Catalytic Urbanism:
Encouraging Urban Vitality in Spokane, Washington Through Modular Development

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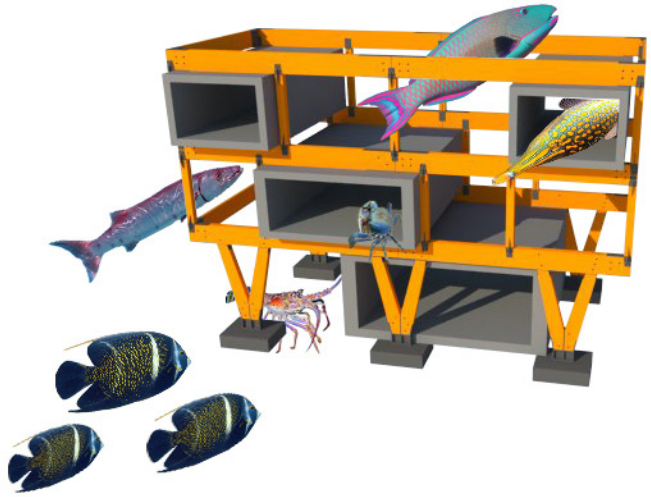
A Thesis
Submitted in partial fulfillment of the
requirements for the degree of
Master of Architecture

University of Washington
2012

Rob Corser, Chair
Kimo Griggs

Program Authorized to Offer Degree
Architecture



Acknowledgements

To Rob and Kimo: Thank your for your continued commitment to my education and guidance through out this process.

To Carolyn: For all your love, support and sacrifice. This journey would not have been possible without you and the stability you have provided.

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Chapter 1: The Problem

The city of Spokane, Washington serves as the major civic and cultural destination for an expansive region known as the Inland Northwest (INW). Roughly the size of Ohio the INW covers 28 counties and serves a population of 1,913,682 citizens. As the unofficial capital of a region that serves such a large population one would expect Spokane to have a vigorous and vibrant downtown. However, in serving such a large area Spokane suffers from low urban density and sprawl, which have significantly contributed to Spokane's crippled downtown core and sleepy disposition.

By the early 1960's Spokane's downtown, which had ballooned rapidly with railroad expansion, facing a downtown core that was underutilized, dilapidated, and blighted. In a citywide effort to restore the city center Spokane held the 1974 World Exposition. In preparation for the Expo much of the downtown core went through a phase of urban renewal, which led to extensive demolition of existing urban fabric. In some cases entire city blocks were leveled to eliminate the blighted areas and to provide parking for the Expo.

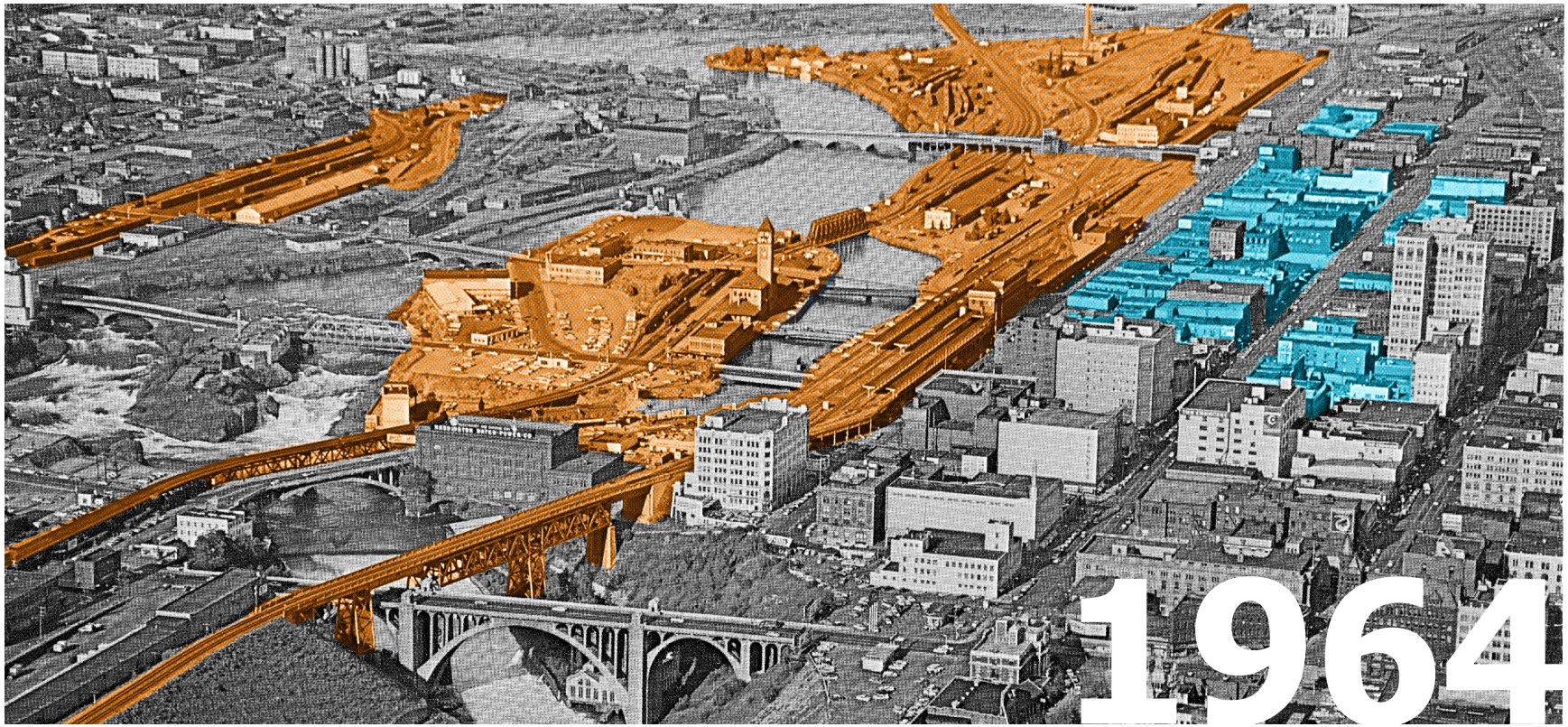


Fig 1.1 1960'a aerial view of Spokane showing railroad infrastructure in orange and blighted buildings that will eventually be torn down.

Expo 74' is seen as the greatest event in the history of Spokane, bringing growth, prosperity, and new urban amenities to the city. Yet, 38 years later Spokane is left with a lasting legacy of nearly 20 acres of asphalt parking lots spread throughout the downtown core. These holes in the urban landscape significantly break apart the downtown core.

Spokane's downtown has a low density of sociocultural infrastructure such as music, art, and culture. Pockets of energy and life do exist, but they are spread across a large area. The voids within this fabric make connecting these pockets difficult without using a car. The resulting environment is uninspiring and languid. This atmosphere, or lack there of, is especially unappealing to the young adults of Spokane who frequently move away from Spokane to larger cities. This exodus, in turn, jeopardizes Spokane's ability to encourage population and economic growth.

This thesis explores modular architectural development strategies aimed at increasing urban vitality and property values, while providing infrastructure for micro-business, cottage industries and market rate housing in order to cultivate and expand the culture within the downtown area. My project seeks to develop a strategy to rehabilitate these urban voids through aggregate, modular development. Rather than continue to wait for large-scale development, my project proposes that smaller, incremental growth can be used as a tool to re-knit the urban fabric and re-kindle urban vitality. This is essential for Spokane's long-term growth and continued relevance as a regional economic center.

Spokane's problems are not unique. Like many cities around the country, Spokane's downtown was once a commercial and industrial core. Postindustrial suburban growth lead to decentralization, inevitably creating a scenario in which the city center began to atrophy as the frayed edges of the city continued to expand.

Instead of stepping out onto the stage ,Spokane remains at curtain's edge, seemingly locked in a permanent state of transition, not knowing where or how to grow the urban core. The current downtown is fragmented, dispersed and underutilized. With Spokane maintaining slow population and economic growth, the changes and development within the urban core over the past decades have been sluggish and incapable of reconnecting the greater downtown area into a cohesive network. Unable to establish an authentic sense of place or identity, the spaces that define the downtown's urban character are confined within a two and a half block section, which is highly commercialized and inauthentic.

Fig 1.2 Demolition during urban renewal

Thriving, consolidated districts with social and cultural infrastructure like restaurants, retailers, bars, and entertainment do exist downtown, but are spread thin across a large area that is dotted with surface parking lots and vacant storefronts. Decentralization and a lack of sociocultural amenities generates a connotation of a non-energized, sleepy city. Lacking a critical mass of authentic, sociocultural infrastructure, which would reconnect disparate areas of downtown. Critical mass would allow shops, restaurants, and entertainment to work symbiotically contributing to diversification and growth rather than isolation.

The result of an underutilized downtown is not only felt economically through the loss of substantial tax revenue, but also within the social life of the community. Spokane is seen by its youth as a place of little excitement or energy, resulting in a large portion of the young population moving away to livelier cities, like Portland, OR and Seattle, WA. This is a direct result of a perception, not only of limited economic, social, and cultural opportunities within the region, but also a prevailing sense of limited excitement. This immense loss of social capital and energy perpetuates the problems within the city core in which a self-deprecating trend in the lack of energy dampens the potential for future growth.

Spokane is unable to market itself to a very important sector of the young adult population. Richard Florida termed this new social class the Creative Class. They represent a group of individuals who use creativity as a key factor in their work. They are a tech savvy, active, and energetic young group in America. Some estimates suggest that demographic makes up 30 percent of the US population, but their impact drives a much larger economic sector. "Because creativity is the driving force of economic growth, in terms of influence the creative class has become the dominant class in society" ("The Rise of the Creative Class" Florida ix). They work in creative fields like art, music, science, and technology as well as creative professional jobs like finance, law, and medicine. Unlike the working class of previous generations, members of the creative class rationale for where they live is not driven solely by economic opportunity. They seek an active lifestyle with amenities like trails, parks, and cultural institutions. They also want to be part of a thriving social community, which is filled with food, nightlife, music, arts, and culture ("The Rise of the Creative Class" Florida 13). The creative class can be likened to the 'canary in the coal mine;' regions who do not posses, encourage, or retain this sector of the populations miss out on future economic growth and the unforeseen potential that this class offers.

Fig 1.3 Spokane's urban dead zones

At its core Spokane is a regional city. It serves as a center point, surrounded by smaller cities that act as cogs. Spokane is a hub for major news outlets, medical facilities, and transportation networks. It also remains the center of civic and cultural events within the region. Spokane has a long tradition of community involvement through city-led and organized events. Starting with the 1974 Expo and continuing today with events like Bloomsday, a 12k run with more than 50,000 runners, Hoopfest, a basketball tournament with about 200,000 players/spectators, and Pig Out in the Park, a weekend of music and entertainment with around 50 food vendors, and around 90,000 participants (Greater Spokane Incorporated). The region and community of Spokane enjoy participating in activities and one would expect this energy and civic engagement to translate into a thriving downtown core. However, for the most part, Spokane's downtown is not built to support the population center and seemingly strong regional commitment.

The regional commitment shows two things of the areas population, a desire to be part of a community and a desire to participate in the spectacle or temporal nature of events. Spokane comes alive as a regional city around temporary events. There is excitement and energy associated with this anticipation. The temporary nature of events places a sense of urgency and purpose, one must take part in the experience or else will miss out on the opportunity. Impermanence, by nature, is also highly adaptable and easily transformable, allowing it to flex as desired to fit within a changing social paradigm so as to always remain relevant. (Kronenburg 2)

Modular architecture can be used as a bridging element between the current condition and the targeted future. It's smaller scale means increased flexibility. Its limited physical connection to the site allows it to be completely adaptable to quickly maneuver within a market place to maximize its potential. Ultimately, flexible modular buildings can be a vehicle for change.

Fig 1.4 World's largest 3 on 3 basketball tournament is held annually on the streets of downtown Spokane. image the daily.com

Fig 1.5 Bloomsday 12k. image khq.com

Chapter 2: The Regional Center

Spokane sits nestled next to the dramatic falls of the Spokane River. It was here in 1871 the village of "Spokane Falls" was settled by James N. Glover and Jasper Matheney (Stratton xiv). Prior to this time the Spokane Indians inhabited the region, along with a few scattered farmers and fur trapping outposts. Glover and Matheney's decision to move to the area and settle was driven by the knowledge that the Northern Pacific Railroad was working on plans to build new section of rail line that would pass through Spokane Falls. This new rail line would connect the rail lines in the east to those that where being built in the west, establishing the first transcontinental railroad. Glover and Matheney settled next to the river and established a sawmill, the first business in the area (Stratton xiv).

The 1880's were a time of great prosperity and growth for the INW. As Donald Meinig explained in his essay Spokane and the Inland Empire: Historical Geographic Systems and a Sense of Place: Trade routes, rivers, and other tenuous lines of communication of the early American West brought trappers, miners, missionaries, visionaries, and ultimately the railroad to form fledgling towns that acted as centers for large geographic regions (48).

At the beginning of this time period the population of the Spokane Village was only about 350 and consisted of just a few businesses. By 1890 the city had become a dominant regional trading center with a population of 20,000 (Meinig 13). This staggering population growth was made possible by the completion of the Transcontinental Railroad in 1883. Eventually five separate rail lines would pass through Spokane turning a small western outpost into a major commercial hub almost over night.

Spokane, unlike other cities in the area, was centered within multiple

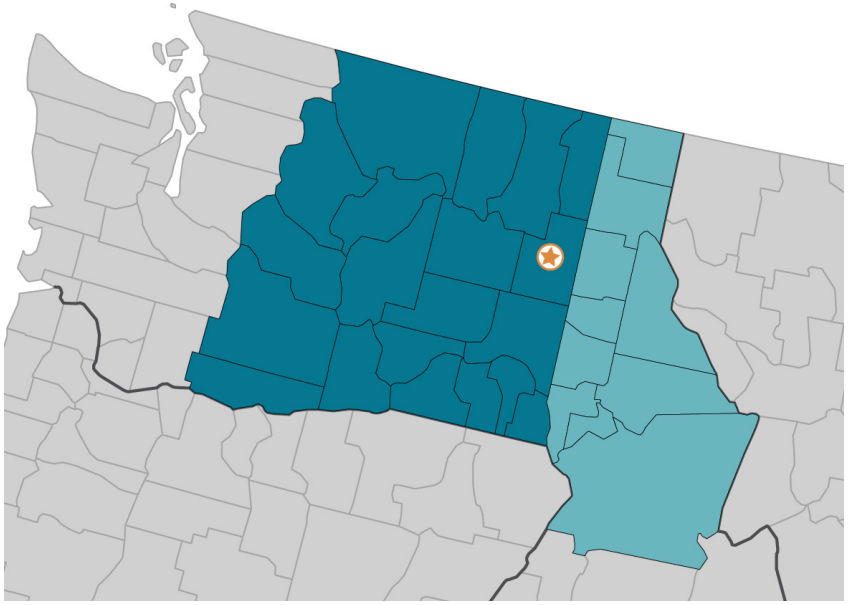


Fig 1.6 Spokane at the Center of the Inland Northwest

economic spheres allowing it to take advantage of the natural bounty of the entire region rather then individual commodities of smaller towns. To the north and east lay mountains rich in precious metals and large tracts of forestland that brought in a flood of prospector's. To the south and west was expansive fertile farmland. As a result Spokane became dominant over an empire of relatively dispersed populations (Stratton xv). Spokane served as the link to the east coast and a way for the region to export its vast supply of commodities bringing economic prosperity to the region.

By 1910 the population had reached 104,000. Many believed that the region would continue to experience a high rate of growth and predicted the population to reach a quarter of a million people in a couple of decades (Stratton xiv). Some even hypothesized that the INW could support a population of 50 million, yet this was merely speculation. By 1920 Spokane had plateaued seeing almost no growth in the population. As Donald Meinig described:

There can be no doubt about the pattern of vigorous growth followed by an abrupt loss of vigor. We can now see this sequence in general terms as a spasm reflective of some common processes. Demands for greater investment capital and the aggressive competition among national corporations weakened local control of the mines, smelters, and other resources. More and more profits flowed directly east to New York, Boston, and Montreal. As expansion slowed investment possibilities waned, and money went elsewhere. As local leaders retired, their children were content to live on dividends from the past.

It is apparent that Spokane had been seriously overbuilt. Too much was based on speculation. The Inland Empire simply could not sustain such an expansive capital city. Indeed, in the same period, many towns in the region were over promoted, only to suffer actual decline. (20)

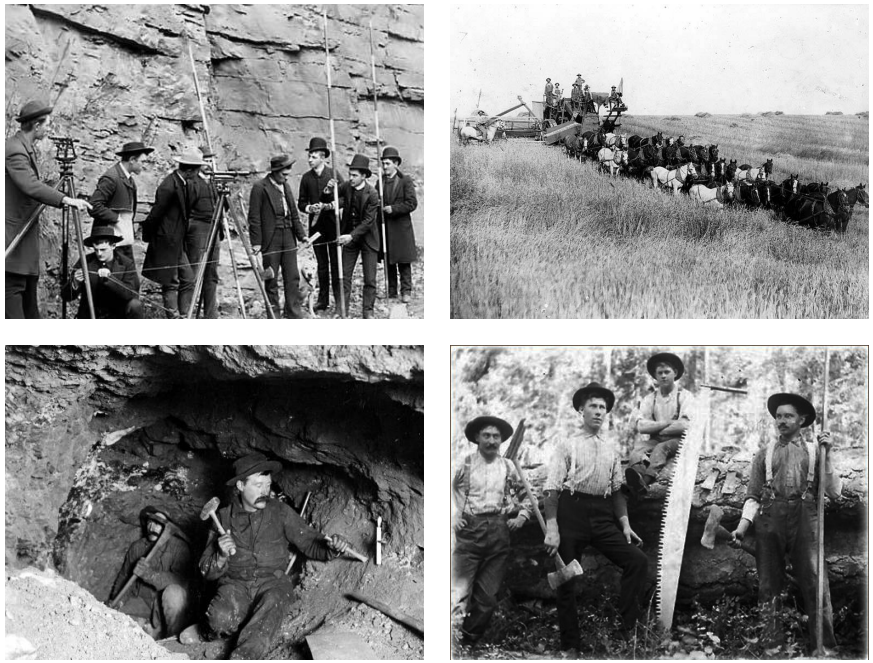


Fig 1.7 Early photos of extraction based industries. Photos credit of Spokane public Libraries Northwest room archives

While the city of Spokane and the INW's growth as a whole peaked in 1920, Spokane remained the regional center and continued to provide many amenities to the region. While Spokane only housed 50 percent of the regional population it maintained a strong connection to the other 50 percent both economically as the center for trade and business, but also through sociocultural events. Spokane continued to be the major banking center for the region as well as the only news outlet through for print media and eventually radio (Meinig 3). It acted as the link to the rest of the nation and world. Even today Spokane continues to provide the television and news service to most of the region (Stratton xvi).

Serving as the big city within the region it was where people came together for social and cultural events. By the 1920's the city had over 15 theaters, 13 ballrooms and a large supporting cast of fine restaurants, hotels and retailers. In 1913 the Auditorium was built and for 10 years it remained one of the largest venues in the world (Nunemaker 6). Spokane hosted yearly festivals and events that brought people in from around the entire region. Spokane continued to act as the shipping and receiving center for the INW as well. In 1930 "68 passenger trains and about the same number of freight trains went through Spokane every day" (Nunemaker 17).

While the railroad crossing through Spokane can be sourced as the major economic catalyst for the area it was actually not a lasting asset to Spokane. Competition between the rail lines, which for many years went unregulated, crippled Spokane's ability to fair trade within the US market. "The great prize of the inland northwest in the late 1800's and 1890's was the growing trade between the Midwest and the pacific northwest" (Martin 117). Through the 1920's and 1930's unfair practices within the railroad system favored port cities like Portland and Seattle, making it cheaper for an importer to ship products from New York to Seattle via boat and then to Spokane via railroad than using railroad systems alone (Martin 114). This

Fig 1.8 Bustling downtowns Spokane in 1911. Photo credit of Spokane public Libraries Northwest room archives

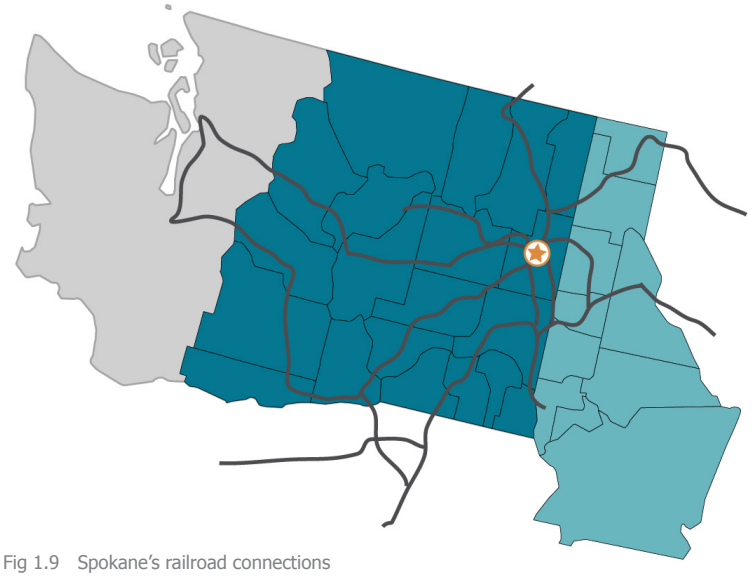


Fig 1.9 Spokane's railroad connections

was caused in large part by the port cities controlling a monopoly over sea trade, which allowed fixed prices on cargo transportation (Martin 110).

The railroad continued to fall from power when the Spokane International Airport was built making air travel dominant over rail travel. In addition, Interstate 90 was built in 1958, creating a major connection between eastern and western Washington. The dramatic increase in personal cars and freight vehicles along with increased air transportation meant that the railroad that had established Spokane as a regional power house was no longer used to the capacity it was built for. The railroad, which brought growth and prosperity to the region at the beginning of the century, was now responsible for much of the urban decay and blight in downtown Spokane during the 1960's. Underutilized downtown rail yards were dirty and surrounded by decaying industrial warehouses. Seedy bars and brothels were prevalent, bordering next to the rail yards, which cut through the heart of downtowns Spokane. Carolyn Hage Nunemaker, author of Downtown Spokane Images remembered the effects of the railroad this way:

Downtown was becoming rundown in some places, usually close to the railroads. An indistinct, invisible line separated the core of Spokane into two areas. One had first rate and high-class stores and businesses; the other was shabby, seeming dirty and inferior to the rest of the center of town. Tired looking cafes, seedy barber shops, cheap hotels and flop houses, hidden houses of prostitution, empty storefronts, taverns (21).

Business owners and city leaders, realizing the economic impact of a failing downtown, went to voters twice asking for tax revenue to rework the downtown. Both times the city rejected the tax increases. Out of frustration business leaders organized and lobbied for national funding (Ayaid 80). In

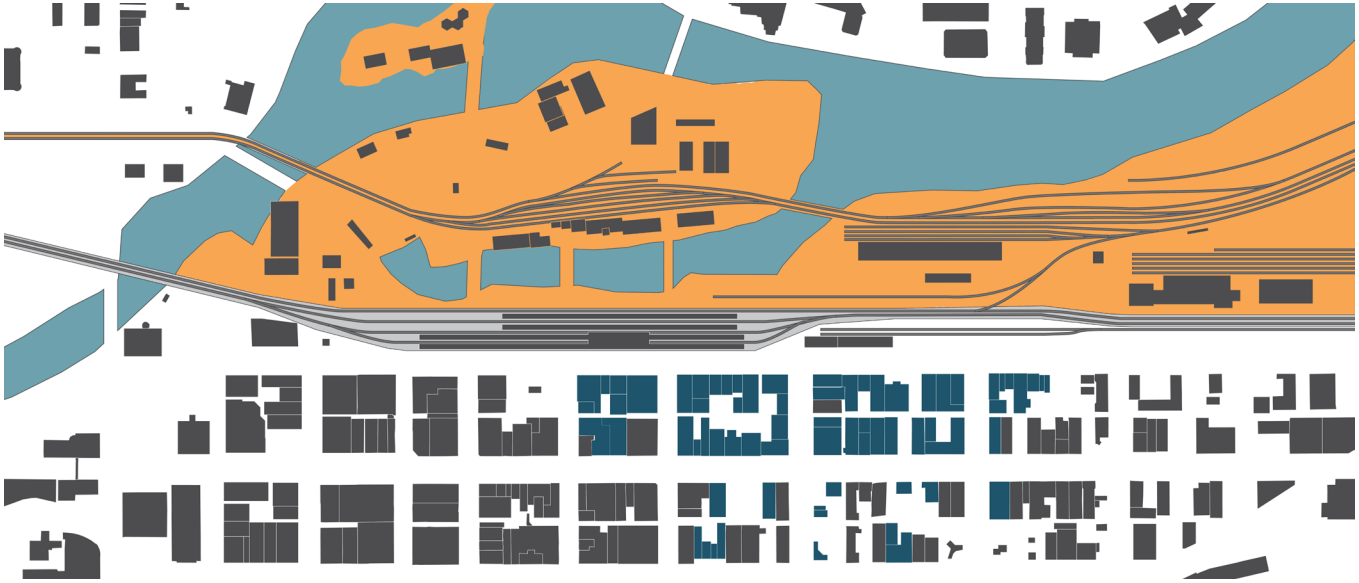


Fig 1.10 Spokane's railroad infrastructure in orange and the buildings town down interpretation for Expo 74

1974 Spokane hosted the Worlds fist environmentally themed fair, Expo '74. In preparing to host Expo, Spokane's downtown core was transformed. The polluted and run down railroad infrastructure was completely torn down and turned into a 100 acre park which would be the host site to the six month long Expo. Many blighted and rundown buildings which once bordered the rail yards where also torn down so as to clean up the image of the city center. The lots were then paved for parking (Youngs 12).

The theme of the Expo was, "Celebrating Tomorrow's Fresh New Environment," which aptly described not only the vision for the Expo, but also the extensive urban renewal process. The Expo was hugely transformative for the city of Spokane and was hailed widely as Spokane's first step onto the international stage. Yet after the Expo the city failed to maintain momentum that the Expo had generated. Thirty-eight years later Spokane is still under the shadow of Expo (Youngs 12).

The urban renewal strategies of tearing down under-performing and underutilized buildings remained through 2006 when the historic 72 Rookery building was torn down and leveled for a surface parking lot. In the wake of this buildings destruction the city of Spokane issued new rules and permitting for the demolition of older buildings.

Spokane's history clearly identifies a city that while large, was completely dependent on the people and economic resources throughout the region to establish its size. While much of the INW does not physically live in Spokane, those within the region still interact with the city and engage with the city as a regional center. Spokane's convention center, opera house and coliseum draw in visitors from throughout the INW for shows and events. Spokane also remains the major health care center for the surrounding region.

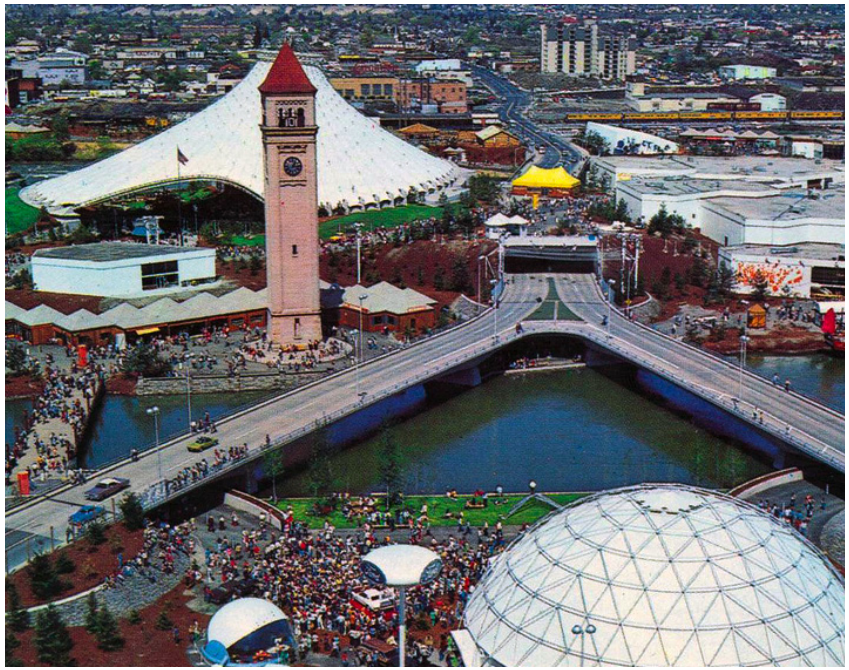
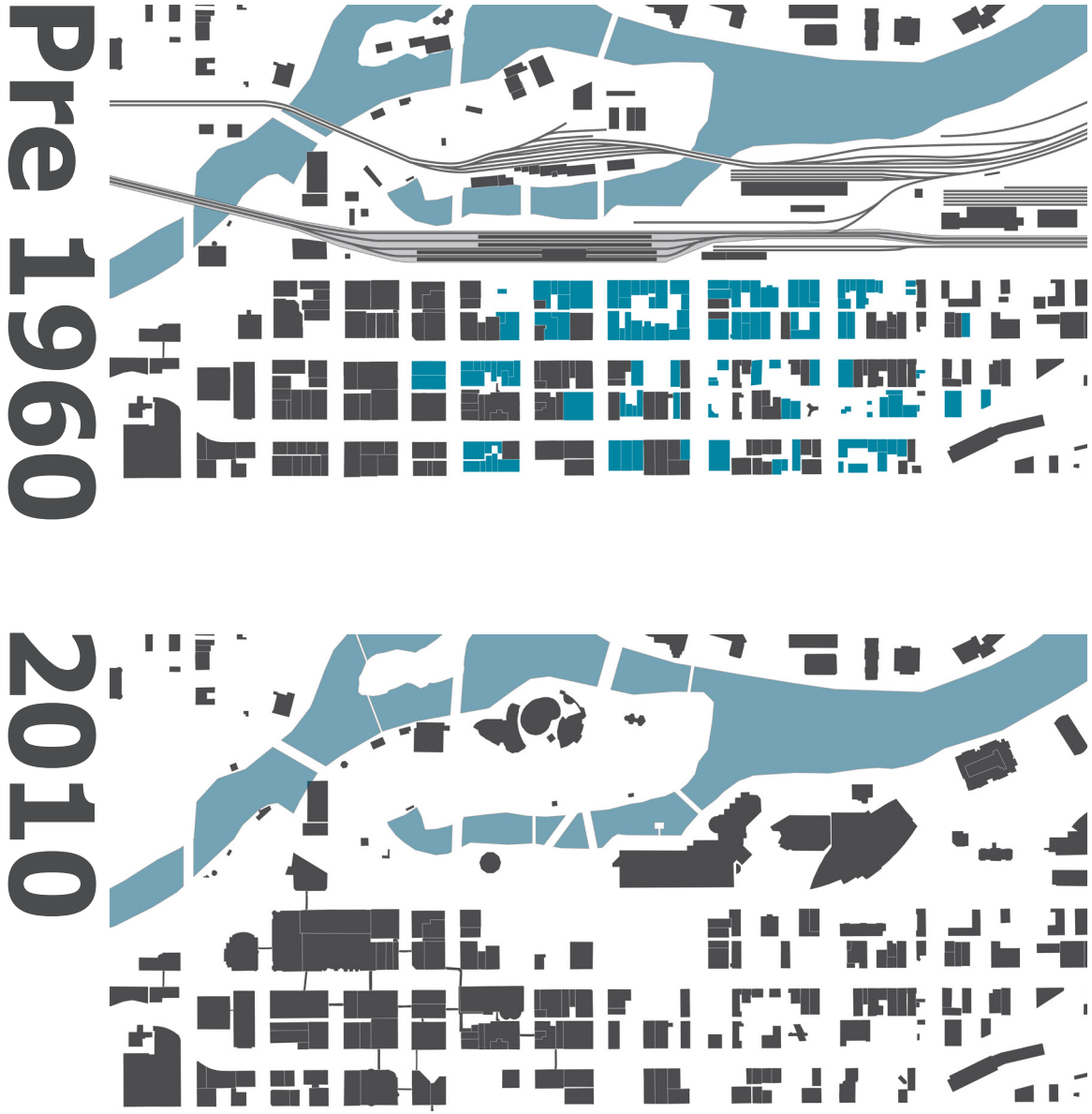
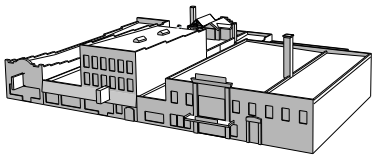


Fig 1.11 Photo of Expo 74 looking at the newly created River Front Park where the railroad used to be. Photo credit of Spokane Public Libraries Northwest Room Archive





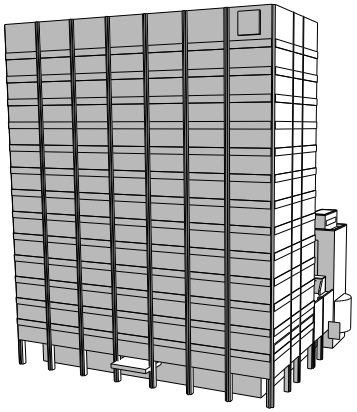


Fig 1.12 Spokane before and after urban renewal. Note the much finer grain of the city fabric in the 60's The railroad infrastructure and buildings in blue were demolished in preparation of expo 74 The voids left by these buildings can still be seen in the 2010 figure ground. Previously development happened at a much smaller scale todays growth is at a much larger scale filling entire blocks, but very little of this type of development has occurred.

Chapter 3: The Creative Class

The Creative Class is a subset of the American work force, which includes approximately 30% of the population ("The Rise of the Creative Class" Florida 13). Unlike typical class descriptions, which focus primarily on economic potential the Creative Class, is defined by those who, "engage in work whose function is to create meaningful new forms" (Florida, "Cities and the Creative Class" 13). This sector of the work force posses a high level of formal education and utilizes this knowledge to problem solve and create through innovation.

The Creative Class includes traditionally creative jobs like designers, artist, and musicians, but these professions only account for a small percentage of the class. A greater portion of this class includes career fields like scientists, engineers, and computer programmers. Collectively these individuals contribute to what Florida describes as the, "Creative Core" or those whose work is based on generating new products, concepts, and ideas. The rest of the Creative Class is comprised of, "Creative Professionals", which include those in education, health care, legal, and business fields and other knowledge based professions (Florida, "The Rise of the Creative Class" 8).

The Creative Class is fundamentally based on their potential. This potential, when tapped, generates new regional economic growth. Today regional growth is no longer solely tied to resource extraction or the manufacturing sector. These sectors remain, but are heavily tied to specific places. Today regional growth is driven by technology and the Creative Class sits at the wheel.

"The human capital theory establishes that creative people are the driving force in regional economic growth. From that perspective, economic

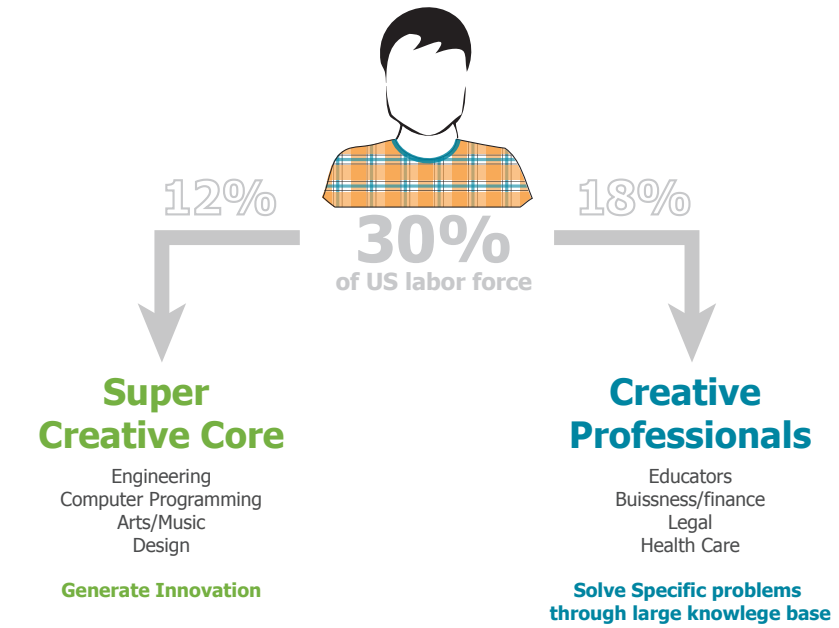


Fig 1.13 Division of Creative Class labor force

growth will occur in places that have highly educated people. This theory begs the question: Why do creative people cluster in certain places? In a world where people are highly mobile, why do they choose some cities over others and for what reasons?" (Florida, "Cities and the Creative Class" 33).

What attracts the Creative Class?

The Creative Class is very mobile and willing to move great distances in pursuit of opportunity. However, for this group opportunity is not strictly measured by the potential of high paying jobs. The Creative Class differs from blue and white color classes in that place and community is seen as important or in many cases more important then the specific jobs in which they are pursuing (Florida, "The Rise of the Creative Class" 7). Where they choose to live is dependent just as much on where they play, as it is where they work.

For the Creative Class place matters. The Creative Class chooses to live in vibrant, culturally rich, and tolerant communities (Florida, "Cities and the Creative Class" 36). They also greatly appreciate active lifestyles and communities that are closely tied to the outdoors for sporting activities (Florida, "Cities and the Creative Class" 84). The Creative Class is not content with sitting and watching, but is drawn towards participatory activities. As Florida describes, "Experiences are replacing goods and services because they stimulate our creative faculties and enhance our creative capacities" (Florida, "The Rise of the Creative Class" 168).

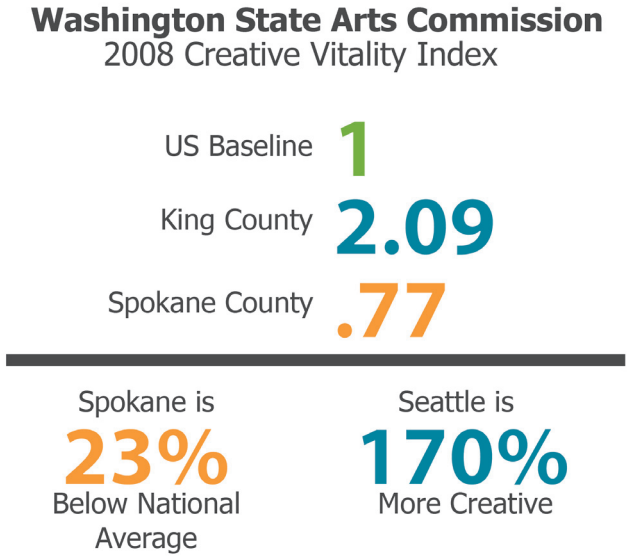


Fig 1.14 Washington Creative Vitality index. This index tracks the number of individuals employed in creative fields as well as the dollars spent on participation in creative events like concerts, plays, and the arts. Spokane countie's index iss significantly lower then the national baseline and dramatically below Seattle and King county, which was over double the national baseline.

Lifestyle amenities that are authentic and unique are very important for retention of the Creative Class. Amenities that are heavily commercialized in nature such as food, music, or retail is seen as 'generica' (Florida, "The Rise of the Creative Class" 182). These places are less appealing based upon their commonality and in essence a lack of creative spirit, which is in opposition to the creative class ethos. Through research and interviews Richard Florida determined that, "They (the Creative Class) prefer more authentic, indigenous or organic venues that offer a wide range of options and where they can have a hand in creating the options" (Florida, "The Rise of the Creative Class" 183). In this way saying that creativity follows creativity, both physicality through where the Creative Class interact, but also culturally with creative ideas, inventions, and spirit. This creative environment is vibrant and flexible allowing creativity to occur through experience and osmosis.

Spokane and the Creative Class: Spokane has the potential to harness the future growth of the Creative Class. The fledgling members of the Creative Class begin creative futures at many of the universities within the immediate Spokane area. Several universities have campuses or branch campuses in Spokane. Eastern Washington University in Cheney, Washington, only 20 minutes outside of Spokane has a student population of over 12,000. Gonzaga University, less then a mile away from the city center of Spokane, has an undergraduate population of 6,375. Washington State University, with a branch campus in downtown Spokane, has an enrollment of 1,309 students. All together Spokane has a rough student population of 22,684, and it is growing quickly. Washington State University and the University of Washington are both committing tremendous resources to developing a combined medical education center on the Eastern edge of downtown Spokane. Spokane needs to focus on retaining this group of young adults to ensure long-term population growth as well as a diverse economic future.

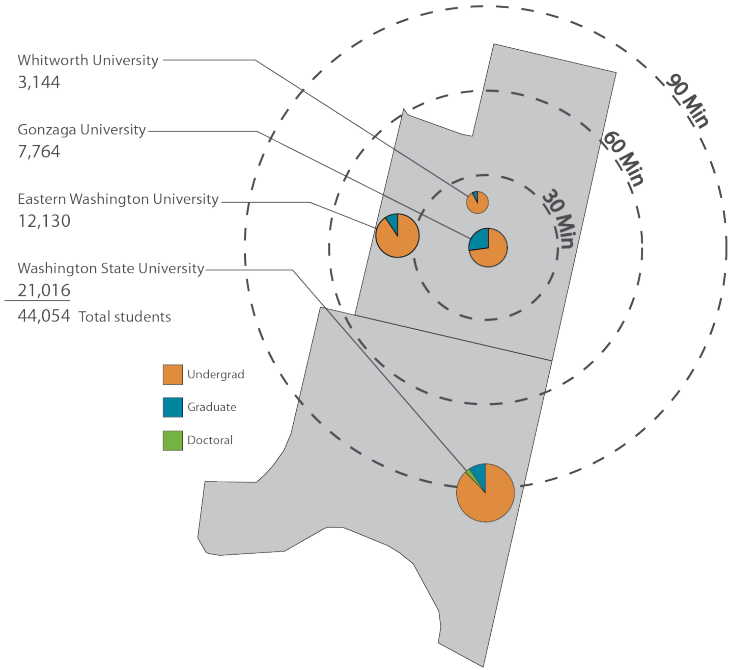


Fig 1.15 Local Universities. Within a 90 minute radius of Spokane are over 44,000 students and countless number of faculty.

The university plays a magnetic role in the attraction of talent, supporting a classic increasing returns phenomenon. Good people attract other good people, and places with lots of good people attract firms who want access to that talent, creating a self-reinforcing cycle of growth (Florida, "Cities and the Creative Class" 151).

A strong draw for the creative class is the outdoor atmosphere. Spokane is surrounded by outdoor activities, many of which can be found just minutes from the city center. This includes fishing, climbing, hiking, biking, and just outside of the city skiing and access to winter sports. Spokane's slogan, Near Nature Near Perfect, alludes to this expansive resource, which the creative class is energized to tap (Florida, "The Rise of the Creative Class" 232).

As a smaller metro city Spokane has many other benefits, such as limited traffic and congestion. It also has a significantly lower cost of living than most other larger northwest cities. Great schools and parks with a low crime rate make it a great place for the creative class to settle and start a family. Most graduates may not initially realize all of the benefits of the Spokane lifestyle until they are ready to start a family. However, if they are retained after graduation they are more likely to set up permanent roots.

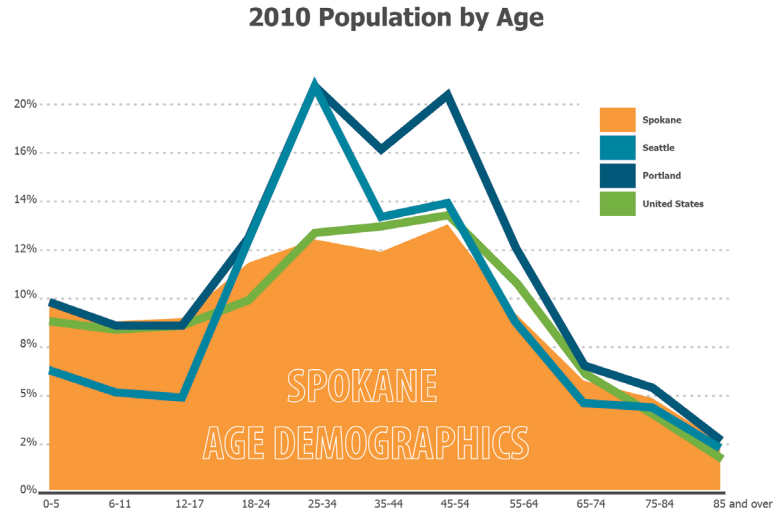


Fig 1.16 Spokane demographics by age. Note the abrupt change in population for Seattle and Portland around the age of 18-34 signaling that Spokane is not as appealing to that sector of the population compared to other Northwest metro areas.

Small niche neighborhoods are beginning to grow around the Spokane area with authentic locally-sourced creativity, however they remain very small and disconnected from one another. One of the strongest creative centers is located along a single block of downtown near the edge of what will grow to become the University District. Much of the area immediately surrounding this creative node is underutilized with vacancies and surface parking. Growth of this central node will further Spokane's connection to the Creative Class as well as strengthen the neighborhood identities.

Generating space, which is geared specifically towards the Creative Class, might be seen as exclusionary, however this is not the case. The Creative Class is the early adopter of new social and cultural activities. An example is the smart phone revolution. The creative class waited in line for the debut of the first iphone, while the rest of the world watched, unsure. Today it is one of the most widely used cell phone platforms in the world. It just so happens that the Creative Class is also responsible for conceptualizing, designing, building, marketing, and selling the most popular smart phone today, the iphone.

Chapter 4: Prefab and Modular Precedents

Many historical precedents of modular and prefabricated architecture exist which have had significant flaws both in design and conceptual longevity. In order to better inform my design decision-making process I studied many of these historical and contemporary precedents to better understand how they have succeeded and where they have fallen short.

Modular and prefabricated architecture has existed as part of architectural discourse since the mid 1800's. It was born out of new opportunities to utilize industrial production techniques in building components. One of the principle early examples was the crystal palace by Joseph Paxton in 1851. Paxton, a gardener, was familiar with green house components and utilized this knowledge to design and build a large pavilion for Great Exhibition. The prefabricated and standardized components were ideal for the Exhibition as it was quick and easy to assemble and could be easily disassembled at the end of the Exhibition.

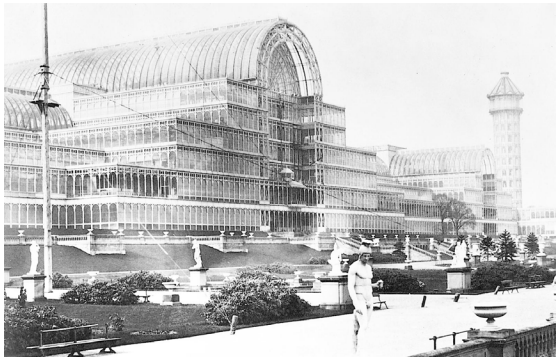


Fig 1.17 Crystal palace

Architects, builders and engineers developed an early fascination with industrialized building components, which carried into the modernist era. Experiments and studies in prefabrication continued into the Modernist movement and were seen as a, "core theme of modernist architectural discourse," according to Barry Bergdoll, curator of the Museum of Modern Art 2008 "Home Delivery".

Industrialized architecture was seen by many as a way to provide low cost effective housing to the masses. Many architects designed their own proprietary systems each addressing the problem in a slightly different way by utilizing the current technological advances and reacting to cultural shifts. Many of these examples failed to provide the advertised benefits, were too costly, or quickly became outdated and obsolete with changing technology and a general inflexibility.

Fig 1.18 Habitat 67. image inhabit.com

Moshe Safdie illustrates an example of this inflexibility in Habitat 67. Visually this project immediately spoke to the self-determinate image I had imagined for my project. It also seemed to have a wide variation in unit sizes and uses. In reality the project is very static and entirely preplanned. Concrete units were stacked and joined to one another in various configurations to create spaces of various sizes and proportions. While enticing visually and conceptually the project was very difficult to adapt since everything was based on concrete boxes which made significant changes impractical.

This became a problem over time as mechanical and housing configurations changed. Each unit had to be overbuilt to withstand the structural loads of the units above which significantly increased the cost of the system making it cost prohibitive to repeat. So while the built form is rich and complex it lacks long-term adaptability. The idea of long-term adaptability became a key factor for my design.

Similarly Kisho Kurokawa's Nakagin Capsule tower also utilized concrete boxes. However, his system utilized one repeatable module, which plugged into a central core that provided all of the services to the units. The concept was that the pods could be updated and switched out as technology and styles changed. In theory the single core was efficient and allowed all of the identical pods to easily attach to the core. However, in reality the amount of steel and concrete needed to hang the individual and structurally isolated units was more expensive then what it would have cost to site build the structure. While each pod was carefully designed with all of the necessary amenities built into the units to maximize space, over time these went out of style. High levels of asbestos insulation and overly specific system integration made adapting the units very difficult to adjust.

Louis Kahn Richard's Medical Laboratory, like the Nakagin Capsule tower, utilized specially designed service cores. As a lab building Kahn knew that the size and functions in various parts of the building would change as research projects evolved. To accommodate this Kahn developed service cores that were easily adaptable to allow for modification over time. The cores became a strong element, which the rest of the project plugged into. This concept of a strong core element, which allows for future adaptation, became another strong take-away for me as I began to develop my design.

Initially I believed that a system of stacking boxes like Habitat 67 would be the best approach. This seemed to allow the most flexibility only needing one or two modules to create the needed variation.

Paul Rudolph's Oriental Masonic Gardens utilized stacked units, which were constructed of trailer-sized units. Rotating, stacking, and joining multiple modules together achieved variation in unit size and proportion. However because of the cheap building of the units, they were not appreciated by the residents. Oriental gardens quickly fell into a state of disrepair. The units leaked and were too specific not allowing for adaptation or personalization. While the units stacked they were limited to only a few variations to accommodate structural and mechanical connections. So while this design opened up

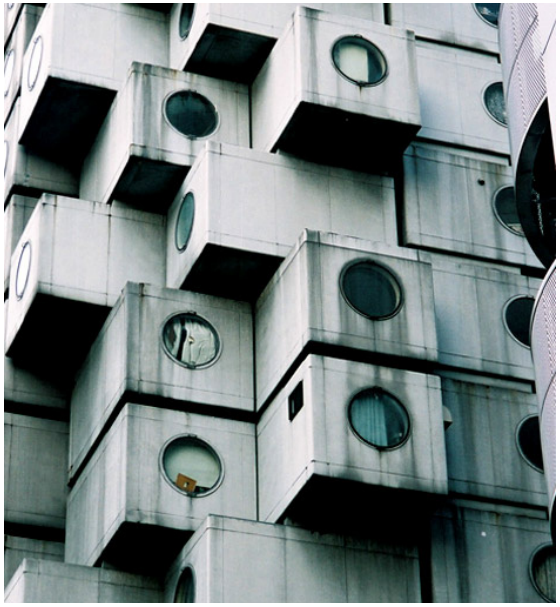


Fig 1.19 Nakagin Capsule Tower. image archrecord.com

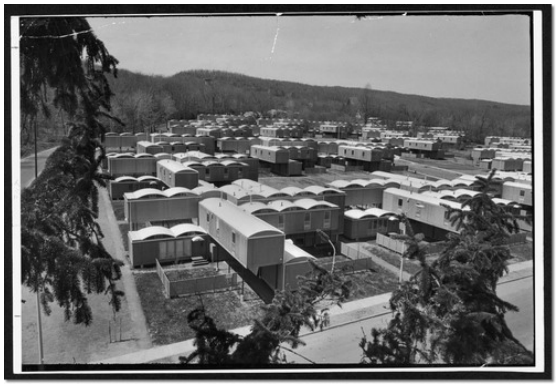


Fig 1.20 Oriental Masonic Gardens.

variety in form issues, connectivity with structure and mechanical systems meant that variation was limited to only a handful of adaptations.

Many contemporary prefabricated systems rely on a singular repeated module. Space Box is an example of this. These multicolored housing units have been set up as student housing and temporary event housing. The units are singular in purpose, but are space efficient and work well for their intended purpose. The proprietary system is not adaptable and could not be retrofitted for use in different ways. The one room studio unit allows for economy of scale to occur decreasing the unit cost and increasing efficiency. Visually the singularly repeated unit becomes monotonous and one-dimensional.

Similarly, shipping containers have become a common platform for a unitized system. They are standardized robust envelopes that can be retrofitted in numerous ways. Their size allows them to be easily transported, but are relatively narrow compared to most rooms. The steel exoskeleton is easy to cut, allowing multiple units to be easily reconfigured and joined together.

Puma City by LOT-Ek is a great example of this. Here 20 shipping containers were cut apart to create a large retail and convention space for the clothing retailer puma. The units could be easily disassembled and transported to new locations. When assembled the building was programmatically rich with offices, retail, event space, and a bar.

Similarly Restart in Christ Church, New Zealand utilized shipping containers to quickly rebuild a commercial center following a devastating earthquake that destroyed much of the downtown. Containers made an easy platform for retailers to fill. They could be joined together and stacked to accommodate a wide variety of businesses. Each retailer could brand the entire container as they saw fit extending their retail space out onto the streets edge.

In both of these examples the container was used because it was standardized and easy to work with while providing significant flexibility and customization.

I explored the idea of using the container as the basis for my project, but did not think that the connotation that surrounds them was right for my site. Shipping containers in architecture have become a popular choice in prefabricated housing to the point where it has become a style. I wanted to utilize the same idea of a repeatable unit that is robust and adaptable, but package it such that

Fig 1.21 Puma City. Image archdaily.com

Fig 1.22 Restart Christchurch image inhabit.com

they would fit more appropriately within the existing urban context of Spokane and have a more usable proportion to accommodate a wide array of users.

While having many advantages it is clear that many factors come into play when justifying the usefulness of prefabrication. In today's building environment onsite construction in most cases remains cheaper then prefabricated construction. While having a long-standing history, it is not a widely adopted technique, which means a strong body of knowledge at the contractor level has yet to be established which can adversely affect the success rate. Prefab and modular development comes with its own set of advantages and disadvantages. It can be a fast and effective way of generating space, but it is not necessarily cheaper and has its own specific set of challenges to overcome.

It is a model that should be used only when specific technical factors deem it appropriate in order to warrant the added cost and energy required. In the case of Spokane, prefabrication and modularity allows for the design concept of aggregate growth to occur. Prefabrication is used to increase efficiencies within the system so new units can be placed onsite within a short time frame, which limits the interruption to other units that are already installed.

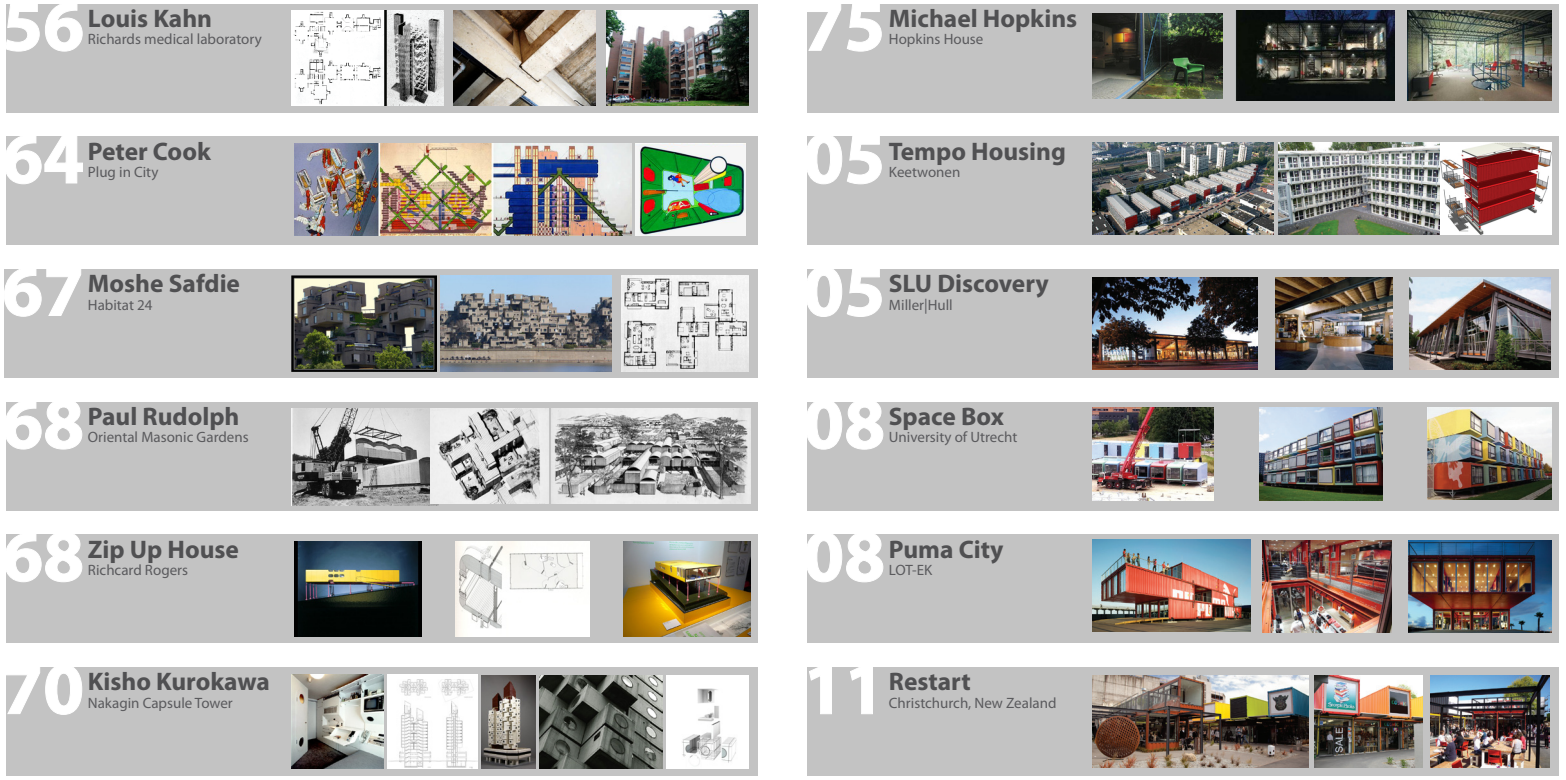


Fig 1.23 Precedent research

Fig 1.24 View of site from across the street

Chapter 5: The site

At the macro scale Spokane's downtown is delineated and divided by both man-made and natural landforms. The downtown core and much of the north side of the city sits within a valley. At the lowest part of this valley lies the Spokane River, its raging waters dramatically cutting into the rocky landscape. The city center sits between two natural formations the river and a large hill, the South Hill, which rims the valley.

Two man-made barriers divide the downtown into horizontal sections running east to west. The first is an elevated railroad, which splits the downtown into two distinct sections. The northern section is defined as the downtown core and includes the major financial, retail, and business centers. To the south of this structure the downtown's density drops off significantly. This area is filled primarily with new car dealerships, fast food restaurants, and a dispersed mix of retailers and small businesses.

Futher to the south bordering the edge of I90 is the South Hill, creating a transition into the residential areas of Spokane. The further up the South Hill you travel the more the per capita income increases. Directly next to I-90 are the major regional hospitals, Sacred Heart Medical Center and Deaconess Hospital, as well as a large number of rental houses and apartments.

Spokane's downtown is divided further by major traffic corridors, which run north south. These major corridors align with streets that bridge across the Spokane River. These major corridors are in most cases one ways streets taking up 3-4 lanes with dedicated street parking on both sides. These wide streets create large barriers to pedestrian flow and further subdivide the city into even smaller downtown quadrants each with a distinct feel and density.

Within the central downtown core sits over 20 acres of surface parking lots. This figure does not include any street parking or the area used for

Fig 1.25 Figure ground of downtown Spokane. The shaded green area to the north is Riverfront park, covering land that was formerly dedicated to the railroad. The orange areas represent surface parking lots, the x's indicate multistory parking garages.

dedicated multistory parking garages. When sighting my project many potential sites existed all in need of an intervention. These surface lots are flat, paved and generate little revenue for the owner or for the City of Spokane in tax revenue.

Spokane is in need of an urban intervention that begins a process of rebuilding in the wake of expo's urban renewal strategies. These parking lots represent an underutilized typology in Spokane and an opportunity for growth and change through modular architecture which can bring new life and increased vitality to the downtown core without the obligation of financial speculation or political commitment associated with permanent buildings. By choosing a site on the eastside of downtown where vacancies in existing buildings exist, the hope is that the modular development will generate new interest in an underutilized area, increasing land values and decreasing vacancies.

Spokane is also ideally located for an intervention targeted towards the creative class. As the educational center of the region, Spokane has a high percentage of young people and several strong local universities. Annually these Universities generate qualified graduates, the fledgling members of the creative class. Spokane needs to be able to harness this resource and retain as much of this population as possible. To do this Spokane needs to market and develop more of a creative center and cultural hot spot for this population.

Currently two retail districts exist along Riverside Avenue in downtown Spokane. The larger of the two is on the west side of downtown and is anchored by an urban mall which caters primarily to national retailers like Pottery Barn, Williams Sonoma, Gap, and Apple. It is seen as the retail core and heart of downtown Spokane. It is highly commercialized and inauthentic. Further down Main Street on the eastern edge of downtown lies what has become a

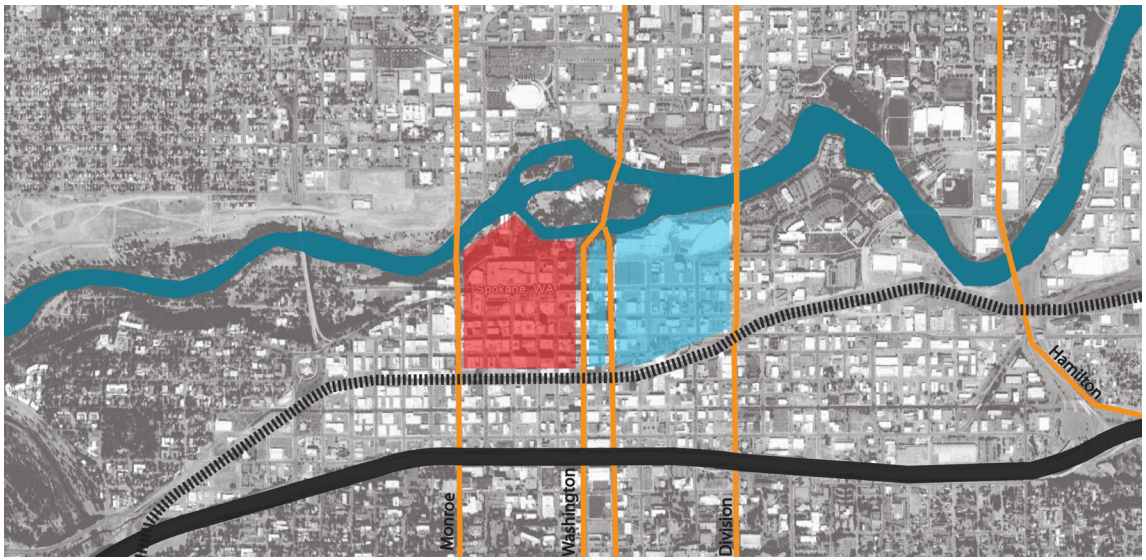


Fig 1.26 Grided Downtown. The Central business district is shown in orange. The light blue represents the area east of downtown where much of the urban dead zones exist. In orange the major north south corridors divide the city center into sections. These sections are further divided by I90 in black and the re-routed train traffic which is shown dashed.

fledgling creative class hotspot. Within a one-block radius are bars, coffee, shops, restaurants, a gallery, as well as small retailers all of which are locally based and authentic. Its proximity to the growing University District further along Main Street will ensure its longevity and continued growth. While small, it has slowly developed an authentic culture making it the creative center of downtown Spokane. The eastern edge of downtown is expected to see dramatic growth with the planned expansion of the University district's medical facilities.

Between these two developments lies parking lot after parking lot breaking any perceivable visual connection. It is within this dead zone that I have chosen my site. While the intervention is intended to be universally adaptable to many sites, I have specifically chosen this site to use as a testing site. The chosen site sits in the middle between the central business district and the evolving creative class center. This site was chosen as it presented several interesting conditions that are typical to many potential sites. The site is bordered on two sides by buildings of various scales. The lot is also very large, while not an entire city block it fills nearly ¾ with a buildable area over 150 feet in length.

Fig 1.27 Cultural separation. The downtown core in blue on the right and the developing creative center on the right in orange. The chosen site is shown in purple along Main street and begins to bridge between the two districts.

Chapter 6: Intervention

The design I created generates new energy for downtown Spokane. It provides the necessary infrastructure and systems for individuals to live, work, and engage in the downtown core. In many ways my project is like an artificial reef. I am supplying the infrastructure, much like the coral does. Within this structure an ecosystem will develop, grow and change over time. While I can predict and encourage certain species, in reality the project will change unpredictably. The infrastructure that I provide must be able to change and adapt in order to be successful and remain relevant. The building is designed so that it can be constructed and utilized in phases, accumulating over time in pace with market demand. The elements, which make up the building are each designed to be adaptable and scalable over time.

Fig 1.28 Artificial reef

The design is broken into four main programmatic elements: the unit, dock, core, and frame. Based on the research precedents, each of the elements is designed to be flexible and adaptable to accommodate future changes enabling the building to evolve with the users over time rather then remaining static. This flexibility also makes the project adaptable to various site conditions.

Fig 1.29 Building Elevation

Unit:

The unit is central to the design and the building block for the rest of the system. It is 15 feet wide by 30 feet long and structurally and mechanically independent allowing it to function autonomously. The wood framed units are prefabricated off site and trucked to the site and then craned into position.

The units all have the same footprint, but the ground floor units are slightly taller to better relate to the existing ground floor context. The long walls are designed as a shear wall with a removable center panel. This panel allows the units to be joined together increasing the usable square footage. This flexibility can accommodate a wide variety of users and potential growth scenarios. Users can start with a single unit and continue to add units as their business grows. The system can grow from a single unit all the way up to an entire floor or multi floor scenario depending on the user need.

Structurally the units are supported by two long beams, which carry the load of the entire unit. The depth of these beams creates an area of interstitial space that is used for the mechanical systems. At the back of each unit is a chase, which as the units stack provides a consistent vertical connection for plumbing and electrical systems. The structural and mechanical systems are independent to accommodate future growth and expansion of the system. The unit's interior space is intentionally sparse with the intension that the user will customize and brand the units as they see fit. The same unit can accommodate multiple users from studio housing, cafes, retail, and multiple unit offices. The facades come in various options depending on what is needed by the tenant. While not interchangeable the façade is adaptable, to fit the needs of the specific user.

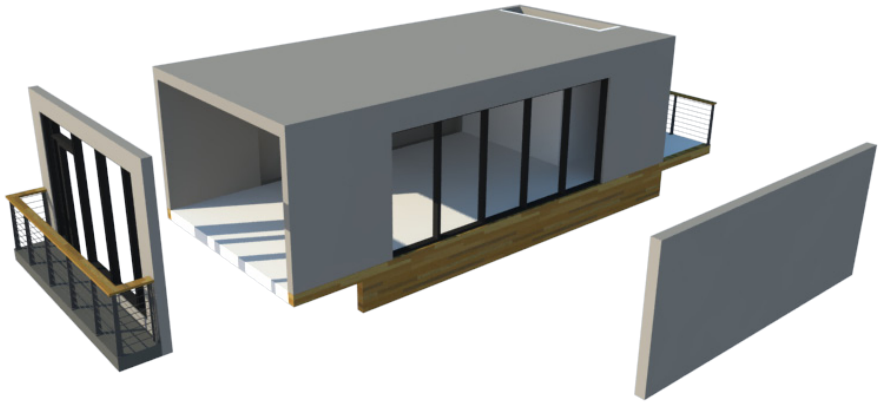


Fig 1.30 The Unit

Fig 1.31 Section Through Unit

Fig 1.32 Program Flexibility

Dock:

The dock is similar to a large raised floor system. It provides access to the units while allowing for plumbing and electrical systems to be run underneath to connect to the units. Panels can be added and removed as the unit configuration changes over time. As changes occur, panels can be lifted allowing access to the systems below. The raised floor sits only 18 inches above the ground. It creates an extension of the sidewalk with amenities built in like seating and planters. The dock provides flexible space displays and outdoor seating for ground floor businesses like restaurants and cafes. The side walk zone and amenities are extended up onto the dock connecting and transitioning between the street and building.

The dock repurposes space from the parking lot and creates a new public platform, which the units plug into. The dock also provides space for mobile food venders to connect, putting the customer more at eye level with the vender rather then looking up into the truck. The dock provides a more specific zone for customers in a new public space. The flexible nature of the system allows for adaptations, and growth over time.

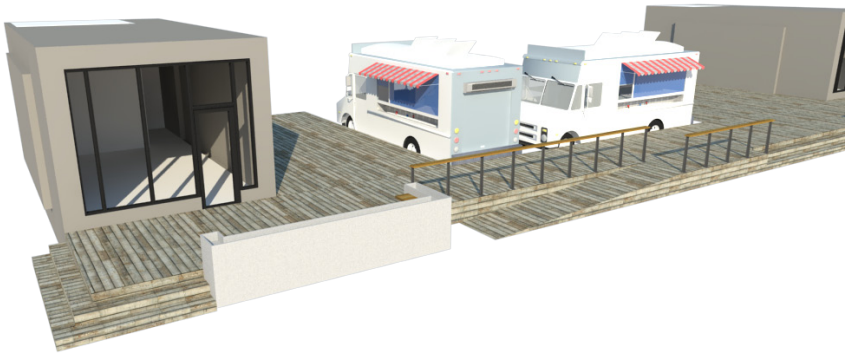


Fig 1.33 The Dock

Frame:

The frame allows the units to expand to multiple stories. It is made of wood glue laminated timbers. The units do not stack directly onto one another, but rather sit on the frame. This means that the units do not need to be overly framed in order to accept potential load or changes. Flexibility is gained by utilizing the frame and the load carrying system. The beams imbedded in the units sit on the frame, which acts like a structural girder. This allows the units to sit anywhere along the girder, which increases flexibility.

At the base V columns support the frame. These columns collect the vertical load from the upper floors consolidating the load at the base. The V columns provide lateral stability and reduce the overall number of columns at the ground floor, which creates fewer penetrations in the parking lot. The columns are bolted to the frame with knife plates. As the system moves upward columns are used to support the girder above. These columns, similar to the units can ride anywhere along the girder, acting as a large rail for the units and columns to sit. The columns nest between units in a void space left by the unit's footprint. The column is designed to nest over the girder and include a bracket. The brackets are designed to accept multiple types of fittings for a system of connections ranging from x braces, lighting, and signage.

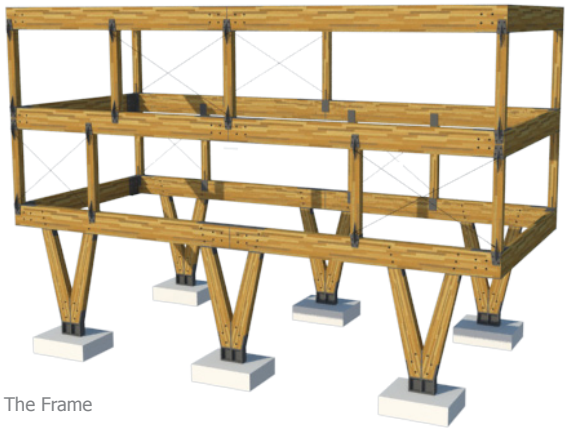


Fig 1.34 The Frame

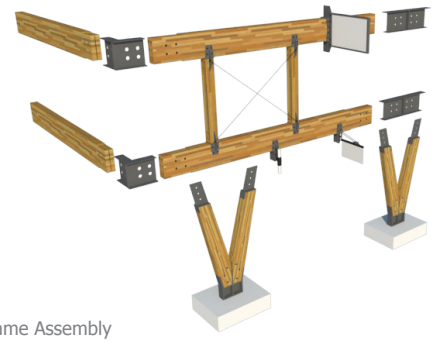


Fig 1.35 Frame Assembly

Core:

The core serves all of the units and is the one static element within the system. While static it provides many communal amenities to the other units. It serves as the vertical circulation for the units combining both elevators and stair towers. Bathrooms are also located within the cores as well. While units can be configured to have an independent bathroom most will rely on the services provided by the core. As the core grows vertically it also becomes programmed with amenities, which are specifically geared to small business development allowing the building to function as an incubator space. These communal spaces include conference rooms, copy rooms, kitchenettes, and group workspaces. By combining these mutual amenities the core becomes an essential part of how the building attracts and caters to the young, creative population.

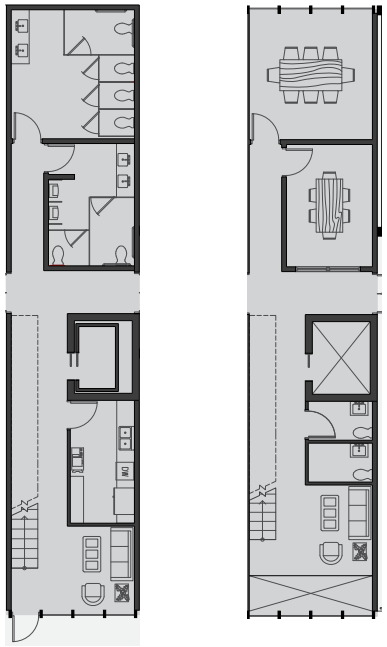


Fig 1.36 Core plans

Fig 1.37 The Core

Fig 1.38 Building perspective

Fig 1.39 Ground Floor plan

The building components are designed to be installed in phases. How fast or slow the building goes through these phases or the specific way in which they are carried out is determined by pace of growth and the users involved.

In the first phase the ground work for the future building is installed. Footings for the V columns and ground floor units are installed in a set rhythm anticipating future phases of growth. Service vaults are also placed on site and are connected to the city utilities making future connections to the utilities easy to accommodate simply by accessing the vault. The docking station and units are brought in at this phase as well. Initially there may only be a couple of businesses, but over time as the businesses grow or the area receives more development interest future units can easily be placed onsite and connected to the city utilities. The earth work is done at the earliest phase to eliminate future disruptions to the building and site as the building evolves. This early investment in infrastructure allows the project to grow at its own pace.

Phase 1

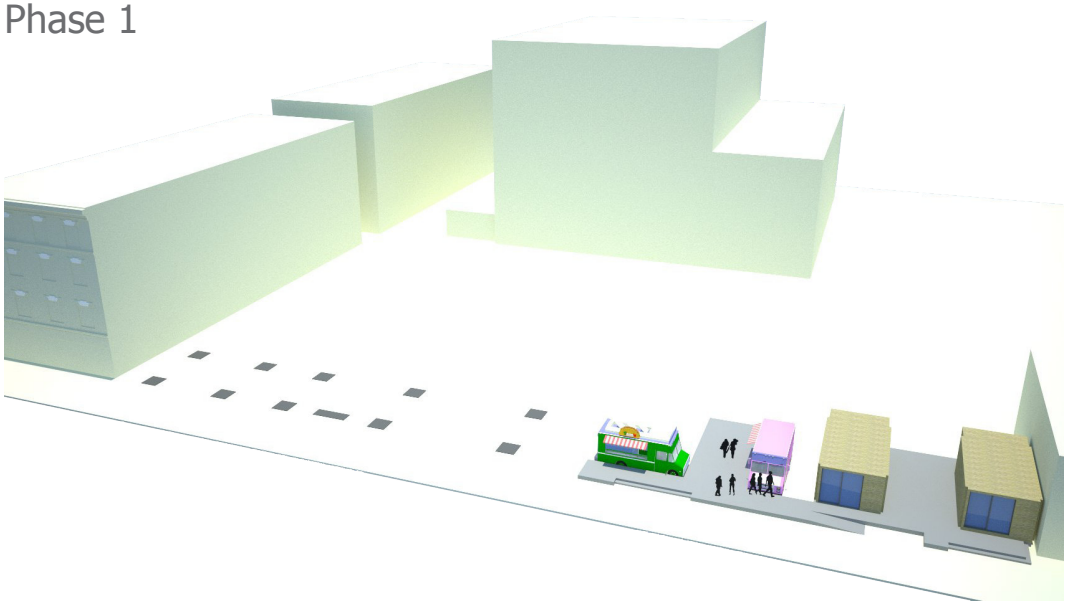


Fig 1.40 Phase 1 Diagram

As the project grows in phase one some units will be moved, others will be joined to form larger programmatic spaces. The docking station allows this fluctuation to easily occur. Eventually the concentration and interest in the project will exceed the usable ground floor area, warranting a higher density of units by increasing the number of floors. At this point phase two starts with the creation of the cores and assembly of the frame. The docking station is easily modified to accommodate the connections to the pre-placed footings.

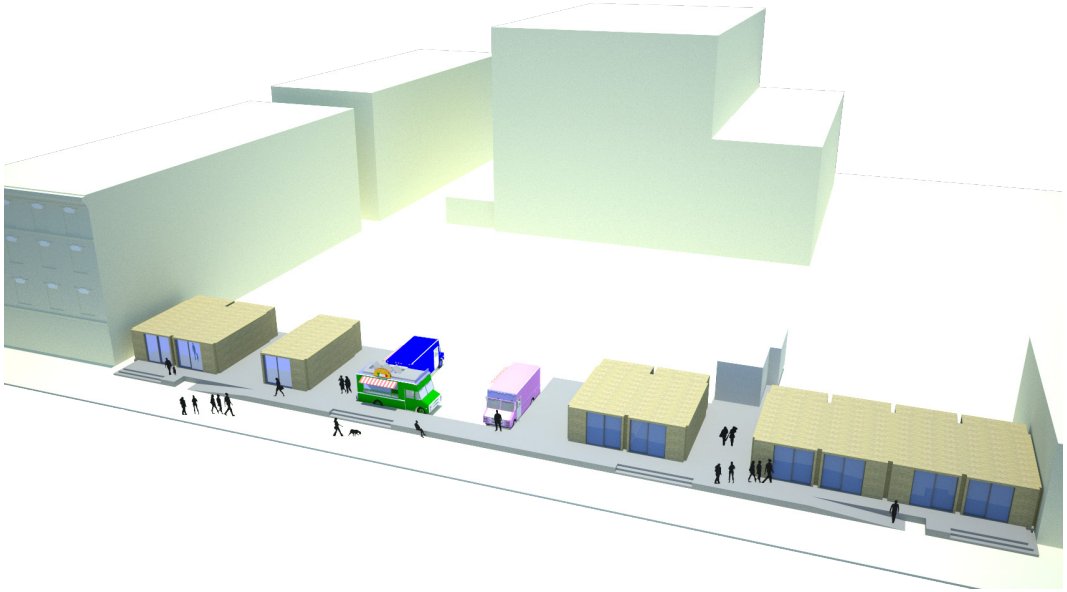


Fig 1.41 Phase 1.5 Diagram

Phase 2

Once the rail are in place the units are craned onto the frame. Services are connected through the chases that already exist in the units below. As businesses grow units can be joined together based on user need. It is expected that the ground floor will primarily be used for retail, food vendors, and offices. Once the project moves to the second floor most of the units will be offices with some housing being mixed in. Gaps between units will be formed creating outdoor space and pockets for informal and unpredicted uses. Eventually these spaces have the potential of being additions or site built development.

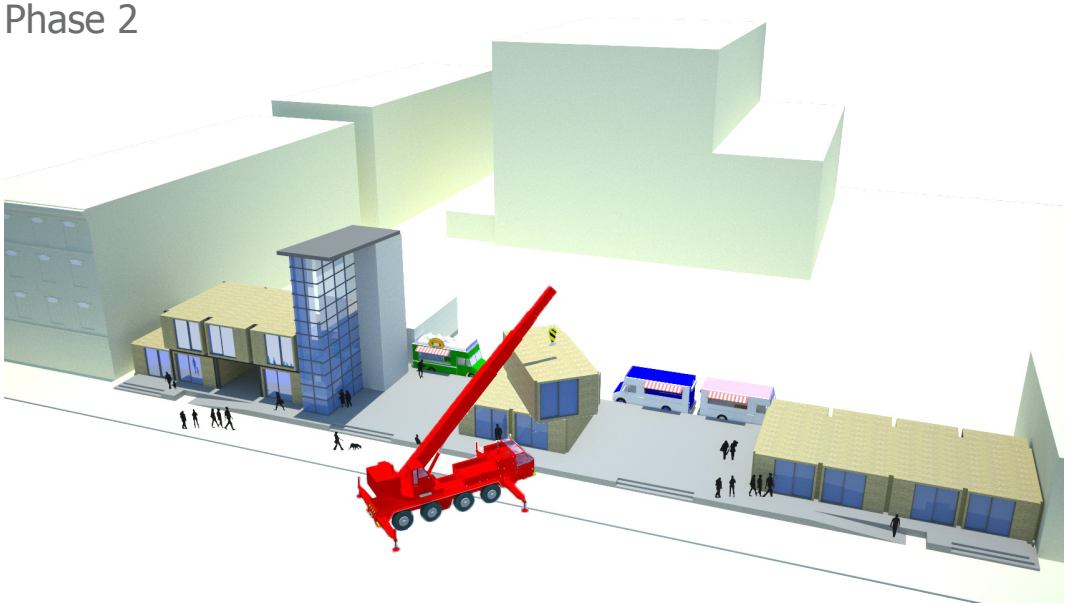


Fig 1.42 Phase 2 Diagram

Phase 3

By phase three the building frame and cores have extended to the third floor. It is expected that most of the third floor units will be residential space consisting of live work, studio, and two bedroom units. At this point the third floor units are capped with a roof unit, which competes the assembly. The roof element provides added spaces the units below along with dedicated outdoor space.

The success of the project is not necessarily determined by achieving all of the phases. Site and market condition may create a scenario in which full build out is never achieved, but the system still provides growth to the area, increasing property values, vitality and hopefully encouraging future long-term growth. Some sites may never get past the first phase having only a few units on site. Other sites may be built up only to be disassembled to allow for a larger more permanent building. In both scenarios the current surface parking lots have been transformed and generated growth. The building components are used within a system so as to provide a catalyst for urban growth and a model for future expansion within downtown.

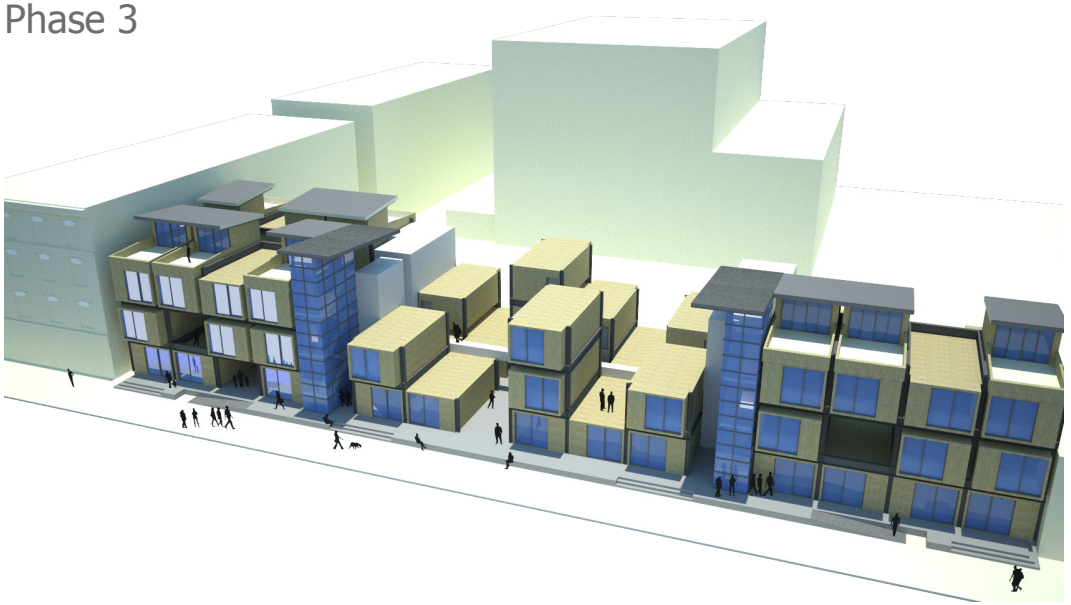


Fig 1.43 Phase 3 Diagram

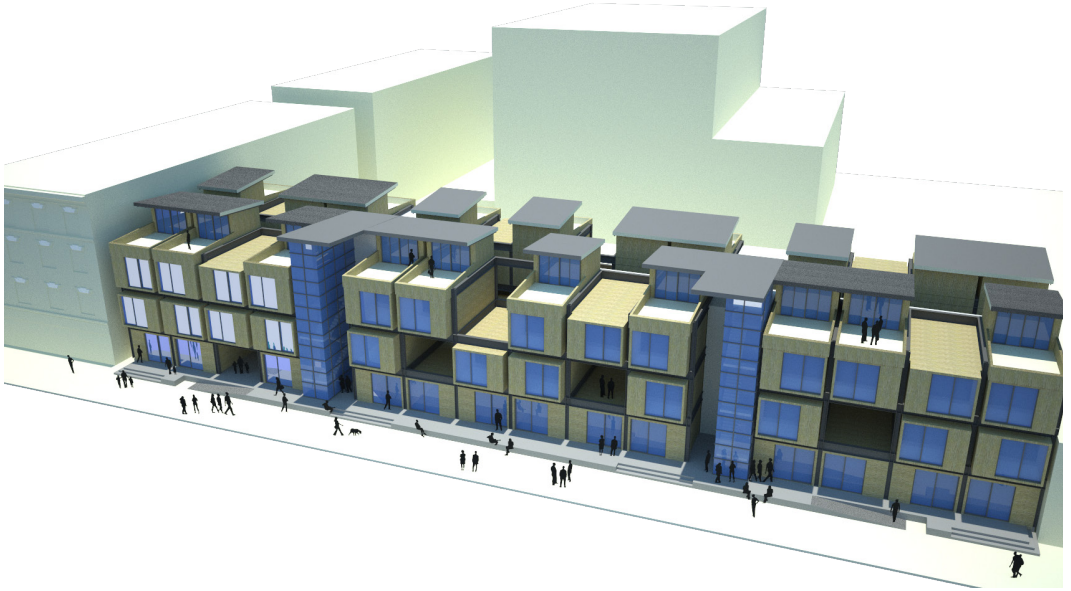


Fig 1.44 Potential max build out

Fig 1.45 Site Section


TUNDRA
"No Longer Spokane's Best Kept Secret"
Italian Kitchen
"Passionately Serving The Region's Best Italian"
Italian Kitchen
Ristorante
Next Left
113 N. Bernard
Phase 3
Phase 2

Chapter 7: Conclusion

The final review of the project was received well by the jurors. They followed the logic behind investigating urban dead zones and the use of Spokane as a good testing location. The over all concept of aggregate development as a strategy for dealing with the dead zones was seen as a potential way of addressing the problem. There were many questions regarding the specifics of how my system would bring about this type of change and the sequence and phasing that would occur.

In the presentation I only presented one scenario for the reviewers to react to. I choose a snap shot in time, which in reality the system can be adapted to multiple programmatic uses and a multitude of phasing scenarios. Convening only one graphic lead to many comments regarding other possible development scenarios. At the heart of this discussion was a comment about which came first the chicken or the egg. In the case of my project this was equated to which comes first, the unit or the frame. In the scenario that I presented I said that the first element was the unit, which developed a ground floor street front condition. This allowed for the site to fill in the gaps at the street edge and encouraged vitality at the street level. Once this was accomplished and a high enough concentration of units were developed, the larger frame could be place over the existing units, increase the density and diversifying the system to include more offices, and the possibility for live work and residential units.

The reviewers suggested that perhaps the model could be flipped so that instead of focusing on the unit as the first intervention look to install the frame system and core elements first and then allow units to fill in where desired. In many ways this scenario is similar to the image I showed of a man made corral reef in which just the frame elements where put into place and then nature took over and began to adapt to the frame creating a rich reef. From a city development standpoint this frame first idea could gain traction. The city or developer would put initial efforts into funding the frame and systems, paving the way for users to plug into and adapt to the system.

While this seems practical the system that I presented and the resulting architecture was specifically designed from a different angle. While dead zones will differ greatly from city to city, in Spokane's case the dead zones in question, asphalt parking lots, have existed for over 38 years with no development. With no investment it is hard to believe that the city or a developer would choose to invest so much money upfront with no guarantee of success. There is too much speculation in this model that says," if you build it they will come". This scenario would also suggest a more standard building model should be used to be cost effective. The current building trend is to look at the entire parking lot as one large site waiting to achieve maximum build out. The amount of speculation is too high and at too great of a cost to do this considering the current economic time and within the current downtown culture of Spokane.

I believe that the best solution is to start small. Spokane is not a wasteland of creativity or entrepreneurial spirit, the problem is that it is difficult to cultivate and cost prohibitive for small startups to be downtown. What does occur is spread across a very large sprawled area resulting in little critical mass. So while things are happening all over the city in bits and pieces they are difficult to perceive as a whole, which perpetuates a city wide perception that little is going on or happening in the city. I believe this makes changing the view of Spokane difficult to achieve.

One of the biggest challenges and biggest costs to a start up is associated with location. I want to provide that creative individual with a small space to get started and put them downtown in the heart of the city. As their business grows I want to continue to support them by allowing the architectural system to expand to fit their needs. Over time as more businesses choose to invest in the system the specific location begins to build a culture and energy which can be increased over time with more density and more units slowly accumulating. The critical component is to start now with what is available allowing the units to remain flexible and adaptable to future growth and expansion, or the unfortunate scenario that requires the units to be scaled down or removed entirely. The architecture is thus driven by the need for accumulated growth rather then predetermined or expected conditions.

These surface parking lots are the lowest form of built investment. To begin to see change and development within this area of downtown we have to start somewhere. I believe that if we can't fill the lot why not at least start with a few of businesses and give them the opportunity now. My system is designed specifically to let this occur and be adaptable enough to change with various sites and perceived development strategies.

Two comments, which seemed to be voiced by all of the reviewers was that the project needed a stronger conclusion or that it needed to be pushed further. One suggestion was to allow the units to be able to slide in and out like drawers in a cabinet. I like this idea and considered something similar in earlier conceptual phases. At first I likened my system to that of a zip car in that the units could be completely interchangeable within the frame. Users could rent a specific unit and it would show up and be inserted. A month later they could choose a different module or have theirs moved down the street to another structural bay. They idea is great, but I struggled with the feasibility of such a system. I felt that this infinite interchangeability would require significant infrastructure to enable the units to be moved in such a way. I believed that this would significantly increase the cost and thus diminishing the reception it would receive by the city and developers. One of the reviewers countered and suggested that this was beginning to occur with various unitized bathroom modules, which could be inserted into buildings. I have not seen a system yet which allows you to insert and then swap in a different modular unit, it seems that most only allow for different units to be installed.

Another suggestion was to allow the units to stack on top of one another directly. This was seen as a less restrictive way to allow for more flexibility within the system. This comment was made in reaction to what was seen as a harshly gridded system that seemed limiting. Stacking was considered as an initial concept, but two major concerns led me in a different direction. While stackable units might generate more diversity in the form of future additions or adaptation are difficult to accommodate. If a significant change is made on the ground floor each subsequent unit above could be adversely affected. The results are units that are potentially less flexible in the long term. My system allows for flexibility to occur in a measured way. Each unit is seen as being independent, yet is still able to interact and be adaptable within the frame over time. When you get down to the details of assembly a careful balance must be struck that is flexible enough to be useful, but also have enough rules built in so that it will have prolonged functionality and longevity.

The reviewers also raised the question of subversion. For me subversion iss allowed and encouraged through the flexibility of the system. This comes through in the users involvement and how they develop a culture within their own ecosystem. For example an artist would create a much different environment and adapt to the building differently than a musician would. While renderings of the project appear homogenous, a primary goal of my project was to provide a recognizable, flexible framework within which any number of authentic environments could develop. These environments include retail, cafes, restaurants, bars, offices, incubator spaces, and multiple housing types. My goals did not include control over the specific mix of these elements. They primarily focused on the development and implementation of a strategy that would provide cost-effective short-term solutions to encourage development in a wide variety of potential dead zone conditions. The strengths of the modular system, speed of assembly, and adaptability allow for long-term aggregate growth that is paced to the needs of the site allowing this modular approach to act as a catalyst for future development.

Work Cited

AIA; AIA Top 10 Green Projects 2008; Discovery Center at South Lake Union. 14 May 2012. Web.

Cooke, Philip, and Luciana Lazzeretti, eds. Creative Cities, Cultural Clusters and Local Economic Development. Massauchusetts: William Pratt House. 2008. Print.

Fahey, John. Shaping Spokane: Jay P. Graves and His Times. Seattle: University of Washington Press. 1994. Print.

Food Trucks Portland; About; 14 May 2012. Web.

Florida, Richard. The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community, and Everyday Life. New York: Basic Books. 2002. Print.

Florida, Richard. Cities and the Creative Class. New York: Routledge. 2005. Print.

Greater Spokane Incorporated. Great Events, Great Business. Web. 10 May 2012.

Haydn, Florian, and Robert Temel, eds. Temporary Urban Spaces: Concepts for the Use of City Spaces. Boston: Publishers for Architecture. 2006. Print.

Kronenburg, Robert, ed. Transportable Environments: Theory, Context, Design and Technology. New York: Routledge. 1998. Print.

Kronenburg, Robert, ed. Portable Architecture. 2nd ed. Woburn: Butterworth-Heinemann. 1996. Print.

Martin, Albro. "Hill or Harriman: What Differences Did it Make to Spokane?" Spokane and the Inland Empire: An interior Pacific Northwest Anthology. Ed. David H. Stratton. Pullman: Wasington State University Press, 1991. 109-121. Print.

Meinig, Donald W. "Spokane and the Inland Empire: Historical Geographic Systems and a Sense of Place." Spokane and the Inland Empire: An interior Pacific Northwest Anthology. Ed. David H. Stratton. Pullman: Wasington State University Press, 1991. 1-28. Print.

Nunemaker, Carolyn Hage. Downtown Spokane Images, 1930-1949. Spokane: National Color Graphics, 1997. Print.

Pogoreutz, Mirko. "Urban Intelligence" Temporary Urban Spaces: Concepts for the Use of City Spaces. Ed. Haydn, Florian, and Robert Temel. Boston: Publishers for Architecture. 2006. 75-80. Print.

Rebar Group; Portfolio Parking; 10 May 2012. Web.

Stratton, David H, ed. Spokane and the Inland Empire: An interior Pacific Northwest Anthology. Pullman: Washington State University Press, 1991. Print.

Wang, David. Surrounding Spokane: Perspectives on the Built Environment of a Regional City. Spokane: Eastern Washington University Press, 2003. Print.

Youngs, William T. The Fair and the Falls. Spokane: Eastern Washington University Press. 1996. Print.

United States; 2010 Demographic Profile; Census Bureau; Spokane County, Web; 4 April 2012.