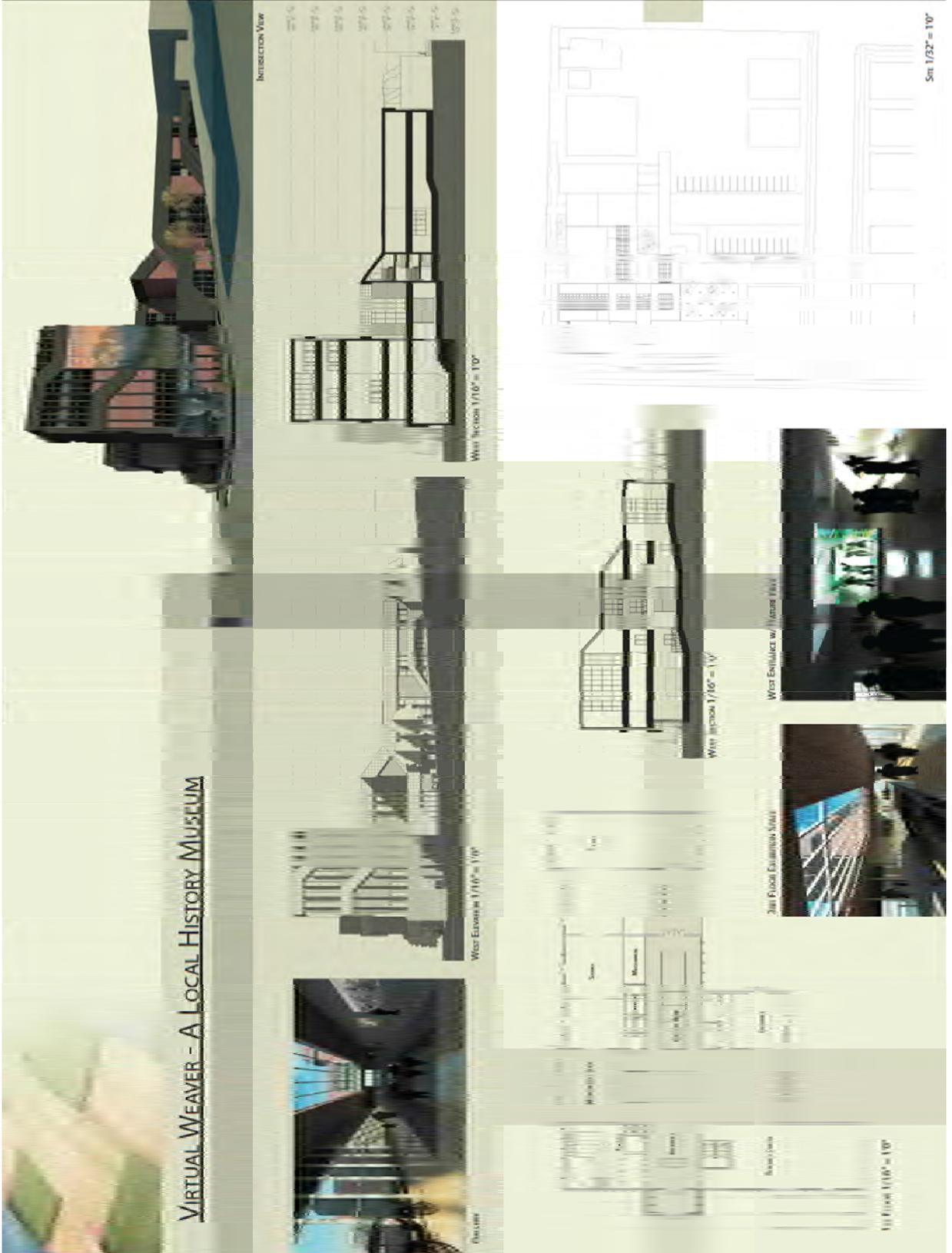
Therefore, next time you are in a city or town and you find yourself fascinated with one aspect, ask yourself what visual characteristics are standing out to you. Is it the composition of the city components surrounding your object of admiration? Is it the aesthetic principles



**Figure 72: Trinity Church Colonnade
- Author's Photo**

organizing the building facades? Is it the material permanence? Or did you find yourself in one of Hildebrand's individual experiences of space? Once you define these fascinating qualities, investigate its potential for your own city's ideals and built environment. It is possible that you may have the solution to change it for the better.







APPENDIX 2

BRAND AND ADAPTABLE BUILDINGS

The older buildings get, the more they are loved. They gradually experience change throughout their lives depending on the needs and desires of the occupant. But buildings are innately static, and without the proper care and design, they will deteriorate and ultimately be demolished. In Stewart Brand's book How Buildings Learn, he analyzed the aspects in buildings that need to change so they can be more loved.⁹⁸ He proposes an investigation of cities to determine ways to help them adapt. He says there are many architects turned city planners.⁹⁹ These people know the internal and external influences causing an urban area to flex and mature at a continual rate. Brand recommends applying their knowledge to buildings. Therefore, it is the efforts of this paper to define what aspects of city design can help buildings perform better.

Brand's Thoughts on Buildings:

In order to fully analyze how cities can help buildings, it is important to first understand buildings from Brand's perspective. As stated before, well-loved structures are ones that adapt, and in How Buildings Learn, Brand is solely focused on this subject. He defines adaption as the degree in which a building can continually change. After the initial design, buildings experience a gradual yet radical transformation. The resulting product is either a new look or abandonment. If it can morph continually, then it is

⁹⁸ (Brand, 1995) pg.23

⁹⁹ (Brand, 1995) 211

respected by its occupants. “Age plus adaptability is what makes a building come to be loved. The building learns from its occupant, and they learn from it.”¹⁰⁰

What do we learn from buildings? Is it how our styles and technology change over time? Or is it much more? Brand states fashion and technology are main causes of a building’s transformation, and they have a direct relationship to its adaptability. What we learn, therefore, from them is how to design with the future in mind. He states “...old buildings are constantly refreshed, but not too far, and new buildings are forced to ripen quickly.”¹⁰¹ He recommends several strategies; beef-up the structure with lots of room for expansion, use materials close at hand for ease of replacement, diversify room sizes, don’t design around technology (it will be obsolete in a few years), and when in doubt, add more storage.¹⁰²

Though these are good design elements, Brand recommends more general principles. There are two he mentions. The first is “leave parts of the building uncooked.” In other words, give the building room to adapt.¹⁰³ Architects are inclined to design every aspect, and at times, we even try to redesign the “nuts and bolts.” He says don’t do that! His other recommendation is to plan a building’s program by scenarios. By imagining future uses, architects can better design flexibility into structure and floor plans.¹⁰⁴ This also gives the owner a better economic benefit, and occupants good spaces to work and live.

¹⁰⁰ (Brand, 1995) pg. 23

¹⁰¹ (Brand, 1995) pg. 10

¹⁰² (Brand, 1995) pg. 186

¹⁰³ (Brand, 1995) pg. 188

¹⁰⁴ (Brand, 1995) pg. 178

Brand's Ideas Line Up with The City:

Brand's building principles are simple, but do not involve the city. Even though he recommends examining it to discover potential design improvements, he does not expand. Therefore based on the above, there are three main categories that he may expect cities to impact buildings. Adaptability is the most obvious in his discussion, and cities are most notable for this. Whether it is a simple road construction or a complicated master plan, a resident can expect several improvements to occur in a single year. New York City's Highline is one of these. As an abandon railway, it was sited to be demolished but was renovated into an elevated greenway. It is now one of the popular locations in the city. Permanence of materials and their associated longevity is another category Brand considers. This is reflected in the city by contrasting building types. Those of importance, like government buildings, are constructed out of stone or brick. Brand refers to these as "high road" buildings because of their durability and independence.¹⁰⁵ They last longer and personify stability. They are often situated in important locations within the city. Office buildings, in contrast, are less important and are constructed with wood or steel overlaid with some kind of non-permanent materials. These "low road" structures can fit anywhere within proper zoning, whether on the edge of town or in the middle.¹⁰⁶ Growth is Brand's last issue for change. In buildings, he references technology and storage as issues for growth, but in the city, people are the determining factor. Additional population creates expansion of buildings and neighborhoods, and there are two ways a city can grow. It can develop strategically by working with the current restraints of the boundaries, infrastructure and building

¹⁰⁵ (Brand, 1995) pg. 23

¹⁰⁶ (Brand, 1995) pg. 23

inventory. This kind of growth revitalizes districts, and can be seen in renovations and infill. Cities can also grow haphazardly by continually building on the edges. This aimless approach has been quiet frequent in recent decades. As Mario Gandelsonas states in his book X-Urbanism, multiple developments on the edges can create a “non-hierarchal fragmentation of the urban fabric.”¹⁰⁷ New cities with competing interests will result from this kind of growth, and Brand is not referring to this disorder. Therefore, the systematic approach is desired.

However, knowing what Brand’s buildings ideas are in comparison with cities is not enough. Though each municipality is unique, there are common elements shared that must be analyzed and applied. Therefore, it is time to define the composing elements and the determining factors of cities.

¹⁰⁷ (Gandelsonas, 1999) pg.37

APPENDIX 3

KOOLHAAS' NEW YORK CITY

It is important to bring these principles of city design and Hildebrand's characteristics into use by examining some case studies. By briefly examining Koolhaas's manifesto of New York City, we can set precedence on how to study each city based on its own unique characteristics. These are as diverse as the inhabitants and as organized as the previous principles have indicated. Koolhaas addresses these through history, function and character.

Koolhaas exposes the actions, whether literal or circumstantial, that influenced the New York City's crisis driven environment. Starting with the city's earliest beginnings, he conducted a systematic analysis of each period's objective. The colonial days tried to recreate New Amsterdam on Northern American soil. This walled city would reflect the European tradition but was realized only on a small scale. In the early 1800s, the grid was laid out. It was inflexible for commercial interests, and the site conditions essentially ignored.¹⁰⁸ Koolhaas determined this to be one of New York's "disconnections between actual and stated intentions" commonly present in the city's daily functions. However, the grid was invaluable in creating the necessary skyscraper atmosphere. With increasing density and little maneuverability, the best solution was to go up.¹⁰⁹ While in some ways Koolhaas is celebrating New York's infinite search for the next best thing (always changing and never stopping), he has also criticized some essential movements. These include the lack of street attention, a sense of place, and appropriateness of functions. He

¹⁰⁸ (Koolhaas, 1994) pg. 12-20

¹⁰⁹ (Koolhaas, 1994) pg. 23

proposes that New York is an experiment in progress, and the accidental freedom created has presented a city teeming with life, a life that can't be matched by any other city.¹¹⁰

As a result, New York has now become a city of perpetual crisis and demand.

It must be noted that Koolhaas was writing in a time where there was a break from traditional design. Designers like himself and Le Corbusier were a part of the modern movement. This time was full of new ideas of social and architectural simplicity with new technology at their disposal. Yet Koolhaas took what was unpopular (due aesthetics) and dissected the core changes that could directly influence his time. In New York's case, this was to show how innovative and resourceful the city has been over the years. Architects, like Le Corbusier, would criticize New York City for being too congested and recommend completely obliterating current conditions to rebuild. It was considered "cool" to have large mega structures (or monuments of human accomplishment) with massive amounts of space surrounding them. Koolhaas however counters this opinion. New York's congestion has created great "monuments" surpassing the norm in an unexpected fashion. It relied on the technology of its day, and clustered fantastic structures in an economical and convenient fashion.

With Koolhaas' manifesto paraphrased, the following case studies will use his analysis to describe the determining factors and composing elements of three cities; Brasilia, Chicago, and Boston. In each, there will be discussion of their history, how the city was laid out and the atmosphere present. These will ultimately set the ground work for analysis for building improvements.

¹¹⁰ (Koolhaas, 1994) pg. 101

APPENDIX 4

PATTERNS OF CHRISTOPHER ALEXANDER

To produce a single way for all buildings types to cover the above principles would be impractical not only functionally but also aesthetically. Therefore, it is best to provide a pattern or a method. Christopher Alexander has studied these. By observing everyday occurrences, he has developed an understanding of patterns, and has applied them to cities and buildings. Therefore, it is important to understand what patterns are, how they relate to cities and buildings, and how to develop a reasonable approach to adaptable buildings.

In his book “The Timeless Way of Building,” Alexander explains the innate qualities of patterns. Patterns are the “genetic code” which brings individual elements into concert with others to generate a cohesive whole. They are not something we create, but it is something we innately know or can observe. “It is a self-containing, self-maintaining, generative quality” that is as easy as watching flowers grow in the garden, and just as varying.¹¹¹ However, if a flower is not given proper ingredients (i.e. good soil, sun and water), then it will die, and this has unfortunately happened with patterns. When they die, chaos occurs in its place, and this is what has been happening in cities and buildings in recent times.¹¹² Therefore, it is time to rediscover them and the ingredients that make them work.

¹¹¹ (Alexander, 1979) pg. 53-54 & 7-10

¹¹² (Alexander, 1979) pg. 237

The quality of life in a city or building can be directly related to patterns. According to the particular culture of the locale, patterns will change.¹¹³ This is due to the events and the preferences of the people who repeat the things they like. Therefore, each city will have its own unique set of patterns that should be respected and utilized in design. For example, the Spanish Bull Runs would require streets to be a certain width, or the Chinese New Year may need overhangs at a certain height to attach rows of lanterns. When these patterns are lost, then the city or buildings will “resort to urban design, mass production, and planning control” which will eventually cause the situation to get worse.¹¹⁴ In many cases, patterns manifest themselves physically through repetition of some sort of geometric element on buildings and neighborhoods.¹¹⁵ However, they are more involved. Patterns grow off other patterns, and as they do so, they create an atmosphere that is conducive and comfortable for the inhabitants. They lack the contradictions that would inhibit each other.¹¹⁶ These are so powerful, because it allows for “millions upon millions of tiny acts” to occur and reshape the locale. This creates a “flux” or adaptability.¹¹⁷ Therefore, the “large part of the ‘structure’ of a building or town [or design] consists of patterns of relationships.”¹¹⁸

This is the same way cities grow. In the past, they used patterns conducive to growth that go beyond the design and construction phase. They consider the lifecycle of the built environment, and take steps to repair, demolition, and replace elements when

¹¹³ (Alexander, 1979) pg. 66, 68

¹¹⁴ (Alexander, 1979) pg. 238

¹¹⁵ (Alexander, 1979) pg. 95

¹¹⁶ (Alexander, 1979) pg. 32

¹¹⁷ (Alexander, 1979) pg. 355

¹¹⁸ (Alexander, 1979) pg. 87

required.¹¹⁹ Just like Alexander stated, the parts are just as important as the whole they comprise, because they fill in the gaps where the city is weak, each performing a task to make the urban fabric better. This is most likely what Brand was encountering in city design, and why he recommended studying cities for potential solutions for non-adaptability buildings.

The next question then is how to find and establish the correct patterns. Christopher Alexander states that many architects and planners are so obsessed with rules, concepts and methods that we have forgotten the importance of trusting our own innate instinct.¹²⁰ This tells us whether something is good, bad or needs improvement, and it is time to listen to our gut. Alexander states the rule of relationship expression consists of context, problems and the associated solutions.¹²¹ He then recommends observing comfortable or inspiring spaces. These are composed of a “fluid field of relationships” that must be defined and then made operational. This process takes time and effort, because it must be easily communicated between individuals. Once accomplished, however, it will achieve new patterns that will potentially repair broken ones.¹²²

These broken ones are Brand’s main concern. Though he discovered programmatic and constructional solutions, he did not consider the relationships that were creating the patterns of destruction. Alexander states that “bad” patterns will be “unable to contain the forces which occur in them,” and this will cause a building or city to

¹¹⁹ (Alexander, 1979) pg. 355

¹²⁰ (Alexander, 1979) pg. 14

¹²¹ (Alexander, 1979) pg. 247

¹²² (Alexander, 1979) pg. 254

become inflexible to the changing needs of its inhabitants.¹²³ Incompatible patterns will fight each other and will ultimately create chaos in their place. Once these are observed and defined, then there is a possibility of establishing a new pattern or patterns that will correct the situation.

¹²³ (Alexander, 1979) pg. 129

APPENDIX 5

BOSTON CITY HALL

Since buildings and cities are sharing these principles, let's analyze Boston's Old City Hall through the same process as the previous city case studies of Brasilia, Chicago and Boston. This should reveal all of the four principles working in concert to achieve a harmonious and adaptable building.

This French Second Empire styled structure was Boston's third city hall. It was later converted into America's first public school, and then into the offices and a restaurant.¹²⁴ Despite its different uses, Old City Hall still maintains its monumentality. It does this through material permanence and aesthetic principles. Stone is innately heavy and solid, and this resilience is often correlated to stability. This material quality works with the aesthetic principles. The Old City Hall is proportionally divided. Each floor varies in importance, and this is extenuated by the size of the windows and columns. The bigger these are, the more significant the space inside. The cornice detailing further divides the façade by creating a rhythm and repetition in a symmetrical order.

The Old City Hall continues to exhibit city

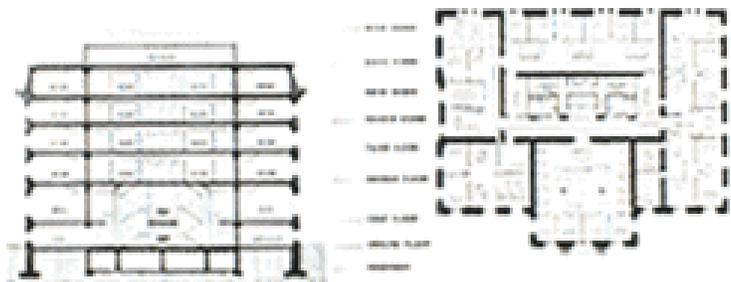


Figure 73: Section and Plan

components and Hildebrand's characteristics in plan, section and details. (Please forgive

¹²⁴ (Old City Hall, Boston (1865))

the blurry picture; I'm still looking for a better one.) As shown in the plan, the building is divided into rooms or districts. The walls and windows are acting as edges. Within each district are further divisions between pathways and occupiable space. In the section, there is the main circulation or path in the center proceeding upward. Lobbies and atriums act as nodes to facilitate movement around the core. The main grand staircase is in one of these, and it provides enticement and prospect by opening the second floor to the one below. Further prospect is demonstrated by the high ceilings and large open windows. This provides sunlight and airiness into the spaces. The plan also suggests complex-order through symmetrical composition. The complexity is served by the degree of ornamentation in the woodwork and marble inlays.¹²⁵



Figure 74: Interior View

As the earliest adaptive reuse projects in the US, Old City Hall executes the necessary city principles to successfully change with the times. Its section and floor plan encourages flexibility and fluid motion through all spaces. This suggests that aesthetic appeal and discovery can occur at any moment throughout the building. Therefore, when designing new structures for adaptability, open space for each function determines the degree of change that needs to transpire. In the case of an office, this could mean fewer remodels and fewer dollars spent. Movable partitions can define the larger space

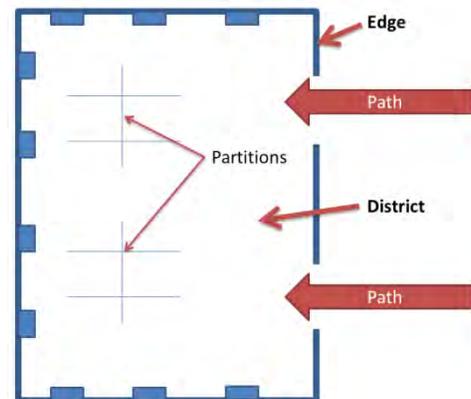


Figure 75: Author's Diagram

¹²⁵ (Old City Hall, Boston (1865))

into smaller ones. This is not very conducive to Hildebrand's characteristic, so the structure itself would have to be comprised of variations. This can be in space arrangement, path placement, proportions, or in decorative patterns. Materially, the Old City Hall is obviously stone on the exterior which limits outward expansion. Therefore, this has to occur inside by efficiently using every space, similar to the infill sites in a city. This parallels the medieval city where the inhabitants densely constructed within the defensive walls. Though fortification is not important here, the character of the structure is being respected for its historical value.

The Old City Hall used basic city components, aesthetic principle, material permanence and Hildebrand's characteristic to create harmonious patterns. This was obvious in its section, plan, and detailing. Therefore, when observing different structures, it should be obvious what patterns are achieved versus not.

Sharon Hausen: Helena's Director of City Planning

Sharon Hausen
 Casey Macfie - City Planner Helena, MT

My Master's Thesis is how cities can help buildings adapt. Through my studies, I have noticed that the following patterns occur: aesthetic principle for scale proportions - i.e. layout of city components (paths, gathering places, points of reference, etc.), variety of material permanence, and biophilic sensation (emotional experience of a space). These create good spaces, and buildings rely on similar principles.

1. I first want to understand what city planners do... What major issues do you deal with every day and how do you solve them? What about bigger issues?
 long - zoning, subdivision, deep standard
 short - application of ↑, case driven

2. Noticed patterns in research of aesthetic principles, layout of city components, material permanence and emotional experience... This seems to help create adaptability in cities. What is your opinion on what makes a good and adaptable city? Do you have an example?
 complete streets - all
 retrofit & grs
 change in
 walk change

flexibility in ordinance while keep big goal in mind

3. Is there any project that you feel has successfully incorporated adaptability into a city (doesn't matter what kind or size)? Can you elaborate on what made it adaptable?
 oslo Norway - old + new mix nice
 dense - econ, trans, value of land - country right out
 for future land

4. If you could make any change to a city to benefit the people and create more adaptability, what would it be?

5. What aspect of the building inventory frustrates you or excites you? Please elaborate:
 Street - ~~lines, processes, changing process~~ but not ~~excite~~
 excite - new gen. change look & challenges

6. What do you want to see changed in buildings in order to help your vision for a better city? What is your vision?
 roles of players
 mindful of Fine, street, people end audience

7. If you could pick your favorite project (building preferably) in the whole city systems, what would it be? Why does it appeal to you so much?
 Great Northern Center - what can be done w/ new
 infill/reuse of old industry site
 options it gives

streets less
 zoning - amenable
 hard for built enviro to change so)
 flexibility - 2 diff mind sets
 predictable but changeable
 adaptable - not every wants - so slight tweak
 Honor + respond to change
 + respects the order present

Gene Leuwer: Rock Mountain Development Council (pursuing purchase of Caird site)

Gene Leuwer: Rock Mountain Development Council Helena, Montana

My Master's Thesis is how cities can help buildings adapt. Through my studies, I have seen that the following patterns occur: aesthetic principles (i.e. scale, ornamentation), layout of city components (paths, gathering places, point of reference, etc.), variety of material permanence, and biophilic sensation (emotional experience of a space). These create good spaces, and buildings rely on similar principles.

1. What makes an area and a building potential for development?
 availability + access to city services, market
 dens trends → helena growing elderly care need want 1 bedroom apartments, others care facilities
2. When choosing, is adaptability or the potential for adaptability important? Define adaptability
 inside - access
 outside - view design/access storage
 location city transit, shop, bank etc
3. How would you define the "gaps" in the city from a planner/developer viewpoint? What would solve this? Do you feel this could be the same for buildings?
 unbalanced perimeters
 get city directive to guide dev.
4. Based on your experience, what suggestion(s) would you make to an architect to make cities and buildings more adaptable? What suggestions would you make for buildings to relate more to surrounding neighborhoods?
 city - Growth Plan - getting more directive w/ services
 priority areas
 life cycle of bldgs to surrounding area
 maximize it before city involved
5. What makes an area or a building successful? Can you plan or strategize for this?
 if done before city involvement than when city grows around then have multi. issues
6. I am interested in using Multifunction Junction as my Master's Thesis project. Since you are developing the area, would you be okay with me using that site as well? Is there any non-confidential information you'd be willing to share? Potentials? Draw backs? Indicated some changes, i.e. the new bus station and St Peter's exercise facility. How does this impact your previous study or does it?
 State - (back side) - highway in good condition, not planning to do anything w/ it. (History already)
 City - better traffic on high sch etc - volume
 - would like roundabout @ MFS
 30-40% single moms - Day care
 ~ 120,000 sqft on 2 acres
 brownfield
 possible memorial to Caird Steel on corner
 NE area for Housing
 (potential to become signature for helena) - talk w/ him about
 Railroad slows down turn around

Fed - suet. neighborhood late May ^{27, 2011} early June walkability tour or sust. tour

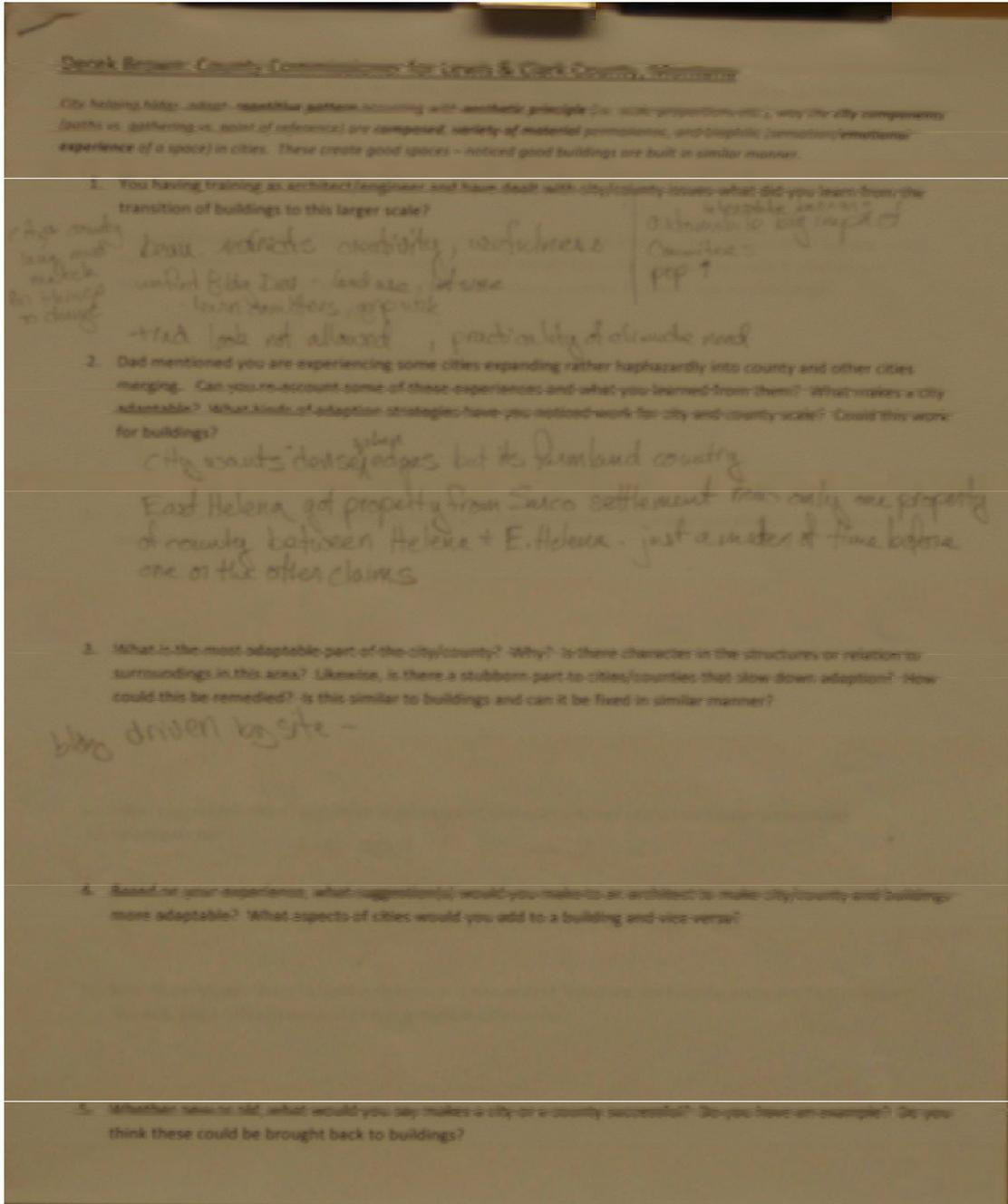
MFS City transp. planners - roundabout
 - Sharon Haugen

no barriers btwn bldg + people

There was a walkability expert who surveyed MFS
 Bus station is asset

Report

Derek Brown: County Commissioner for Lewis & Clark County



Appendix 7: Helena's Building Code (paraphrased)

MT Code 11-4-2

B: 20' setback for vehicle entrance; 5' lot line setback

C: Height limitations do not apply: spires, belfries, cupolas, chimneys, water tanks, elevator housing, solar energy systems, street lights and utility poles.

E: For Business and Commercial (site is currently zoned as such)

Lot coverage: 60% with residential; no maximum for non-residential

Front line setback: no minimum to 15' minimum for Commercial

Rear line setback: no minimum to 15' minimum for Commercial, B-1, B-2

Side line setback: 6' - 15', or no minimum depending

Height: 36' max for B occupancy to 60' max for Commercial

MT Code 11-22-5

Museum Parking: 2 spaces for each 1,000 sf for gross floor area

(For this project, a contract will be made with the High School for the majority of the museum's parking. The museum will retain 20-30 parking spaces for immediate use. The intention is the High School can use these during the museum's off-peak times, and then the roles reverse when the museum has its peaks during evenings, weekends and vacations. Since there is already a symbiotic relationship with the school, this should not be an issue.)

MT Code 11-22-9

15% of parking area shall be landscaped and identify snow storage areas.

For a Type IIIA Museum:

A-3 occupancy sprinkled: allow for 4 stories, height of 65' and 14,000 sf per floor

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