(un)Finished:
Pattern Language for Human-Centric Architectural Evolution

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Abstract

(un)Finished: Pattern Language for Human-Centric Architectural Evolution

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Architecture

All design projects- infrastructure, architecture, furniture- are, by nature, unfinished. Buildings and built spaces are initially designed and constructed to meet a specific set of needs, typically as laid out by a client, but may eventually be adapted to accommodate new programs, occupants, urban environments, or technologies. Unless these things (program, occupancy, cultural requirements) remain static, eventually the building will need to evolve. While the process of construction is linear, the continued use and perceived 'success' of a built project relies on its ability to adapt to the changing needs of its occupants, whether that adaptation happens as a part of the original design or an applied change post construction. Despite the prevailing attitude that once a building is constructed it is 'finished', this thesis argues that post-occupancy adaptations, detailing, and design provisions for future flexible needs are what make a building complete.

A well finished space both acknowledges the human scaled needs of its occupants as well as adapting to the programmatic shifts that may take place in the future. While this may not be an argument that pertains to the whole of the built environments, certain spaces, particularly public institutions and educational facilities frequently demonstrate this occurrence. Architecture is not simply a box filled with things, but rather, a structure that is both inhabitable and engaging, flexible and growing, adaptive and responsive to its occupants and environment, growing with generations.

Using methods of observation and survey, this thesis examines structures that have undergone post-construction changes in the Seattle area and assess their perceived level of 'completion' as well as the perceived 'success' of the building. By the central argument that all design projects are unfinished, these are simply current iterations and will evolve again in the future, yet they offer lessons on built relationships and adaptive design that can be studied and applied to other, less complete projects.

Drawing on the work of Christopher Alexander's Pattern Language, this thesis has developed a set of fifty areas of opportunity for design evolution that focuses on the human occupant. These patterns are not meant as a 'cookbook' of design but rather observations in how buildings speak to their designers and occupants about what they were, what they are, and what they want to be. In understanding that architecture is never truly finished, and that all buildings are simply in line for their next iteration, it suggests a method of crafting a more sustainable future for the way we design.

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I. UNFINISHED ARCHITECTURE

Architecture is and always has been many things. At its core, it describes the design of a structure or other physical environment to meet a set of requirements and specifying how it should be constructed. This built 'environment' can include, but is not limited to, the physical structure, interior materials and finishes, structural details, furnishings, signage, components such as stair rails and windows, as well as surrounding landscaping and urban organization. The combination of these elements together not only creates a physical building or space but also alters (describes) the character of the occupant's experience. Architecture projects that take on this 'complete' built environment as part of the overall design of the 'building' are rare. The correct combination of client, funding, people and place must all fall into line for this type of fully detailed, 'finished' building to be designed and constructed.

Certain architects are well known for this type of 'finished' environment- many of Frank Lloyd Wright's houses included designs for furnishings, textiles, window decorations and more (Fig 1). Arne Jacobsen, the celebrated Danish designer, designed not only the structure for the Aarhus City Hall, but also all of the custom brass lighting, handrails, and other finishes, as well as a unique font to be used in all of the buildings signage (Fig 3,4,5). Charles Rennie Mackintosh designed furnishings, ceramics and other housewares for his tea rooms in Glasgow, Scotland that are still produced and used today. (Fig 2) This high level of detail and finish creates an atmosphere of completeness- the original design takes into account how the space would be used and how the details of the project would improve the harmony of the experiences. These buildings are celebrated for this level of thought and detail but are also criticized for the fact that they cannot be changed or altered (Brand 175)

Figure 1: Hollyhock House, Frank Lloyd Wright, orig 1921

Fig 2: Willow Tea Rooms, Charles Renee Mackintosh, orig 1903

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Figure 3: Aarhus City Hall, Arne Jacobsen

Figure 4: Custom Fonts, light fixtures, ashtray and wall cladding at Aarhus City Hall, Denmark

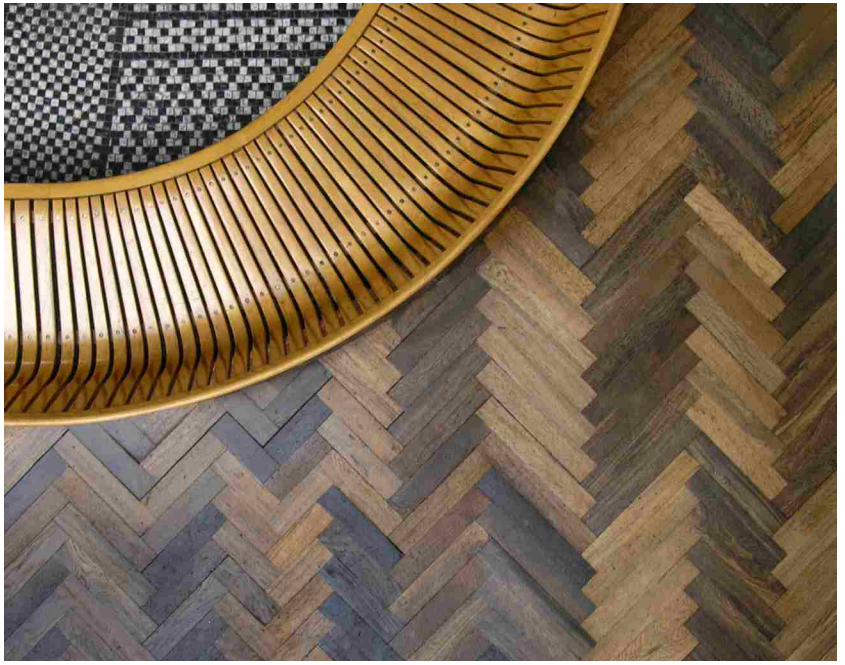

Figure 5: Detailed floor patterns and custom built-in bench, Aarhus City Hall, Denmark

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Because everything fits and goes together, there is no room for growth or evolution in the design. On a visit to the City Hall, a tour guide remarked that the offices were beautifully detailed but the circulation gave the feeling of a 'jail' or 'panopticon', yet no one would think of altering them, because the City Hall is such a celebrated and lauded historical space.

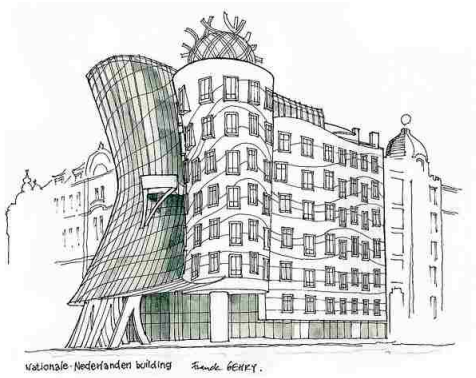

Figure 6: Sketch of 'Dancing House' Frank Gehry

More commonly, architectural projects address as many of the elements as timeline and budget will allow, and factor out parts and pieces deemed to be less necessary for the success of the project. The traditional architectural design process is generally understood to be a linear sequence: a team of architects are given a proposal or task, usually by a client. They begin with data collection and study of the program and the site area. They generate ideas or concepts, and out of this, distill one concept that drives the process of design. The design is solidified over time until a set of construction documents is produced, building is permitted, and the contractor starts construction. (Figure 7) Some adjustments may be made in the field, but they are typically minor. Once construction is complete, the occupants move in, and the project/building is considered 'finished'. The building exists as an object in space, untouched (theoretically) by time and progress. (Figure 6)

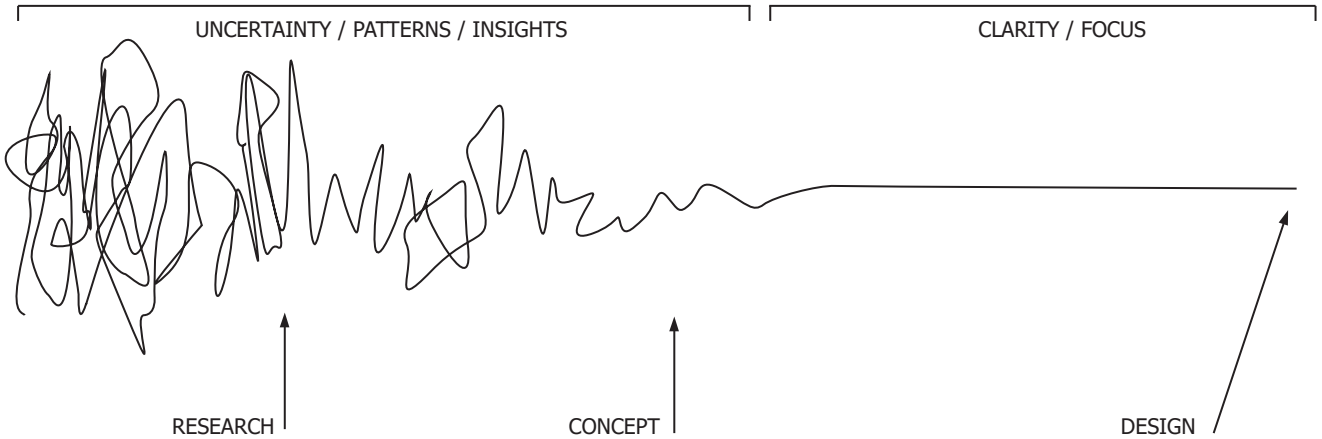

Figure 7: Traditional Linear Architectural Design Process

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In contrast to this linear system, most industrial and product design, as well as programming and engineering, use a cyclical, iterative process. A team of designers or engineers approach a problem or task, research the product and asses the inherent risks and key characteristics, develop a design and produce it. Whatever product has been manufactured is considered 'finished', yet also is thought of as a prototype.

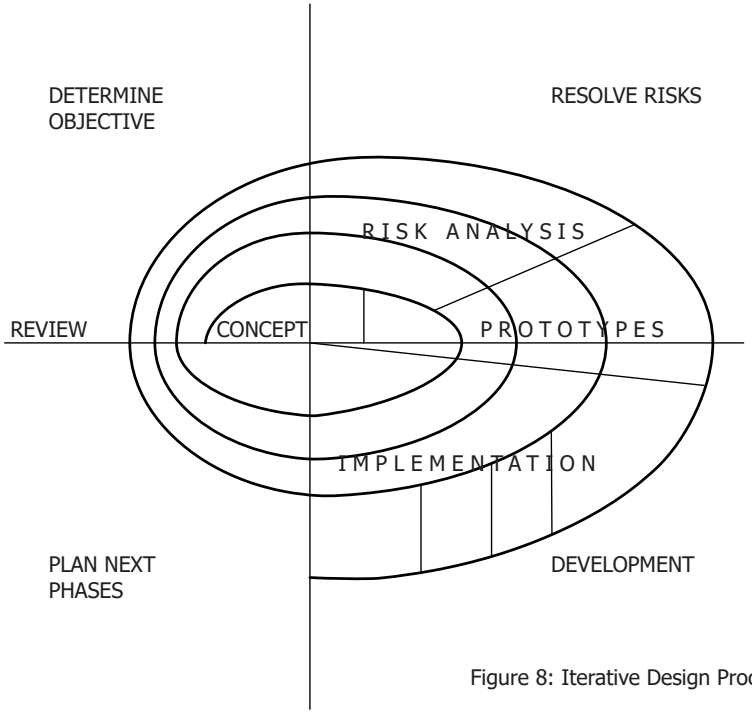

Figure 8: Iterative Design Process

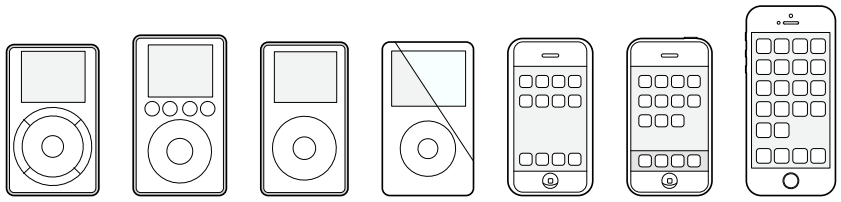

Figure 9: Finished Prototypes

The prototype is tested and analyzed for its strengths and weaknesses, its issues are detected and addressed, and another version is made, which also becomes the prototype for the next version (Figure 8). In this way, products are continually evolving and being refined in response to both issues in the original design as well as to changing circumstances (Figure 9).

While the three general parts of an architectural building development: schematic design, design development, and construction documentation do act as a way to refine the original concept, there is little to no re-assessment of how well the design works once the building has been constructed and occupied. Buildings are complicated, and much more costly to alter or affect than a mass produced product or software. However, because of this reluctance to re-assess or reevaluate architectural projects, buildings often reject changes or needs that may become apparent after construction. Architecture is seen as permanent and unchanging without acknowledging that things change around and within the building constantly. Changes in urban scale, density and occupancy all affect the way a building is used and occupied. Technology, materials, and construction methods are constantly evolving, meaning that what once was perfectly suitable in a building may no longer meet the standards of program or the environmental control needed in a space. The age range or type of the occupants can grow or alter, as may their programmatic needs. Perhaps an oversight or flaw in the initial design only becomes apparent after construction and occupation. In any of these circumstances, it would potentially enhance the design process to think of a building as a prototype, and to be able to grow and evolve that structure using the framework of the original design into its next iteration, taking into account constantly changing circumstances and environment.

Architecture, by nature of being a design process, is never truly finished.

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Success in an architectural project is an elusive quality to measure. Architecture is fundamentally different from 'construction' because it must take into account the component of emotional value in order to be successful. It must address elements of culture, values, morals, sustainability, history and diversity. Architecture must do more than simply keep out the rain and wind, it has the power to calm or energize, to give weight to its program, to effect its occupant's lives for the better or worse, to improve everyday morale, or to frustrate beyond compare. Understanding the cultural nuances that make a building successful requires careful examination and study. In addition, buildings that are already built and occupied can offer as much if not more information about the specific needs of a people and place than simply studying facts and figures. If we can look beyond the building, we can see what the building is trying to tell us, and help it to grow.

There is poetry and a language in the relationships between building a street, space and people, and it is there to be read if we are willing to look.

"The only source of knowledge is experience" (Albert Einstein)

Examples of historic buildings exist that have attempted to allow in the original design the human need to grow and change their spaces. In the 1920s, Le Corbusier designed a series of homes for sugar plantation workers in Pessac, a small city outside of Bordeaux, France under the sponsorship of noted industrialist Henri Fruges. These 50 houses were designed as a laboratory for Corbusier's ideas about domestic organization, material expression, and his five principles of design (Figure 10). Despite being considered an initial failure in bringing Modernist housing to the masses, these houses have been adapted and altered by their inhabitants with considerable success. The key to the success of these spaces lies in their strong initial design and the thoughtfulness of the spaces. In a New York Times review of modern day Pessac, Ada Louise Huxtable says

"it's (Pessac's) strong identity absorbs almost anything. Structurally, the houses are incredibly solid. One can read the original features, and then read the way they have been used or assimilated. Pessac continues to give something to the eye and the spirit that only buildings shaped and informed by a superior and caring eye and spirit can. This still holds true, with all of the changes made by the occupants over the years."

She goes on to say "Le Corbusier once said, in a statement usually turned against him, ''You know, it is always life that is right and the architect who is wrong." This was not a confession of error. It was the recognition of the validity of process over the sanctity of ideology. Few architects are capable of making that observation, because it speaks not to some fixed ideal, but to the complexity and incompleteness of architecture, to how life and art accommodate to each other" (Huxtable).While the houses at Pessac no longer look as they did when originally built, the lines and relationships of the original design are still visibly clear and understandable through the changes and adaptations that their inhabitants have wrought (Figure 11,12).

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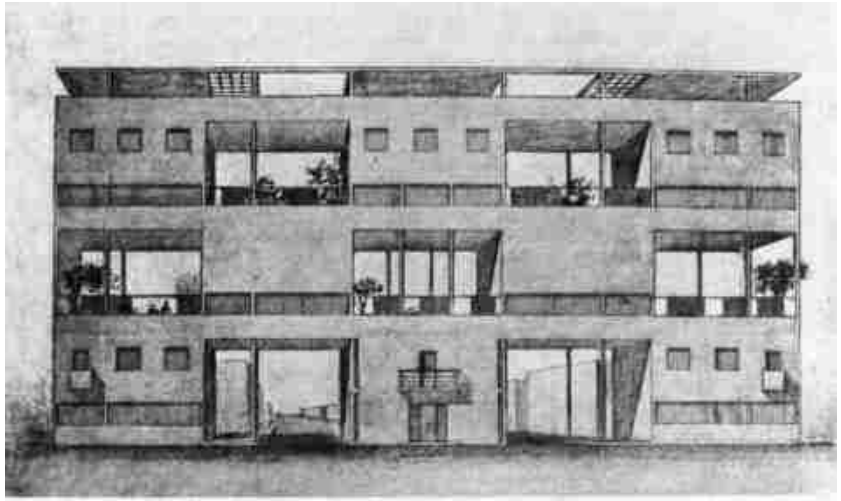

« Nouveaux quartiers Frugès » à Bordeaux.
Un premier groupe en construction.

Figure 10: Sketches for the original design of Quartiers Modernes Fruges, Le Corbusier

Figure 11: Housing at Pessac as originally built, 1924

Figure 12: Adapted and altered, 1981

Alvar Aalto designed a complex of similarly sized terraced houses in 1952 for the workers of Aero Corporation (now Finnish Air) outside of Vantaa, Finland. While some of these are still occupied, they look nearly identical to how they were initially constructed (Figure 13,14), albeit in some disrepair, contrasting with the workers housing in Pessac. While it is difficult to pinpoint why out of two similar housing types, one has grown and evolved and one has not, the answer might lie in ownership rather than design. The houses at Pessac were eventually sold to private owners while the Finnair Houses are still owned by the company, who has chosen to leave them as they are. If the Finnair houses were to be given latitude for change, they might follow a similar path.

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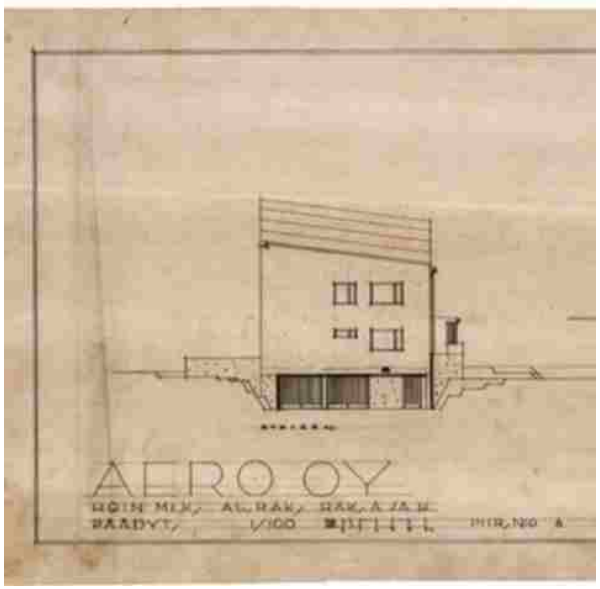

Figure 13: Housing for Aero/Finnair, Alvar Aalto, 1954

Figure 14: Housing for Aero/Finnair, Alvar Aalto, 2015

If architecture is situated within a constantly evolving environment, how can we, as designers, help buildings to evolve? 'Architecture' describes an environment that is, at its best, detailed and thought through from a human/occupant centric perspective. Can we isolate elements of building and construction that speak specifically to those qualities? Are there a series of affordances that work within both the original design as well as acting as areas of opportunity for evolution- places where construction, detail and design can improve while filling in or resolving issues with the original design? A perfectly finished, totally detailed building is a rare occurrence, yet is something that architecture, as a total environment, strives to be. Rather than coming into being as a perfect object, this thesis proposes that buildings can work towards this level of 'finish' or 'completeness' over time, with multiple iterations or evolutions that build on the original design. Stewart Brand states that "The word 'building' contains the double reality. It means both 'the action of the verb BUILD' and 'that which is built'-both verb and noun, both action and result. Whereas 'architecture' may strive to be permanent, a 'building' is always building and rebuilding. The idea is crystalline, the fact fluid. Could the idea be revised to match the fact?"

Methods for how the parts and pieces of architecture can be described and evaluated have been researched previously. One of the most applicable studies to this project is Christopher Alexander's two part book series A Pattern Language/ The Timeless Way of Building. In A Pattern Language, Alexander describes 253 'patterns' or descriptions of architectural problems and their proposed solutions, and how these patterns might together form a 'language' that could be used to approach building of towns, neighborhoods, houses, offices, and other buildings.

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Alexander says "each pattern represents our current best guess as to what arrangement of the physical environment will work to solve the problem presented. The empirical questions center on the problem—does it occur and is it felt in the way we have described it?—and the solution—does the arrangement we propose in fact resolve the problem? And the asterisks represent our degree of faith in these hypotheses. But of course, no matter what the asterisks say, the patterns are still hypotheses, all 253 of them—and are therefore all tentative, all free to evolve under the impact of new experience and observation" (xvi).

The original intention of Pattern Language was to be presented in a three ring binder, to represent that the patterns are flexible and can be altered, rearranged, added on to or changed as needed. (Alexander 12). The patterns are presented as a series of short chapters describing the circumstances and characteristics of a particular architectural problem, from materials, to programmatic life experiences, to urban organization that build and layer on each other. Many of the patterns are accompanied by images detailing each circumstance as well as hand drawn diagrams explaining the pattern, frequently describing either a yes or no function (Figure 15). Pattern Language has been an extremely influential book, extending beyond the realms of architecture. Pattern Language as a concept has had effect in engineering tasks as well and is the basis for some coding languages. It has been especially influential in software engineering where design patterns have been used to document collective knowledge in the field.

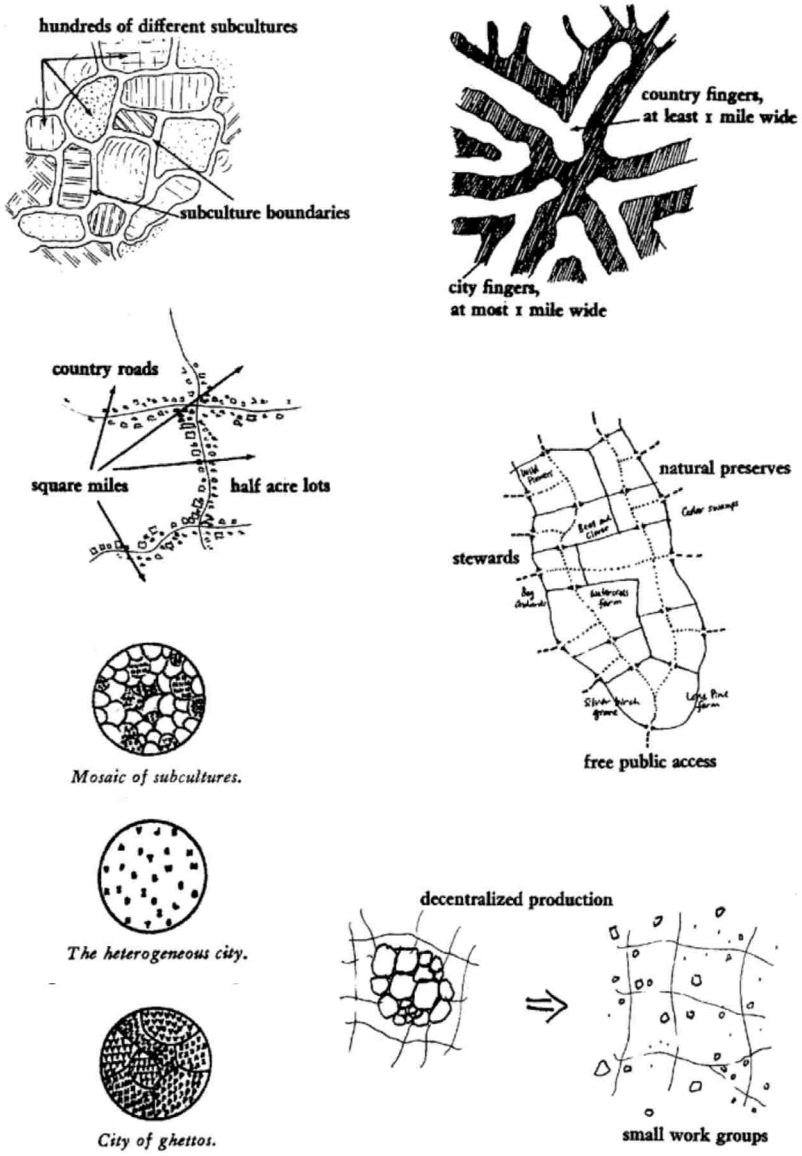

Figure 15: Patterns from A Pattern Language, Christopher Alexander, 1977

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The patterns that Chris Alexander describes in A Pattern Language make the claim that architecture is at its best when it is developed by and for a human-centered perspective. By breaking architecture down to parts and pieces, his intention was to make it accessible for 'ordinary' people, not just trained professionals, to improve their built spaces. Stewart Brand studies a similar approach in his book How Buildings Learn. This book, and the accompanying television series, studies the evolution of buildings and how buildings adapt to changing requirements over long periods. Brand argues that simpler, low maintenance buildings are the best structures because they last longer, are thus more sustainable, and that simpler shapes inspire innovation, while complex designs stifle growth. One has only to look at Corbusier's houses at Pessac, to see some truth in this- simpler shapes adapt more easily.

Brand says "Almost no buildings adapt well. They're designed not to adapt; also budgeted and financed not to, constructed not to, maintained not to, regulated and taxed not to, even remodeled not to. But all buildings (except monuments) adapt anyway, however poorly, cause the usages in and around them are changing constantly" (Brand 2)

Architecture, Brand states, is permanence, yet buildings are temporary (2). Brand traces both the evolutions of different kinds of structures as well as the characteristics of design that allow for better or worse changes. (Figure 16, 17) The focus of the book is on the evolution of old structures rather than changes in the way new buildings are built, and Brand argues that the constraints of building onto what already exists encourages creativity by freeing the designer from 'the appalling vacuum of a blank site' (105). While Brand's assessment and advice is not so concrete as that of Christopher Alexander's patterns, the ideas suggest that the way we think about and approach architectural design may be in need of a change.

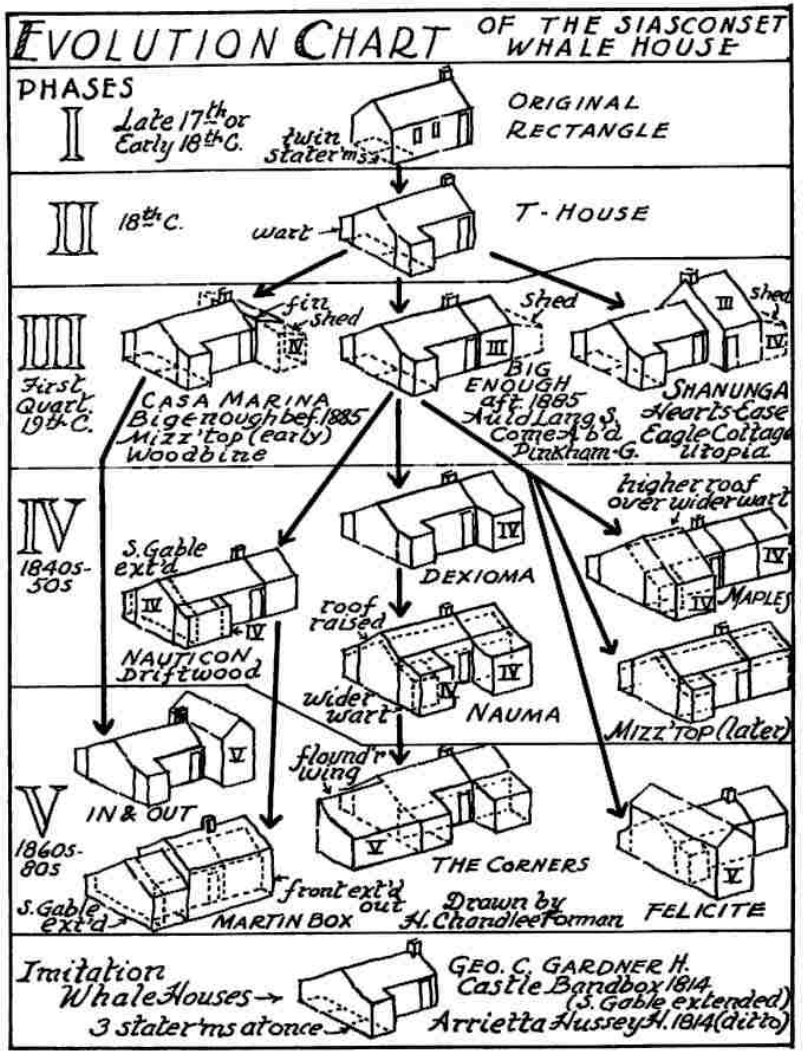

Figure 16, Evolution of the Siasconset Whale House via How Buildings Learn, Stewart Brand, 1994

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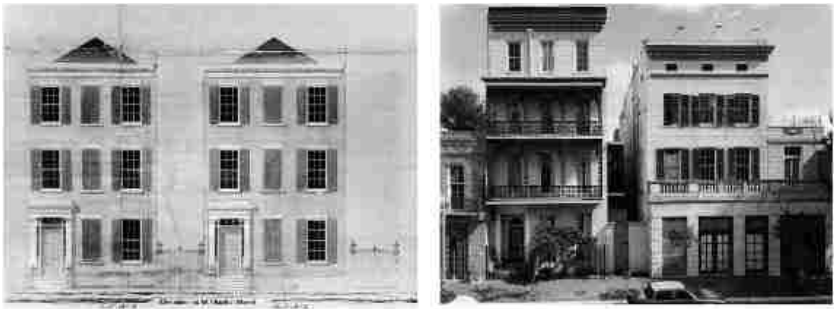

Figure 17: Evolution of two neighboring buildings, How Buildings Learn

Figure 18: Don Norman's Collection of teapots: Items that bring joy

The final text that was extremely influential in this project has been the Design of Everyday Things by Don Norman. Norman makes the argument that emotional response to design (both positive and negative) is the key to associative value in design. He says "cognition attempts to make sense of the world, emotion assigns value" (Norman 47). Norman's argument is that the overall purpose of design- in architecture, products, software, etc is to make things that are both aesthetically pleasing as well as pleasing to use. When objects are easy to use, intuitive to understand and efficiently perform their tasks, they are seen as 'good design'. Additionally, these things should be beautiful or aesthetically pleasing because, as Norman found, beautiful things work better- attractive things make people feel good, which in turn makes them think more creatively (Emotional Design 19) (Figure 18)

The connection between emotion, design and value seems obvious, yet we still have frustrating buildings with bad circulation and virtually undetectable front doors. He says "designers need to focus their attention on the cases where things go wrong, not just on when things work as planned" (Norman 27). If the human experience were to drive the design of common architecture rather than a top-down concept, perhaps we would have more buildings that were not only livable, but enjoyable at the same time. Martin Self states that "It is by physical interaction with the world, through our bodies senses,that we develop the understanding of space and materiality necessary for the aesthetic judgment of built form…" (Self 47). We must, with our human bodies, touch and feel and experience things in order to assess whether they are good or bad, beautiful or ugly, successful or useless.

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This thesis is a study of how we, as designers, can help buildings to evolve-not only to be larger or accommodate more program, but to better serve their human occupants, their neighborhoods, and their surroundings. The goal was to assess areas of opportunity where the original design could be developed or improved to enhance what was already built while responding to changing conditions. Not only to extend the life of the building, but to improve the morale of its occupants, to alter the urban context with the power of one really good building, and to become an iteration rather than a permanent fixture in time. How can designers improve on the original while also allowing for another version of that building to come into being sometime later, assessed and redesigned by someone else? Additionally, do these elements or patterns also make it possible to design new structures in such a way that they could be added onto or developed by another designer in the future? In order to develop a framework for these areas of design opportunity, it was important to find examples in real buildings where this had been done successfully, and see where in those adaptive projects certain elements or characteristics overlapped.

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II. PRECEDENTS: BUILDING EVOLUTION

In looking for patterns of architectural elements that allowed for further iteration of design, it became quickly obvious that it was necessary to limit this search to a specific scope and location of projects. While this study could be expanded to include other projects and locations, this survey focuses specifically on projects in the Seattle, Washington area and surrounding, with a public or civic presence, non residential projects of under 20,000 square feet. These precedents were chosen as examples of architectural projects with a historical context where the building was adapted, renovated, re-used or added onto in such a way that the original structure was still visible and in use. While the goal was to study projects that had been well received and were perceived as successful by both the architectural community as well as the public at large, certain elements and projects have been met with criticism, which is noted in each case study.

Projects of study included:
-Chophouse Row, an adaptive reuse mixed-use development in Capitol Hill, Seattle orchestrated by Liz Dunn
-The Piston and Ring Building, a renovated automotive shop turned restaurant in Capitol Hill, Seattle, designed by Graham Baba Architects.
-The Douglass Truth Branch Public Library, an addition and renovation in the Central District of Seattle, renovated by Schacht Aslani Architects
-Pike Place Market Addition, completed in 2016 by Miller Hull Architects in Downtown Seattle
-Westside School, a reused church converted to a elementary school by SKL Architects, located in Southwest Seattle
-Rice Fergus Miller Office and Studio, renovated 1980's office space turned Architecture office in Bremerton, Washington
-Olympic Sculpture Park, reused brown site along Seattle's Waterfront
-Bellevue First Congregational Church, a renovated and expanded church in Bellevue Washington by Atelier Jones
-Allen Institute for Brain Science, an adaptive reuse project/ 'facade-ectomy' in South Lake Union, Seattle, by Perkins+Will Architects
-Northeast Branch Public Library, expansion and renovation of a small neighborhood library in Roosevelt, Seattle, by Miller Hull Architects
-Museum of Science and Industry, site improvement and adaptive reuse of Seattle's disused Naval Armory Reserve Building to house a new museum, by LMN Architects
-McMenamins Grand Lodge, quirky renovation of a sanitarium into a hotel and event space including a brewery and restaurant, located in Forest Grove, Oregon.

A study of these projects, their history and the design strategies employed in their renovations revealed a series of fifty patterns, organized into seven categories, starting with the small scale of the hand or the body and working up to a larger understanding of context and site analysis. (Figure 19) This list isn't meant to be a cookbook of architecture or adaptive reuse but rather my understanding of how buildings talk to us after they have been built about what they want to be next.
These categories are as follows:
-Smalls
-Openings
-Interior
-Entry
-Building
-Site
-Location/Context

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SMALLS is about what happens at the body scale. How do we interact with buildings by touch? How does the way things come together at the small scale affect the overall experience of the space? How do the shape, material and character of something that seems sort of insignificant affect how we feel as we move through a building?

OPENINGS is about the cuts we make in the shell of the structure.

INTERIOR is about things that happen inside the building- spatial organization, how material and light change the way a space feels, how a space can be more detailed and developed. One of the common themes in many of these patterns was trying to minimize confusion and frustration in the way people interact with the space- the general goal of any designer.

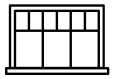
ENTRY- is about how the physical built elements of a space telegraph their purpose- where is the front door? How does someone travel from one place to another? Does the design make it easy to understand how to get in and out of a space?

BUILDING- this scale is about the building as an entire unit: how it feels to walk up to it from the street, how it interacts with the environment, how different parts of it relate to each other.

SITE- how the building relates to its surrounding environment- the parts and pieces that are usually outside of a building but related to it an affecting it.

LOCATION/CONTEXT- while some of these things aren't necessarily visible, that these kinds of relationships play an important role in the way that buildings adapt and change. Especially with older buildings, the history and scale of where they came from and why are a key part of their original character.

SMALLS
01 Soft and Hard
02 Appropriate Heights
03 Tactility
04 Shapes for the Hand
05 Maintenance



OPENINGS
06 Interior/Exterior Mingling
07 Terrance/View to the Street
08 6' Balconies

INTERIOR
09 Material Texture
10 Place of Community "Commons"
11 Place of Individuality "Cave"
12 Light and Dark
13 Birds Eye View
14 Alcoves
15 Flexible Space
16 Understandable Circulation
17 Built in Seating
18 Big Small Spaces

ENTRY
19 Pedestrian Access
20 Clear Entries
21 Entrance Transition

Figure 19: Patterns for Evolution

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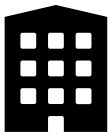

BUILDING

22 Existing Structure
23 Lasting Materials
24 Grid Relationships
25 Improve Environment
26 Views to Exterior
27 Something to Look At
28 No Monoliths
29 Good Daylighting Principles
30 Secret Spots
31 A Place to Eat Outside
32 Shade and Sun
33 Exterior Lighting

SITE

34 Understandable Pathways
35 Path Shape
36 Pedestrian Stopping Points
37 Sense of Discovery
38 Views
39 Improve Site
40 Hide/Shield/Break Up Parking
41 Plus One Story or Smaller
42 Shortcuts
43 No Dead Plazas
44 Connect to Elements
45 Ask More of Your Fences

LOCATION (CONTEXT)

46 History/People
47 Current Conditions
48 Need
49 Weather/Climate
50 Local Resources

Figure 19 cont: Patterns for Evolution

Each precedent study revealed a series of characteristics in common with others- some more successful than others. Some projects leaned more heavily on smaller scale details, like the Piston and Ring building, while others, like the Pike Place Market Addition, was largely successful because it carefully studied the history and context of the original building, and built delicately and seamlessly into a beloved cultural icon.

Certain projects, like the Piston and Ring Building in Capitol Hill, made excellent use of small scale details and hand crafted, locally fabricated metal work to transform an old automotive factory into an upscale restaurant space. The original building was constructed in the 1920s (Figure 20) and was adapted for current use in 2006 as a mixed use retail and restaurant space by Graham Baba Architects (Figure 21). Patterns that emerged from studying this space were improvements in daylighting, outdoor access, hand-oriented details, improved materials and tactility, and better circulation. The automotive history of the site was carried forward in the maintenance of the original structure (with improvements as needed) as well as the custom steel work featured heavily in the space. In interior lofted space makes use of the original heavy timber frame while also allowing for great visibility of both the restaurant space as well as the street life.

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Figure 20: The Piston and Ring Building, before renovation

Figure 21: Interior of Osteria la Spiga, within the Piston and Ring Building

Chophouse Row, a mixed use retail and residential development that includes the Piston and Ring Building, was originally a series of auto body shops and dealerships, most built in the mid 1920's (Figure 22). Developer Liz Dunn of Dunn + Hobbe hired a series of architects, mostly Graham Baba Architects and SKL Architecture to renovate the buildings, which comprise most of a city block. The project was completed in 2015 and has been met mostly with acclaim (Dunn+Hobbe). This project well exemplifies the architectural principles of prospect and refuge- featuring a meandering alleyway that creates a sense of discovery and journey, with small shops opening up to the alley allowing for outdoor cafes and places to people watch (Figure 23). This site takes a busy urban block and transforms it into a pedestrian friendly destination in the city.

In Seattle's Central district, the Douglass Truth Branch Public Library, a historic Carnegie library received both renovations as well as a modern addition. The original building, once named the Henry Yesler Library was built in 1914, one of several Carnegie Libraries in Seattle (Figure 24). In 2006, Schacht Aslani Architects added an additional structure to the site. In order to maintain the neighborhood scale and feel while still providing the necessary square footage, most of the addition is below grade, with a long skylight that allows a play of light to spill across the largest wall in the space (Figure 25). While the librarians seem glad of the additional space, the modern addition was not well received by the architectural community, with criticism generally stating that the addition was too modern for the historical library and that the shape and cladding looked like a 'pork chop' (Figure 26). While this project may not have been the most successful melding of old and new, it did improve the size and function of the library and is a pleasant space to visit (Figure 27).

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Figure 22: Part of the original Chophouse Row autoshops, cir. 1925

Figure 24: The original Yesler Public Library, now Douglass Truth

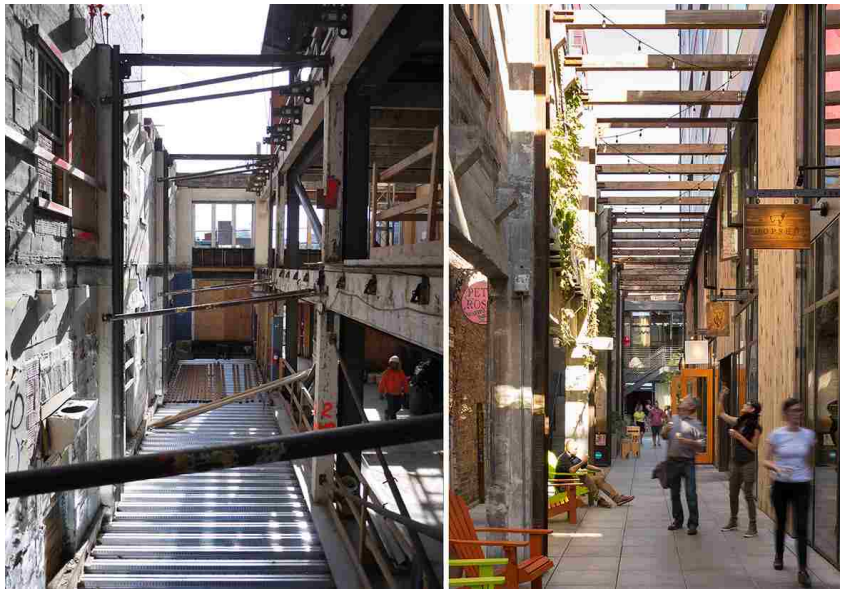

Figure 23: Chophouse Row Alley, during and after construction, 2015

Figure 25: Douglass Truth addition interior

Figure 26: Douglass Truth addition exterior

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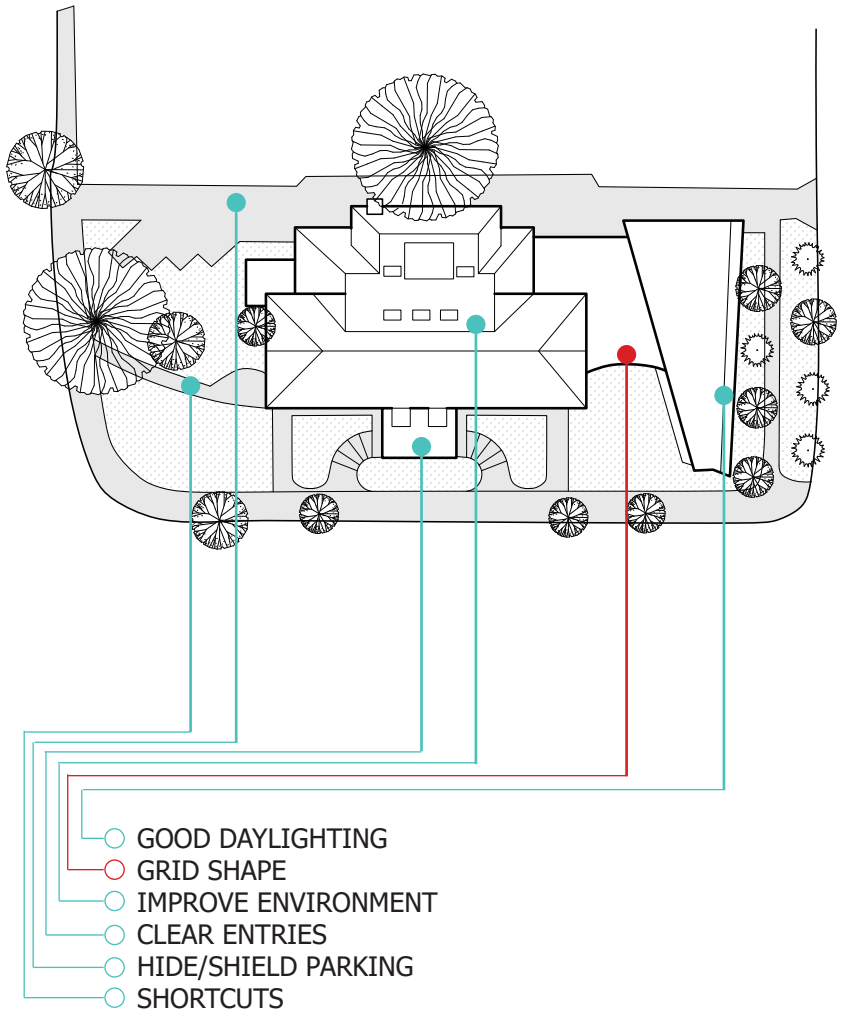

Figure 27: Douglass Truth extracted patterns (diagram)

Pike Place Market is an important fixture in both historic and present day Seattle. Situated in an active part of the city, with a high pedestrian flow but also aggressive car traffic. In order to make the best of a complex site, Miller Hull's addition to the open air market included a pedestrian bridge, three layers of underground parking, a strategic cut through the building along the most direct pedestrian path, and a winding, layered path leading to a public viewpoint looking out over Seattle's waterfront. Key details in the addition included strong references to the historical market-from the greenish paint color on the open air market stalls to the brass pig sculpture that mimics the original (Figure 29, 30). The addition, like its predecessor, puts the pedestrian experience first, with careful orchestration of views, landscaping planters and built in seating which make it effortless to access from the original building as well as rewarding for those who do (Figure 28). While the market addition has only been open for a short time, visits to the site have proved that people use the new site heavily, even in colder weather (Figure 31).

When a Presbyterian church in Southwest Seattle found itself with a dwindling congregation insufficient to fill a large hall built in the 1970's (Figure 33). it solved the problem by selling the building to a local (the Westside School) school whose lease was about to expire. The distinctive building underwent a renovation and expansion by Sundberg Kennedy Ly-Au Young (SKL) Architects. While the most notable part of the structure was retained (the tall curving peaked roof), the entire building was given a complete retrofit, improving daylighting, energy efficiency, maintenance, and waste treatment while providing a rich and vivid learning environment (Figure 34, 35). This project in particular focused not only on improving the space and the aesthetic design of the original building, but especially on the mechanical systems and energy usage. The spaces within follow good daylighting principles, with small classroom sizes, operable windows, a mix of spaces for both individuality as well as community, and a rich tapestry of textures and materials. (Figure 32)

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In a similar manner to the Westside School project, Rice Fergus Miller Architecture chose to renovate and reuse an unoccupied 1948's Sears Automotive Center in Bremerton Washington for their new office space rather than work with a more modern space. The firm chose Bremerton, and the building in particular, because they believed that updating it could help revitalize the Bremerton downtown area. In addition to vastly improving the mechanical systems and energy efficiency of the building, daylighting and passive cooling was vastly improved, water usage was made more efficient, parking was added in a below grade lot, and the entire building received material facelift both inside and out (Figure 36-38). The result, while not as flashy from the exterior as many of these project, is an extremely pleasant building that operates efficiently while also providing a well laid out open office plan. While trying to boost the Bremerton economy and tie back to the historical roots of the building, RFM chose to have the roof redone in locally milled Douglas Fir, as well as reusing wood and metal from the local area.

While not strictly an 'architecture' project, the Olympic Sculpture Park in downtown Seattle encompasses the character of a 'built environment'. The sculpture park, which was completed in 2007, took nine acres of contaminated brownfield that once belonged to industrial oil and gas company Unocal and transformed it into usable public green space (Figure 40). Similar to Pike Place Market, the site is heavily trafficked by pedestrians (currency, that is) but also must negotiate both a busy road and a large railroad track. This project exemplifies how path shape, material, journey and views can make a space feel larger than it actually is by adding both distance and interest (Figure 39).

Another reuse of a 1970's office building, Bellevue First Congregational Church by Atelier Jones has become known colloquially as the 'CLT Church' due to its use of 40' tall folded plates of CLT, or cross laminated timber, in its sanctuary space. A highly emotive space, the firm wisely allowed the material and the natural light to add ornamental qualities and character to a fairly straightforward layout. The result is a beautiful sacred space that highlights a locally made material and inserts daylight into the gray Pacific Northwest Climate (Figure 41, 42).

On the larger end of the spectrum of these studies, the Paul Allen Institute of Brain Science, by Perkins + Will is not necessarily a bad building, although the reception of it has not been glowing. While the building makes use of the original terracotta facade of the Ford and McKay buildings-dating back to the 1870's-as per code requirements (Figure 43), the glittering glass monolith that rises behind it has little to nothing to do with the original design, character or structure of its predecessor (Figure 44). It incorporates some nice features in the finished design, but offers more tales of caution than measures of success for projects relating to adaptive reuse (Figure 45).

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Standing quietly in a residential part of the Roosevelt neighborhood of Seattle is the Northeast Branch Public Library. Originally designed by Paul Thierry in 1962 (Figure 47), the library found itself in the early 2000's needing more space for patrons, a better computer space, additional classroom and meeting rooms, as well as an overall upgrade. The renovation and expansion, completed in 2004 by Miller Hull Architects, fits seamlessly into the neighborhood scale while leaving the distinct Mid Century northwest building completely in tact. While the addition is clearly a modern building, it maintains a similar language to the original, with exposed steel beams and round skylights that mimic the original light fixtures (Figure 49). The new building offers a good mix of public spaces that take advantage of direct daylight thought large windows, as well as more private spaces with controlled light for reading or computer work (Figure 48). The original structure is also notable in its ease of adaptation, with a flexible open floor plan, simple structure, easy circulation and understandable entry hierarchy (Figure 46).

Another site similar to the Olympic Sculpture Park, the Museum of Science and Industry (known as MOHAI) makes use of land that the city of Seattle found to be unprofitable and unfit for public space. A program with a complicated past, the collection known as MOHAI moved from building to building before ending up in the Naval Reserves Armory Building, designed by Paul Thierry and built in 1942 (Figure 51). The two story structure sits on a pier in the South Lake Union Waterfront, and the building and surrounding landscape were renovated and updated by LMN Architects in 2012 (Figure 52). The original building was scheduled to be demolished in 2007 before moving the MOHAI collection to it. This building makes the most of its incredible views, flexible, open space and floor plan, as well as large surrounding area to create a pedestrian friendly museum that has become a Seattle landmark. Shaped paths, water features, minimal parking and a clear and obvious entrance give this building strength even from the outside (Figure 50). Once inside, the designers focused on improving the space with open floor plans, a mezzanine level for viewing both people and exhibits, as well as improved daylighting and easy to understand circulation , leaving the focus on the museum contents rather than the building itself (Figure 53).

The final precedent study to be described in this thesis is not a traditional architectural precedent. It was not designed as a show stopper piece by a well known firm and in fact, little can be found about both the original designer or the renovator. The McMenamins Grand Lodge in Forest Grove, Oregon is part of a chain or restaurants and breweries knowns as 'McMenamins' that feature local artists and decorative detailing heavily in their structures, which are primarily reused historical buildings. No two are alike. The building that houses the Grand Lodge was once a Masonic home for 'the aged and infirm' (Figure 54). It currently houses a restaurant, brewhouse, hotel rooms, sauna and spa facilities, as well as sprawling grounds and event space (Figure 55). The McMenamins have become well known for their quirky and well detailed spaces, covering walls, floors, ceilings and even plumbing pipes with paintings, murals, mosaics and other artistic details. The team of artists that work on the spaces have dubbed their style 'historic surrealism' (Figure 56). This project offers less in the way of patterns for architectural evolution, but gives an example of how a building can grow and become more detailed as time passes.

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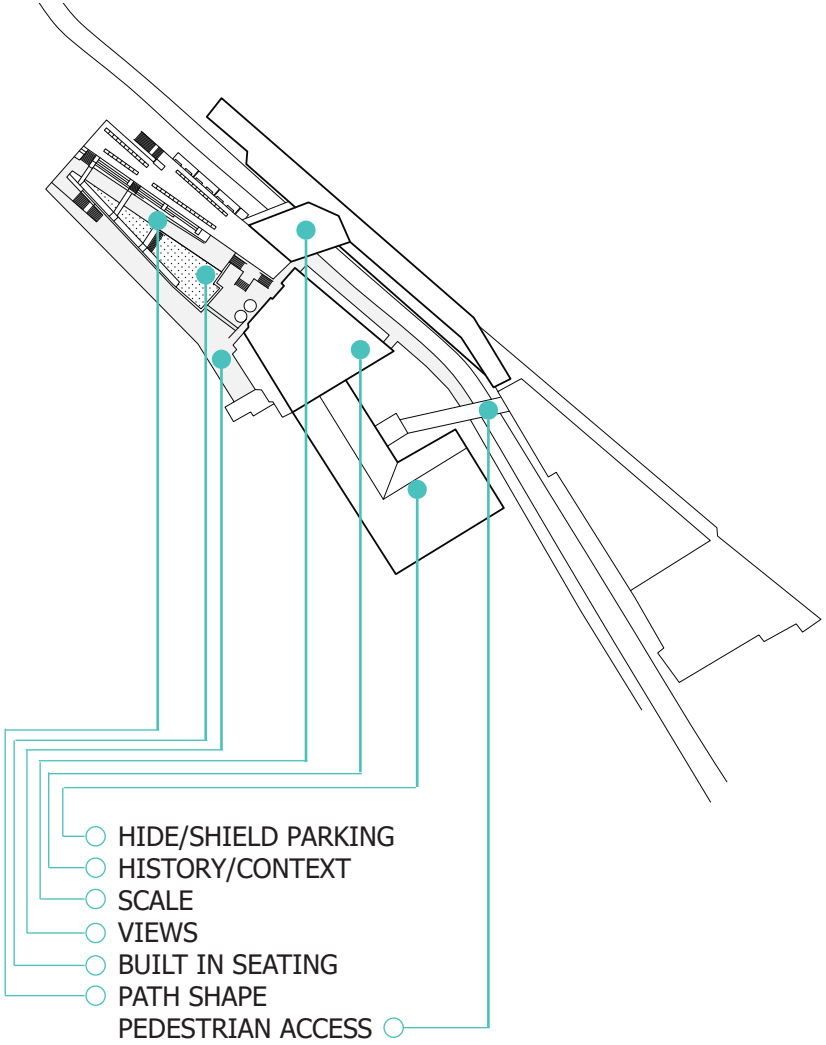

Figure 31: Pike Place Market extracted patterns(diagram)

Figure 28: Pike Place Market Addition

Figure 29: Original Pig Sculpture "Rachel" at Pike Place Market

Figure 30: New Pig Sculpture "Billie" at Pike Place Market

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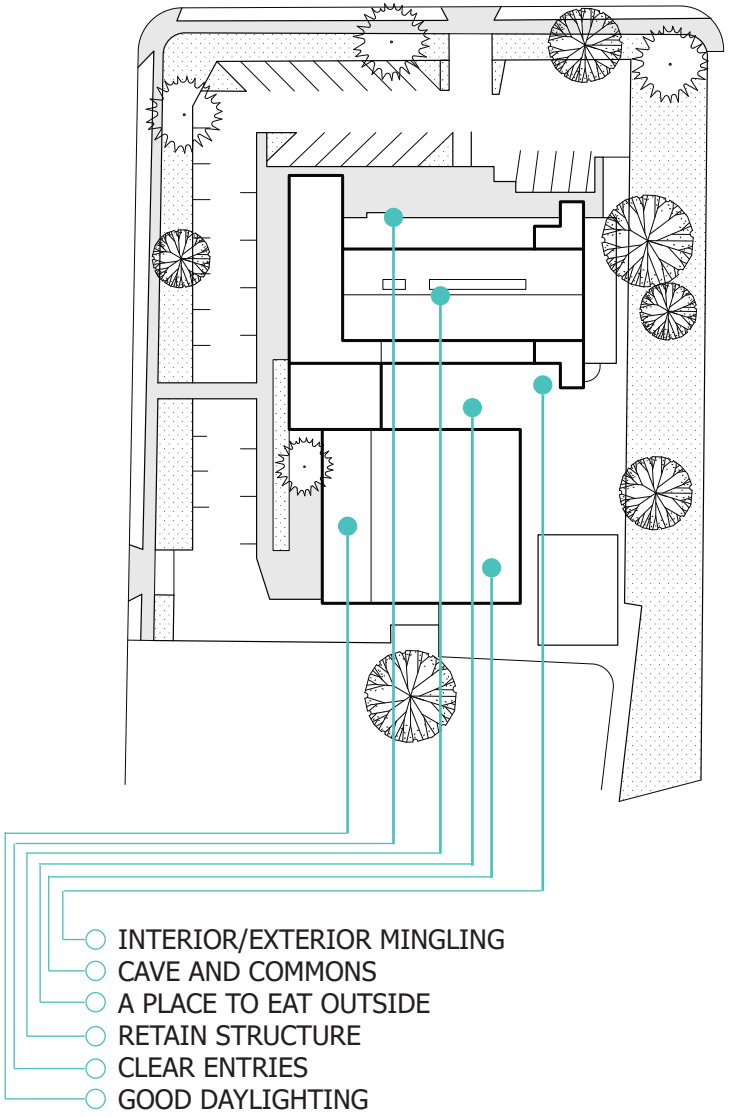

Figure 32: Westside School extracted patterns(diagram)

Figure 33: Original church

Figure 34: Westside School facade

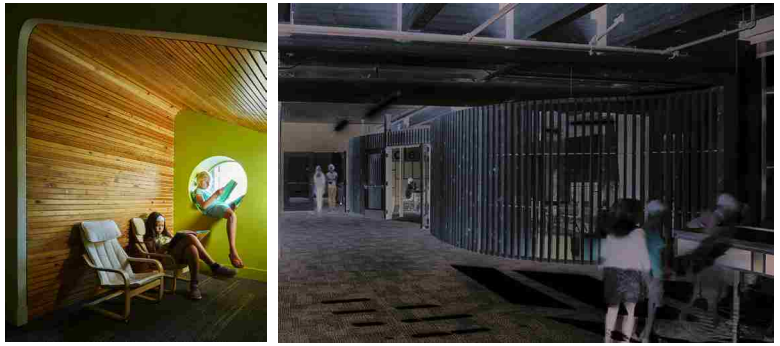

Figure 35: Westside School interior

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Figure 36: RFM renovated exterior

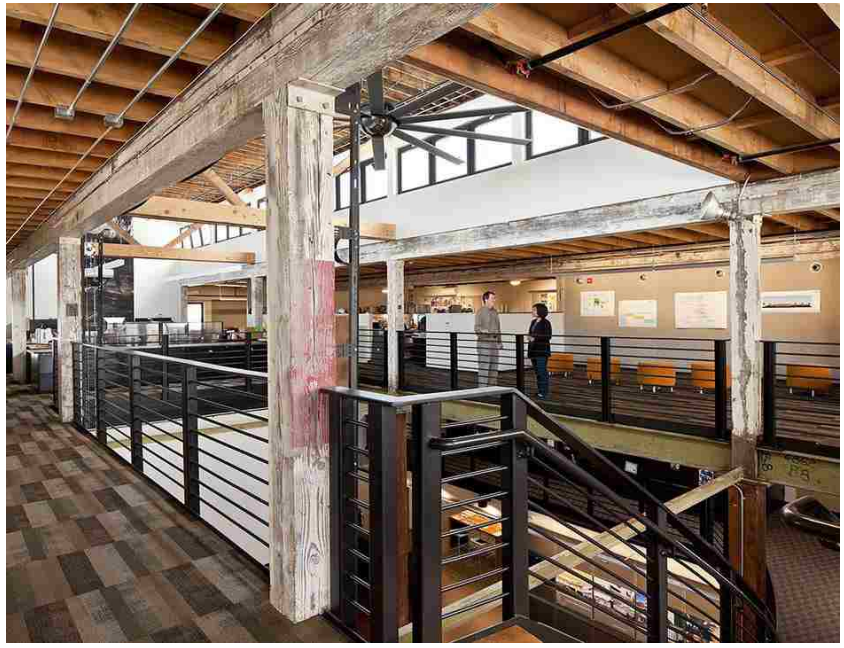

Figure 37: RFM renovated interior, showing locally salvaged materials and lofted mezzanine

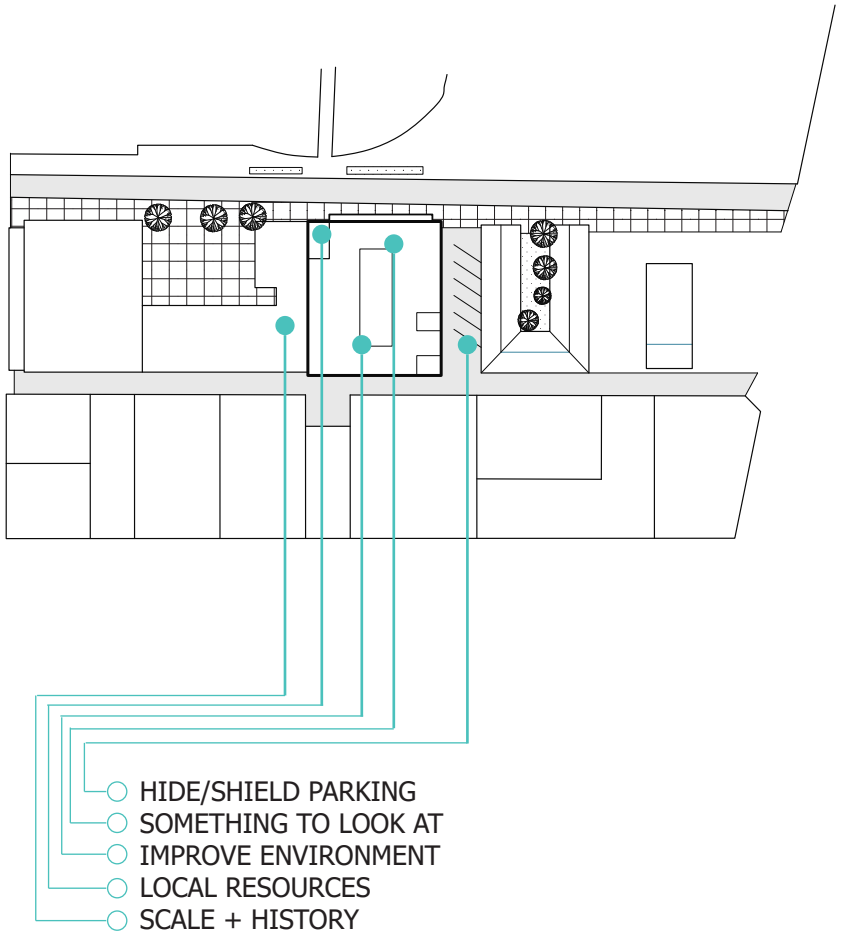

Figure 38: Rice Fergus Miller extracted patterns(diagram)

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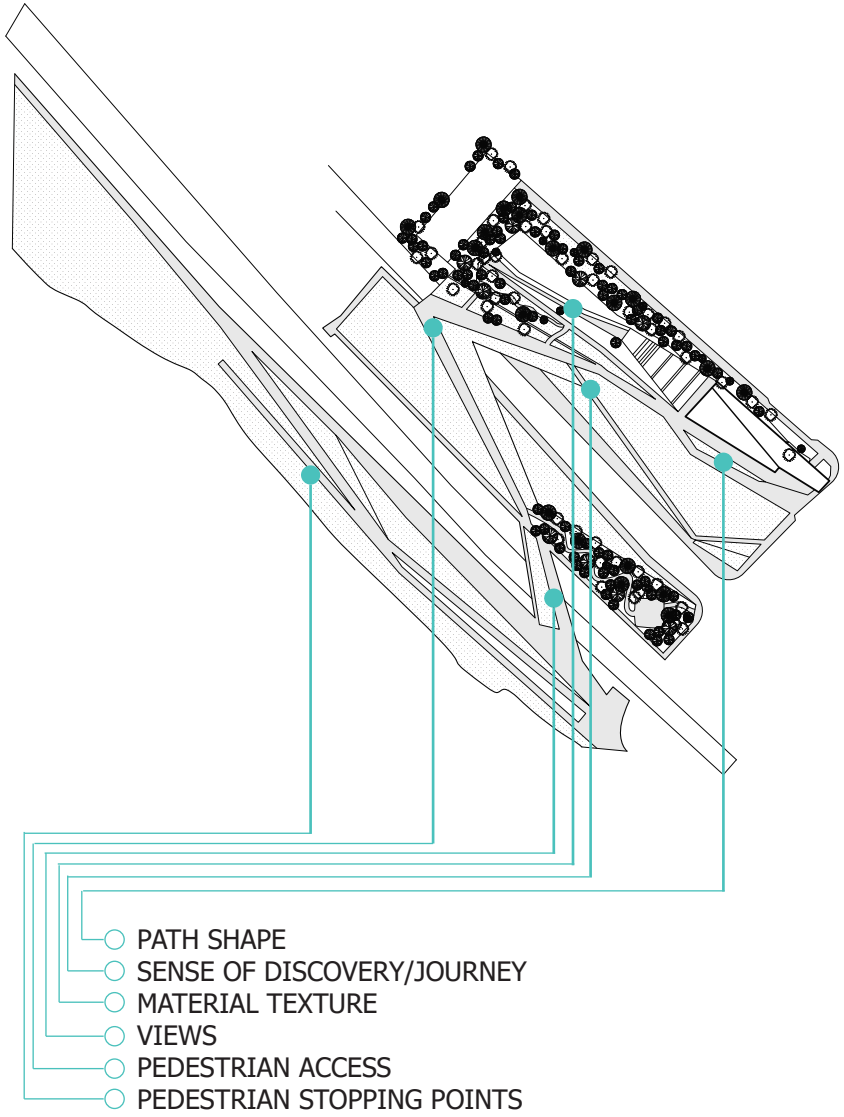

Figure 39: Olympic Sculpture Park extracted patterns (diagram)

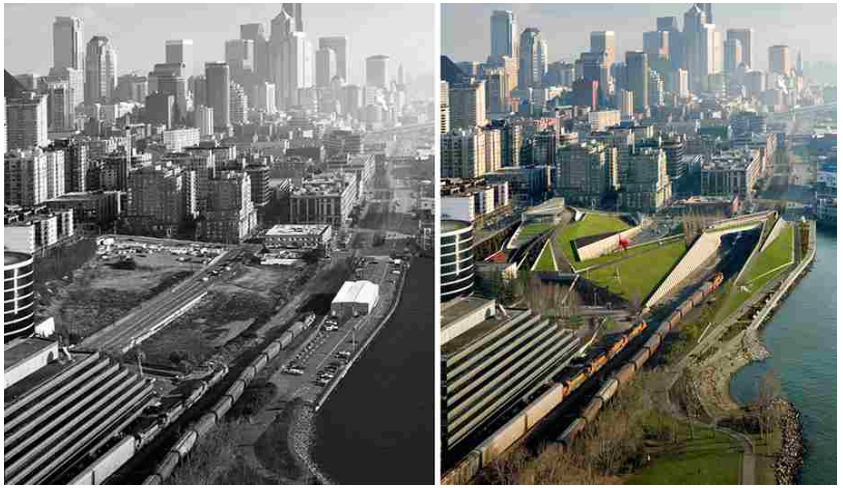

Figure 40: OSP before and after

Figure 41: CLT Church interior

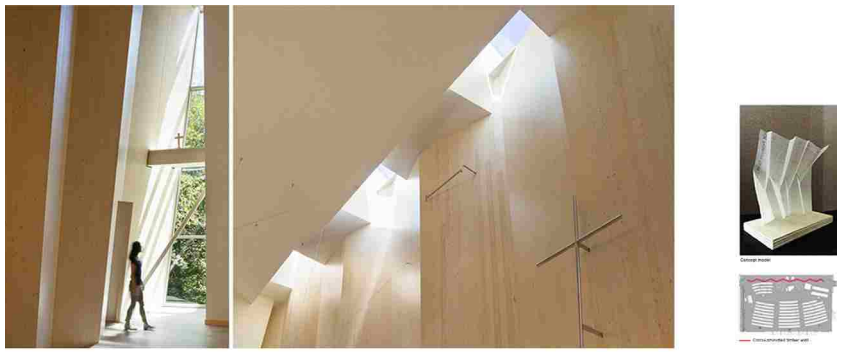

Figure 42: CLT Church interior details and concept model

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Figure 43: Original Ford and McKay Buildings, circ 1940

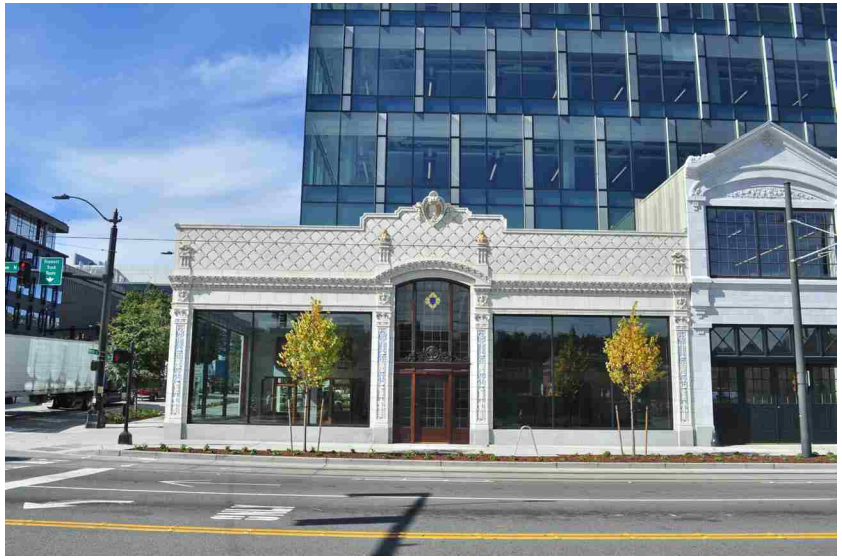

Figure 44: Entry to Allen Institute, 2016

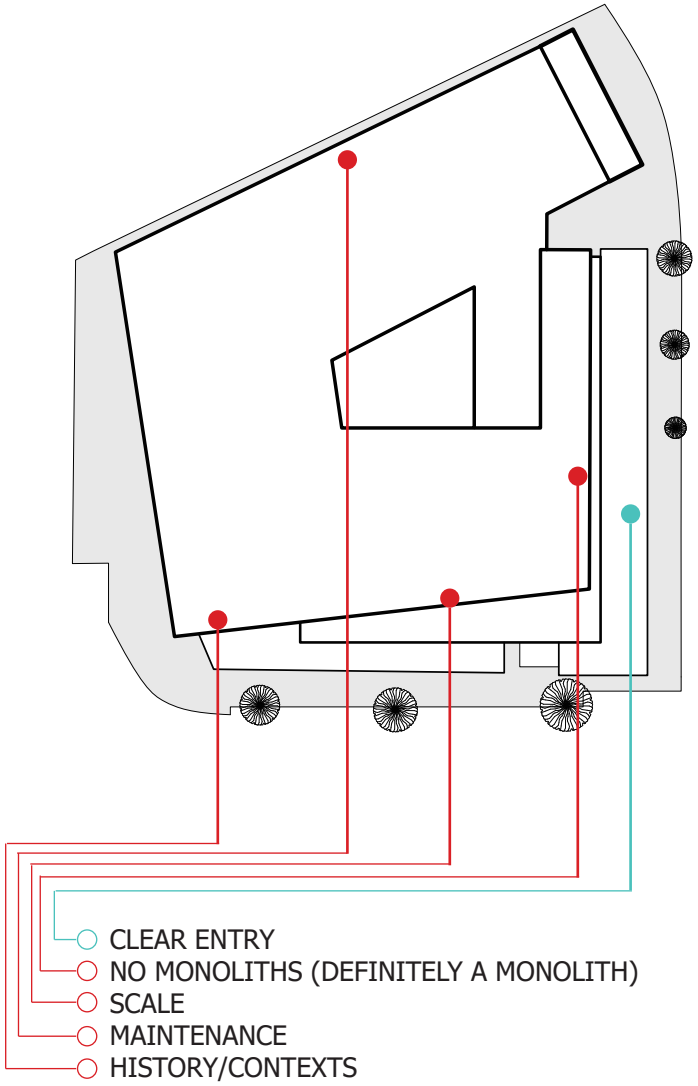

Figure 45: Allen Institute extracted patterns (diagram)

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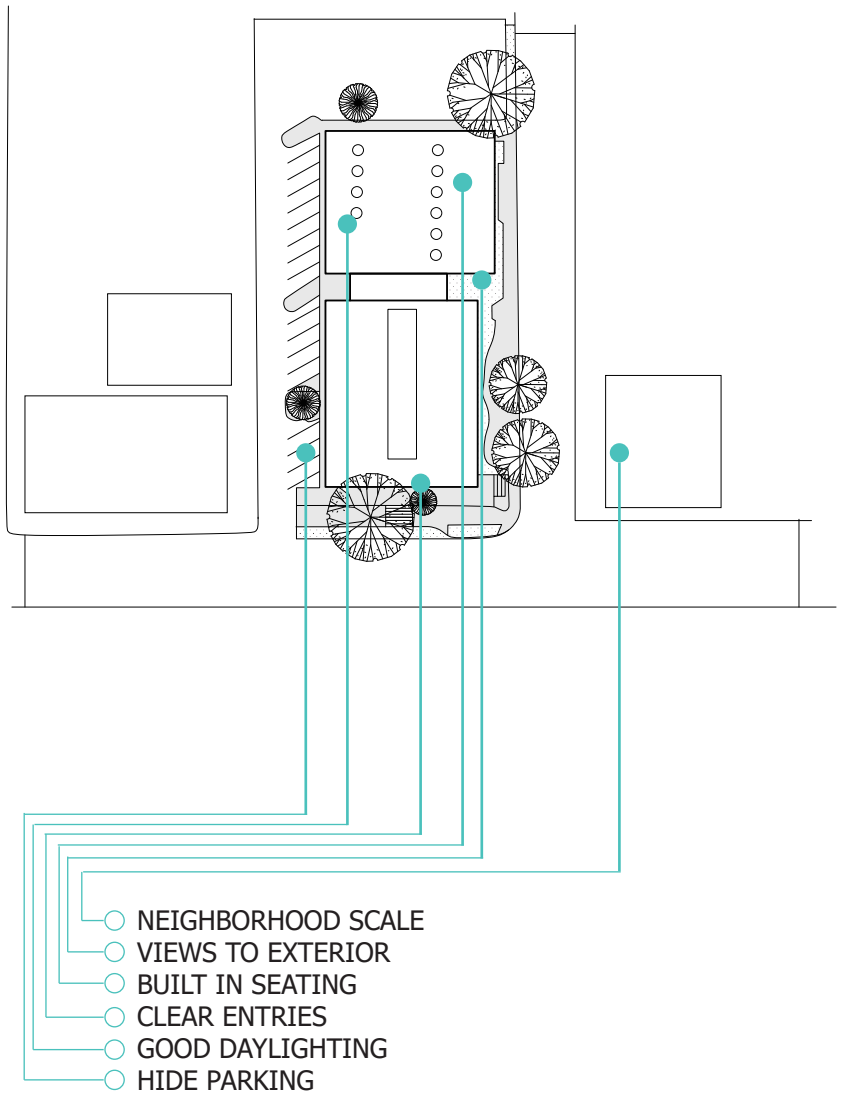

Figure 46: Northeast Branch Library extracted patterns (diagram)

Figure 47: NBL original exterior/interior circ 1954

Figure 48: NBL extension exterior, 2015
Photo : BUILD LLC

Figure 49: NBL interior

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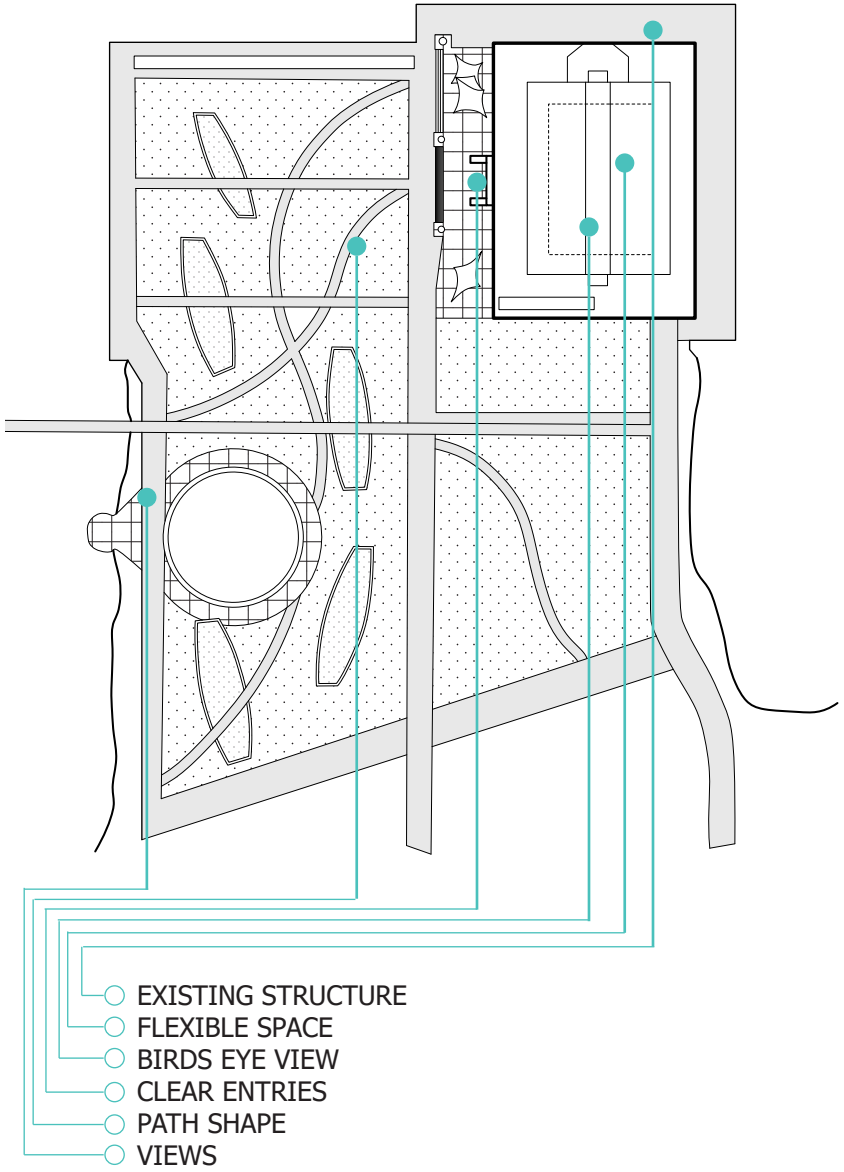

Figure 50: MOHAI extracted patterns (diagram)

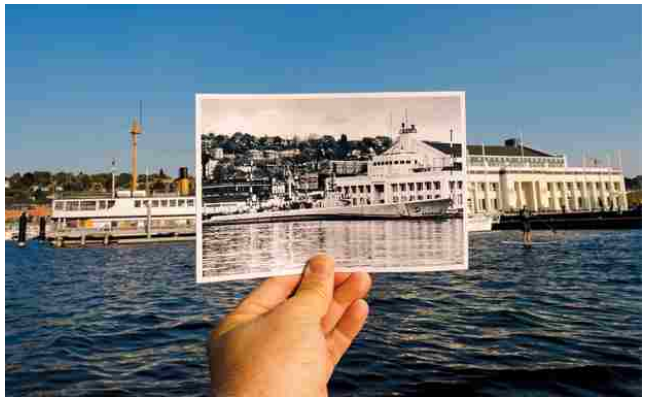

Figure 51: MOHAI old and new

Figure 52: new exterior, MOHAI

Figure 53: MOHAI renovation interior

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Figure 54: Original Grand Lodge Building

Figure 55: McMenamins Grand Lodge, 2009

Figure 56: Artwork in the Grand Lodge

What these projects have revealed is a series of design moves and motives that were largely successful, and some that were less so in the adaptation or evolution of a building. These projects were chosen specifically because they were publicly accessible and could be visited- experienced from a pedestrian perspective. The list of characteristics or design affordances, typically referred to as 'patterns' in the style of Christopher Alexander, have been laid out and distilled to their most basic idea. These patterns are not meant to be a 'cookbook' of architecture, but rather a collection of observations and areas of opportunity for how we can make buildings richer, more thoughtful, less frustrating, and better established in their communities.

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III. PATTERNS

SMALLS

01 Soft and Hard
02 Appropriate Heights
03 Tactility
04 Shapes for the Hand
05 Maintenance

OPENINGS

06 Interior/Exterior Mingling
07 Terrance/View to the Street
08 6' Balconies

INTERIOR

09 Material Texture
10 Place of Community "Commons"
11 Place of Individuality "Cave"
12 Light and Dark
13 Birds Eye View
14 Alcoves
15 Flexible Space
16 Understandable Circulation
17 Built in Seating
18 Big Small Spaces

ENTRY

19 Pedestrian Access
20 Clear Entries
21 Entrance Transition

BUILDING

22 Existing Structure
23 Lasting Materials
24 Grid Relationships
25 Improve Environment
26 Views to Exterior
27 Something to Look At
28 No Monoliths
29 Good Daylighting Principles
30 Secret Spots
31 A Place to Eat Outside
32 Shade and Sun
33 Exterior Lighting

SITE

34 Understandable Pathways
35 Path Shape
36 Pedestrian Stopping Points
37 Sense of Discovery
38 Views
39 Improve Site
40 Hide/Shield/Break Up Parking
41 Plus One Story or Smaller
42 Shortcuts
43 No Dead Plazas
44 Connect to Elements
45 Ask More of Your Fences

LOCATION (CONTEXT)

46 History/People
47 Current Conditions
48 Need
49 Weather/Climate
50 Local Resources

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01 SOFT AND HARD

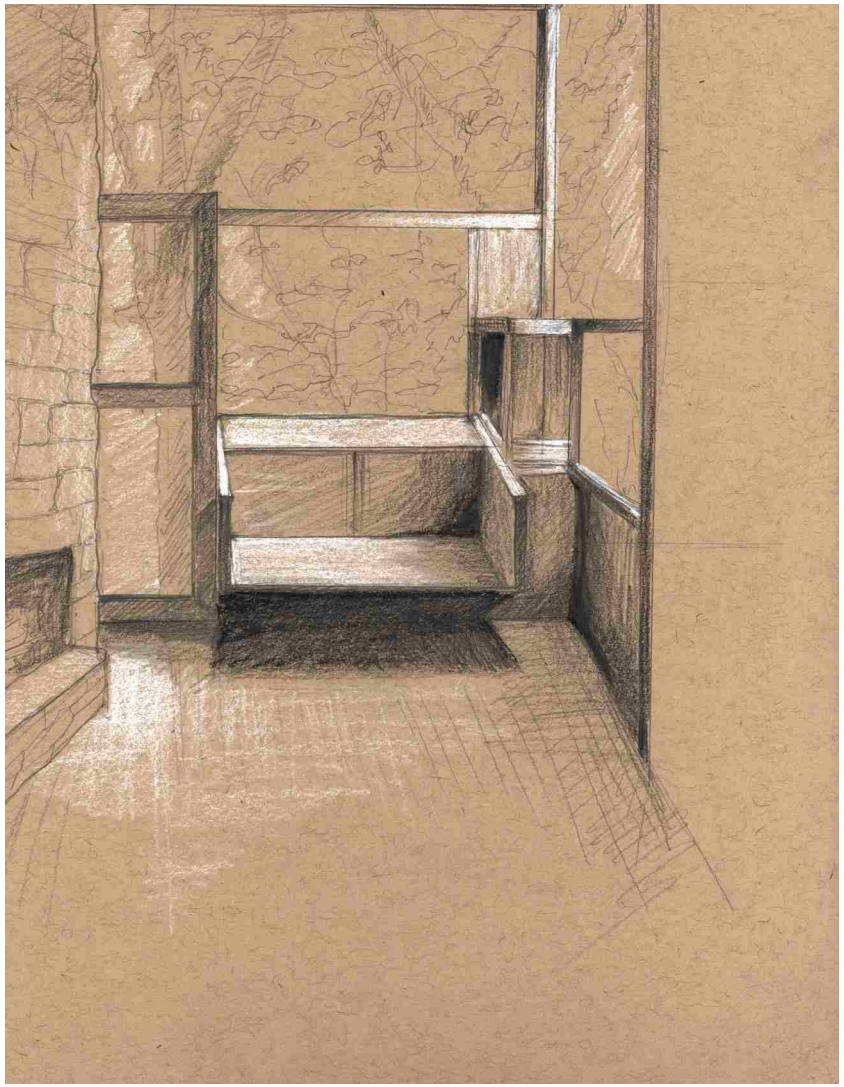

Figure 57: Sketch of built in seating, Fischer House, Louis Kahn

All good design is about balance. Light and dark, in and out, positive and negative, soft and hard. Balance materials and textures in proportion. Warm colored wood, a natural material, helps soften up concrete or steel, considered to be harder textures. Well planned landscaping softens an urban environment. Even balanced textures of the same material can have a soft and hard effect- pea gravel next to larger slabs of stone. Think about the balance of materials and textures and the way that people will touch them.

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02 HEIGHT RELATIONSHIPS

Think about your user and how the body interacts with built space. When you walk into a room, can you instinctively understand where the light switch should be? What height are things like toilet paper dispensers, window sills, and furniture? While there are standards for most items of furnishing and casework, other built elements might not be so defined. Does a soffit over a stair still allow for enough head clearance? Think about how a body walks through and uses the space, take some measurements if necessary.

03 SENSES / TACTILITY

"Visceral design is what nature does. We humans evolved to coexist in the environment of other humans, animals, plants, landscapes, weather and other natural phenomena. As a result, we are exquisitely tuned to receive powerful emotional signals from the environment that gets interpreted automatically at the visceral level". (Norman, 65)

The power of touch, smell and sound evoke powerful emotions that can change an environment drastically. How does the space control the senses? How do the materials that cover the walls and the floor- their color, their texture, the way they are detailed-contribute to the character of the space? How do people touch the building? Is it through handrails, door knobs or other shapes for the hand (04)? Could material texture and layering create enough interest in a built element that it becomes worth touching simply by being interesting? Consider the power of the visceral and sensory experience to give space power.

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04 SHAPES FOR THE HAND

Handrails, door knobs, window sills, railings and furniture are all part of the built environment that becomes immediately tactile- these are the things you interact with using your hands. While handrails and other hand sized items seem like the smallest of details, a handrail that is too big, too small, or in the wrong place throws off the balance of the space. The shape and size of the small details of a building as well as the material that it is made out addresses the character of the space. Wood is warm, metal is cold. Paint and color changes the aspect and texture of the surface. A door knob that turns awkwardly gives an immediate sense of discomfort. An old building might call for a more elaborate carved or molded rail to match existing trim, or a more modern steel shape in order to update it. A stair rail that needs to support weight should be different from a rail that acts only as a barrier. There is no substitute for the sensation of tactility.

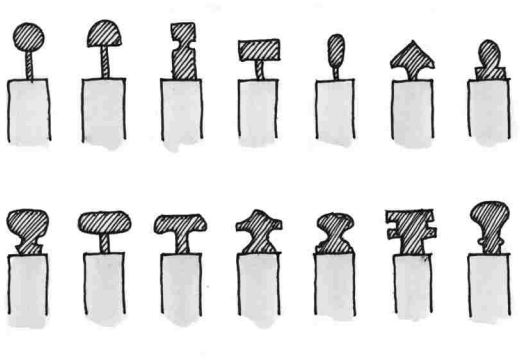

Figure 58: Cross section of handrails

05 MAINTENANCE

The key to the long life and success of a building is regular maintenance. Roofs leak, windows break, filters need to be changed, etc. How can a building make it as easy as possible to maintain itself? Easy access to mechanical systems, hatches and areas like air conditioners and electrical panels make it less frustrating for service to be performed. Choose materials that are easier to repair- rare Carrara marble might look amazing but be impossible and cost prohibitive to replace should a piece break.

Chris Alexander speaks poorly of the architectural world's concentration on unmaintainable facades, saying "Our present attitude is all reversed. What you have is extremely *in*expensive structure and all this glitz on the surface. The structure rots after thirty years, and the glitz is so expensive you daren't even fuck with it" (Brand 57)

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Figure 59: The Sanctuary of the Tomba Brion, Carlos Scarpa

06 INTERIOR / EXTERIOR MINGLING

Blurring the boundaries between what constitutes 'indoors' and 'outdoors' creates space that is both and also neither. An interior space that opens up to the exterior, whether through porches, roll up or sliding doors, or other types of openings, create 'in-between spaces' that can function as places of individuality (11), places of community (10), places to eat outside (31) or people watch (27) amongst other things. Indoor outdoor spaces allow a better connection to daylight and the body's circadian rhythm. It can increase programmatic area, act as a teaching space, or become a refuge from an urban interior environment.

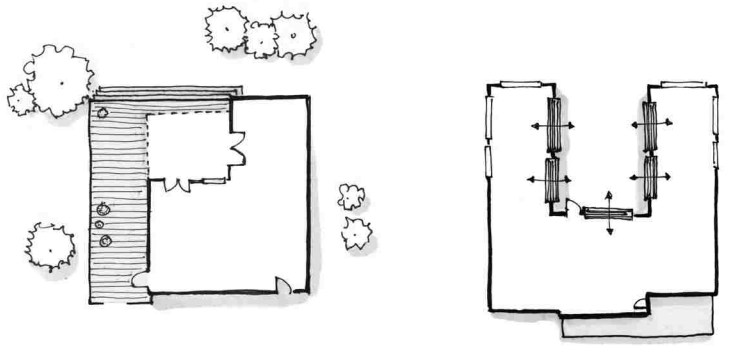

Figure 60: Exterior deck and operable garage style doors

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07 TERRACE / VIEW TO THE STREET

The terrace is a space that is both public and private- it affords views to the street and the traffic, yet is separate from the public realm. It is the balance between the cave and the common (10/11). It can be a place to eat outside (31) or a place to people watch (24). The terrace should be deep enough to sit comfortably with a table or other furniture that makes it a semi-active space, rather than just a place to stand. It should be elevated off the street, whether by a lot or a little, to separate it visually and distinctly from the street scape and activity. Landscaping or low walls can be added to increase privacy if needed, but not so much as to obstruct views.

08 DEEP ENOUGH BALCONIES

In general, balconies are seen as a desirable feature in apartments, homes or offices. People like the option of opening windows for fresh air or having a place to sit outside that is still private. However, too often they are minimized in size in order to minimize cost, or eliminated all together for safety. While some balcony might be better than no balcony, these spaces work best and are most utilized when they are at least 6’ deep. This allows the space to actually be occupied and used. Sometimes recessed or covered balconies are a more appropriate choice, depending on the local weather. v

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09 MATERIAL TEXTURE

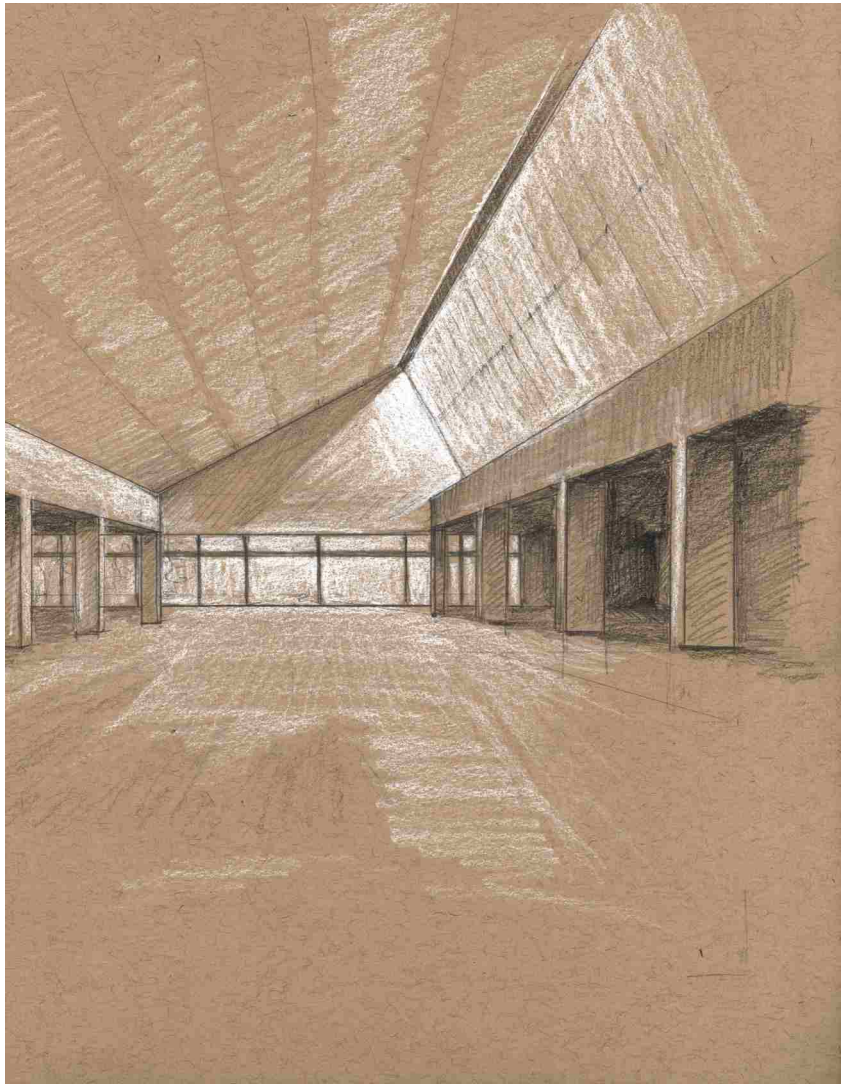

Figure 61: Tapestry of Light and Dark

Materials are important. Colors, textures, the play of light and shadow on a wall or surface, all affect the 'feel' and 'mood' of a space. Although people react to different environments and colors in different ways, materials play a key role in the character of a building, both inside and out. The context, history and craft of a place or people is a story that can be read in the materials they choose to make their structures out of. In desert climates, the natural material is mud or earth, in the Pacific Northwest, timber. Choose materials that engage with the place and its people. In a neighborhood clad mostly in brick or wood, a glass and steel structure may not be the right choice.

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10 PLACE OF COMMUNITY: "COMMONS"

11 PLACE OF INDIVIDUALITY: "CAVE"

A balance of public and private spaces are often described as the modules of "cave"-places of individuality and "commons"- places of community (Brand 172). Smaller, more personal spaces that can be closed off if the occupant desires that are in close proximity to larger gathering spaces that can be used as flexible common spaces or meeting rooms. Common areas should be of moderate size- too large and they lose their intimacy. These areas can also handle more direct sunlight (29-good daylighting) than personal areas and are good locations for large windows or views (26). Private spaces can either be small alcoves or fully enclosable personal offices or work rooms, arraying around a common space or interspersed throughout them. This is also an applicable pattern for indoor/outdoor spaces (06)- smaller private spaces surrounding a larger outdoor court can help to activate a plaza or exterior space (43-no dead plazas).

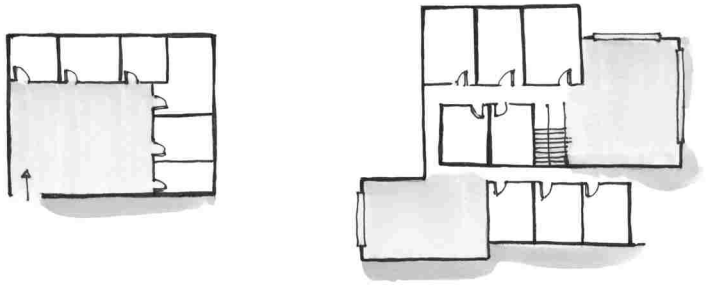

Figure 62: Smaller offices or 'caves' surround a common meeting room or lounge

12 LIGHT AND DARK

Both light and shadow are part of the materials palette of a space. While natural light is important to the working environment as well as improving morale, shadow plays an equally visible role. A mixture of strategic light and shadow can drastically alter the character of a space. Light and dark can highlight texture or materials, offer visual interest on an otherwise blank wall, or suggest a sense of discover or journey down a hallway or corridor.

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13 BIRDS EYE VIEW

People like to watch other people. The liveliest public plazas have places for activity as well as places to sit and observe. Cafes, museums and other public places can also benefit from these kinds of spaces. No Dead Plazas (43). Lofted spaces and mezzanine levels can provide this in interior spaces, or terraces on the exterior.

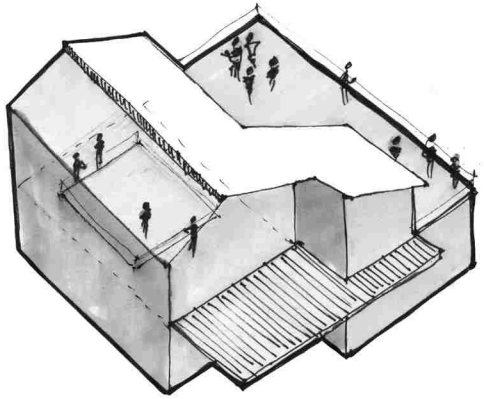

Figure 63: Interior mezzanine levels and exterior terraces allow for people watching opportunities

14 ALCOVES

Sometimes a wall, a hallway, a corner or some other interior condition can be exploited to incorporate seating or other furniture. Alcoves can be combined with exterior views (26) and can be places of individuality (11), built in seating (17) or some other kind of storage or purpose. These kinds of spaces should be used sparingly and deliberately to create a peaceful or intimate, quiet atmosphere, perhaps within a larger, more hectic setting.

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15 FLEXIBLE SPACE

Some of the most coveted spaces for evolution and reuse are industrial buildings from the 1950's and before- they rely mostly on natural lighting (29), have high ceilings , long lasting materials (23) and plenty of character. However, the key to the spaces is the flexibility of the interior space. Open spaces with flexibility in program offer more opportunity for changing needs and uses in the future and ensures greater longevity of the structure. Additionally, flexible, modular spaces are often easier to construct, alter and maintain (05).(BRAND)

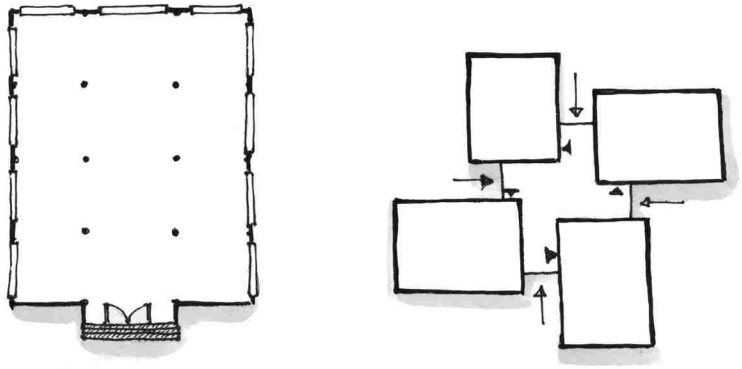

Figure 64: Two potential types of flexible space: open floor plan vs modular units

16 UNDERSTANDABLE CIRCULATION

In the same way that pathways and entries need to be clear and easy to understand, circulation should be (understandable-another word) and maneuverable. How do people move around in the space? How do they find their way? Does the built space help or hinder movement? Is it clear and apparent how to get from one place to another? Is it easy to find bathrooms, offices, exits, and other necessary parts of the space?

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17 BUILT IN SEATING

If well planned, built-in seating maximizes the space and efficiency of small spaces, as well as adding intimacy to larger areas. It suggests that the building itself is encouraging the occupant to engage with it, and that the designer was thinking of your comfort by providing a chair or bench that would always be there. These spaces can be small and private, or larger and more expansive, can double as storage or window seats with views, and can offer a perimeter around an otherwise flexible space.

18 BIG SMALL SPACES

Small spaces can be many things. They can convey coziness, they can be well organized and efficient, or they can be stifling and underutilized. Entire books, blogs and social media accounts have been dedicated to making really excellent small spaces. How can small spaces be made special, exciting, and useful, rather than awkward leftovers? Tall ceilings and good daylight help make small spaces seem larger, as well as time honored efficiencies like built in storage or seating that take advantage or built elements that already exist in the space.

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19 PEDESTRIAN ACCESS

Figure 65: Clear and apparent entries

The goal of most civic structures is to encourage the public to not only visit the building, but utilize the services offered, feel comfortable enough to linger, and find the experience positive enough that they return again. In order to foster this sense of comfort, it is important that such buildings or sites be accessible by pedestrians. They may arrive by automobile and park elsewhere, or by public transportation, but the key should be clear and apparent. The scale should not feel overly large or out of place in the surrounding neighborhood. The facade should not be an imposing monolith. Additionally, it should be both physically possible as well as safe to approach on foot. Pedestrian bridges and bicycle specific paths may help to clear obstacles. Crosswalks should be marked and easy to get to. Visibility should be clear for both pedestrians and cars.

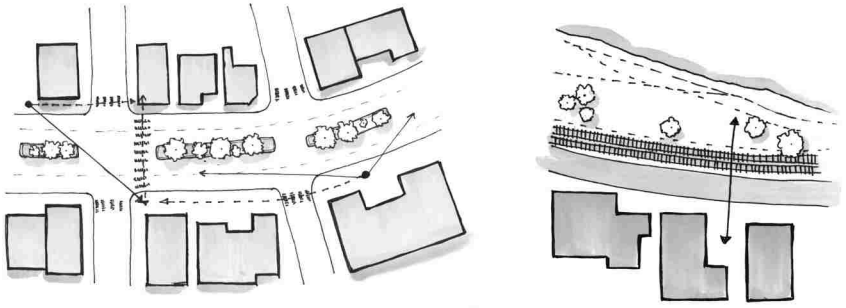

Figure 66: Pedestrian access over busy roads or other obstacles can be addressed with crosswalks, pedestrian bridges, and improved visible sight lines

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20 CLEAR ENTRIES

Nothing is more frustrating to a pedestrian than arriving at a building and not being able to find the entrance. While it might seem obvious that this is important, many buildings either obscure the main entry or do not clarify where the entrance is located and who has permission to enter. The structure and shape of the building itself can indicate not only where the entrance is, but the hierarchy of the entry- which is the main entrance, the side entrance, etc. The entrance can be marked with overhangs, windows, signage, material transitions, paths and guardrails, or modulations in the facade. It should be clear and obvious where the front door is an how to get there.

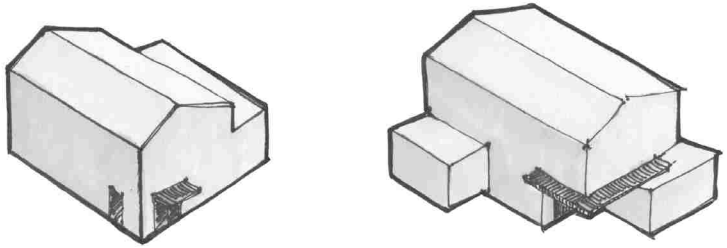

Figure 67: How do built elements convey visible hierarchy and information? Is it visibly clear where main entries versus side entries are located? How does someone get in and out of a space?

21 ENTRANCE TRANSITION

The entrance of a building, home or other space should be clear and easily understood visibly (20). The entrance should be separated from the facade in some visible way- either tucked into an alcove or popped out from the face.

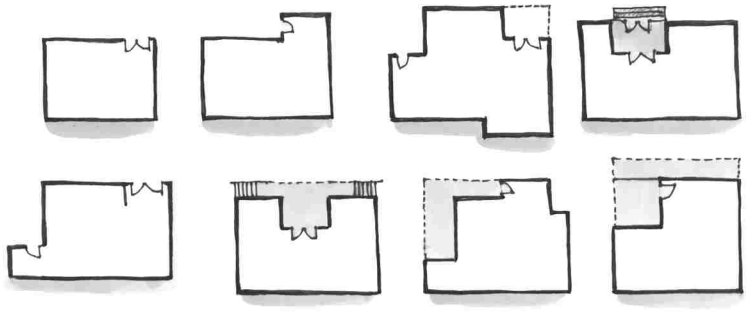

Figure 68: Different types of entrance orientations

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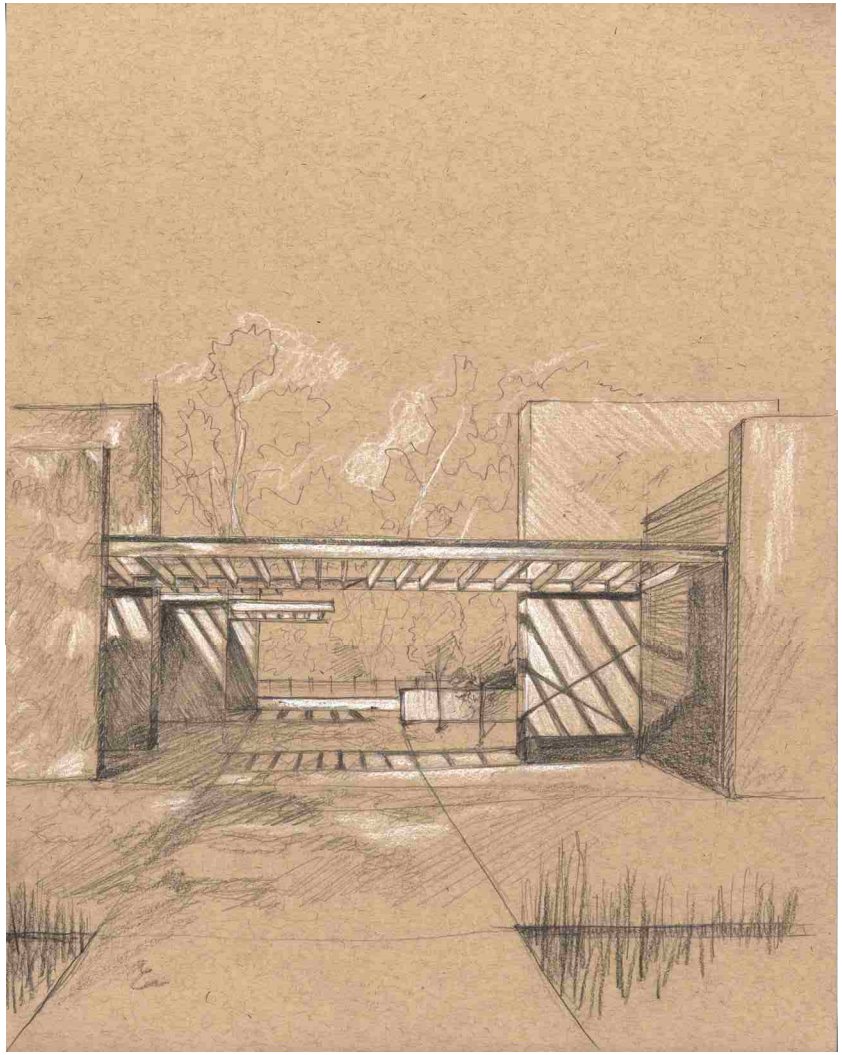

Figure 69: Sun and Shade

It is important to retain the original building in as many ways as possible when adapting an old structure to new uses. While it may seem appropriate to replicate or recreate only the facade or other elements, this undermines the original design and intent. The needs and occupancy of buildings change with time, but the purpose of adaptive reuse is not to mimic or reproduce the old, but to assess the needs of the building and improve on them. The original design is an armature upon which new designs can be incorporated. Structural improvements are often necessary. In a similar manner to retaining the existing structure, it is also important to leave some of the original structure visible to retain the character and visual connection to the original design.

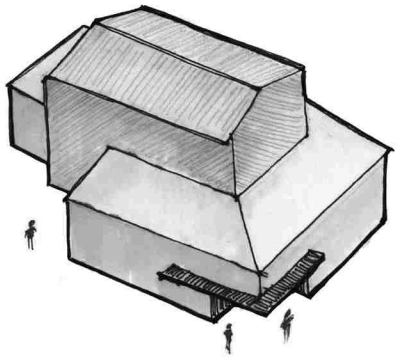

Figure 70: The original structure is altered and added onto, but still apparent

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23 LASTING MATERIALS

The goal of adapting or altering a post constructed building or space is to enhance it- to assess its strengths and weaknesses and improve what already exists. The original materials speak to the character and history of the structure, and the intent of the designer. It is important to maintain a connection to this character. Whenever possible, maintain the original materials, or some original detailing. Often this is not possibly due to degradation with age, etc, but an original structure clad in brick, for example, necessitates that any changes or additions made to it should be clad in brick of a similar color or size, or a material that works in harmony with this.

24 GRID RELATIONSHIPS

Every built environment sets up a series of physical relationships that define how the parts fit together and play off each other. These relationships are typically based on an orthogonal grid or a physical defining feature of the site or location. Typically the structural system also follows these relationships, and by analyzing these features, the organizational system of the building becomes apparent. While it is not always necessary to imitate this grid, the general sizing, scale and orientation of the building elements is usually based on these relationships. Additional structure feels more coherent as part of the whole or original when it closely follows these orientations and sizing.

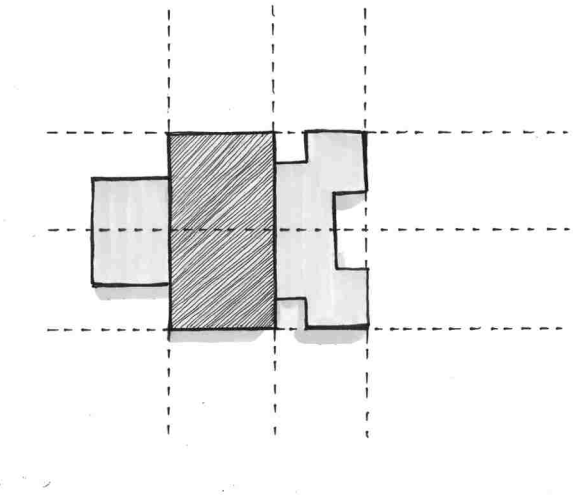

Figure 71: Visually cohesive systems of organization that are related

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25 IMPROVE ENVIRONMENT

It is the goal of any iteration or evolution to improve upon the original. The way buildings are constructed, heated, lit and cooled has changed drastically over the years, and architecture has adapted to suit current building technology. It is well documented that access to natural light and ventilation drastically improves the morale and emotional experience of building occupants when it is handled in a deliberate and thoughtful manner. Operable windows, shallow depth of rooms, skylights and well planned natural light are some strategies for improving the interior environment of an original structure or addition.

26 VIEWS TO EXTERIOR

Buildings are not always situated in perfect, picturesque locations. Exterior views are not guaranteed to be ideal. However, every site contains some element or focus that is unique and interesting, and it is the role of the designer to determine what that is and to use that to enhance the experience or occupying that space. Find what it is that makes this place special, and, while the entire focus of the building does not need to be on this, a focal point or special moment can be constructed around such a view to the exterior.

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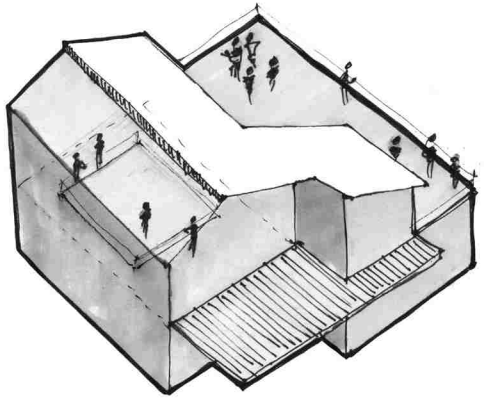
27 SOMETHING TO LOOK AT (PEOPLE WATCH)

People love to watch other people. Most busy public plazas, parks, coffee shops, and other locations that encourage lingering also allow for some measure of public visibility. Whether this is an overhang or lofted level inside, a window or terrace that overlooks a street, a roof-top deck, or a small porthole in just the right place, a way to overlook a public crowd in a casual manner encourages people to linger.



28 NO MONOLITHS

While general building size is an important factor in improving the human experience of a neighborhood, so too is the texture of the facade and the external personality of the building. Flat, massive monolithic structures make people feel small and unwelcome.

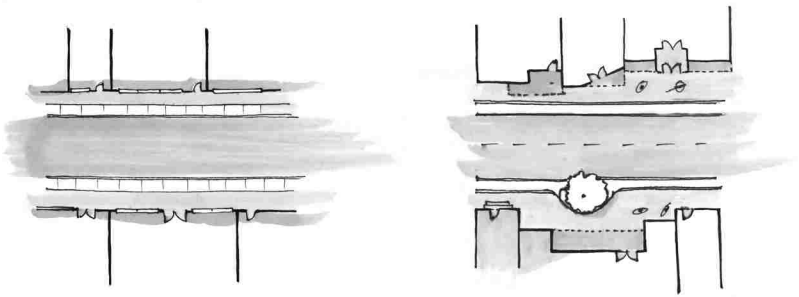


Figure 72: street scape with no change in facade modulation or texture vs mixed texture and materials

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29 FOLLOW GOOD DAYLIGHTING PRINCIPLES

Natural daylight and connection to the environment are key to creating a positive emotional experience of occupying a built space. While in some circumstances natural light is not desired- such as in scientific laboratories where the light might interrupt precise experiments, or in a computer lab where light might make it difficult to work, access to daylight in some common or publicly accessed portion of a the building is critical design tool. For this to be successful, it is important to control the light carefully and be aware of its properties. Good daylighting principles are their own specific area of study, but some strategies include: diffuse skylights or light wells in the ceiling, programming strategies that place different amounts of light in different portions of the building, mechanically operated sunshades, permanent light shelves in windows, moving circulation to the exterior of the space where glare is brightest, and planning the depth of rooms relative to the height of windows for maximum light penetrations. Digital or physical simulations can help to calculate the amount and direction of direct sunlight entering a space. While this is not an exhaustive list of daylighting strategies, the important design factor is that daylight should and can be controlled within a space in order to cause a positive change. Simply putting floor to ceiling windows in on all sides of a building (or some similar design plan) is a guarantee for occupant discomfort without a strategy to control the light that enters.

30 SECRET SPOTS

Human beings cherish the sensation of being unique, or of being possessed with exclusive knowledge unknown to others. The joy of discovery and the possession of 'insider' information provide a sense of reward after the journey or search. While buildings are always divided into more public and more private spaces based on need, the sensation of discovering a 'secret spot'- a small alcove or hidden bench, a room with a perfect view, a back entrance or shortcut, fulfills this quest for secret knowledge.

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31 A PLACE TO EAT OUTSIDE

People love the idea of eating outside in nice weather- enjoying the sun, people watching, smelling fresh air rather than the trapped odors of air conditioning and building. Providing a place for people to eat outdoors adds another element of natural connection and an improvement of the human experience. However, there are certain characteristics that make this more successful than others. Chairs and tables should be mobile. Not only does this aid in securing this furniture after hours, but people enjoy the autonomy to move their chair a few inches to the left or right as needed. Enough space should be provided that a waiter or other person can pass comfortably between one party or the other. If people are positioned too closely they become uncomfortable. Shade should be provided if the weather is sunny- either in the form of overhangs, umbrellas, or plantings. A sensation of security or protectiveness is also necessary- not to be fenced in, but rather to feel like the outdoor space is a room unto itself. Lighting, plants, and other elements also contribute to the comfort of such an outdoor room. In a less formal setting, a wide ledge of a planter, under a shady tree, can be made more inviting with material treatment-like wood over concrete-, a more private terrace or balcony can provide a small cafe table and chairs. In the fall, heaters or blankets can extend the outdoor season if the weather cooperates.

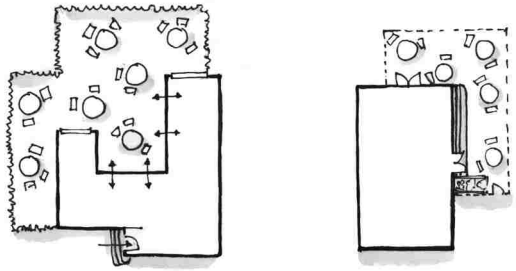

Figure 73: If the original space allows for outdoor eating, enhance this. If not provided, make space!

32 SHADE AND SUN

Shade and sun are both important parts of the human emotional response to space (Figure 69). As mentioned in 29, good daylighting in buildings is proven to improve morale or the occupants. If it is not possible to provide 31 (a place to eat outside), even some areas to sit in the sun can be beneficial. Window seats, built in alcoves, common terraces or balconies, and roof gardens can all provide sun access in addition to windows. Shade is also important- trees can provide shading both inside and out, as well as overhangs, awnings and other shade devices.

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33 EXTERIOR LIGHTING

While some exterior lighting is usually required, either by code or for personal safety or preference, it can be used as a design element that completely changes the feel of a space. Smaller, more regularly placed lights indicate pathways or walks, while larger overhead lights usually refer to entries or other destinations. Thinking of the way a space looks in the dark as well as the day maximizes the potential use of the space

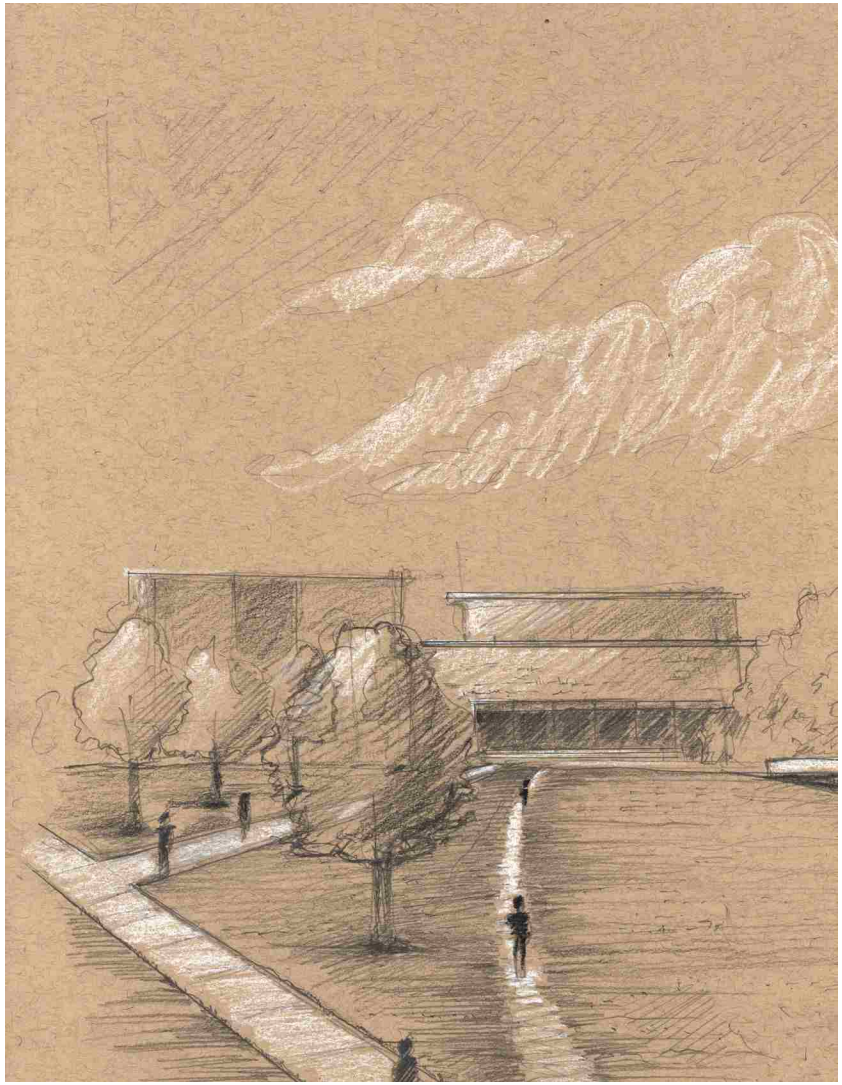

Figure 74: Shortcuts

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34 UNDERSTANDABLE PATHWAYS

Paths of external circulation should be clear and deliberate. It should be understandable where it is permissible to walk, and how to move from point to point. Nothing is more frustrating to a pedestrian than having a destination, perhaps even visibly seeing where they want to go, and not being able to determine how to arrive there. Avoid causing unnecessary confusion. Textures and materials not only add interest but also can help to delineate path hierarchy, direction, and intention.

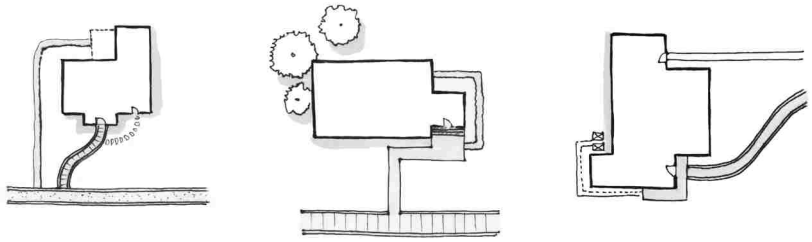

Figure 75: Path shape expresses hierarchy and permission

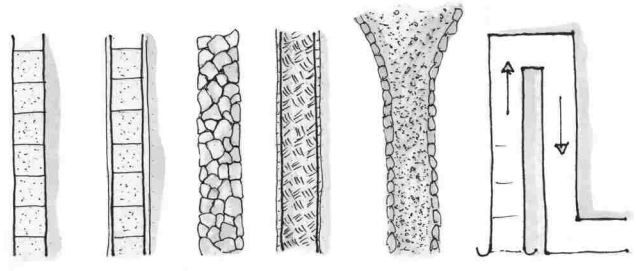

Figure 76: Path material suggests frequency of travel and importance

35 PATH SHAPE

Paths can be for staying in, not simply for moving through space as quickly as possible. Encourage people to slow down and linger if possible. While this is not always the best or most efficient option, when possible, paths can curve or zigzag through the site, creating enclosures or stopping at views. Careful planning of paths, views, and shapes can make a small site feel larger than it is, or can seemingly shorten the distance between two destinations.

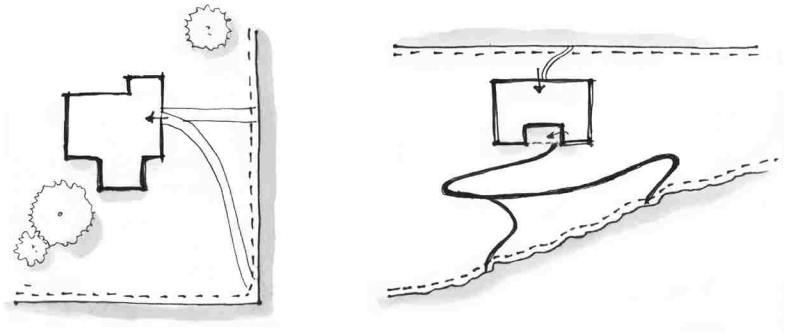

Figure 77: Winding a path through a space or location can add interest and increase the perception of size in a small space. However, direct routes are also appreciated

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36 PEDESTRIAN STOPPING POINTS

In certain situations, it is appropriate to provide places for pedestrians to stop or linger, to step out of the way of other traffic or pause for some reason. Good examples of this include benches, viewpoints, bus shelters, or small sheltered parks. Site context may also provide or alter the reason and means by which pedestrians may need to pause- for example bicycle or pedi-cab parking.

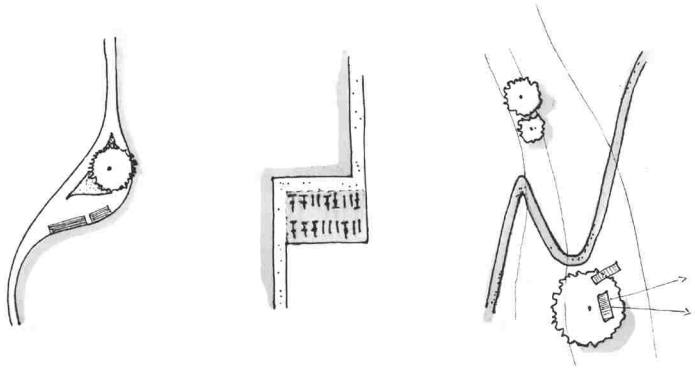

Figure 78: Different types and reasons to stop along a path. Program, density and surroundings can guide this.

37 SENSE OF DISCOVERY

One of the powers of architecture is its ability to work with the landscape, the city and the people who visit there to tell a story. The sense of a journey through and around the site and the building can be subtle, but separates an engaging space from purely totalitarian. This could manifest as paths leading to views (38) , pedestrian stopping points (36) discovery of secret spots (30) or some other reward.

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38 VIEWS

How do pedestrians move through urban and built space? What are they looking at? What are their goals? How does what they see as they approach a building or site affect their movements, relationships and feelings about that space? Consider how visual cues play into the relationship of pedestrians and built space.

39 IMPROVE SITE

Add planters, landscaping, lighting, seating, bike parking and other amenities that improve the usability and beauty of the site. People travel to and linger in places where they feel comfortable, safe and at ease. Petition the city to add a new crosswalk or move a bus station to a more convenient location. Use local plants to improve the soil condition. Add public amenities like drinking fountains. New architecture is a chance to be a force of change in the surrounding urban area, so if possible, use this to the best advantage.

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40 HIDE PARKING

Large parking lots are usually dead space. While destinations reached by car that do not provide parking are often frustrating for motorists, large parking lots are unnecessary uses of land. Parking can be placed underground, or, if possible, the site can be reached by public transportation. Small parking lots can be interspersed into the site if necessary, as well as providing service and delivery points, but large paved lots should be avoided if possible.

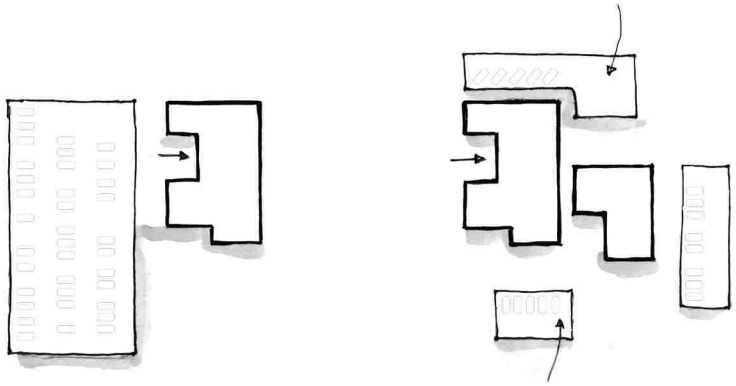

Figure 79: Large parking lot directly in front of a building vs smaller lots interspersed

41 SCALE: PLUS ONE STORY OR SMALLER

Scale is an extremely important factor in the built environment. The size and scale of buildings, window elements, doors, pathways, and other elements set the tone of the neighborhood. Buildings that are overly out of scale in the rest of the community feel out of place, and rarely are seen in a positive light. The ideal scale of building additions, evolutions, or neighborhood additions is usually within one story of the existing structure or smaller.

Figure 80: The gradual increase of scale by one story or less allows for an ease of transition, rather than an abrupt change

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42 SHORTCUTS

Careful assessment of the site reveals natural treads and paths of travel- namely, the easiest way between two goals or destinations. Why force a path of travel when it is best to utilize natural patterns? Sometimes the easiest path between two points might run through a building or site, or might divide the natural grid (24).

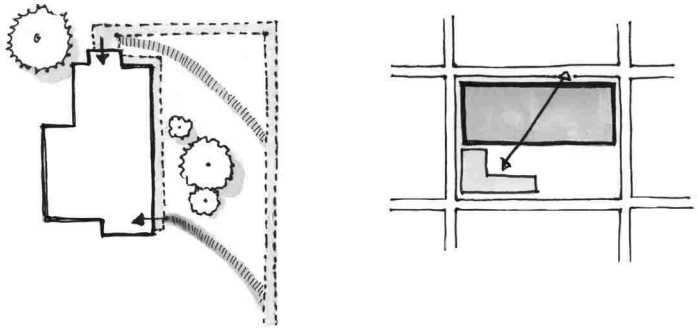

Figure 81: Shortcuts through a site and shortcuts through a building

43 NO DEAD PLAZAS

The life of a public square forms naturally around the edge. If a plaza is too vast, or the edge lacks liveliness, the plaza will die. Plazas and open urban space can act as urban living room where people linger, chat, eat, perform and travel to, but only if given the correct set of elements. A plaza that feels too large requires something in the middle to break up the space- this could be a fountain with seating, a food cart or coffee shack, a flower vendor, etc. Make careful assessment of the actual need and justification for adding a plaza- does the site actually have the traffic to support it? A empty public space does not attract activity simply by being placed amongst buildings. William H. Whyte wrote an entire book studying the way plazas live and are occupied (The Social Life of Small Urban Spaces), where he suggest that size, flexibility, texture, food vendors and freely movable furniture are among the characteristics of a good, lively public plaza.

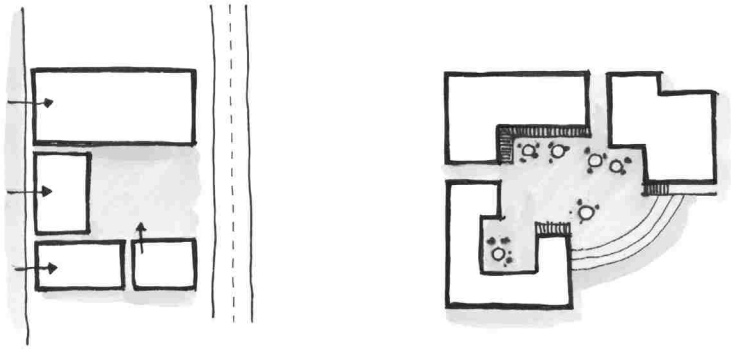

Figure 82: Dead Plaza - too large, not enough pedestrian traffic or entry, too close to road, too much dead open space vs shielded plaza with texture, places to eat outside, and modulated facades.

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44 CONNECT TO ELEMENTS

Water features, landscaping and plantings (preferably local varietals), shade trees, green roofs, and sun traps are all potential ways of increasing the connection of the building and the landscape. While it is unfortunate when new construction takes place on green sites that necessitate the removal of trees, most adaptive reuse and building renovations are on gray sites where any additional softscape is an improvement. Planters and fountains can be incorporated into walkways or seating, green roofs can be an inhabitable landscape in an urban environment, etc. The building can be shaped and structured so as to enclose and invite landscape in rather than separate the two.

45 ASK MORE OF YOUR FENCES

While fences, walls, and enclosures are sometimes necessary for security, pedestrian direction and access, landscape and erosion control, or other containment, this does not mean that fences and exterior walls must be limited in their aesthetic function. A wall or fence can host climbing plants, direct pedestrians, and generally improve on the texture and street presence of the building or site. Often this is the first interaction pedestrians will have with a site, thus sending a powerful message about the nature of the building and its occupants.

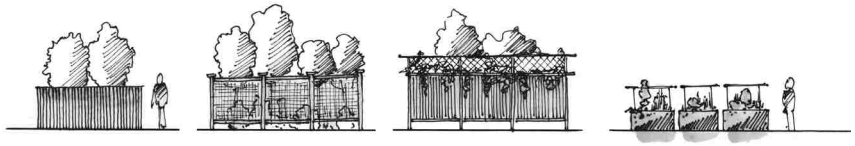

Figure 83: Fences simply for containment vs fences for texture, growing food or ornamental plants, incorporating planters or other multi purpose tasks

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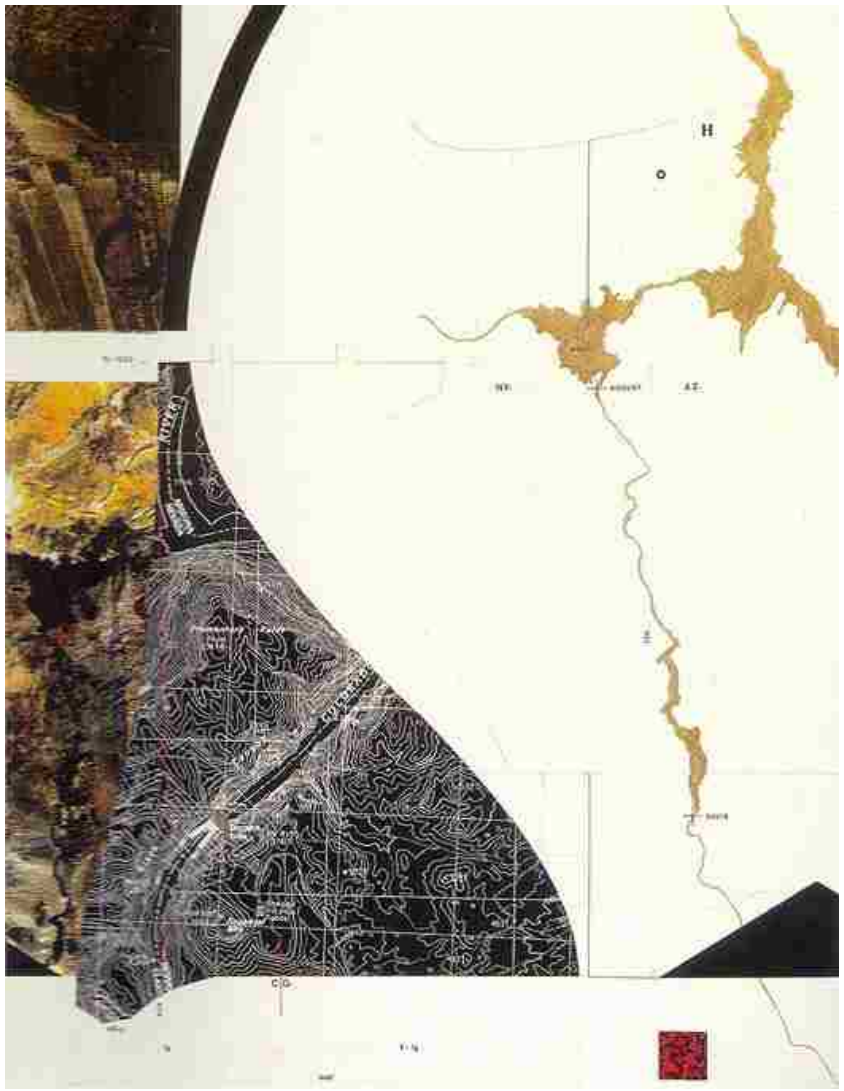

Figure 84: Agricultural land and topography, Taking Measures Across the American Landscape, James Corner

No building should be altered or improved upon without first understanding the history of the building, the occupants and culture it serves, its previous designers intentions, the history and layout of the site, and whatever additional information makes the place unique. This is the foundation for good design- an understanding of what is, what was, and what is required for the future. While it is not required that future design applied to this foundation follow exactly the historical or past precedent laid out, it is necessary to acknowledge this past in order to most successfully build a future. This information is a tool much like other design tools, and, when applied judiciously, can mean the difference between a successful project enjoyed and utilized by the community versus a contentious eyesore.

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47 CURRENT CONDITIONS

Who lives here? Who travels there, and why? Is there a community nearby that might benefit from this site in some way, or a people or group that might be displaced by changes to the site? What is the scale of the area- how tall are the buildings, how big is the lot size? How do people move around here? What kinds of plants grow? Understanding not only the historical state of a area but its current culture, scale, issues and individual character makes for a better, more responsive design both in the present as well as for future growth.

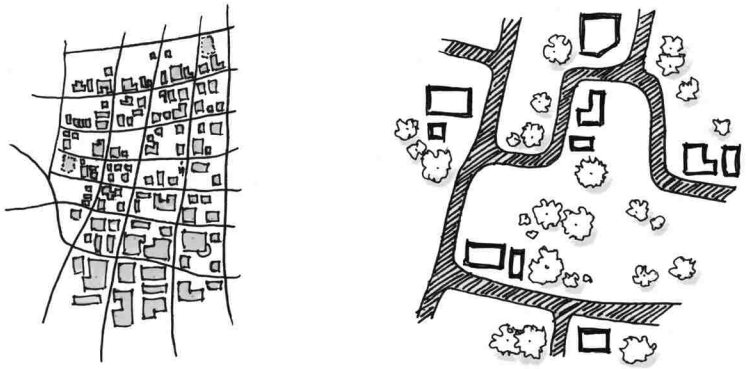

Figure 85: Urban context with high density, gridded road system and gradually increasing scale vs urban/suburban contest with wider roads, less traffic, more green space and fewer, smaller structures

48 NEED

A building is designed to fulfill a specific set of requirements- physical: to keep out the rain and wind, programmatic: to allow for certain activities to take place within, as well as aesthetic: to accomplish these practical tasks in a way that is aesthetically pleasing, efficient, easy to use, and brings some joy to the occupants. Often, the building's physical attributes will be updated over time- a new air conditioning system, more efficient glazing systems, seismic retrofitting, etc. But what of the programmatic, cultural, and aesthetic considerations of the space? How have these things changed since the construction was completed? Does the building or space still fulfill all of its occupants programmatic needs? Is circulation easy to navigate? Is the building a joy to be in? Do people linger there, or do they finish their business quickly and move on? How could this building or space be updated, modified, altered, or added onto in such a way that it is still the same building, yet has evolved to suit its current needs in a better way?

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49 WEATHER / CLIMATE

What is the climate like? Is it sunny? Windy? Does it rain all the time? The vernacular architecture of the area usually responds directly to climate and weather first before all other considerations. While building technology has come a long way, putting a flat roof on a Midwestern building that gets 10' of snow per year should indicate that the maintenance team should be prepared for leaks. Research the climate specifics and design within those parameters. While all buildings are susceptible to weather and climate to some degree no matter how thoughtfully designed, it makes sense to work with the weather rather than against it.

50 LOCAL RESOURCES

While this is becoming less common practice in contemporary times, it is good to consider what resources are available in the area. Is it possible to get locally sourced timber or manufactured timber goods? Is there a factory nearby that makes brick or windows? Is there a local artisan who can weld custom steel parts or an artist who can design a mural? Connections to the community and the local resources can be a boon to the way a building is received and valued.

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IV. PAST, PRESENT, FUTURE

These pieces individually do not describe a building, nor do they account for every situation or change that might arise. However, together, in groups, layered within each other, they create an environment where people might want to spend time, enjoy themselves, or return to. They describe ways in which design can be well detailed, thought out and focused on the human experience. We can, in our work, be thoughtful about both of what we are working with currently as well as the legacy we leave for others.

The way that we think of 'architectural design' implies permanence- buildings as separate entities untouched by time. The design that is in place once construction has begun is seen as the finished product, and levels of detail are factored out by necessities of time and money. However, it is certainly possible to return to a post-constructed building, assess the buildings strengths and weaknesses, see the patterns in the design, and add to it, alter it or change it in a way that not only improves on the function of the space but also contributes to the level of finish and detail. This series of patterns comes from mostly human scale observations in projects where the end result has been a more successful version of the original space. While the original designers most likely did not set out to build thinking that one day someone else might come along to finish their work, it is conceivable that we might someday begin to design this way.

This process of designing, adapting, changing and tweaking a design or structure in response to real world circumstances is found frequently in vernacular, usually residential architecture styles. Want to know what the local materials are? Look at historic structures in the area. Dealing with climate specific issues? How were traditional homes built? Pitched roofs in Michigan help shed snow, while thick walls in New Mexico act as a heat sink and shield. There is an area in the Itria Valley, in the Italian region of Apulia where a specific type of stone hut developed in the fiftheen century (Unesco). Called trullo (plural, trulli), these whitewashed huts with conical roofs, usually in clusters of three to five, are unique to this valley and are see nowhere else (Figure 86,87). This area is distinct in its self referential architectural style, and has produced this design as a direct result of building specifically on what is already there, rather than importing something new and foreign. When designing a new building in this area, it would be impossible to ignore the trulli. While most cities are not as visually distinct as the trulli, it should be equally important to acknowledge what is already there when designing a new structure.

Vernacular can produce architecture without the architect, and human centric design is just a few steps away from that. While architects and designers are both important and necessary, we might consider the people who use and occupy our spaces, who change the air filters and clean the windows as the real client. We might think of how the building can grow and change, and how the design and detailing of a structure has emotional power over its occupants. While architecture has the power to design structures that test the limits of human imagination and building technology, all spaces can be made better with careful thought given to the human scale as well as the overall conceptual gesture.

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Figure 86: well maintained Trulli Village

Figure 87: A cluster of trullo (pl trulli)

When architects speak of altering old buildings for new purposed, they commonly refer to the process as 'adaptive reuse'. Adaptive reuse is a many layered issue. In some circumstances, like the Westside School project, the adaptation inserted a new program and purpose into an old building but did it in such a way that the original structure was thoroughly ingrained in the new building. Others, like the Allen Institute, integrated an old structure because it was required, and as such, the design feels disjointed rather than an iteration of the original. Although these kinds of projects may not always be as successful as the buildings referenced in this study, thinking in this way can lead to a more sustainable design future. If we were to design and build by working with what we have and planning for long term changes and occupation, we could create a more sustainable vision for architecture.

A building that is completely, totally 'finished' has no ability to change. This does not mean that completely finished buildings, like the Aarhus City Hall, have no place in architecture, but most structures do not come into being at that level. They must be given the power to grow and change with their occupants and their city. This can be done quickly, badly and thoughtlessly, or it can be done in a way that increases the value of the space and makes architecture that people want to experience.

Sir Richard Rogers says "one of the things which we are searching for is a form of architecture, which, unlike classical architecture, is not perfect and finite upon completion...We are looking for an architecture rather like some music and poetry which can actually be changed by the users, an architecture of improvisation." (Brand, 71) Frank Duffy says of this idea "If you think about what a building actually does as it is used though time-how it matures, how it takes the knocks, how it develops, and you realize that beauty resides in the process-then you have a different kind of architecture"

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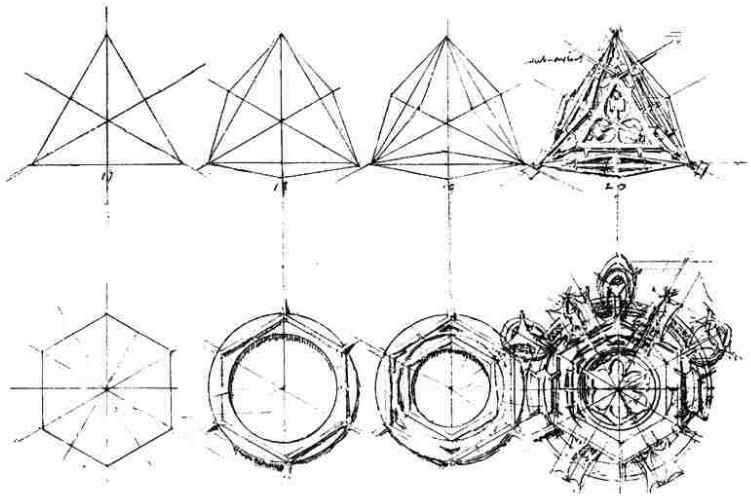

Figure 88: System of Architectural Ornament, Louis Sullivan

These patterns are, as the original Pattern Language was, meant to be a flexible system. They are intended to be reevaluated, altered, added to, or removed if they are no longer applicable. Several of the patterns in Alexander's book feel distinctly out of date yet by his own admission, he would not be offended were we to remove them from the book and replace them with updated versions. As with architecture, this is a work that is never completely finished. Louis Sullivan drew a series of architectural ornaments that show the way that patterns build on themselves- each shape is perfect and functional, yet each can grow into something else (Figure 88). When you look at the shape furthest along in the evolution, it is beautifully developed and detailed, but the underlying geometry is visible. These human centric patterns are much the same- they build and grown on a variety of shapes and styles of buildings, but the truth of the pattern is always the same.

To design this way-flexible, ever evolving, adaptive to culture shifts and changing needs is to design for people. It is deeply sustainable- not in a LEED certified, technological way, but as an approach that respects the energy that has gone into constructing a building. It is a conservative way of building in the best sense of the word. To build by evolving and metamorphosing existing buildings is to operate with the assumption that the building has lasted and that it will continue to last into the future. It recognizes traditions, cultural values, and allows these traditions to continue. We are contributing to a 'instinctive humanity': qualities and patterns that are simple yet powerful. These characteristics come from human desires and, as such, will never die despite being changed, added onto, altered or adapted. These fundamental truths about human nature and space can grow and shift, but the underlying pattern remains the same. This is where architecture started- with people, and with their deepest cultural values: seeing, thinking, and acting- this is both the past as well as the future of design.

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V. LIST OF FIGURES

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