COEXISTANT COMBINATIONS: ARCHITECTURAL RELEVANCE IN THE DIGITAL AGE

by

Heber Eben Slabbert

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Architecture

in

Architecture

MONTANA STATE UNIVERSITY
Bozeman, Montana

April, 2010

©COPYRIGHT

by

Heber Eben Slabbert

2010

All Rights Reserved

APPROVAL

of a thesis submitted by

Heber Eben Slabbert

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citation, bibliographic style, and consistency and is ready for submission to the Division of Graduate Education.

Michael Everts

Approved for the Department of Architecture

Dr. Fatih Rifki

Approved for the Division of Graduate Education

Dr. Carl A. Fox

STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a master's degree at Montana State University, I agree that the Library shall make it available to borrowers under rules of the Library.

If I have indicated my intention to copyright this thesis by including a copyright notice page, copying is allowable only for scholarly purposes, consistent with "fair use" as prescribed in the U.S. Copyright Law. Requests for permission for extended quotation from or reproduction of this thesis in whole or in parts may be granted only by the copyright holder.

Heber Eben Slabbert

April 2010

TABLE OF CONTENTS

INTRODUCTION……..……...…...1

OCCULARCENTRIC OVERDOSE…….....……11

THE ETHEREAL CLOUD……..……....19

COEXISTENT COGNIZANCE…….……...……..26

ARCHITECTURAL APOTHEOSIS…….…..……..…...36

PROGRAM…….....……..39

CODE ANALYSIS……...…..……..44

SITE ANALYSIS…….……54
- Location
- Solar Orientation
- Climate
- Historical
- Sanford Map – Bozeman 1959
- Zoning
- Figure Ground
- Visibility Levels
- Photographic Mapping

PRECEDENT STUDIES…….……..…..70
- Thermal Baths – Peter Zumthor
- Star Axis – Charles Ross
- Tate Modern – Herzog and de Meuron
- Elbe Philharmonic – Herzog and de Meuron
- Blur – Renfro, Diller + Scofidio
- Silent Collisions – Morphosis
- Eyebeam School – Renfro, Diller + Scofidio
- Mercedes-Benz Museum – UN Studio
- Seattle Public Library – OMA/LMN

FINAL PROJECT……...……...…….82

REFERENCES CITED…….……...102

BIBLIOGRAPHY…….……...106

ABSTRACT

If architecture fails to match the acceleration of adaption inherent in networked structures, in regards to basic individual and societal needs, it risks losing relevance as a facilitator of the human existential experience. To lose such relevance would result in buildings as containers, and not architecture informing the human condition. Physical places will be replaced by online spaces. This relevance can be reclaimed by striking a balance between these coexistant realities. To be more specific a balance achieved with physical architecture acting as a counterbalance to the shifting virtual domain. The final result sought after is not one of static equilibrium, but one similar to the process of homeostasis, where a system responds to environmental conditions in order to maintain an optimal internal state. This state can be explored through a process of digital simulation and analysis combined with intuitive architectural translation, and mathematical analysis. The results of this thesis help to define more specifically the problems and challenges involved in balancing these two realities through successive exploratory iterations and hypotheses. The concluding findings pointing to a new understanding and approach to architectural space and the value of integrating interactive digital technology.

INTRODUCTION

There are few spaces, within all the walls of the built environment that we have created that so poetically encapsulate the potential and relevance of architecture as that mystical space within a Gothic Cathedral. Through the passage of many generations of humanity, they stand with solidarity and clarity, resonating with our existential needs long past their initial era of contextual influence. Their power to inspire is a result of the harmony of many parts. However, the individual chords seem quiet compared with the chorus that is composed of the sum of its experiential pieces. This chorus reaches a resounding crescendo as we stand within that unique space and contemplate all that could be.

The persistent existence of poorly designed buildings is not unique to our century. The quality of architecture that exists at a point of time also defines the quality of the built environment of that time. In correlation, the quality of the built environment is consequentially connected to our perception of our current state of existence. The first dramatic shift of reality in modern history was a product of the industrial revolution. Though man had built shelters to protect us from the environment prior to this evolution, the industrial revolution enabled an explosion of the built environment. This explosion was made possible by the rapid advances in technology and its ability to facilitate mass production while lowering associated

costs. The cathedral of this era could be called the Cathedral of the Machine. These cathedrals took the form of large factories, steel and glass pavilions and tall skyscrapers. These cathedrals were not necessarily a bad representation of architectural relevance. In fact, many have survived and now provide crescendos like choruses of their own. In particular, the Tate Modern Art Museum in London, which was a titan-like coal power plant, has spaces similar in presence and significance to many Gothic Cathedrals. Yet this was not the way it initially existed, and to have experienced it in that functional state would have been an entirely different experience.

The modern functional experience of the built environment has traded a direct exposure or relationship to the natural environment for one of controlled reproducible stability, introducing new factors that altered the human condition.[1] The stability demanded after the urban migration, was one of climactic control within our built spaces. Instead of mud walls, and thatched roofs, new mechanical systems allowed for personalized climate control independent of local conditions. Thus an indoor temperate climate could be experienced in the midst of a Nevadan summer. This development invites inquiry to what new complexities or changes to the human condition may have been instigated by this revolution.

This new reality of controlled environments, full of mass produced commodities, initiated significant and observable changes regarding the human

condition. According to the anthropologist Hannah Arendt, in her book *"The Human Condition,"* these new conditions and products have a conditioning power on humanity. This definition of conditioning extends beyond the idea of climactic control within architecture. Through the continual artificial conditioning of those spaces we also begin to condition those inhabiting those spaces. Arrendt writes *"Whatever touches or enters into a sustained relationship with human life immediately assumes the character of a condition of human existence."* The majority of things that now touch or enter into relationships with us today are man-made. We are therefore continually re-conditioning ourselves. These new self-made conditions *"possess the same conditioning power as natural things."*[2] With all these new conditions, questions concerning the nature and outcomes of that conditioning then become a concern--not just as a result of the industrial revolution, but now too from conditions not even human, natural or actually physical in nature. Conditions relating to realties built of bits and bytes. Realities lived and experienced without physical consequence, where people and can fly, and mistakes are undone with the stroke of a button. There are a few more traceable steps leading to the development of virtual worlds and conditions worth considering first. Important steps that inevitably created new solutions and unanticipated problems.

These changes are a continuation of the idea that, with any technological advancement, there are both potential benefits and negative consequences. More importantly, a conflict arises as technology becomes more pervasive, infiltrating

society before it can absorb and adapt. A battle for balance and stability emerges. This was no exception during the Industrial Revolution. Amidst the opportunities made possible through new technology (like modern flight, engines, automobiles and refrigerators), subtle threads of unexpected consequences were becoming visible. One of the more gradual and subtle consequences of the industrial revolution was the alienation of individuals from the rest of society. The factors that fostered this alienation are diverse and numerous. Despite the long list of contributing factors, those inventions concentrated on mobility and mass transportation seem to carry the brunt of the responsibility, particularly the automobile.

Early examples of this alienation radiate from some initial points of impact. The most evident tied to the everyday implementation of mechanical transportation, both horizontal and vertical. According to the sociologist George Simmel, the development of buses, cars, trains and elevators, resulted in a situation where, *"the only way that humans could navigate the overwhelming condition of the metropolis was by disconnecting, by shutting off their connections to this multitude of others."*[3] This sense of disconnect and social discomfort was best visualized in Fritz Lang's 1927 movie *"Metropolis,"* with people packed into trains and elevators and escalators, becoming disengaged and almost robotic in nature, amidst their new, oppressive social environment. Architecture itself was envisioned to consist of large--almost robotic--machines, in a dirty, dense urban environment. It was a very cold and nearly inhumane environment. Though this was a dramatic exaggeration, the felt atmosphere

represented was not entirely fictional. With the help of the automobile, people began moving horizontally out of those uncomfortable dense, vertical urban cores to peripheral sub-urban developments.[4] It was these two factors that led Tadao Ando to speculate that the combination of shiny automobiles and dense urban and suburban cities led to an end of the intimate connection between man and nature.[5]

At first the social contrasts of the suburb to the urban city center seemed in opposition to one another, as one was sought as a refuge from the other. The polarized opposite then of a social urban setting, where random human interaction and public space abounds, is one where there are fewer random interactions and space is mostly privatized. This *"collapse of the public sphere,"* was described by Jane Jacobs in her book *"The Death and Life of Great American Cities."* She considered this event to be significantly detrimental to any sense of civitas, or sense of community and citizenship. The vacuum created by this public collapse invited the privatization of space and the loss of physical-social networks. This loss set the stage for a new, more pervasive network to fulfill those unmet needs. The television broadcast networks began capitalizing on this public collapse, and on the decline of individuals as public citizens with its own propaganda of individuals as consumers.[6]

Despite their focus on consumer America, these same broadcast networks in the 50s and 60s brought a sense of belonging to the suburbs. The suburbs and the *"American dream"* continued to expand *"like wildfire,"*[7] and with it, a growing

feeling of alienation or lack of public interaction. It was during this period that we saw the nascent development of the Cathedral of Consumerism, later epitomized by the Shopping Mall, a space void of so many of those melodies and harmonies key to architectural relevance and balance. Those harmonies were traded for jingles focused on the capitalist consumer experience alone. Part of the success of television as a propagator of this consumerism was due to the nature of how it could transmit information. Television is, by nature, a form of communication where the viewpoint is fixed with an externally-controlled point of view. In a sense, this viewpoint became a shared collective mind with no individual input. However, over time, a desire for more individual interaction and user control began to take shape.[8] Though this one way flow of data continued to saturate our society with vast amounts of information, new technology with initial interfaces for two-way informational interaction were germinating. When that seed eventually sprouted, it accelerated society in a fashion similar to the Industrial Revolution--and in some ways even more rapidly. This charts the beginning of the Information Age.

The Information Age, and the virtual reality that holds its roots, has grown steadily if not exponentially. Much like the new reality of dwelling and the built environment introduced by the industrial revolution, the digital infrastructure being *"built"* by the Information Age is able to grow and spread even more rapidly for several reasons. Manuel Castells, proposes that due to the flexibility, scalability and survivability of the networked reality, it is able to adapt and survive all obstacles and

threats in a more efficient and aggressive way than most physical organizations.[9] These reasons, coupled with the ease of internet access and its worldwide proliferation, has fostered this unprecedented acceleration or rate of propagation. This sudden acceleration moves at a rapid and unequal pace that severs ties within the existing organization of things, *"thereby dismantling it in time and space,"*[10] leaving behind all kinds of disconnections and un-tetherings of the reality established by the Industrial Revolution.

These un-tetherings caused by growing pains of this next revolution, made room for various speculations of a future in which humanity would exist much like *"wet-ware"* plugged into a *"city of bits."*[11] These fictional movies and books provided a critical commentary of unbalanced progression. The unequal growth and instability would diminish the need for physical architecture in favor of virtual alternative. These predictions have fortunately proven to be more dramatic than what has actually transpired. However, it is not entirely infeasible. Instead, today we function more like cyborgs, with technology acting as extensions of ourselves and our physical abilities.[12] These extensions, which are now able to record, edit and access digital media, allow an *"always-on," "always connected,"* two-way interaction with the growing ethereal information cloud.[13] The composition of the cloud could be thought of as many winding rivers of information, flowing at a speed to meet the demand for instant gratification. These flows of information are the shapers-and perhaps even the architecture-of a new alternative reality.

As the transition takes shape, it endeavors to accumulate an immense and rapidly-expanding ethereal volume of digital information, conceptually approaching the point of attaining all human knowledge, the collection of which would far exceed the content of the Ancient Library of Alexandria. The concept of building the online Library of Alexandria sets the stage for the cathedral of our time, the Cathedral of the Cloud. The columns and walls of this cloud are built with dense layers of shifting data and the spaces within it are far loftier than any space preceding. We have become inundated with every possible kind of information, almost as though we have experienced a virtual Big Bang. As Manuel Castells puts it, *"The new communication system radically transforms space and time…. Localities become disembodied from their cultural, historical, and geographic meaning, and re-integrated into functional networks, or into image collages, inducing a space of flows that substitutes for a space of places."*[14] The growth of the information cloud and its appeal seem to sweep and hold us in its current on a daily basis. Accessing this information, with the volume and speed of its flow, is like, *"taking a drink from a fire hydrant."*[15] The intensity, sources, and propagation of this pull, and the visual seduction it employs, are capitalistically fueled by the potential for commoditization in this new uncharted reality.

The embodiment of this kind of information saturation and its contributing players, is best exemplified by Times Square in New York City. Almost every surface

is covered in visual information-flowing, static, dynamic and interactive. Nearly every surface *"penetrable by the eye (and rentable by the dollar)"* is covered by information regarding products, news and entertainment.[16] Standing at its epicenter one feels as though in a different world, almost immersed in a different reality composed of information. This immersion is realized through a visual supplantation of the other senses, especially those requiring tactility.[17] This experience also reveals another important realization. It reveals the fact that the physical world of reality and the digital flow of information have merged into a coterminous relationship. This coterminous existence is evidenced by the mundane and overlooked node available at every ATM or even phone booth. These illustrate the, *"merging of a very real city of bricks and a conceptually experienced 'city of bits'."*[18] Within this layered reality lies our opportunity to have levels of co-presence in both worlds. However, this experience of co-presence, if fueled by the commodity of attention, is a limited resource. According to Kevin Kelly, *"The only factor becoming scarce in a world of abundance is human attention,"*[19] a resource fought for by each of those billboards on that street. This battle has also begun to yield unequal investments amidst this simultaneous experience of coterminous realities.

The following chapters discuss this emerging form of simultaneous co-presence and its future architectural implications. In order to do so we must first understand the perceptual and sensory factors that have lead to an unequal distribution between these realities, what the nature of the new virtual reality is

evolving into, and what an unequal distribution of resources and energy will lead to in respect to future architectural relevance and existence.



John “ Jammie” Reynolds performing an acrobatic balancing act on top of the Lansburgh Building in Washington D.C. circa 1917. - http://www.flickr.com/photos/ncindc/3229050640/



Leuthauser, Gabriele, and Peter Gossel. Architecture in the 20th Century. Los Angeles: Taschen, 2005. Print.

11

OCCULARCENTRIC OVERDOSE

The visual beauty of a cathedral is similar to an organ in a choir. It may provide the melody and charge the atmosphere, but when not combined with the voices of the choir, or the chants of the monks, something more powerful is inevitably lost. Though cathedrals could validate themselves by beauty alone, beauty is not enough to define them as architecture. The space, sensory richness, and daily significance they can provide are what separate cathedrals from art or sculpture. The eye has always played a central role in how we perceive ourselves and the world around us. That hierarchal standing of a visually perceived world has been secured by modern technology. In this new hierarchy, auditory senses stand as the right-hand man to the eyes, and the rest of the senses fall in line behind those in distant auxiliary capacities. This ocularcentic culture is made possible because the eye is naturally, if not aggressively, dominant. This drive for control is carefully promoted by the world of media. Visual forces toward dominance are further legitimized by the idea of rationality attached to vision,[20] for after all, *"seeing is believing."* These are but a few of the many reasons that suggest a dominantly visual perception of the reality of our existence and all that resides in it. This visual dominance is key to understanding the immersive relationship we have with the virtual world, and how it contributes to an imbalance of sensory perception.

The world and the architecture which constitute our built environment from the perspective of the eye is attributed with a presence based on visual stimulation. Architecture receives recognition, prominence, or even reference in relation to how it is visually understood. It is this very concept of architectural existence that lies at the root of humanities uprootedness, according to Juhanni Pallasmaa:

> *"The inhumanity of contemporary architecture and cities can be understood as the consequence of negligence of the body and the sense, and an imbalance in our sensory system. The growing experiences of alienation, detachment and solitude in the technological world today, for instance, may be related with a certain pathology of the sense. It is thought-provoking that this sense of estrangement and detachment is often evoked by the technologically most advanced settings....The dominance of the eye and the suppression of the other sense tends to push us into detachment, isolation and exteriority. The art of the eye has certainly produced imposing and thought-provoking structures, but it has not facilitated human rootedness in the world."*[21]

The movie *"The Matrix"*[22] depicts an extreme polarity of the consequences of losing all rootedness in the world. In this vision of the future, architecture is no longer of any importance to humanity. Instead bodies are housed in a built environment of containers. All experiential and perceptual needs are cognitively facilitated directly through the brain, with the virtual world fulfilling all the needs that were once the responsibility of physical architecture. The possible parity of co-presence is relinquished. The body exists then for the sole purpose of sustaining brain activity. Though this example is arguably the far extreme, it helps to clarify the importance of finding stasis-not just for the sake of nostalgia, but to use the inherent strengths and potentials of each reality.

We could more narrowly define the visual preoccupation of our current society which lends to a perception of exteriority that dissolves rootedness. Not all types of vision contribute toward an immersive exteriority. In order to understand this concept, we must acknowledge that there is more than one type of vision. For the sake of simplicity let us simply break vision down into two main categories: a focused sense of vision and a peripheral experience of vision; these two types are contrasting in nature. When we focus in on something, we are looking-for one reason or another for more information or a better understanding of what is being represented. Such examples may include a lit face in a Rembrandt portrait, or the petals on a flower. This informational concern with the specific is quite different from the information gained through peripheral vision. *"Peripheral vision integrates us with space, while focused vision pushes us out of space, making us mere spectators."*[23] Peripheral vision is a sense of ambience or environment, and a sense of a wider angle of awareness. Focused vision loses not only this connection to ambience, but also to this more important sense of awareness.

Part of the cause that led to a loss of this awareness is described by Kenneth Frampton in his explanation of Critical Regionalism. He believed that the eye acts in a leading role, separating what he calls *"Popularism"* (or thoughtless vernacular) and *"Regionalism."* Popularism fails in regard to visual authenticity because, *"it aims not to provide a livable and significant environment but rather to achieve a highly*

photogenic form of scenography."[24] In other words, the value sought after by Popularism is one of visual seduction or symbolism, at the expense of meaningful design relating to the everyday life, and a meaningful sensory experience. It is an architecture popularized even today through the use of shiny curved surfaces and clean lines. This sculptural and undoubtedly visually seductive approach to architecture orchestrates an form of value based on eye appeal. This should not be misconstrued as an implication that aesthetics are not important, but that this form of ocular emphasis is a correction that is not conducive to restoring equity. It is almost as though architecture was being designed with the camera in mind. This relationship to architecture and the screen may also be due to the fact that most architecture is now designed on the same screens it will one day be viewed on. From screen-to-screen, it is an architecture conceived and communicated via a 20" visual frame of reference. In an article in the New York Times, Kevin Nelly suggests that, *"We are now in the middle of a second Gutenberg shift — from book fluency to screen fluency, from literacy to visuality."*[25]

This screen culture has revolutionized the way we see the world in many ways. Not just because we were presented with a new frame of reference, but also because of what was being framed. Through the advancement of photography and film, we achieved a new way to see the world. This new vision could be slowed down to a frame at a time, capturing the movements of nature, animals, humans, technology, and even the heavens. Not only could these experiences be captured, but could

fabricated in more convincing ways.[26] Thus, this new visual technology allowed us to see both the real and the imagined world with greater specificity. Through advanced media, traits of reality could be recorded, fabricated and even amplified. This new technology provides not just the resources to build the virtual world, but improves its capacity to facilitate needs that are not being provided by physical reality. This capacity does not automatically replace or trump the built environment. Instead it appears to increase the oscillations of overlap and possible hybrid combinations of existence.

The concept of specificity of information is a unique strength to the digital world, not because it exists solely in that realm, but because the digital world makes it so much more easily accessible and visually perceivable. Due to this ease of accessibility and the various forms of media and information delivery available to us, the potential exists to access multiple streams of the digital world at the same time. According to an article in The Times, a British newspaper, up to 90 percent of people aged 25 - 34 watch other forms of media while surfing the net. In addition to this demographic, almost half of all ages *"media stack"* in a similar fashion.[27] This behavior of immersing ourselves in multiple streams of virtual information hints to a form of transfer from one reality to the next. Perhaps it is safe to say that this form of absorption, as far as attention goes, leaves little behind for any reality off the screens.

This idea of becoming a multi-faceted spectator to reality, information, and imagery brings to light another weakness of vision as the primary-organizing authority on reality. The nature of vision, especially in relation to art, architecture and other media, does not cater to participants so much as to spectators. David Hockney, the British artist, is quoted to have said,

> *"All you can do with most ordinary photographs is stare at them – they stare back, blankly – and your concentration begins to fade. They stare you down. I mean photography is all right if you don't mind looking at the world from the point of view of a paralyzed cyclops – for a split second."* [28]

To clarify, let us contrast the sense of sight to that of touch. To touch means to experience a sense of *"nearness, intimacy, veracity and identification."*[29] It is with the hands that we act and create and verify what really exists. This thesis does not intend a proposition that tactility should replace the eyes in their primary organizing position, but merely purports that all senses work together, and that a balance of perception needs be restored to how we perceive our existence. By doing so, we utilize the strengths of real architecture, in order to maintain, stabilize, and give meaning to the physical world.

If we relate this perceptually-imbalanced experience of reality to how we use our Ipods or desktop computers, we see that our focus and attention--and perhaps even our intellect--have become immersed in a relatively small frame of reference. Screens are constantly seeking better definition to simulate, replicate, and often

amplify the physical beauty of actual sight, perhaps exceeding the beauty of actual visual stimuli. For example, an ant that is no bigger than a few centimeters in reality, is enlarged to several feet in length on a 70" flat-screen with high definition (and, of course, a surround sound system to round things off). Add to that computer adjustments and special effects and this immersive option not only requires less effort to obtain, but could be perceived as appearing better than reality. This visual perception of these realities, based on the immersive dominance of the eye, fails to tap into a greater potential, one based on an awareness of the richness of our corporeal existence.



TV Glasses worn by Hugo Gernsback, inventor, the "father of modern science fiction" and the namesake for the Hugo Award-

http://uncertaintimes.tumblr.com/post/200106270/dblbss-are2-tv-glasses-thats-none-other



An example of how the screen can become the singular focus in any setting.
http://www.flickr.com/photos/gnackgnackgnack/3244471469/



A singular focus for groups and individuals.
http://www.flickr.com/photos/lanier67/3904774986/

19

THE ETHERAL CATHEDRAL

The space of the Cathedral of the Data Cloud grossly out-scales that of the primitive church. The two do have similarities though. Both have a strong representational aspect to how they are understood. The Cathedrals of Early Christianity were full of architectural symbology, representing the twelve apostles, the godhead, or even representing perfection through symbolic geometry. In the case of the Ethereal Cathedral, all is representational. The structure, walls, aesthetics, and space find their existence as visual or, at times, even abstract representations of information, systems, or people that exist in reality. None of those walls can be touched by the hand. The structure is actually not even necessary for there is no gravity. Instead of resisting gravity, this different kind of structure encourages and supports connectivity. This second point of discussion, concerning the nature of the virtual world of information is important to understand, for it establishes a base of comparison between the two realities. This understanding is a prerequisite to understanding how the virtual world interacts and possibly substitutes for reality.

The anthropologist, Walter J. Ong, theorized that the transformation from a culture remembered through oral traditions to one recorded in written form led to an *"insistent world of cold, non-human facts."*[30] He further argued that what was once a hearing-dominant society gave way to a sight-dominant society. By doing so,

"situational thinking has been replaced by abstract thinking."[31] This abstract thinking is surely one of the factors that has provided the conceptual infrastructure of the Internet. This abstract or conceptually-understood realm is not understood well at all. Not only is the nature of this other reality difficult to understand, but also our relationship to that information and with increasing frequency, to the data cloud itself.

One of the causes for this schism of understanding is tied to the concept of sudden acceleration and the conditioning initiated by the Information Age. For example, as the technological pace of development and production accelerated, mobility and speed became a realm of interest. Trains, cars and eventually planes could all travel not only faster, but further. With the help of mass-produced industrial strength, the cost of using these technologies decreased, making them more accessible to the working class citizen. This example is important because this was one of the initial ways that the idea of space was abstracted. Consider, the idea of separate countries and continents is vastly different when it takes several weeks or even months to get from Spain to India. The feeling of separation, and the understanding of one's identity and relationship in this global/spatial context, is dramatically different when that same trip can be made in a matter of hours. This development, made possible by the Industrial Revolution, was an initial precursor the more prolific abstraction yet to come. Following in those footsteps, with a sense of escalation, the Information Age of networks has abstracted our sense of space and temporality exponentially.[32] With the click of our mouse, we can talk to a relative in

Australia through instant messaging, while on a video conference to a work peer in Japan, all-the-while sitting at home in Wisconsin. This speed of access, combined with our ability to simultaneously meet in the Cathedral of the Cloud, distorts our traditional understanding of space and proximity.

Taking the idea of video communication in another direction, we find that digitally recorded video can make time and the sequence of events lose their connection through deconstruction and manipulative reconstruction or addition. Events are rarely ever live, truly linear, or unedited on sites like YouTube. This idea of the ever present is relevant because when we engage the flow of ethereal information, we get sucked into the flow and communicate and travel through that cloud with an extreme focus on the instantaneous present. Palasmaa believes that, *"The only sense that is fast enough to keep pace with the astounding increase of speed in the technological world is sight. But the world of the eye is causing us to live increasingly in a perpetual present, flattened by speed and simultaneity."*[33] The continuum of time referred to earlier has been flattened to the immediate moment, and our relationship to a stable constant of time has been replaced with the disorienting informational flow.

With that understanding of our present relationship to space and time, we can explore the nature of how and what we are immersed in. The *"what"* in this case refers to digital information. But what is digital information? Our abstract

comprehension of information was recently investigated in an article in the New York Times. It referred to a new scale relating to the abundance of information, called *"Internet scale."*[34] On the upper end of this spectrum we find a metric known as a petabyte. In context, a petabyte is the amount of digital or hard drive space required to store the 40 billion photos posted by Facebook users on the website's servers. That said, the question remains: what exactly is a petabyte?[35] It is such an abstract concept, because within a small hard drive, we can store libraries worth of information. Often the magnitude of this information is compared to volumes of encyclopedias or so many thousands of books, to help us conceptualize and physically relate to what all these bits and bytes add up to. The bits and bytes are the building blocks of the spacious vaults of the virtual Cathedral of the Cloud. But what are these bits and bytes really? The nature of the existence of these libraries is almost deceptive, as there are no real pages, books, or words. These *"libraries"* are merely representations of ionic charges on spinning magnetic disks, translated into 1's and 0's, converted into a flow of electrons that results in text on a screen. Our eyes transport that visual information to our brains, where it is translated into cognitive reality.

An inseparable second consideration to the nature of this information is how we access or sift through those libraries of data. This information would actually cease to exist without something as simple as electricity or a screen with which to interface. Ironically, the flow and mobility of information has provided new freedoms that have translated into a different kind of tethered lifestyle because, *"the building user has*

become increasingly static. As human cognizance and transience reach around the planetary surface via telecommunication networks, we remain relatively fixed to our points of interface – our workstations, (and) televisions."[36] This is similar in nature to the extreme imbalance portrayed in *"The Matrix,"* where a fixed state of immersion relieves the physical world of its duty to provide for our corporeal and other human needs. Of equal importance is the way these reality subverting interfaces blur perceptual boundaries. The boundary in question is the one between our bodies and various electronic and technological systems we are engaged with.[37] This blurring is often an abstraction of our senses that is similar to the effects of a proprioceptive disorder. Proprioceptors are the sensory receptors responsible for detecting the motion or position of the body in response to stimuli. A common example of this would be the receptors and systems within the human inner ear. We have all experienced the malfunction of this system at some point, possibly as the result of spinning on a merry-go-round for too long. We have also experienced the consequential feeling of disorientation. Through this technological immersion, *"an individual loses the "natural" sensory comprehension of various bodily extremities and, by extension, the ability to interact with the world normally,"* states Sulan Kolatan in the essay *Blurring Perceptual Boundaries.*[38]

In respect to architecture, the influence of technology hinges on the fact that potential exists for both positive and negative consequences in its implementation. This is a critical consideration, given that *"Digital technologies are transforming the*

nature and intent of architectural thinking and creativity, blurring the relationships between matter and data, between the real and the virtual and between the organic and the inorganic and leading us into an unstable territory from which rich, innovative forms are emerging," as was pointed out by Peter Zellner while introducing the inherent potential of hybrid spaces.[39] The negative consequences of technological influence were delineated by Michael Benedikt. He warned of an inherent danger in some forms of architecture and in the way we treat information itself during this *"Information Age."* According to Benedikt, the danger lies in a misunderstanding or replacement of what actually is for what is meant. By this he is referring to the consequence of creating spaces or places that themselves attempt to communicate or symbolize things too much, and in the process, lose touch with the actual things they represent or refer to, and become *"an architecture of ciphers themselves."*[40] The final result is an architecture or version of reality that no longer plays to its true strengths. Strengths exemplified in the marriage of form and function executed with the graces of Chartes or Notre Dame, where raw physical materials are used to create spaces of aesthetic and experiential beauty, whilst facilitating some of man's basic necessities such as shelter, human interaction, reflection, and security. This pertinence is negated in the attempt to become something it is not. In its attempt to reinvent itself during this period of instability and growth, contemporary architecture tips the scales of balance to the other extreme. This attempt to counterbalance still misses the potential of melding the two realities, failing to recognize how close the Cathedral of the Cloud, and the Cathedral of the Church have already come to merging themselves.



"This is not a pipe"- the idea of what is real and represented.
http://findigart.com/bibliography/ceci-nest-pas-une-pipe



Much of what is on here is not real, but representations of things that are both real and unreal, collected into a series of positive and negative charges.
http://www.flickr.com/photos/vicnaum/3597029691/

COEXISTENT COGNIZANCE

Now that we have a better understanding of the nature of these two realities, we can begin to discuss how they interact and overlap. Not only is the overlap itself important to conceptualize but also the fact that their relationship in not fixed but endlessly fluctuating form one hybrid form of coexistence to the next. To help us understand this concept, we can return to our analogy of the Cathedral. What one notices when traveling through Europe is that cathedrals seem to hold centralizing roles within some of the smaller cities and also seem to be most hierarchically powerful when surrounded by the ordinary. They seem to hold a point of prominence in their environment. In Rome it is not uncommon to stumble upon groupings of neighboring clusters of cathedrals. But what about the possibility of two cathedrals occupying the same site at the same time?

Just as a new reality of virtual representational information and media continues to develop, a new kind of dwelling within that reality is being explored. This new attention consuming sense of dwelling cannot exist without the physical reality supporting it. This reliance upon reality is what allows a simultaneous presence of the individual in both realities.[41] However the simultaneity of this coexistence does not necessarily guarantee an equality of presence. The two worlds may in some ways be a part of the same activities or within the same space at the same time, however

they are not always evenly proportioned. A more balanced example of this would be a simple retail transaction. The goods are selected in a store, physically carried to a register and then checked out. Then a credit card is swiped and the virtual world of credit data and bank balances become a part of the reality of this purchase.

There are other examples of this relationship, where to domains of presence seem to exist simultaneously, however the scales of balance do not always weigh as equally as the previous example. Another place where we see oscillating proportions of intertwined realities is a local coffee shop. The local Starbucks, or versions thereof, is a place where people come to gather in a public setting and enter into a state of layered co-presence. This communal setting is imbued with an ambience of rich coffee aromas and trendy music. At first glance it may appear as though people are exhibiting anti-social behaviors as no-one appears to interact with anyone else, other than a couple here, or there, talking over a cup of coffee. However, this physical non-interaction should not be misunderstood as a lack of social communication, but more of a *"calculated co-presence."*[42] For instance, you may find a business man checking and sending emails on his Blackberry, slipping from the reality of sipping to virtuality of sifting, in and out between the two. In the corner we may also see a young lady updating her blogs while simultaneously chatting with several different friends. Her absorption into this new social space has become completely consuming. Finally we find a mom updating her Facebook status, using her experience of the real coffee shop to construct a virtual representation of that experience on her second life

account, turning the real into a virtual. But on top of the fixated stares on tiny screens is another layer of virtual immersion.

These tiny handheld devices are not the only gateways that connect the cathedral of the cloud to the cathedral of coffee. Aside from the eyes, there are other ports of connection that can plug us back into the commoditized districts of the networked city. Though fixated on those screens, our ears are still free to hear what is going on in the background. So, trendy music catches our attention in the here and now of our physical reality. We look once more to our screen for another software application. This application identifies the music we are hearing so that it can be purchased or explored instantly. Thus, any remaining connection to reality is coupled back to virtual world for consumption and entertainment purposes. In this commune of coffee commoditization, sight, smell, taste, and sound have been swept up into purchasing potential. Now all that remains is the sense of touch,-the feel of the couch we are sitting on, the only thing holding us for sure in a non-commercialized virtual experience of reality. This common experience exemplifies the gamut of unequal energy distribution between virtual and physical presence.

The tool that makes these ratios of co-presence and the possibility of both cathedrals being experienced as coexistent presents a reality is the screen. It comes in sizes ranging from *"Nano"* to *"Ultra-wide"* in various shapes, sizes and definitions. Since we were first introduced to the novelty of the first television sets, screens have

become a pivotal part of everyday life. They are a part of leisure, work, communication, travel, war, and even medicine, to name but a few of its limitless applications. As has been discussed already, technology raised the visual digestion of information and the reality it represented to the top of the pedestal of perceptivity. Therefore, our bodies continue to exist in time and space, but the *"disorienting flow of information...effectively takes sensory dominance over the real."*[43] The screen is where that information pours out, and where the *"corpus callosum"* (the organic bridge enabling inter-hemispheric communication in the brain) between virtual and physical is connected.[44] It is also within this small realty of space that our vision focuses, and, in doing so, our peripheral awareness is sacrificed; reality is confined to the space of a few square inches. The ubiquitous and prevalent role of the screen first became clear to me from an experience I had while on vacation in Yellowstone National Park. I was watching a Golden Eagle near a river bank. By *"watching,"* I mean through the frame of reference of my camera screen. The eagle began to swoop down to catch a fish from the river, and before I knew it, the fish was caught. I had missed the entire event and experience because I was so focused on following the bird with my camera screen to get a picture of the event. This example is just one of many that can be found throughout any day in any American city. Though the image seen through the view finder on my camera is not a virtual fictional environment, it is still part of the virtual reality because it is still only a focused two-dimensional representation of reality. With the standard digital camera we can see only what the camera sees, however when we connect this digital camera to the virtual cloud.

For good and bad, this screen-captured view of the world is here to stay. As it makes itself comfortable it continues to evolve into something new and full of potential. This new view of the world is here to stay not only because screens are used for everyday communication and photography, but also because they are portable nodes of access to the growing base of networked information. For example, some spectators at sports games will bring not only their cameras, but also their portable screen-- most often in the form of media playing cell-phones. They are at the game but watching it on their screens. Spectators like the information presented in virtuality, and they appreciate the specificity of that information, information like the augmented visual representation of where the first down line is, which doesn't actually exist in actual sight, but is an abstract representation much like the lines of longitude and latitude wrapping the earth. This translates data into information by communicating it in a way that creates a sense of actually being real by how it relates to its physical context. However, despite the specificity and amplification made available to those spectators by their big screens at home, they still made the effort to physically attend the game. The reason is the atmosphere, and the connection to a communal gathering of other human beings, not just that, but the ability to act as both spectator and participant--spectator on the screen with more detailed information, participant in the stand with a heightened experience. The value being added to this experience is a sense of awareness--awareness of the weather, the scale of the stands, the sound of the fans, and the smell of hot dogs and tailgate fires. This

example is important because it clarifies the ability augmented reality has of showing the coterminous relationship of information and reality. It is different to virtual reality because it is not entirely fictional. Instead, like the first down line, we overlay of all the information that already exists about the real world and visualize it. It is quite feasible to imagine a future where we could look through those screens and see pop ups over people as they twitter in a crowd, prices of products and product specifications, who is calling who on their cell-phones or any data that is contained within the computing cloud of information.

This idea of visually layering data over physical reality, in order to contextualize and communicate information is something hinted to in many science fiction movies. In October of 2009, The New York Times published an article about recent developments concerning augmented reality and mobile technology.[45] The premise is that, with ability to locate a phone with GPS coordinates, and the built-in camera feature of most new smart-phones, new possibilities are fast becoming realities in this field. As you look at a busy urban street for example, the GPS and camera can work together alongside data from the Internet about stores on that street, and what kinds of products they sell, what their hours are, and links to reviews from previous customers. This new overlay of data informs the phones users about their environment, in vacillating relationships of realities. This is only one example of how technology informs our environment and how we begin to conceptualize the coterminal and reciprocal relationship between flowing data and stable reality. This

juncture of the two illustrates how the marriage of technology and abstractions of objects and place into information can be applied to people. For instance, if certain people within range have smart phones, signals can communicate. As you hold up your new visual frame of reference in the form of a screen, information and links pop up about the person you are seeing on your screen. In doing so, the data explosion occurring on social websites can become information that is connected to real-time physical objects. Perhaps this is the next step in fulfilling needs in order to counter the isolation felt by the society we have built.

This interaction with other human beings and the desire for a sense of belonging is currently being fulfilled in several virtual ways. Many of the rising generation see Facebook and Myspace websites as the new public space to socially interact, harking back to some of the tenets set forth by Jane Jacobs. Here they can easily gather and freely communicate with individuals or groups of friends. A clear illustration of how the Internet and digital reality are facilitating needs no longer met by architecture and the physical built environment. In correlation and contrast, a new kind of private space is beginning to evidence itself. This new private space is made possible through mobile technology. Wherever we are or whomever we are with, we are able to quickly and easily communicate with those we feel more comfortable talking to.[46] So now a public street corner, a busy subway, an office break room, or a public library become individual private spaces for those who need it.[47] The mobile phone is creating insular cocoons of communication. Insulating us from interacting in

uncomfortable situations or realities, mobile-technology has answered the need for a new space adaptive to the speed and mobility of the modern citizen. When we do need to move, we now travel, comfortably sheltered, in our custom tele-cocoons, much like nomads, but nomads in cities no longer suited to our transforming needs. We have truly become multi-dimensional beings, able to traverse the layers of communication, information and connectivity, in self medicated proportions. It is not just reality vs. the virtual, but reality findings it place within this new way of living.

Between this new tele-cocoon of insulation, and our immersion by audio-visual means, it is no wonder that, as Lyndon and Moore write in Chambers for a Memory Palace, *"there are those who would abandon the tangible world altogether in favor of a virtual reality assembled in computer networks - Memory Palaces dislodged from the earth and inhabited by electronic speculation."*[48] There is yet another danger in the unbalance merger of the Cathderal of the Cloud and the Cathedral of Reality. When we no longer see a reason to remain connected to the physical world and feel that architecture is failing to meet our needs we turn to new alternatives that are still under development. The problem is that these alternates are disconnecting us from the rest of our natural senses. The Cathedral of the cloud, no matter how high the resolution, cannot duplicate the experience of felling and seeing details of art carved into wood and the sense of imperfect humanity they embody. To complicate matters further we are turning to alternatives based on a world that doesn't really exist and is never constant, leaving us with ambiguity concerning our existence, the consequences of

our actions and our relationship to those spaces and places. Most importantly because of this lack of stability we are left unanchored to any unchangeable continuum and at the mercy of the flow we are currently in.

Many of these unchallenged dangers have gone without architectural response. However in responding we must take caution not to pursue a course based on some nostalgic memory of a technologically free past. This dogma would be neither realistic nor reasonable. At the same time we should be careful to avoid the pitfalls of some romantic fervor concerning technology, one encapsulated in the early modernist movement. We don't need buildings as machines, but an architecture of existential relevance. This transformation that perhaps even Corbusier himself realized as he evolved from Savoye to Ronchamp.[49] The need is now greater than ever, and the stage set for an apotheosis of architecture. Either it will remain relevant and adapt or it will be replaced by a new virtual reality offering refuge and solutions to contemporary and future issues. This hybridized sense of architecture has the potential to use the limitless possibilities offered by the virtual world and to humanize it, bring it into balance, and give it meaning. At the same time, architecture, and the inherent stability it offers, can provide an anchoring physical relationship to space, place and the continuum of time. If we fail to acknowledge this need and act accordingly we will most likely witness the eventual transition to a world of containers that merely house our bodies so that our minds may experience life in the Cathedral of the Cloud.



A telephone booth is an early example of where the world of the virtual and the world of the physical actually connect or overlap.
http://findigart.com/bibliography/ceci-nest-pas-une-pipe

ARCHITECTURAL APOTHEOSIS

The imminent need for an apotheosis of architecture is at hand. This adaptation is one that architecture has made many times over the last few centuries, balancing emerging technology and shifting societal needs. Despite this ability to adapt some key constants of architecture have been maintained. Juhanni Palasmaa captures this idea of consistency and change best when writing;

> *"In memorable experiences of architecture, space matter and time fuse into one single dimension, into the basic substance of being, that penetrates this consciousness. We identify ourselves with this space, this place, this moment and these dimensions as they become ingredients of our very existence. Architecture is the art of mediation and reconciliation."*[50]

This is the quality of architecture that needs to be reintroduced through mediation and reconciliation. It is through an understanding of these ingredients of existence that we become consciously aware of our own existence. It can be argued that a virtual existence does not have within its realm of potential outcomes, one that satisfies these needs. First, the Cathedral of the Cloud has no real space that could be considered constant. The spaces that exist there can only be seen two dimensionally, and space needs to be experienced as one stands within it, to truly understand its relationship to the human scale. Secondly, the internet and networks of the world turn time into a relative matter that can be chopped, copied and manipulated. Finally, the virtual world has no real matter, and we perceive it as a representation of such, a

shifting cloud that could transform or evaporate at any moment. If we turn to the new social spaces of Facebook, we see that these arguments are validated as neither time space nor matter are even represented. The Cathedral of Notre Dame however, is rich with these ingredients. Not only does it have them, but they are bought together to occupy a moment of intense unison and harmony.

Though architecture itself may still be important it is at risk of losing relevance if an intervention is not initiated. This intervention should facilitate a compromise of compatibility. The compromise of compatibility made necessary because of the ubiquity and pervasiveness of technology in our daily lives. Times Square serves as a living representation of the mingling of these two realms and serves as a springboard for discussion of intended means of remediation. This is clear from Frederic Levrat's comment,

> *"The proliferation of media produces effects of seamlessness and discontinuity at once.... Architects can reveal the interactions between these different but coexisting dimensions. We should produce spaces that perform as interfaces between users and their environments, questioning the relationships between individual experiences of space and dislocated surfaces of information."*[51]

Now, as before, architecture can build the stage for this remediation. In an earlier essay of Juhanni Palasmaa, he validates the authority and role of architecture in this regard. He succinctly states, *"The timeless task of architecture is to create embodied existential metaphors that concretize and structure man's being in the*

world."[52] The purpose of this thesis is to make the Cathedral and the cloud come together in a relationship of reciprocal compatibility, whilst strengthening the value of creating architecture versus containers. The strengths of physical architecture van be employed as a counterbalance to the rapid development of virtual space and restore a system of homeostasis in the built environment. In the end hoping to prevent a progression towards buildings of mass production, housing our bodies, while our minds wander as nomads from node to node in the networked world.

PROGRAM

Qualitative

The Cathedral and the Cloud continue to merge as the instances of overlap progressively increase. The new spaces of the Information Age are gradually relocating to the virtual world. Those spaces that are still reliant on the physical world are being subverted by the virtual one. The simultaneous levels of co-presence in both virtual and physical reality cannot be expected to be in a state of static equilibrium, however their relationship is not one of stability either. With the dramatic advancements in technology and on-line possibilities the nature of our day to day existence is being dramatically altered. The program for this project will respond by balancing spaces and screens, conceptual and perceptual experiences, mental and physical understanding, and social and private interaction, through a form of architecture that takes an approach similar to the process of homeostatis within the human body. This program will address the personal and public everyday life.

In order to restore stability to the system a strong emphasis will be placed on architecture as a medium of significance, materiality and connection to the physical constants of space, matter and time. The intention of this being to preemptively prevent architecture from becoming mere containers instead of existential spaces. The strengths exemplified by this form of meaningful architecture include relating space

and time to the human scale, an anchoring permanent presence, a connection to the immutable cotinuum of time, and a rich holistic sensory experience.

In contrast to the strengths of physical reality, the cloud with its potential and possibilites will be integrated through a critical and pro-human approach. The connections to the virtual spaces of the networked reality are already a part of daily human interaction but have not been analyzed and responded to appropriately by architecture. The goal of this intentional merger is to eqluaize the oscialltions of layered co-existences, whilst maintaing the relevance of physical architecture and its ability to facilitate social and existential needs.

The key to accomplishing this will be to identify what the new societal and individual needs are and in what ways they need to adapted to. In correlation with this process we will need to consider the fluctuating relationships between the cathedral and the cloud. These observations and considerations will be most valuable when considered in the context of daily interaction and human behavior. From these discoveries we can create new typologies and modified programming. By doing so we can be more responsive to current and anticpated architectural needs. For example the living and working spaces of the modern telecommuter is something that is still in its emerging stages and has yet to be incorporated into modern architecture.

These new spaces and programs will initiate a conversation between the old and new, virtual and physical, and the conceptual and perceptual. To strengthen this conversation and those mentioned earlier, the site chosen for this project will be an adaptive reuse of a local historic building. The building in question is slated for demolition because it appears to have lost relevance for its site and city. Through the application of a new program and new architectural ideas, a beneficial dialogue can be started as to the idea of revitalized architectural relevance in the Information Age.

Quantitative

Live/work Apartments

20 Units

500 - 1000 sq.ft. Each

The space most dominated by screens and where most of our time is arguably spent interacting with them is in the safety and security of our homes. These spaces could be drastically reconsidered when consdering the untapped potentials of the virtual spaces and potentials. Also new ideas of privacy and social interaction suggest new means ideas of human interaction and personalization of spaces.

Coffee Shop/Café

5,500 sq.ft

One of the spaces that has become a haven for the internet savvy, and a source of connection via a wireless tether is the internet cafe/coffee shop. A place that has been one of both social interaction and individual escape. The idea of a coterminal relationship in this environment is not new, yet remains underdeveloped.

Infoscapes

Large semi-public space, with nodes through out the project, including in pedestrian paths, interacting with those merely passing by.

Possible aspects of infoscape:

[A] Something that increases reward with group collaboration, relating to physical stimuli environment and senses

[B} Individual “id tags” that store and display information when in proximity to infoscape.

[C] Take static physical environment and animate and add layers of information through incorporation augmented reality, instead of museum exhibit, information concerning participating crowd, i.e. demogrpahics, origin, current tweets....

[D] Art Node, srt from other revitalized buildings arrives in the form of shipping containers that unpacks into installation and exhibit, still digitally accesses other nodes, when done packs up and switches with another.

Retail Space

2 units

500-2000 square feet

With more and more of retail business migrating to the dot com domain, physical retail locations and small businesses face a need to integrate and adapt. Online merchants offer cheaper prices but lack that physical human interaction between buyer and product and the customer service of actual human expertise. This typology offers interesting and contrasting oppurtunities for a successful merger of virtual retail space and information with physical retail space and product.

CODE ANALYSIS

International Building Code 2003 – Assembly Space

1. Occupancy Requirements:

    Use Group : Assembly A-2 (Section 303.1)

    Occupancy Load: 60 people

2. Construction Requirements:

    Construction Type: Type II A (Section 602.2)

    Max Height: 5 Stories (Section 503)

    Max Floor Area: 37,500 Sq. ft. (Section 503)

    Fire Suppression: Automatic Sprinkler System (903.2.8)

3. Fire Restrictive Ratings (Table 601 hour rating)

    Load Bearing Walls:

        Interior Walls: Type II A = 1

        Exterior Walls: Type II A = 1

    Non-Load Bearing Walls:

        Interior Walls: Type II A = 0

        Exterior Walls: Type II A = 1

    Structural Frame: Type II A = 1; Steel (0 if Sprinkler)

    Floor Construction: Type II A = 1

Roof Construction: Type II A = 1

4. Accessibility Requirements:

Accessible Route:

At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements and accessible spaces that are on the same site. (Section 1104.1-1104.3)

Employee Work Areas:

Common use circulation paths within employee work areas shall be accessible routes (Section 1104.3.1)

Multi-level Buildngs:

At least one accessible route shall connect each accessible level, including mezzanines, in multilevel buildings and facilities. (Section 1104.4)

Headroom: 80" minimum (1003.3.1)

Elevation Change:

Sloped surfaces will be used in elevation changes of less than 12", and ramps complying with section 101 for slopes greater than 5% (1003.5)

5. Egress:

Maximum Floor Allowances per Occupant: 15 net (Table 1004.1.1)

Doors:

The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches. (1008.1)

Riser Height and Tread Depth:

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. (1009.4.2)

Exits:

Exit Access Travel Distance:

Stairs:

In order to be considered part of an accessible means of egress, an exit access stairway as permitted by Section 1016.1 or exit stairway shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit. (1007.3)

Illumination:

The means of egress, including the exit discharge, shall be illuminated at all times the building space served by the means of egress is occupied. Except Aisle Accessways (1006.1)

Width:

The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. (1005.1)

International Building Code 2003 – Residential Units

1. Occupancy Requirements:

Use Group : Residential R-2 (Section 310.1)

Occupancy Load: 3-5 people

2. Construction Requirements:

Construction Type: Type II A (Section 602.2)

Max Height: 5 Stories (Section 503)

Max Floor Area: 37,500 Sq. ft. (Section 503)

Fire Suppression: Automatic Sprinkler System (903.2.8)

3. Fire Restrictive Ratings (Table 601 hour rating)

Load Bearing Walls:

Interior Walls: Type I B = 2

Exterior Walls: Type I B = 2

Non-Load Bearing Walls:

Interior Walls: Type I B = 0

Exterior Walls: Type I B = 1

Structural Frame: Type I B = 2, Steel

Floor Construction: Type I B = 2

Roof Construction: Type I B = 1

4. Accessibility Requirements:

Accessible Route:

At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements and accessible spaces that are on the same site. (Section 1104.1-1104.3)

Accessible units: 1 Required Accesible Unit (Section 1107.6.1.1)

Dwelling Unit Ceilings:

No less than 7'6" in habitable spaces and corridors, and 7' in bathrooms, kitchens and storage rooms. (1208.2)

Headroom: 80" minimum (1003.3.1)

Elevation Change:

Sloped surfaces will be used in elevation changes of less than 12", and ramps complying with section 101 for slopes greater than 5% (1003.5)

5. Egress:

Maximum Floor Allowances per Occupant: 200 gross (Table 1004.1.1)

Doors:

The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches. (1008.1)

Riser Height and Tread Depth:

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. (1009.4.2)

Exits:

Exit Access Travel Distance:

Stairs:

In order to be considered part of an accessible means of egress, an exit access stairway as permitted by Section 1016.1 or exit stairway shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or

shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit. (1007.3)

Width:

The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. (1005.1)

International Building Code 2003 – Retail/Office Space

1. Occupancy Requirements:

Use Group : Business Group B (Section 304.1)

Occupancy Load: 15 people

2. Construction Requirements:

Construction Type: Type II A (Section 602.2)

Max Height: 5 Stories (Section 503)

Max Floor Area: 37,500 Sq. ft. (Section 503)

Fire Suppression: Automatic Sprinkler System (903.2.8)

3. Fire Restrictive Ratings (Table 601 hour rating)

Load Bearing Walls:

Interior Walls: Type II A = 1

Exterior Walls: Type II A = 1

Non-Load Bearing Walls:

Interior Walls: Type II A = 0

Exterior Walls: Type II A = 1

Structural Frame: Type II A = 1; Steel (0 if Sprinkler)

Floor Construction: Type II A = 1

Roof Construction: Type II A = 1

4. Accessibility Requirements:

Accessible Route:

At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements and accessible spaces that are on the same site. (Section 1104.1-1104.3)

Employee Work Areas:

Common use circulation paths within employee work areas shall be accessible routes (Section 1104.3.1)

Multi-level Buildngs:

At least one accessible route shall connect each accessible level, including mezzanines, in multilevel buildings and facilities. (Section 1104.4)

Headroom: 80" minimum (1003.3.1)

Elevation Change:

Sloped surfaces will be used in elevation changes of less than 12", and ramps complying with section 101 for slopes greater than 5% (1003.5)

5. Egress:

Maximum Floor Allowances per Occupant: 100 gross (Table 1004.1.1)

Doors:

The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches. (1008.1)

Riser Height and Tread Depth:

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. (1009.4.2)

Exits:

Exit Access Travel Distance:

Stairs:

In order to be considered part of an accessible means of egress, an exit access stairway as permitted by Section 1016.1 or exit stairway shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit. (1007.3)

Illumination:

The means of egress, including the exit discharge, shall be illuminated at all times the building space served by the means of egress is occupied. (1006.1)

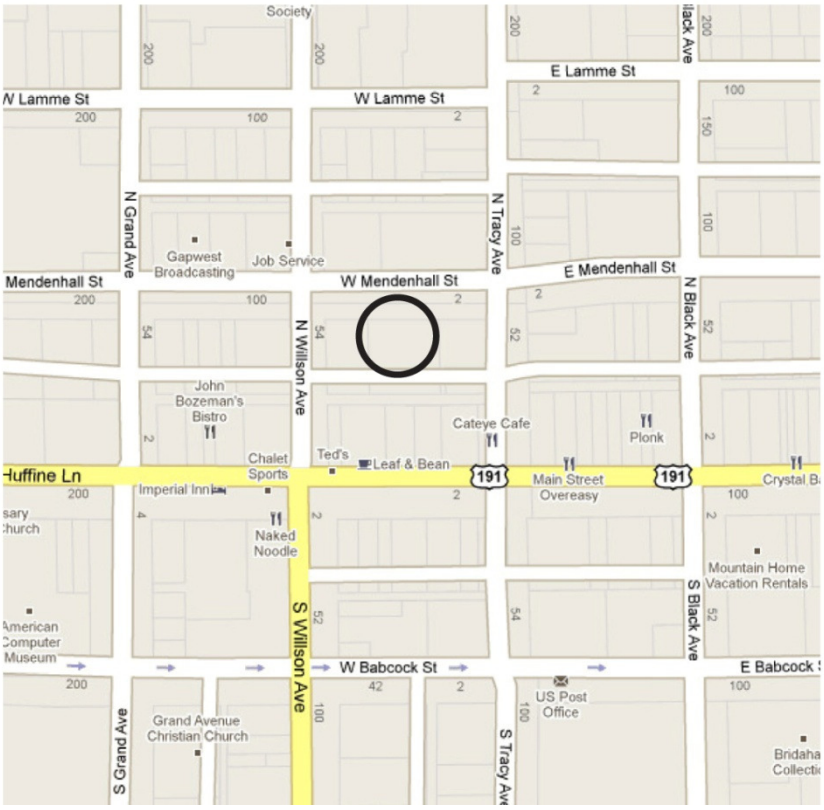
Width:

The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. (1005.1)

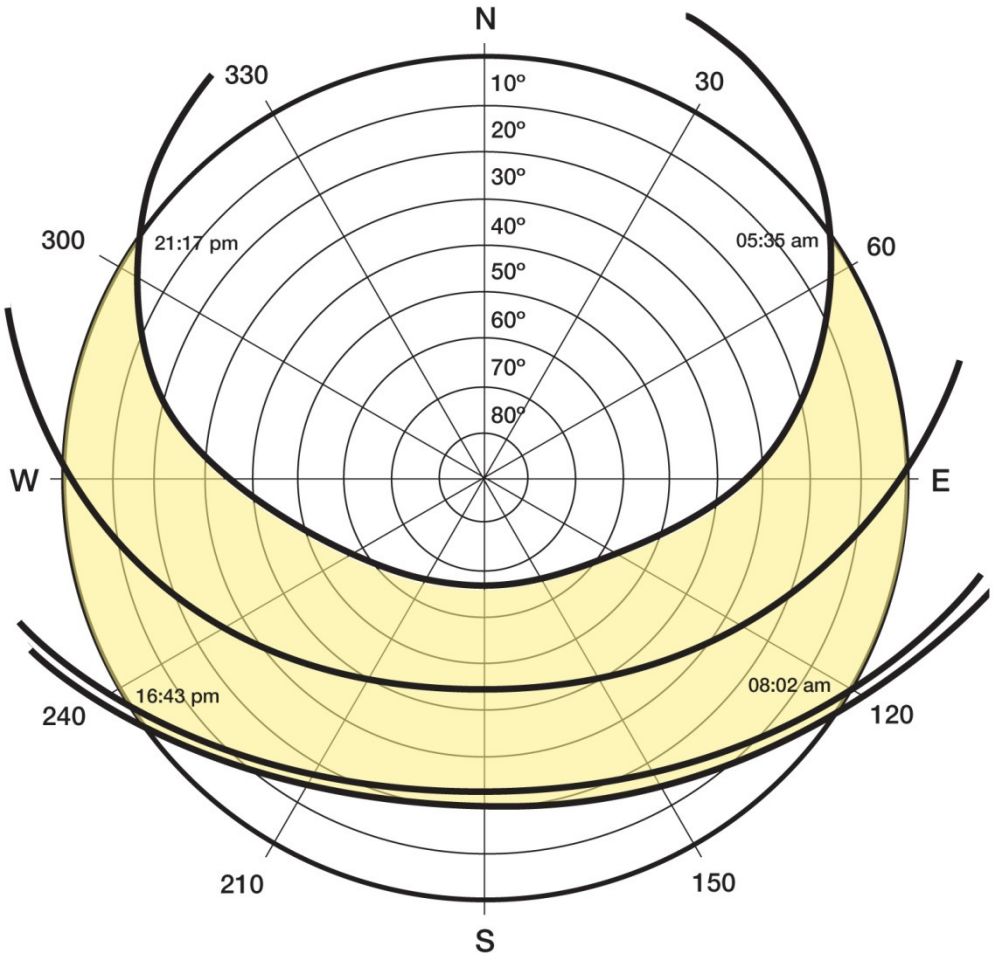
SITE ANALYSIS

Location





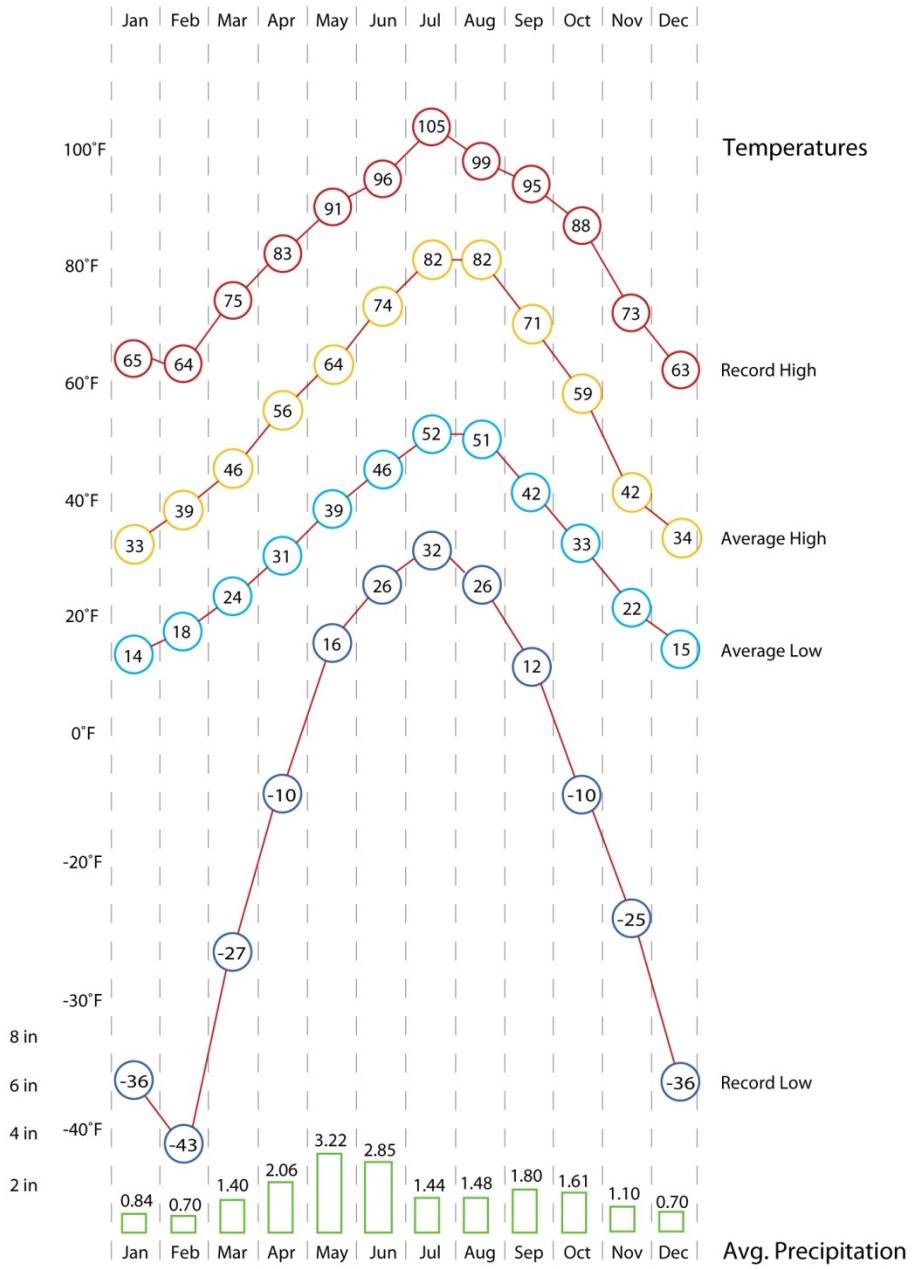
Solar Orientation



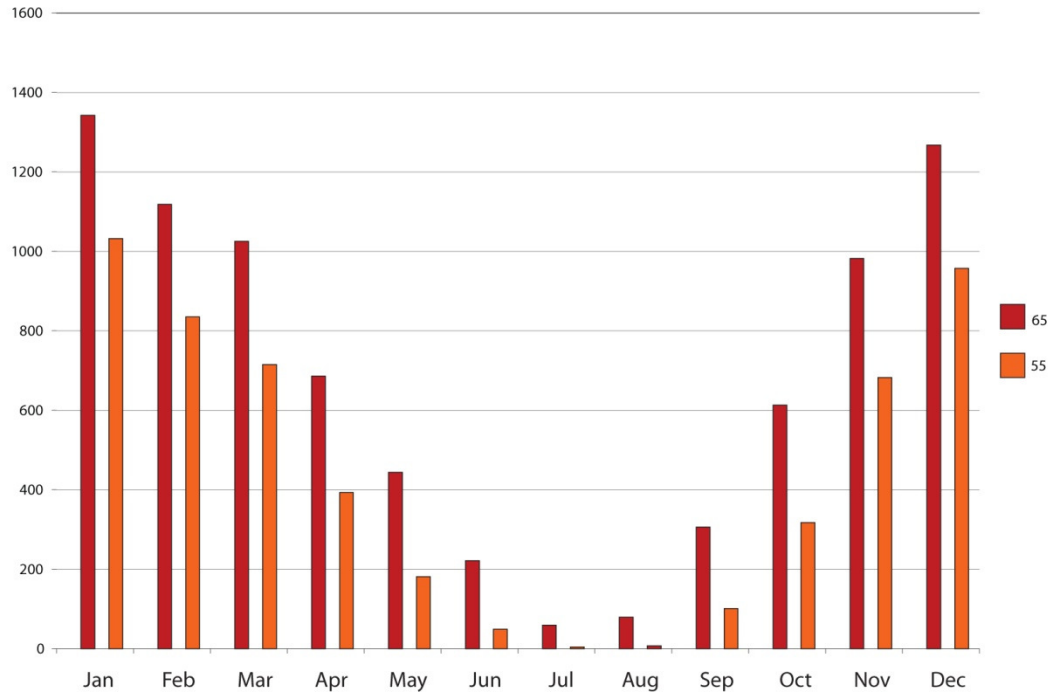
Due to the northern latitude of the site, the major side for exposure is the southern side, requiring protection from excessive heat gains, whilst still utilizing their warming ability for the colder wintern months. Angles of the sun around Summer solstice is approximately 75 degrees, and winter sun angles are around

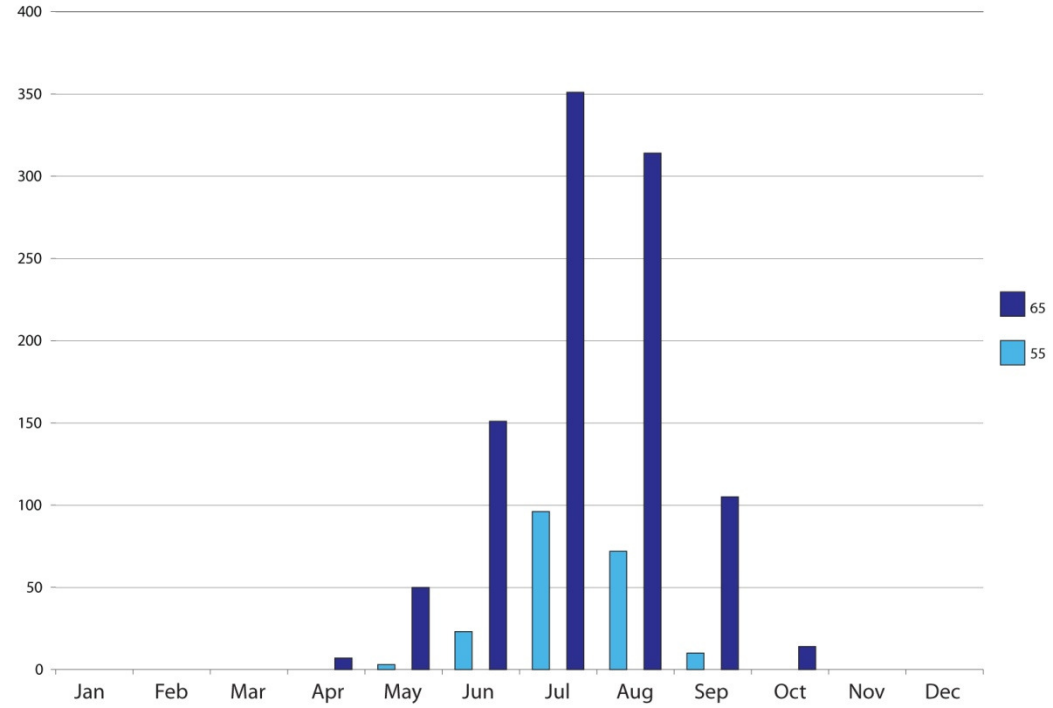
Climate

Thereis a slight increase in daily temperature fluctuations in the summer, in comparison to the winter months. Precipitaiton occurs mainly in the spring in the form of rain, with very low amounts of precipitation the rest of the year including winter.



HVAC strategies for the winter cover a longer time span with higher CDD than the short and relative low HDD numbers for the summer months. Heating requirements begin to spike as early as October and can last as late as May, and occasionaly June. The main months for cooling are July and August.





Historical

The city of Bozeman started as a Frontier outpost and then flourished as a commercial and educational hub for the large surrounding agricultural areas. Original boom in the late 19th to early 20th century. Large number of remodels in the 1930's, art deco boom.

Bozeman supported one main prolific architect during the early 20th century, built hundreds of public and private buildings, with a thriving business from 1910 – 1950, Fred F willson, son of one of the original pioneers to the valley.his success was based on catering to client stylistic and functional needs, more than an inherent aesthetic design quality of his own.

Main Street District

Period of significance: 1870-1937

The Main Street District went through three main growth periods. The first was prior to the arrival of the railroad in 1883. The first commercial brick structures were erected around 1872. This early period from the 1870's to the 1880's were established as Bozeman fulfilled the role of a gateway to the mines of the Northwest and began to act as a regional center for trade. The second generation of construction on Main, dating from the mid 1880's to about 1910 follows the arrival of the railroad, enabling tremendous growth. The growth experienced was both in the commercial and residential sector. The last period was from approx. 1910-1937, as the citty's role in the valley became increasingly important as a venue to acces national trends such as department stores, theatres, and remodeled storefronts in the Art Deco style. The architects role in this period is evidenced by the number of buildings designed and remodeled by local artist, Fred F Wilson.

Bozeman Armory

One of the only few Art Deco style buildings in Bozeman, and one of only 3 buildings asscoaited wth WW2. Building was built as part of a nationwide reaction to the attack on Pearl Harbor. BDC wrote, "At least this spacious, $137,661 reinforced,



monolithic, concrete structure of modern and functional design represents this communities resolve that never again shall our nation be caught off-guard and ill-prepared to meet the enemies of democracy."

Building was a WPA(?) project, funded by the Montana Armory Board,a s the home of the Bozeman National Guard units of Montana's 163rd Infantary, which were in the line of duty at the time.

Physical Descriptions

Reinforced concrete structure, with linear hard vertical edges and window and entry elements emphasize the vertical lines. Metal sash casement windows and chevrons were period specific stylistic choices. 9 Light basement windows, then 12 light windows above that. The front portion of the building has a flat roof, with a barrel vault over the gymnasium.


BLACK AV. N.
MENDENHALL
TRACY AV. N.
MENDENHALL
WILLSON AV. N.
MENDENHALL
MAIN
GRAND AV. N.
MILITARY CENTER
563
562
561
560
559
512
511
510
509
616
615
614
613
612

Sanford Map Bozeman1959

Lot Empty

Armory Building

Coal Burning Heating Plant

Buildings that are now demolished for parking lot space

Zoning

B-3 (Central Business District)

CITY OF BOZEMAN – COMMERCIAL AND INDUSTRIAL ZONING DISTRICTS
(CHAPTERS 18.18 AND 18.20, BOZEMAN UNIFIED DEVELOPMENT ORDINANCE)

Principal Uses

Ambulance service; *apartments*; arts and entertainment centers; automobile parking lot or garage; banks and other financial institutions; *business*, technical or vocation schools; *community centers*; convenience use restaurant; daycare centers; health and exercise establishments; hotel or motel; laboratories; medial and dental clinics; meeting hall; *offices*; parking facilities; personal and convenience uses; pet grooming; private club, fraternity, sorority or lodge; *public buildings*; *restaurants*; retail uses (excluding adult businesses); upholstery shops; wholesale establishments (with samples, no stock on premises).

Lot Coverage/Floor Area

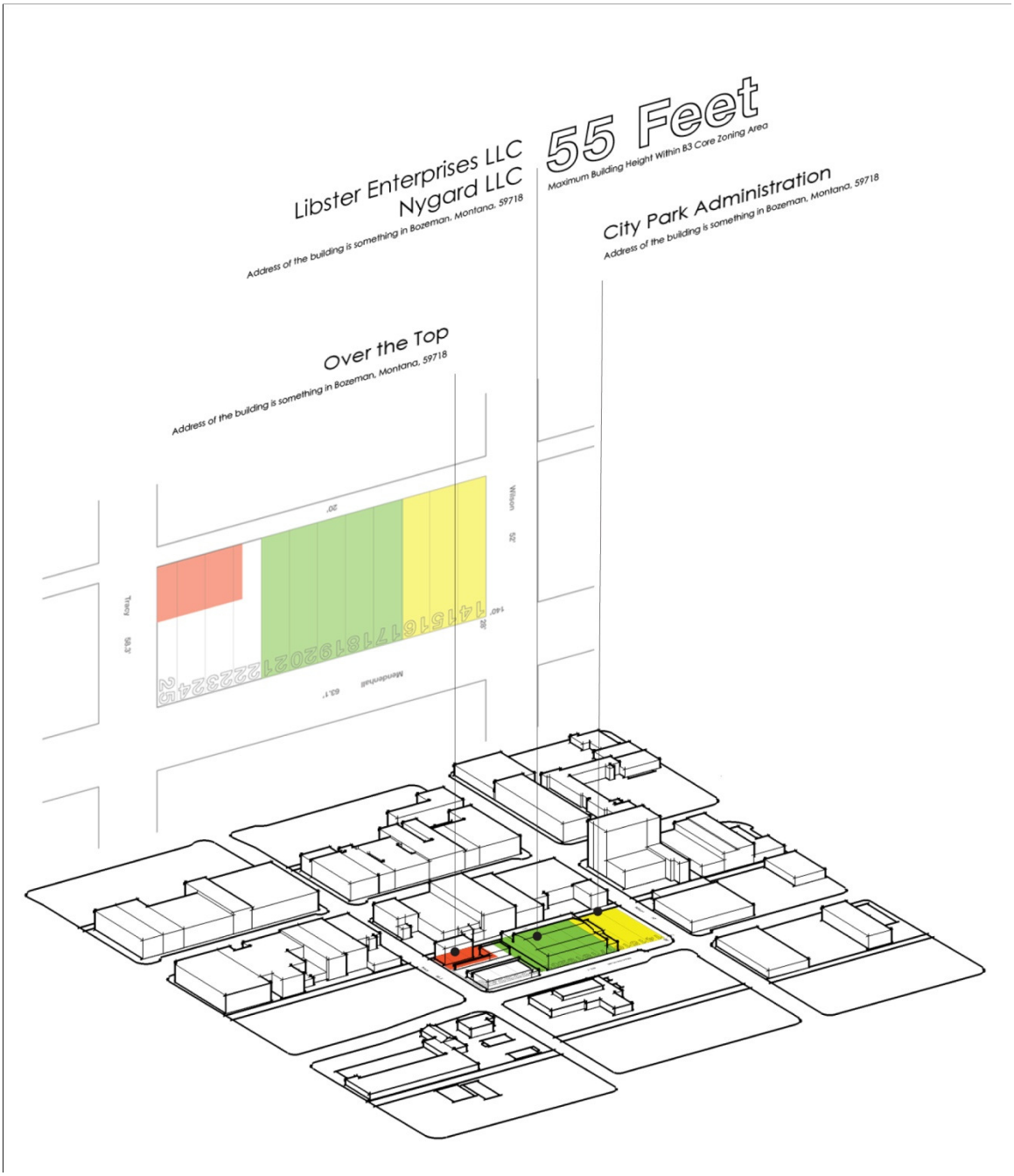
Entire lot, exclusive of required yards and parking, may be occupied by the principal and accessory buildings. No Minimum width. No minimum size.

Conditional Uses

Automobile fuel sales or repair; automobile washing; bus terminals; convenience uses; hospital; laundry and dry-cleaning; lodging houses; mortuary; *museum*; offices (on the ground floor in core area); printing offices and publishing establishments; sales of alcohol for on-premise consumption; sign paint shop; PUDs.

Yards

No minimum yards, except a 7-foot front yard setback on Babcock and Mendenhall Streets Where at least 50 percent of a block (from cross-street to cross-street) in the B3 district is used for residential purposes, a minimum 15-foot front or corner side yard shall be required from the street(s) on which the residential use fronts.


Libster Enterprises LLC
Nygard LLC
Address of the building is something in Bozeman, Montana, 59718
55 Feet
Maximum Building Height Within B3 Core Zoning Area
City Park Administration
Address of the building is something in Bozeman, Montana, 59718
Over the Top
Address of the building is something in Bozeman, Montana, 59718
Wilson
Tracy
Merchant
20'
140'
63.1'
1 4 15 16 17 18 19 20 21 22 23 24 25

These maps of regarding city zoning districts, reveals some interesting aspects regarding uses and programs and proximities to this site. Firstly the image in the bottom right, indicates the that there are several public institutional sites in close proximity as part of the B3 core area. Possibilities therefore exist for the inclusion of public, municipal or governmental programs.

The condensed zoning map below indicates that the immediate area is primarily focused toward a mixed use mainly commercial future development plan, attached to strings of commercial development along, main street tailing off to the east and west. The mixed use zoning ties it in to the large spans of residential zoning to the north and south of the site. Commercial and residential programs are not only possible but suggests by zoning.

The one thing tha seems to be missing especially in the core are is green space, possible because of the density and value of land property along main street. The main green spaces are tree planters along the sidewalk on main street.

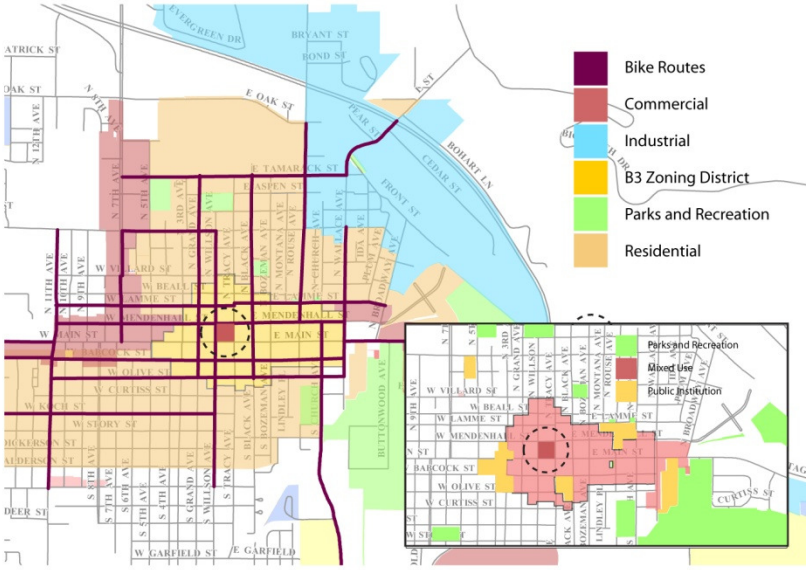
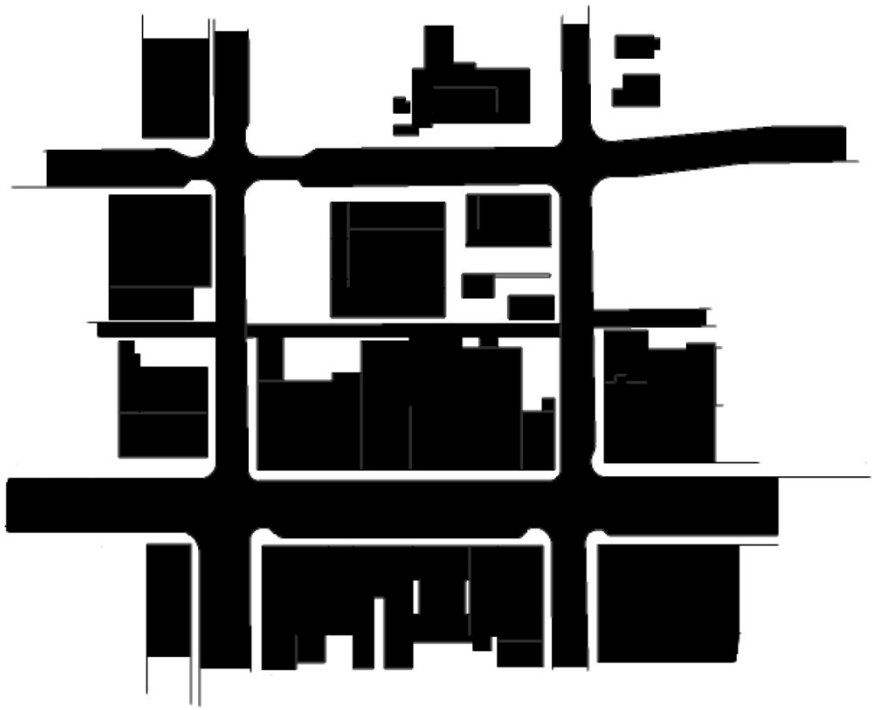


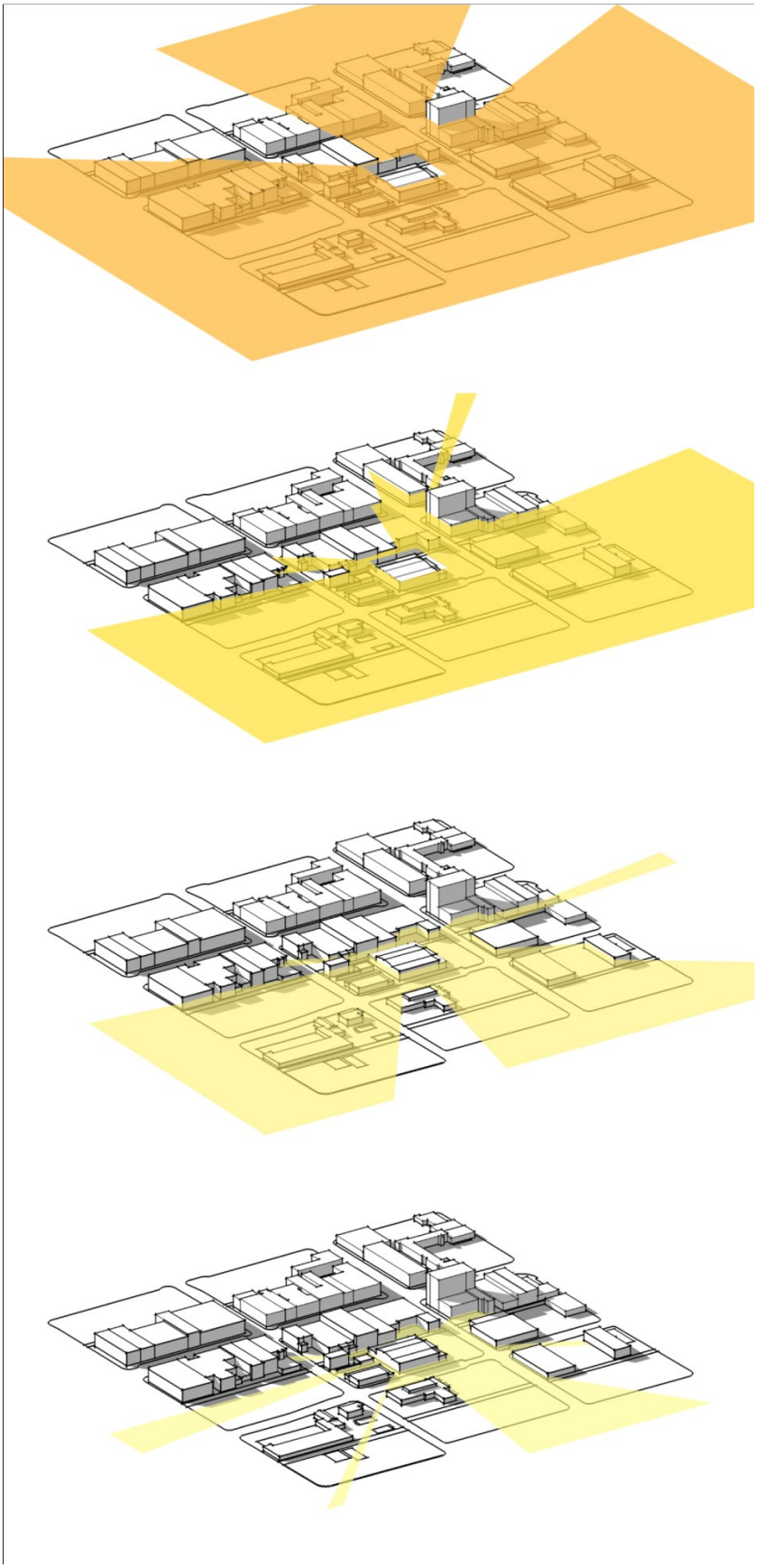
Figure Ground

The main spaces along main and narrow pedestrian routes, with spatial qualities created by a mixture of tree and roof canopies protruding over the walkways. Once you move a block to either side of main street, you find space less ordered and parking lots more predominant. In neither main street nor its rear end counterparts is green space accomoted for with one or two exceptions. The Armory building has both parking lot and pedestrian thoroughfare conditions. The alleyway to the rear forms some kind of combination of the two, Illustrated by the figure ground image below. Another possibility is that the space to the left of the Armory building, a possible option for some use, if part of the proposal could be tha acquiring of the adjacent lot currently owned by the city for Parking. Parking could still be accomodated for in a manner more efficient and well design ed manner



Visibility Levels

The main spaces along main and narrow pedestrian routes, with spatial qualities created by a mixture of tree and roof canopies protruding over the walkways. Once you move a block to either side of main street, you find space less ordered and parking lots more predominant. In neither main street nor its rear end counterparts is green space accomoted for with one or two exceptions. The Armory building has both parking lot and pedestrian thoroughfare conditions. The alleyway to the rear forms some kind of combination of the two, Illustrated by the figure ground image below.



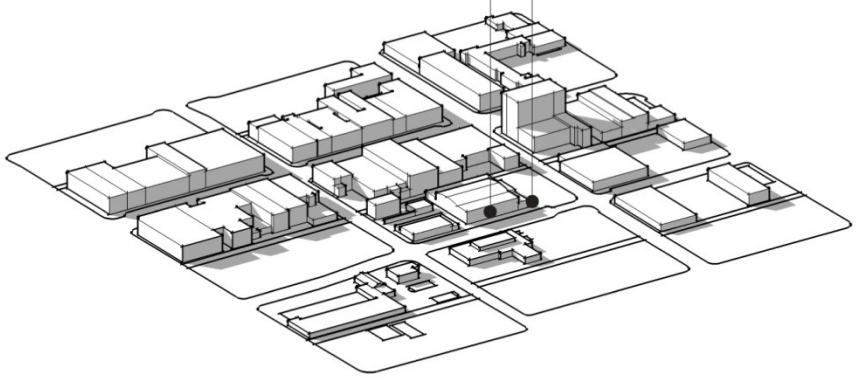
Photographic Mapping



Front Elevation



Corner - Wilson and Mendenhall





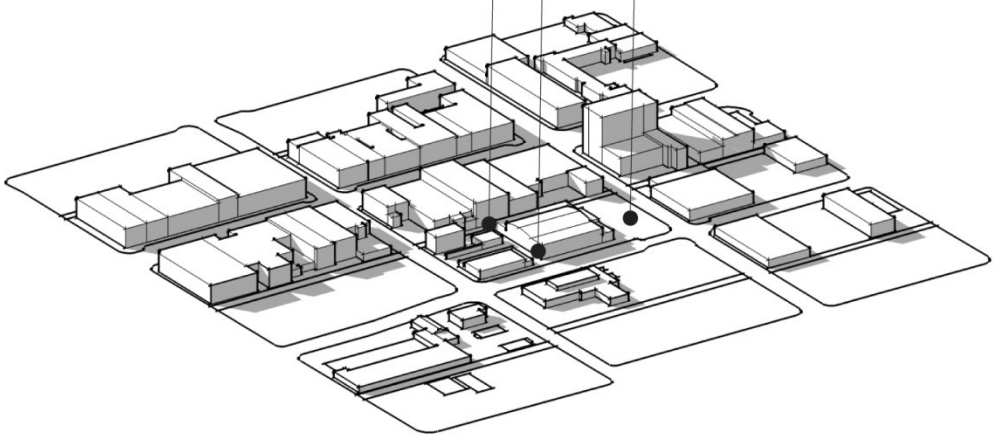
Corner - Tracy and Mendenhall



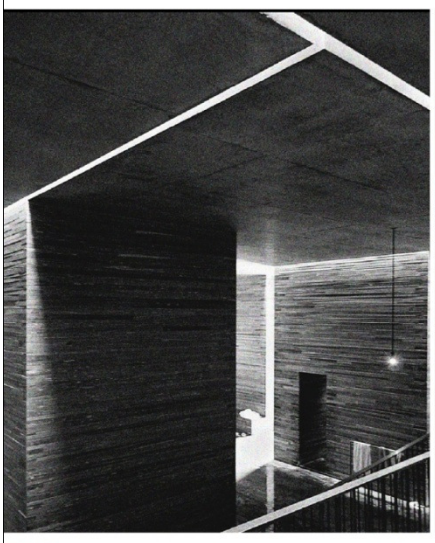
Rear Parking Bays



Wilson Street Panorama



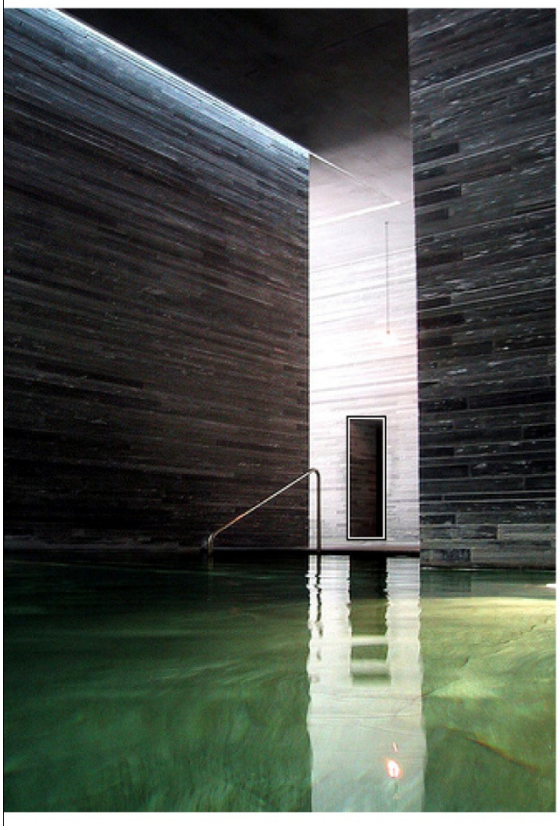
PRECEDENT STUDIES





Thermal Baths

Peter Zumthor



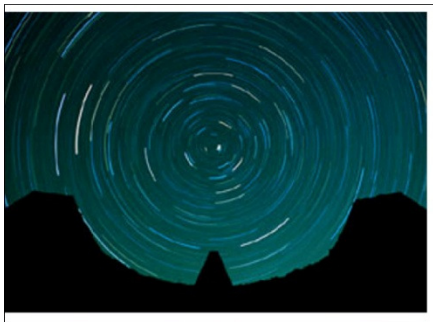
The Thermal Baths characterize dome of the key traits of an architecture of “authentic reality.”

Presence - strong Perceptual qualities of light, sound, smell and touch.Materiality - Rich and honest use of Slateed Stone , light and water.

Emptiness - Clearly a building delibertaely left uncluttered and minimally ornamented.

This becomes a place to ponder and experience ones physical existence, combined with intellectual understanding as you watch the beams of lights shift and trverse the texturally rich walls.

Star Axis
Charles Ross

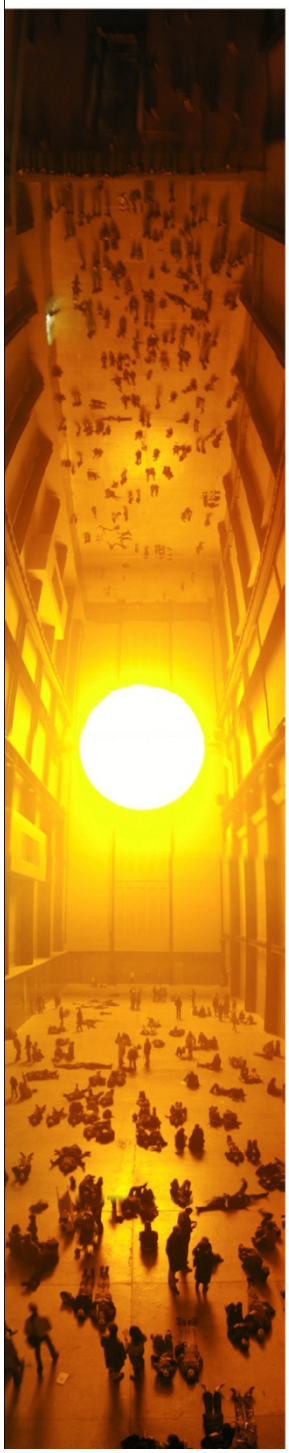




Location:
Desert of New Mexico

This istallation by Charles Ross, is one of unique character and providede me with an influential first hand experience of a low tech means of re-orinting oneself in time and space. The installation is full of perceptual richness. There are unique sound qualities experienced in the different spaces, and a strong sense of tactilty moving between andphysically interacting with the four different kinds of rock used in the project.

Visually the experience was very powerful even during the day. The inital feeling of entering the tunnel where the axis of the equator and the axis of the earth meet, creates a strong feeling of actually being pinned down to a very specific point, and a stron sense of awareness is aroused. The travel then through different scales of time, based on different apertures, not only gives things a various senses of scale, but cues into the cyclical continuum of time that exceeds my own existence in an unimaginable scale.
The hour window also creates a audio-visual experience that emphasizes a need for pause and refleciton.



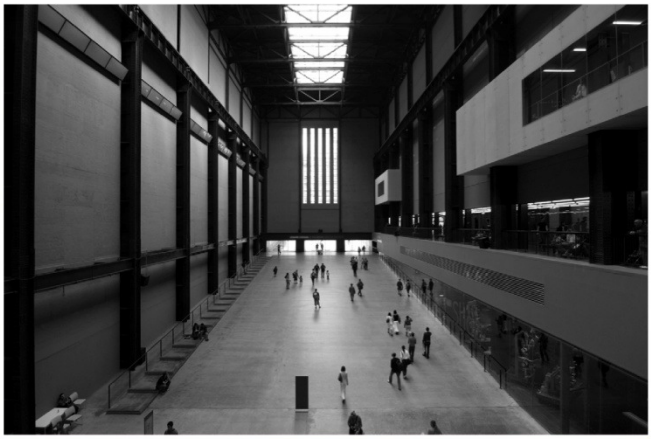
Tate Modern

Herzog & de Meuron

Location:
London, England

Type:
Art Museum

Herzog and de Meuron have createed a dramatic exmaple of how powerful adaptive reuse can be. Though reusing the shell of a building can more likely than not be more complicated and expensive than staring from scratch, the beauty and significance of site and place is ingrained within those walls and spaces, and the carefully executed contrast between old and new, reinvigorate the architecture with meaning and power. The two strengthen the value of each other, highlighting their individual strengths.











Elbe

Herzog & De Meuron

Location:
Hamburg, Germany

Type:
Cultural/Performing Arts Center

In a similar fashion to the Tate Modern, Herzog and de Meuron take a structure with sigificant history and reinterpret and redify it, not just renergizing the building but the sorrounding area as well. Their ability to contrast the heavy with the light and transparent provides a strong anchor to a lofty floating cap, that mimics the proportions and language of he building in a contemporary and respectful way.

By using something as low tech as water in a fine yet dense mist, the designers of this exhibit could emphasize the value of vision whilst at the same time re-connecting participants to their reliance on thei other sense. Not only does this exhibit limit visual orientation, but audiitory sense are blurred as well by the white noise created by the pulsing misters. The simple concept being that of contrast and a flip of the hierarchy of senses, without the use of virtual pixels.

Blur

Renfro Scofidio











Silent Collisions

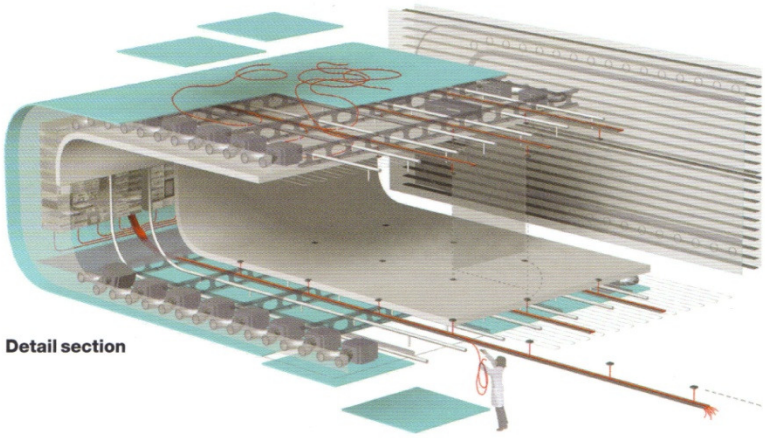
Morphosis

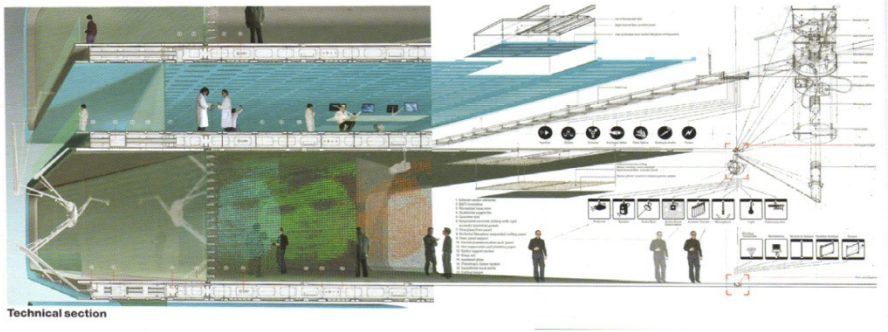
Location:
Rotterdam, Netherlands
[Exhibition Design 1999]

The relevance of this project relates to scales of time. The built environment runs ona much slower scale of time (but not necessarily smaller). In comparison to the speed of media flow, it seems almost still. Time however is recorded by light, temperature, and maybe seasons and the building may even more slower physically wear with time. The exhibit itself moves at an almost imperceptible pace, and over the course of an hour, completes one cycle. The pictures on the left show a chair left to encourage a moment of pause to investigate/ perceive this flow of time. All these changes also relate to the human scale.

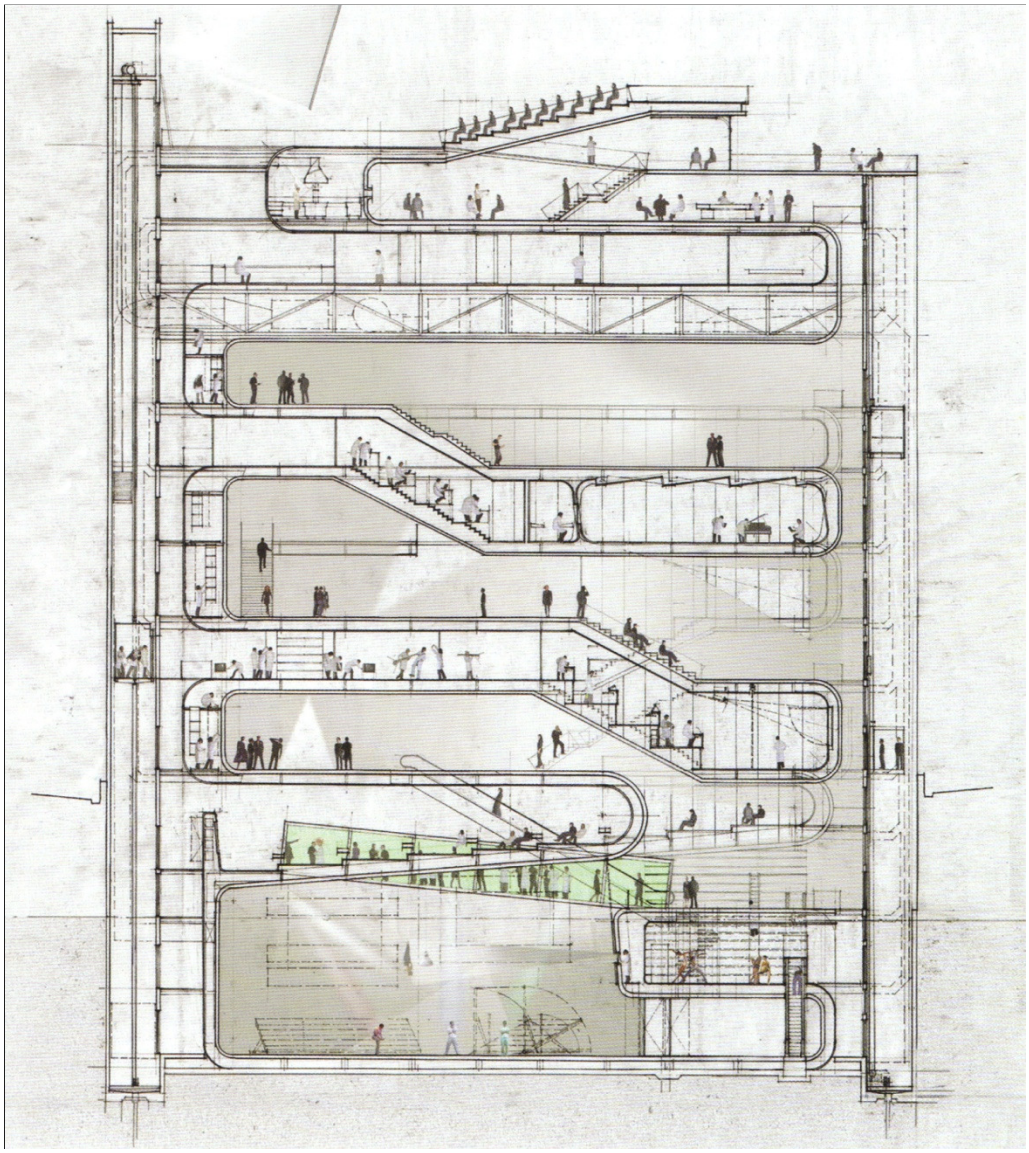
Eyebeam School

Diller, Renfro Scofidio





The beauty of this project lies in its ability to fold two different sets of programming and experience into one cohesive whole. In doing so several interesting things happen. First, each type of prgramming is placed in spaces that are maximally conducive to their immersive/functional success. Second, the patron hasa set of contrasting experiences as they circulate through the building experiencing and building an intellectual understanding of the differences between one space and the other. Thirdly by using this ribbon, a skin or tissue of technology wraps with maximum efficieny between all spaces.



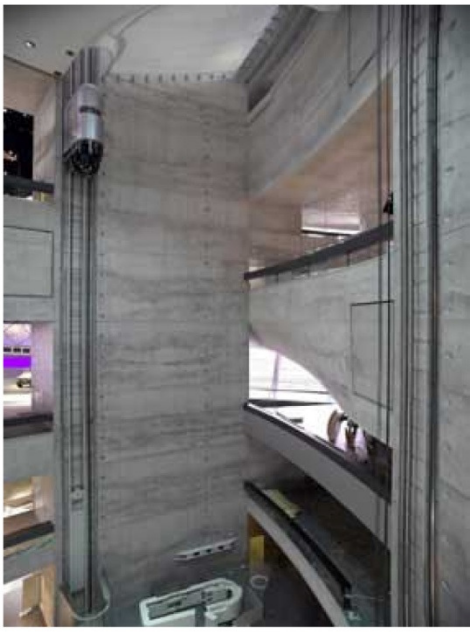
Mercedes-Benz Museum

UN Studio

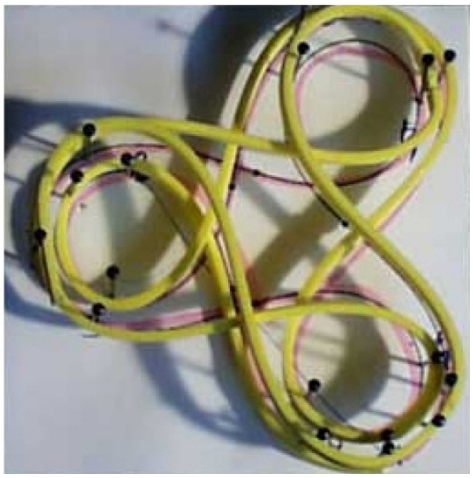
The procession of circulation and experience through this building is uniquely crafted. The elevator takes you up with a minimal slit for views at eye level, whilst a presentaiton plays in the elevator. At the top the patron is faced with a double helix of trajectory. Either a path of histry or one of technology. The two paths cross at several points offering either a linear experienc or one of exploration and adaption to user preferences. The path also ends in pads of orientation and exploration. The technological path is artificially lit and feel more like a stage. The classical history path feels more day lit and natural.

"The line you follow becomes a wall then a ceiling and then a space, blurring the distinction between line, surface and volume."
Ben van Berkel

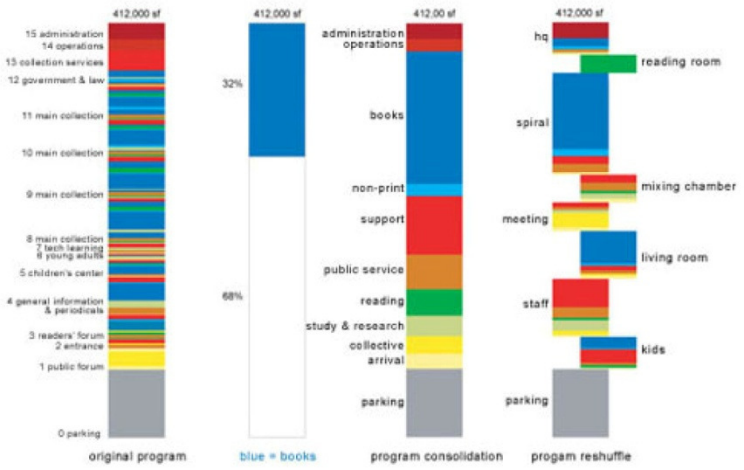


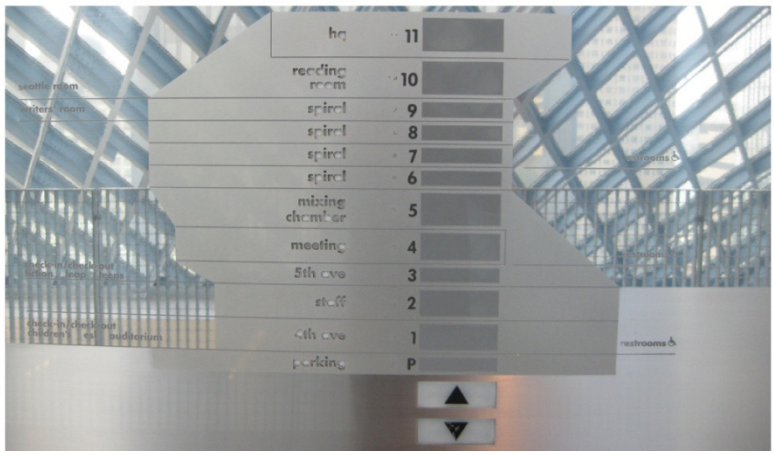






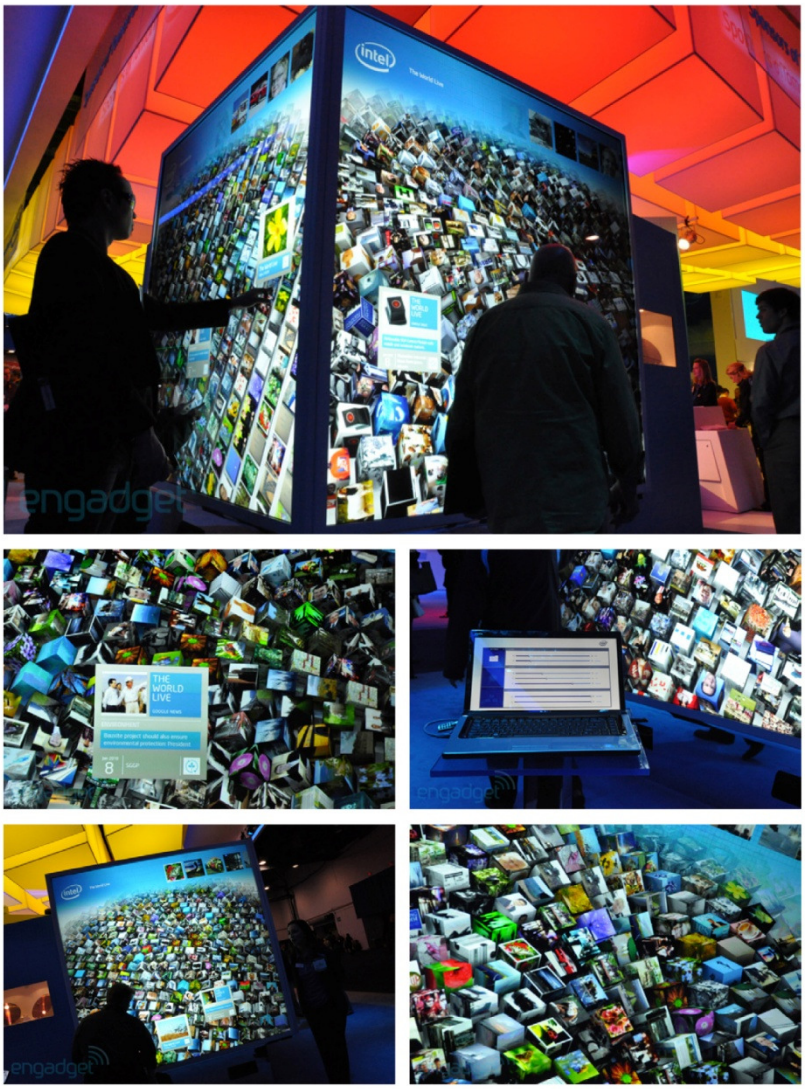
The value in this project stems from the critical approach to programming and function. The simultaneity of media in the modern library library setting was not being adapted to. So this library sought to create spaces first that were specialized to their dedicated function or media type, and then insterstitial spaces, where mixing could occur, and one central platform where all media could co-exist and collaborate at once. The library therefore also creates a stron sense of circulation to organize and wayfind between spaces and is used as an organizing element in the design. Contrast here is not so import and interaction and inter-connection between these diferring realms.





Seattle Public Library
OMA/REX

Infoscapes
Intel, CES, Las Vegas, 2010



The two HD Panels (picture top) show the web and various RSS feeds translated into a shifting three-dimensional landscape of cubes, where each side of a cube respresents some link that can be accessed and pulled up as a smaller screen just by touching it. The entire installation is powered by a single laptop with an i-7 processor. The web is not only visualized as a actual three dimensional space but allows for simple and tangible interaction.

Architecture at times appears ready to relinquish its role as the facilitator of the human experience, and instead become an empty container that provides access to the virtual equivalent thereof.

In order to maintain relevance in the rapidly advancing digital age of online reality, architecture must respond to shifting societal needs by integrating digital technology into the process and product of the built environment. When this integration is systematically supported by a self-calibrating homeostatic system, architectural relevance in the digital age will not only be re-established but can be sustainably maintained through future evolutions of socio-technological needs.

Thesis Statement

We should think of the "city as a living organism capable of adaptive change."

Emergence, pp. 52

"The identity of any assemblage at any level of scale is always the product of a process (territorialization, and in some case coding)."

Assemblage Theory, pp. 20

"Formations develop uses in response to their occupants."

Catalytic formations, pp. 79

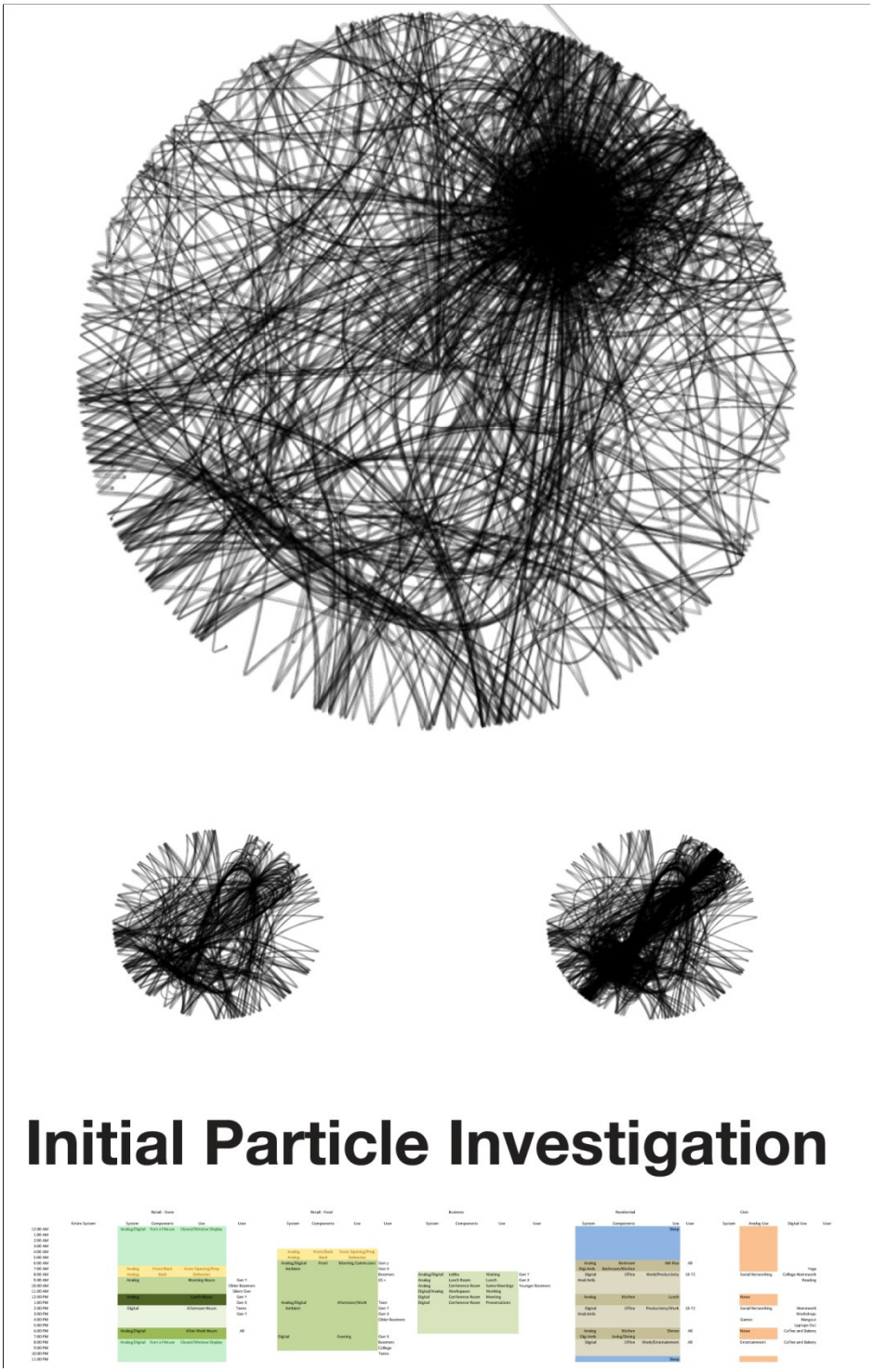
Homeostasis

The process of maintaining an internal optimal state through a negative feedback loop, in response to changing external conditions

The Alpha City/Building

Economic (Socio-economic)
Cultural
Political
Infrstructural

Conceptual Influences



Initial Particle Investigation

the ilderness



Feb 25 2008 8:51 PM

Unfortunately I cant make it tonight.... but I did recruit several people to go in my stead, and wrote letters and emails. I love you, and hope we are victorious.

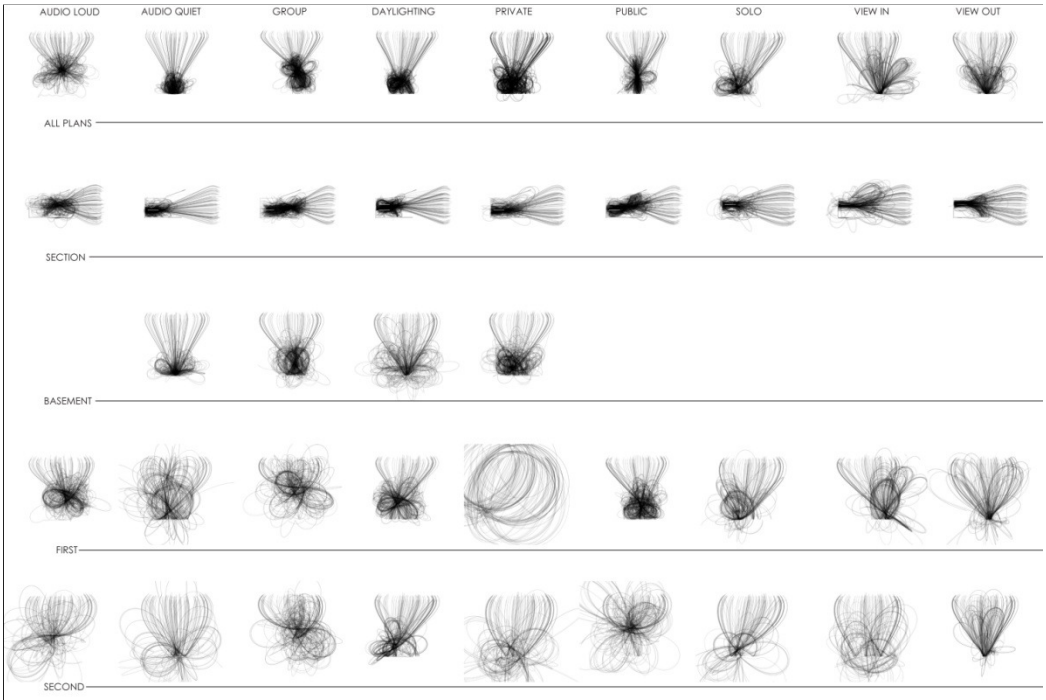
Here's a copy of the email I sent to the Commissioners. (I'm not the best letter writer---sorry.)
Check the links tho. I think it would be a great idea.
To victory!!!!

Dear Commissioners,

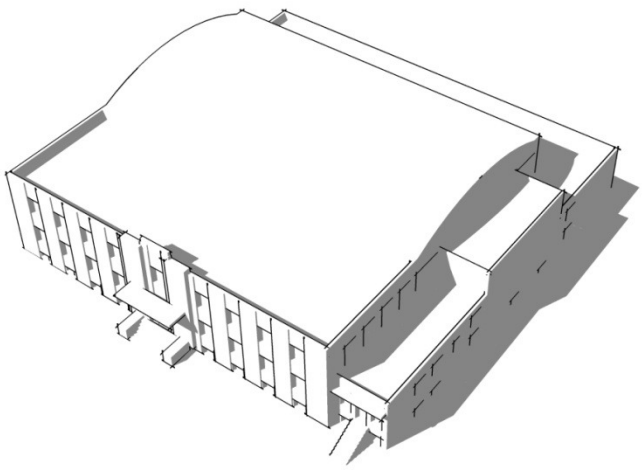
My name is Ildi Francke, and I was formerly one of the artists using the Armory space as a studio. I urge you to please vote to save the Bozeman Armory. Not only is it a historical landmark that many hold dear, it is an unique building architecturally- and an important part of Bozeman's fading historical landscape. I believe that it could be saved and used for a number of viable options that would well serve the community, and help preserve the unique cultural identity of Bozeman.
Cities have long recognized it is to their benefit to promote and support the arts within their own community. Being a lower-income artist in Bozeman, I am well aware of the lack of affordable studio spaces and galleries we have to call our own, and seeing the success of initiatives to foster such artists by renovating historical buildings into artist live-work or studio space and galleries in other communities, I hold forth hope that this type of option would someday be considered in Bozeman. I believe the Armory could be the perfect venue for a similar project.
I have included some links to such buildings, and hope that you would consider the benefit to the community of saving the Armory for a project like this. There are many more examples available, as this kind of re-development has happened with great success all over the country.


Approved for Demolition

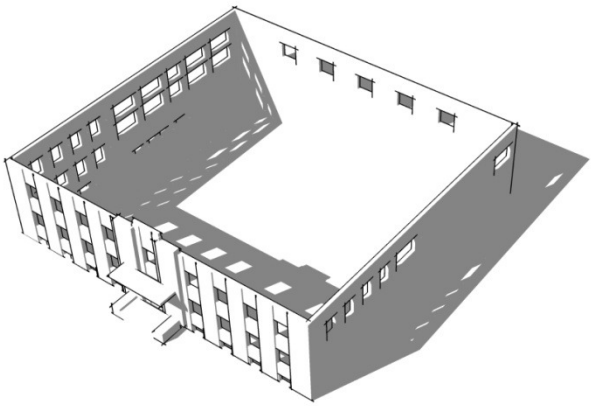

Proposed Replacement



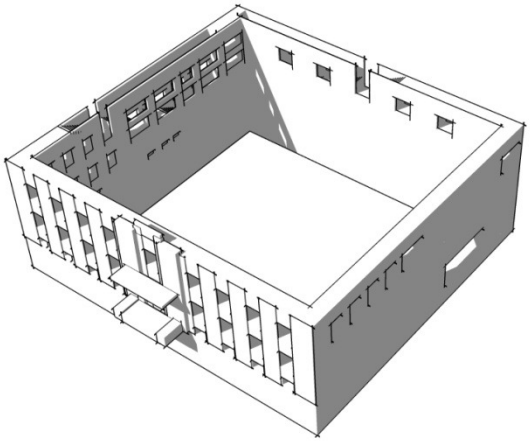
Quantitative/Qualitative Simulation - Matrix



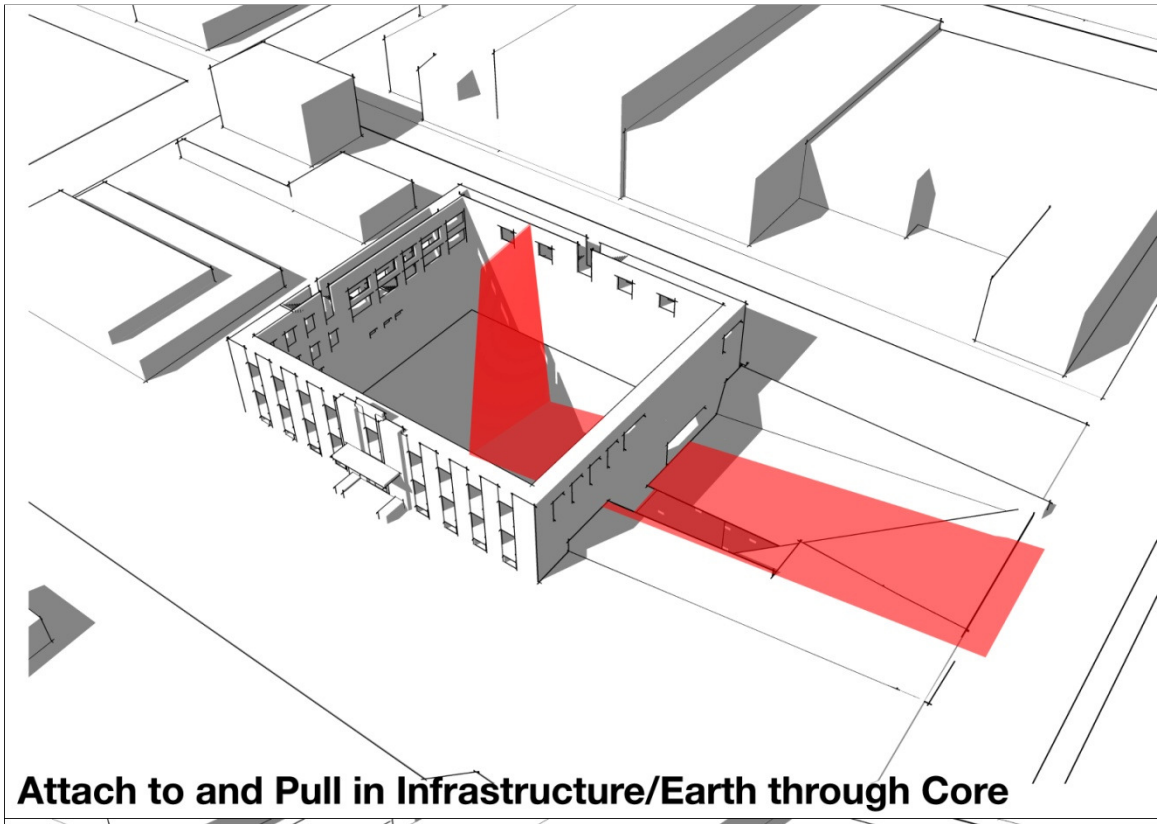
Existing Building



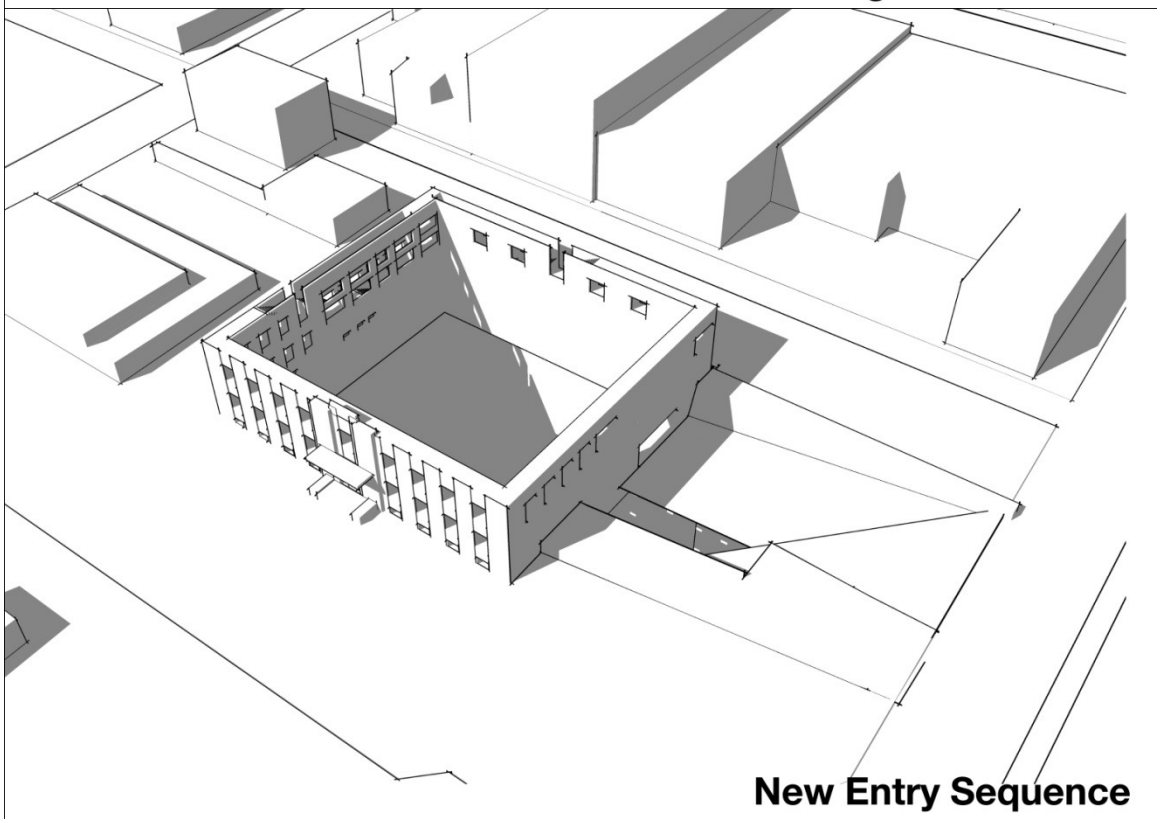
Perceptual Clarity



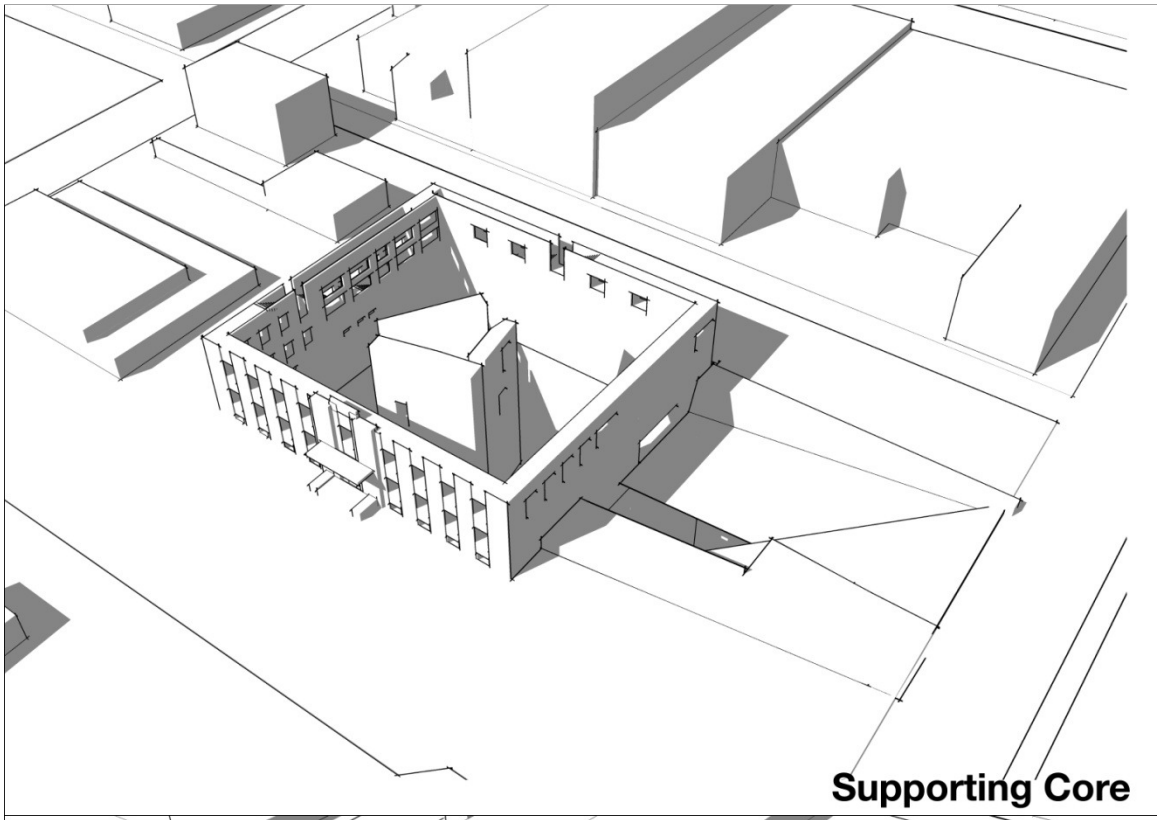
Circulate through Massive Armory Walls
- Analog Presence

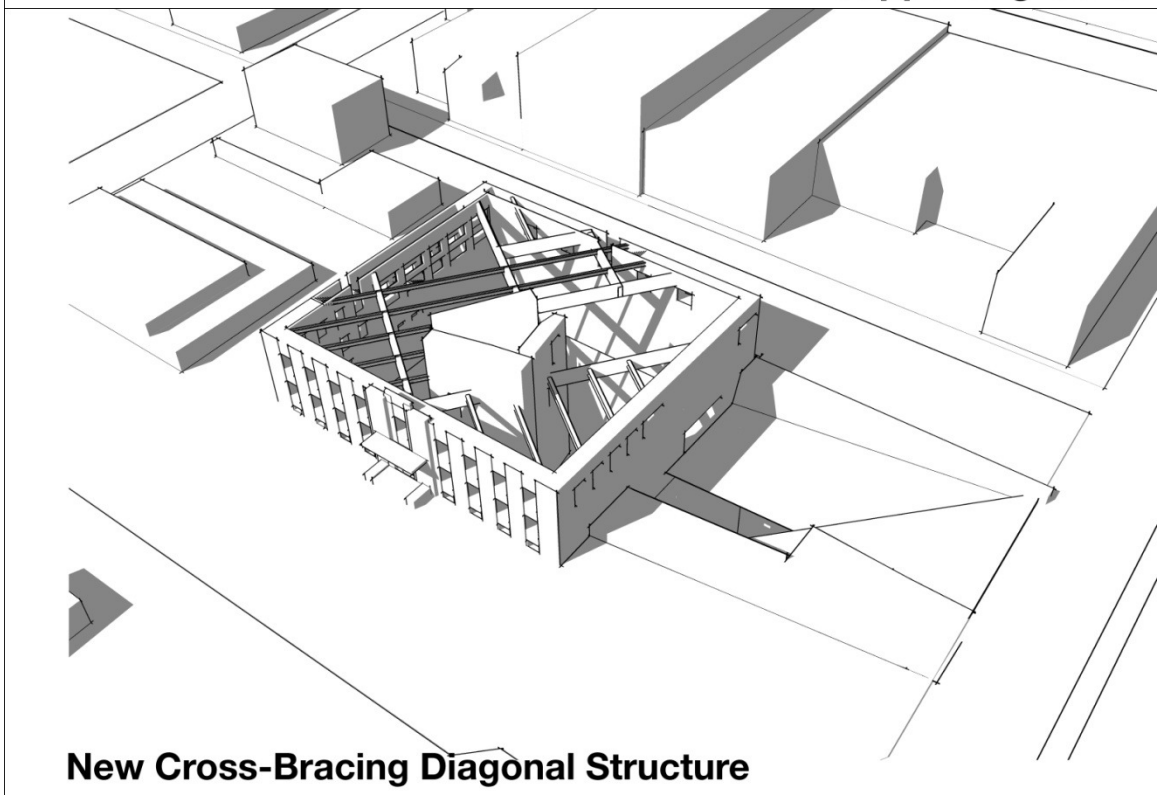


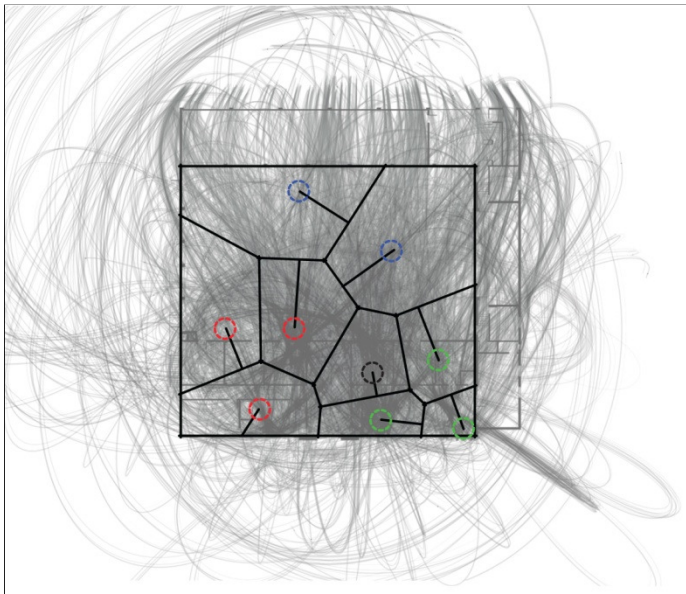
Attach to and Pull in Infrastructure/Earth through Core



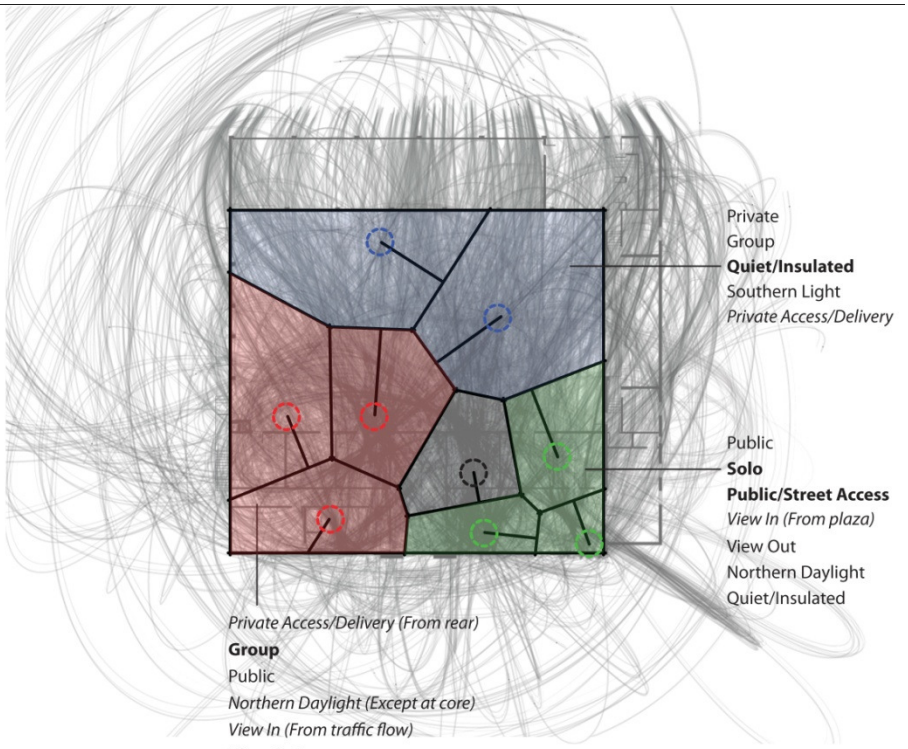
New Entry Sequence


Supporting Core

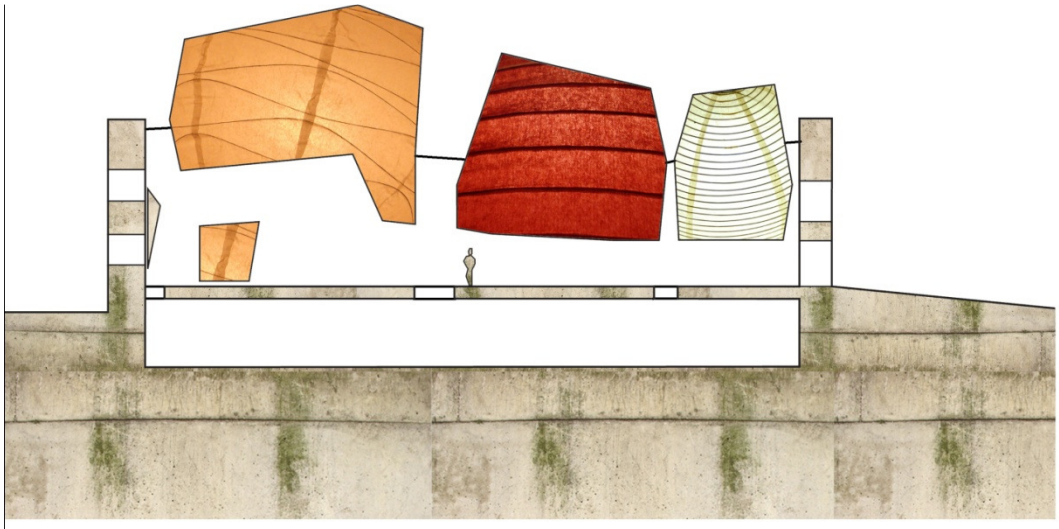

New Cross-Bracing Diagonal Structure



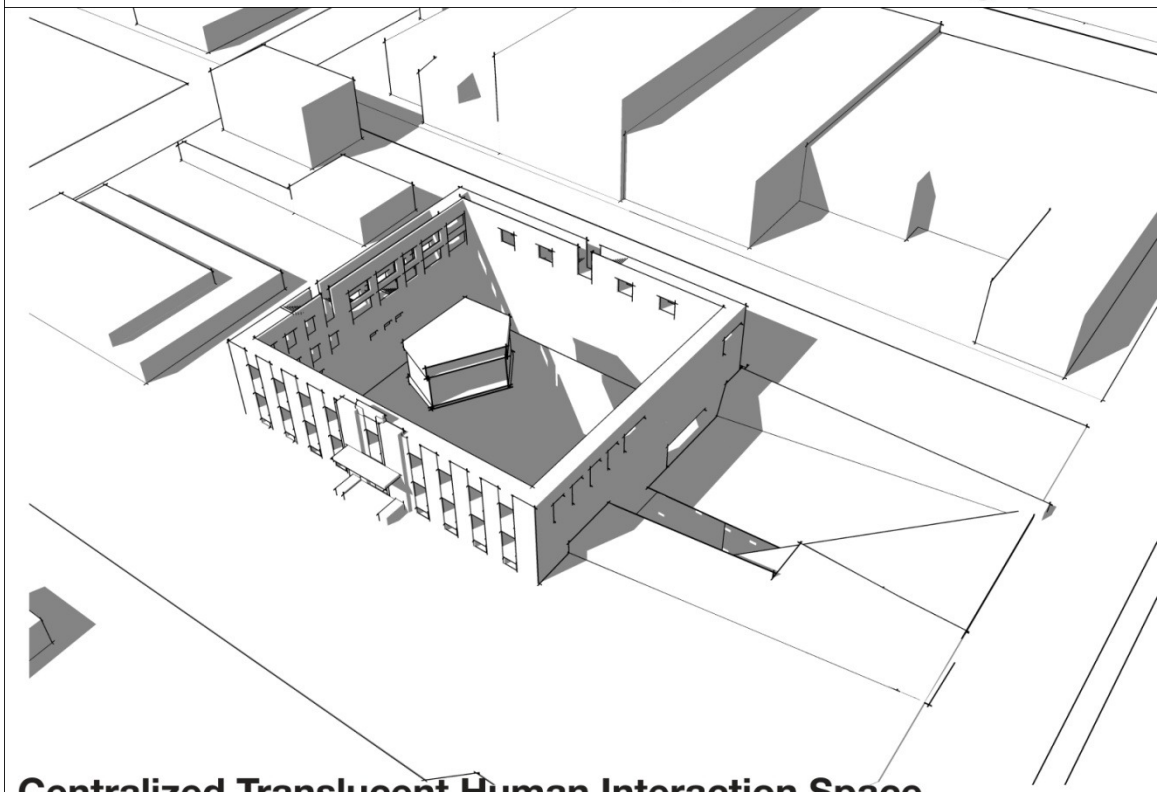
Particle System Translation



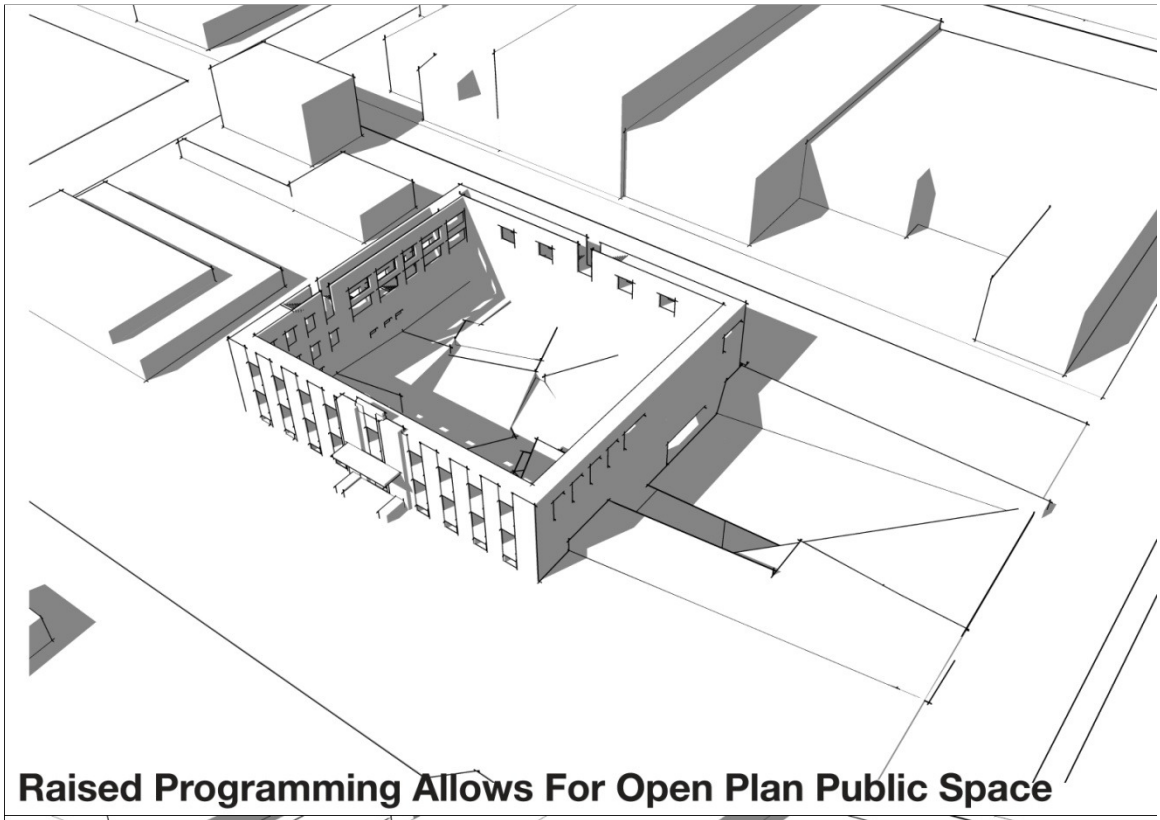
New Approach to Programming and Space



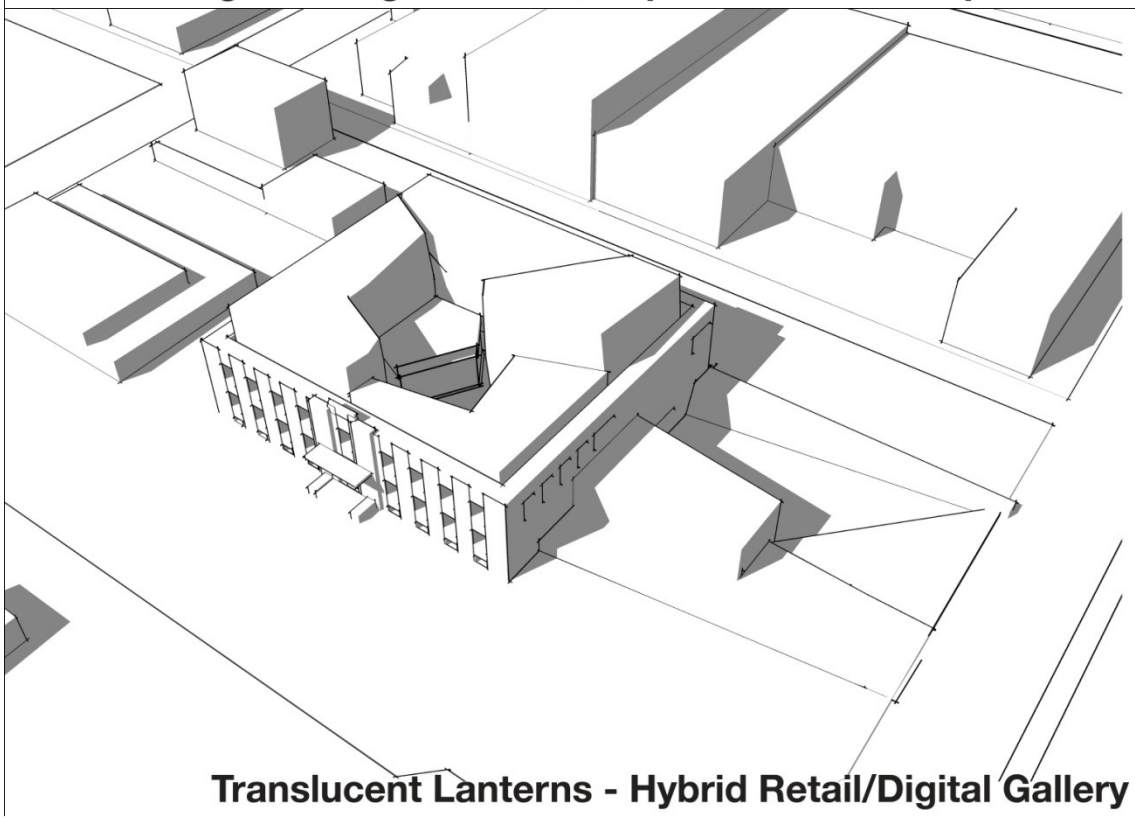
Qualitative Concept - Lanterns/Lightness



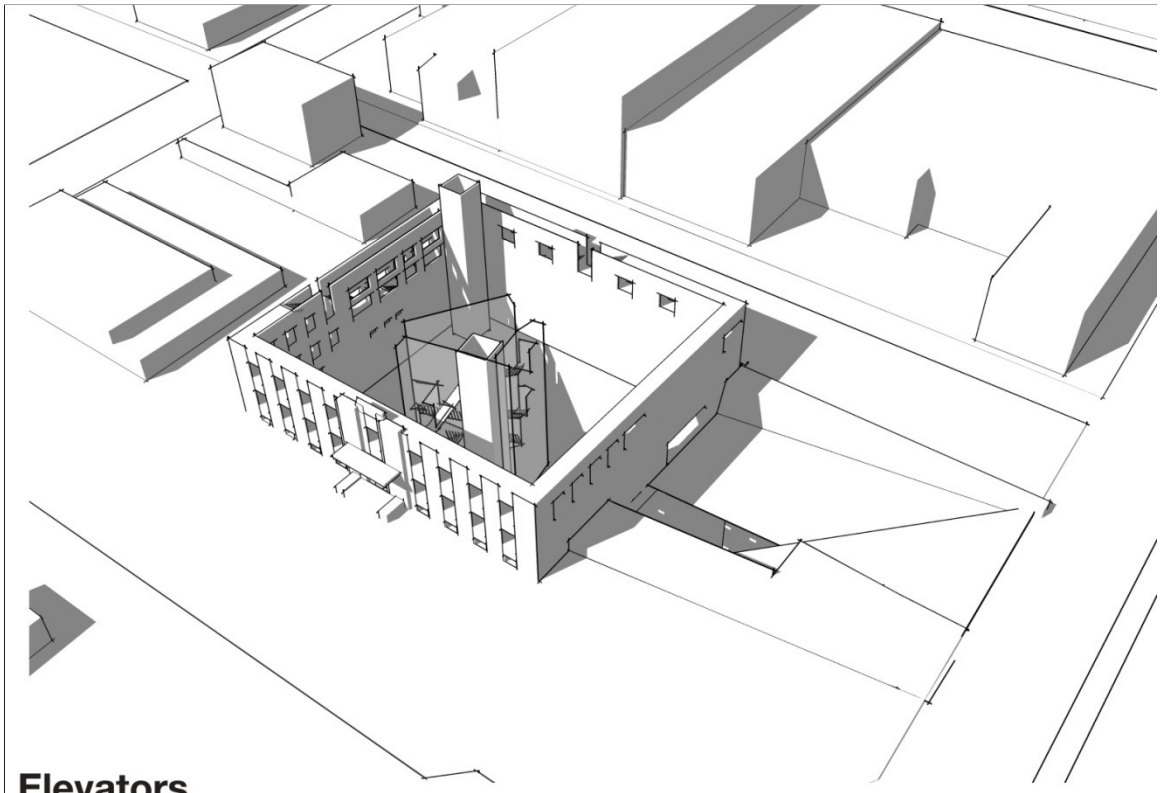
Centralized Translucent Human Interaction Space



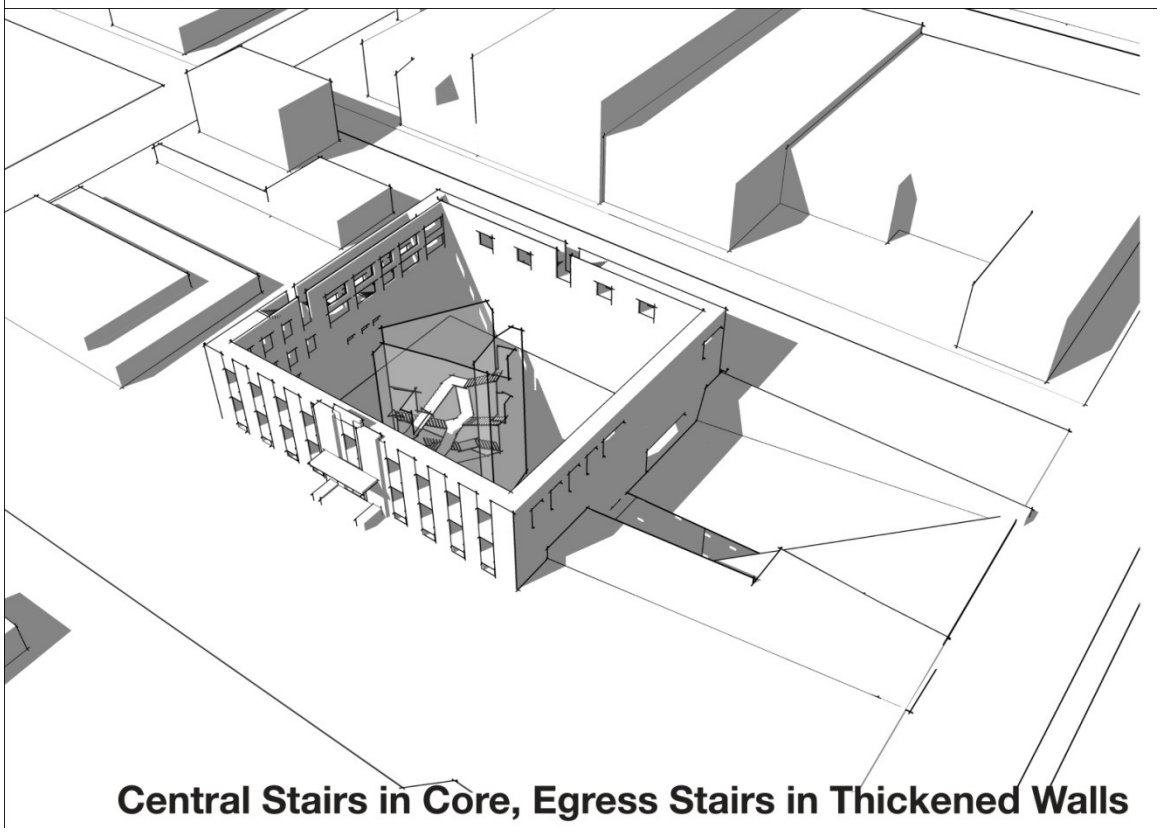
Raised Programming Allows For Open Plan Public Space



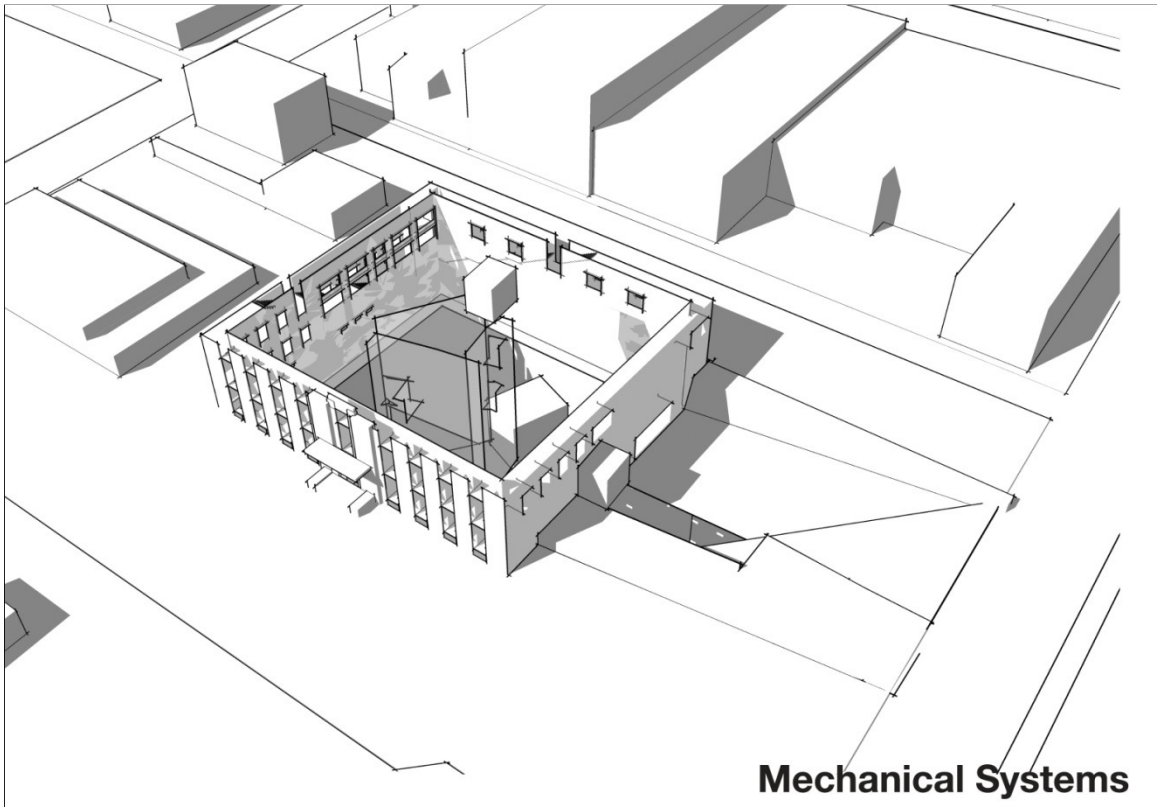
Translucent Lanterns - Hybrid Retail/Digital Gallery



Elevators

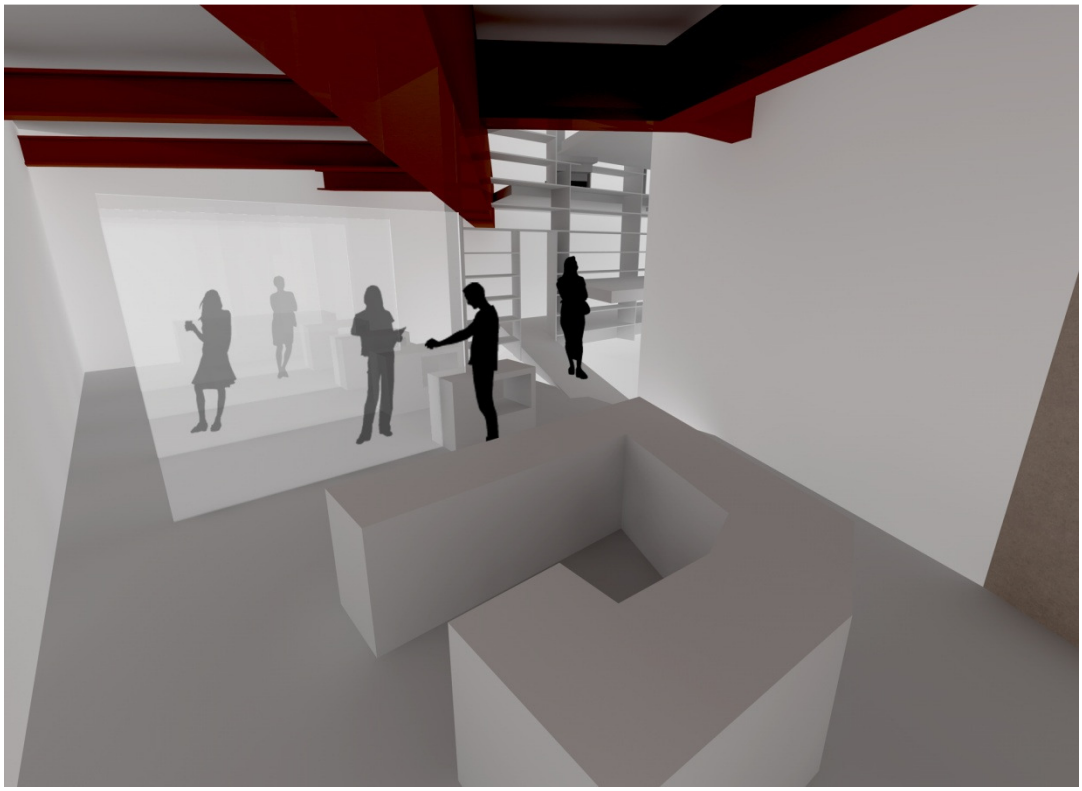


Central Stairs in Core, Egress Stairs in Thickened Walls

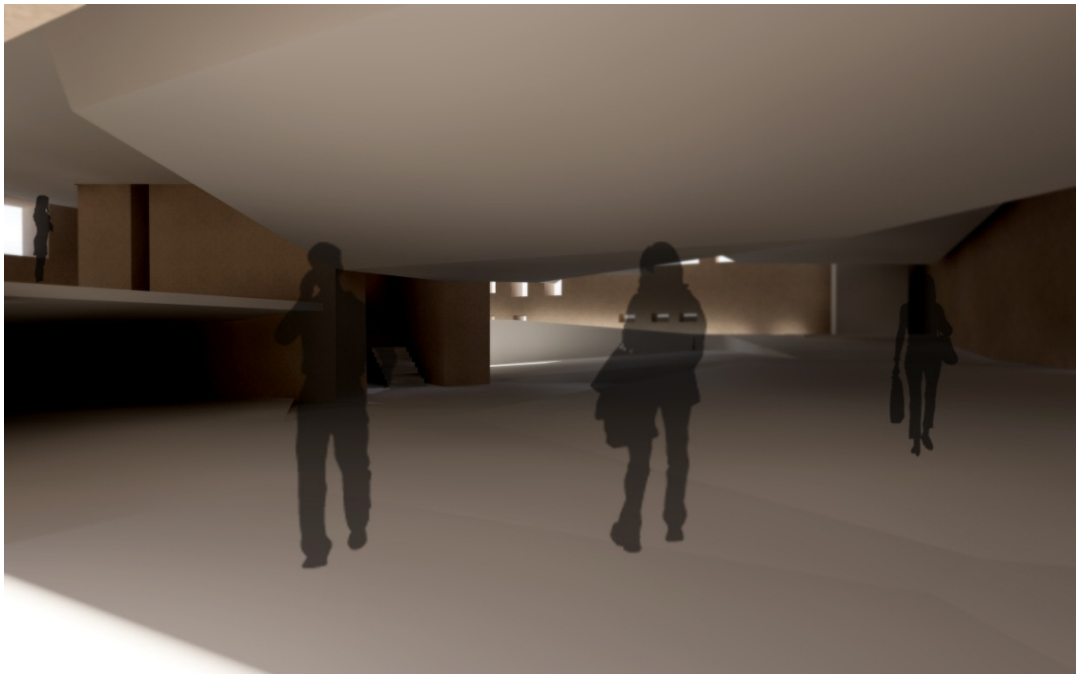


View of Circulation Core from First Floor





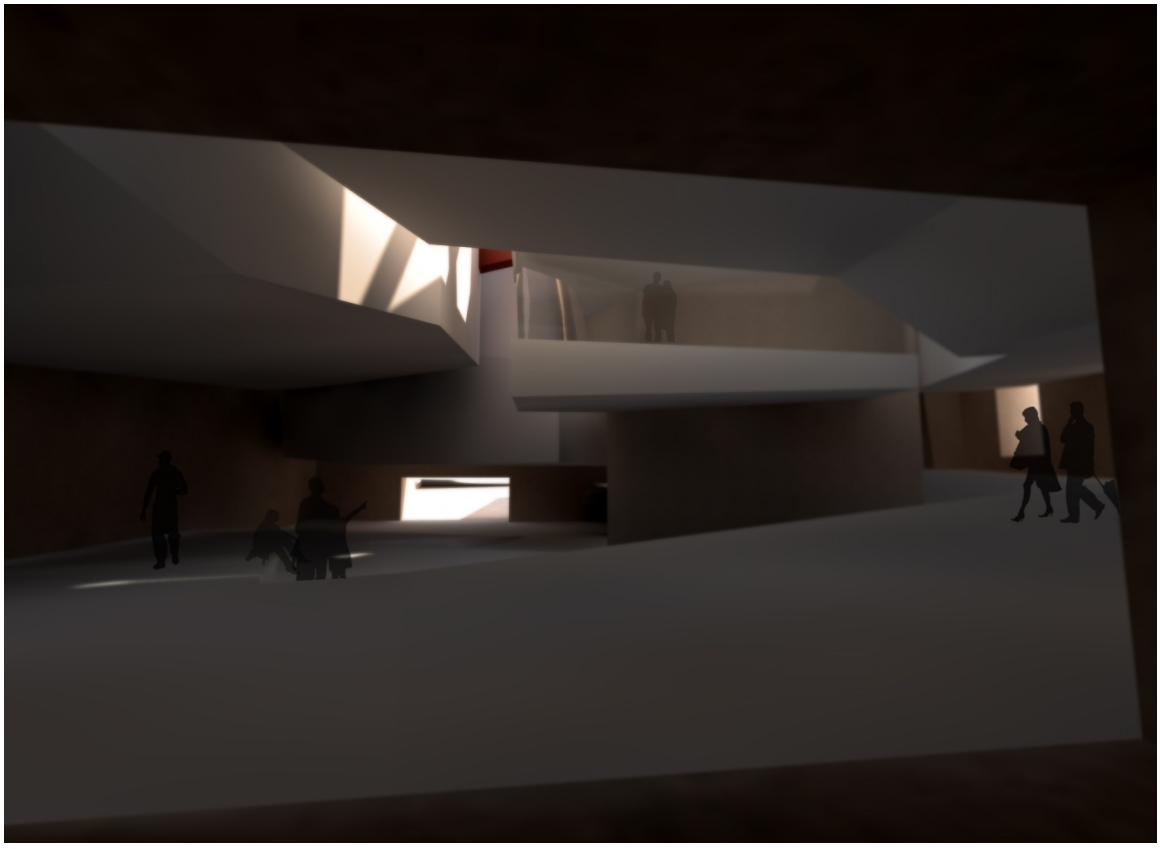
Retail Internet Store with Interactive Screens



Entry from Plaza



Evening Lanterns during an Event



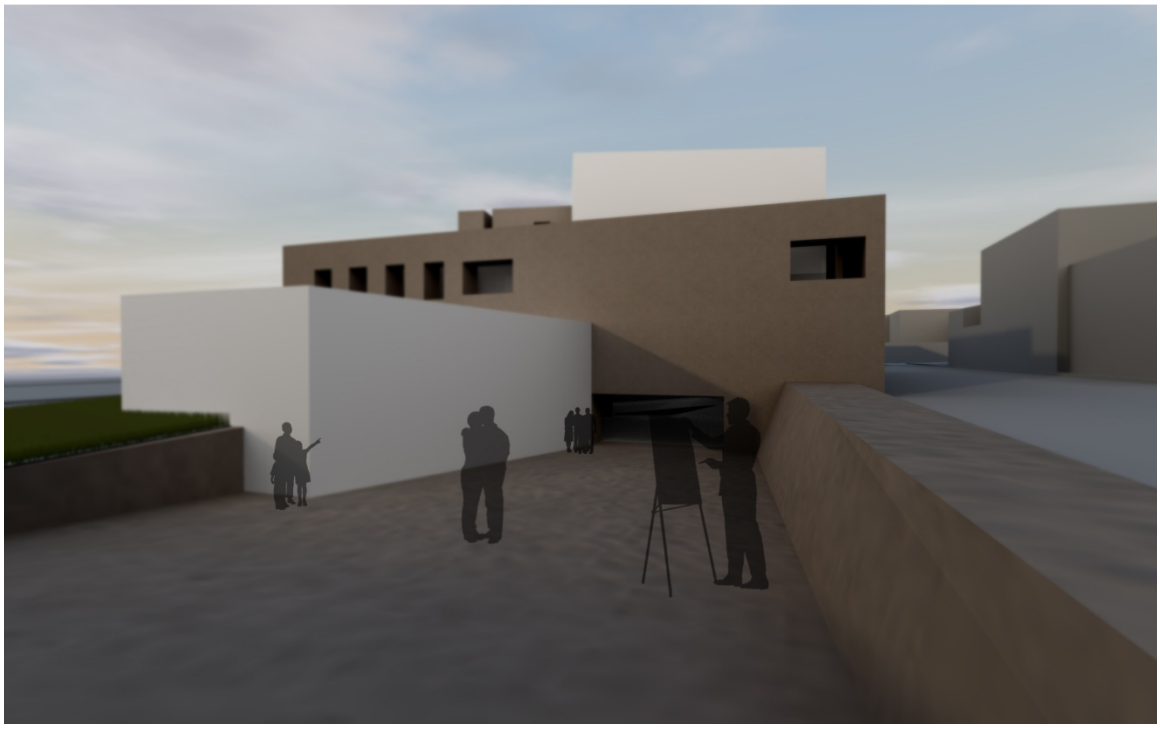
Ambient Analog Environment



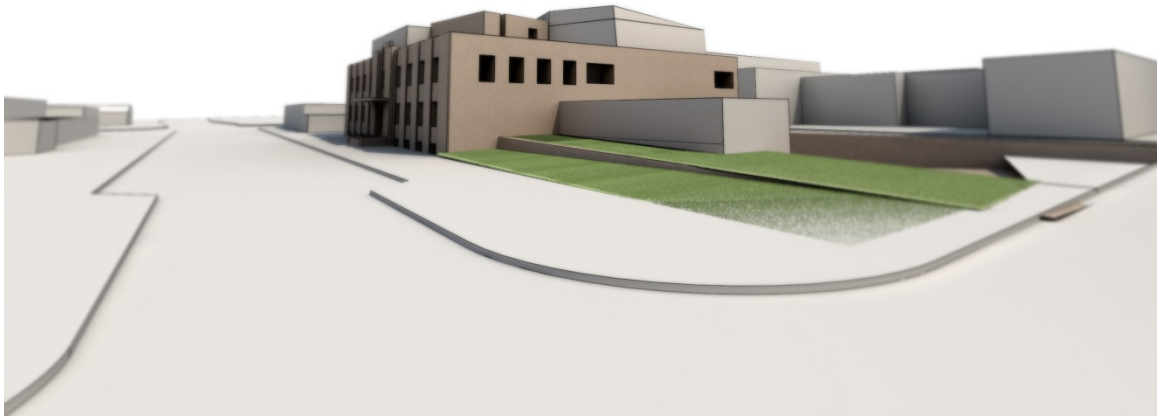
Ambient Digital Environment



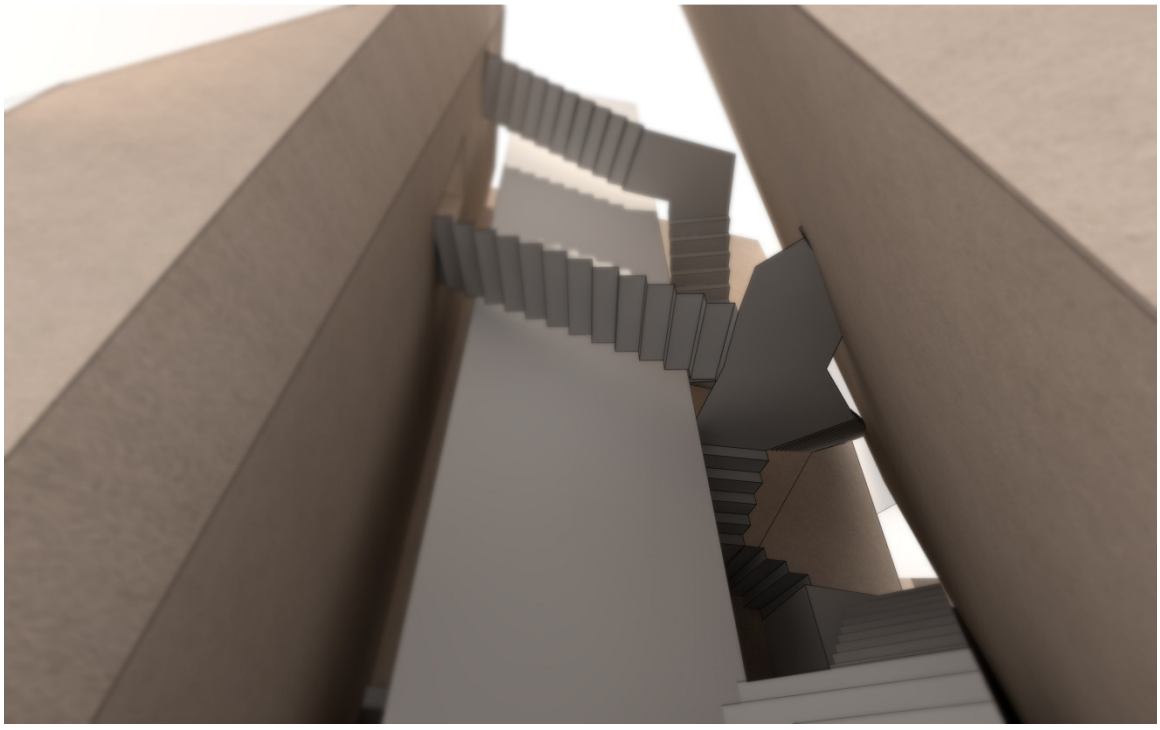
Lanterns at night



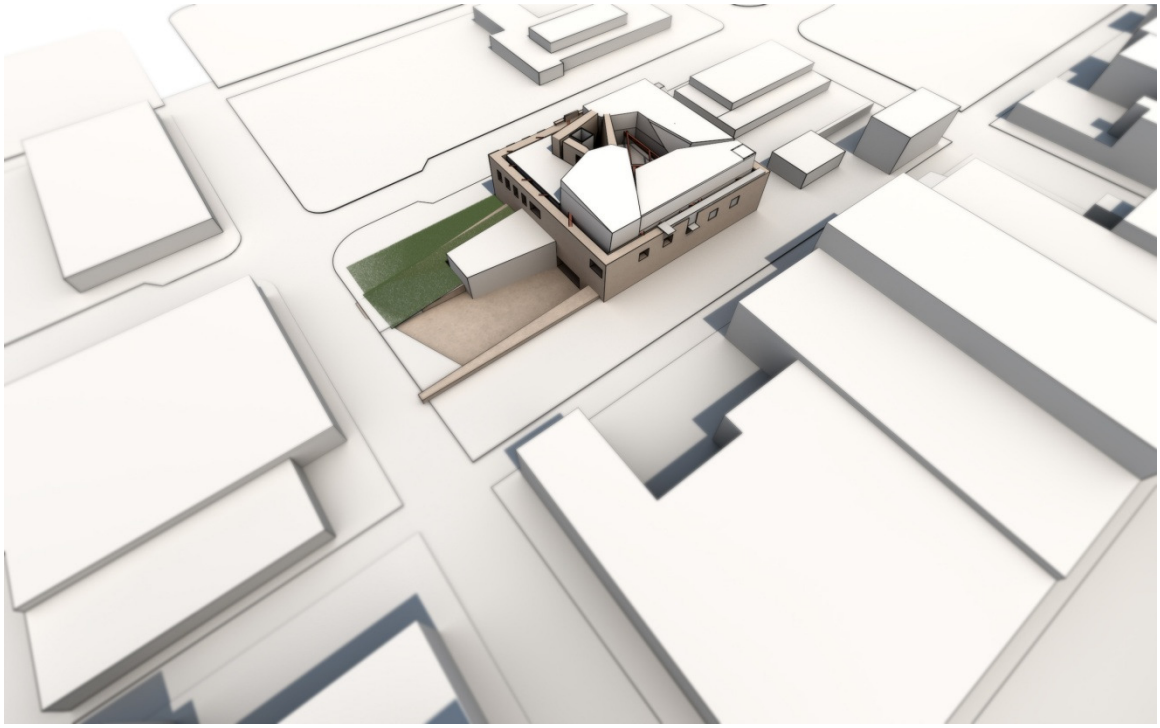
Plaza approach along Willson Avenue



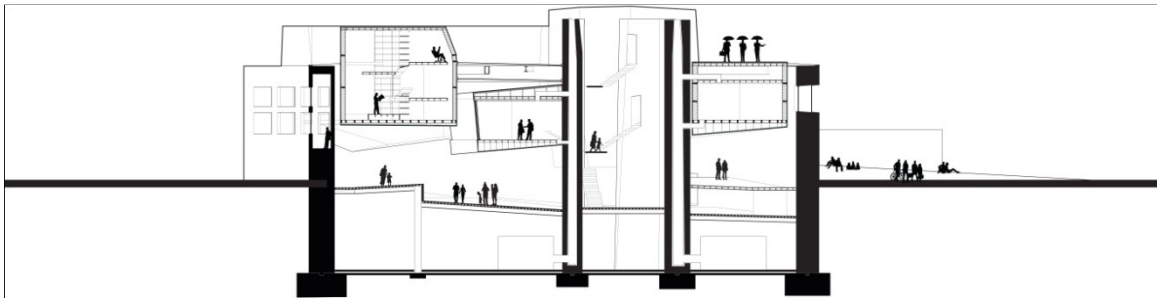
From the corner of Mendenhall and Willson



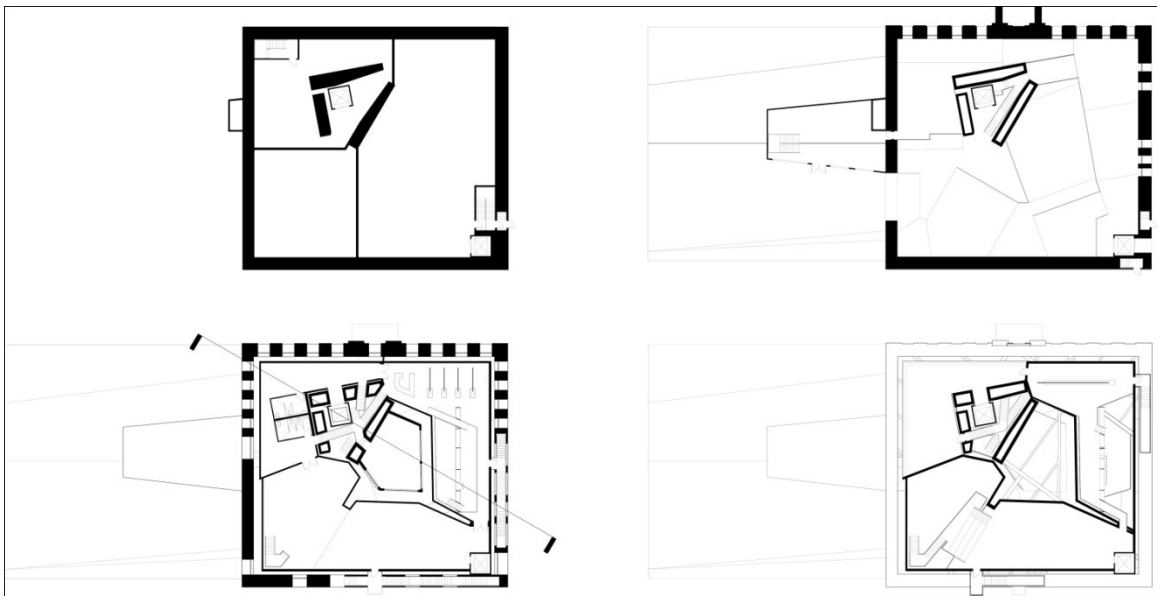
Circulation Core From Basement Entry



From on top of the Baxter Hotel



Detailed Section



Schematic Floorplans

REFERENCES CITED

[1] Vincent Scully, The Architecture of Community, New York: Princeton UP, 2003. pg 341

[2] Hannah Arendt, The Human Condition, Garden City: Doubleday and Compnay Inc, 1959. pg 11

[3] Kazys Varnelis, Networked Publics, Cambridge, MA: MIT, 2008. pg 18

[4] Vincent Scully, The Architecture of Community, New York: Princeton UP, 2003. pg 342

[5] Kenneth Frampton, Critical Regionalism, pg 474, 479

[6] Kazys Varnelis, Networked Publics, Cambridge, MA: MIT, 2008. pg 18

[7] de Kerckhove, Derrick. The Skin of Culture: Investigating the New Electronic Reality: from the work of Derrick de Kerckhove. Ontario: Somerville House Publishing, 1995. pg 17

[8] ibid, pg 53

[9] Eaton, Dustin W. "Interchange." Thesis. Montana State University, 2006. Print. pg 21

[10] de Kerckhove, Derrick. The Skin of Culture: Investigating the New Electronic Reality: from the work of Derrick de Kerckhove. Ontario: Somerville House Publishing, 1995. pg 65-67

[11] Kazys Varnelis, Networked Publics, Cambridge, MA: MIT, 2008. pg 18

[12] de Kerckhove, Derrick. The Skin of Culture: Investigating the New Electronic Reality: from the work of Derrick de Kerckhove. Ontario: Somerville House Publishing, 1995. pg 2

[13] Kazys Varnelis, Networked Publics, Cambridge, MA: MIT, 2008. pg 15

[14] Zellner, Peter. Hybrid Space New Forms in Digital Architecture. New York: Rizzoli, 1999. Print. pg 11 - footnote 5

[15] Will Lion, Digital Bytes, http://www.flickr.com/photos/will-lion/2595497078

[16] TSCHUMI, BERNARD. The State of Architecture at the Beginning of the 21st Century (Columbia Books of Architecture). New York: Monacelli, 2003. Print. pg??

[17] TSCHUMI, BERNARD. The State of Architecture at the Beginning of the 21st Century (Columbia Books of Architecture). New York: Monacelli, 2003. Print. pg??

[18] Zellner, Peter. Hybrid Space New Forms in Digital Architecture. New York: Rizzoli, 1999. Print. pg 10
[19] Will Lion, Digital Bytes, http://www.flickr.com/photos/will-lion/2594660277

[20] Pallasmaa, Juhani. The Eyes of the Skin Architecture and the Senses. New York: Academy, 2005. Print. pg 17

[21] ibid, pg 19

[22] The Matrix. Dir. Andy Wachowski and Larry Wachowski. Perf. Keanu Reeves, Laurence Fishburne, Hugo Weaving. Warner Brothers, 1999. DVD.

[23] Pallasmaa, Juhani. The Eyes of the Skin Architecture and the Senses. New York: Academy, 2005. Print. pg 13

[24] Nesbitt, Kate. Theorizing a New Agenda for Architecture An Anthology of Architectural Theory 1965-1995. New York: Princeton Architectural, 1997. Print. pg 473

[25] Kelly, Kevin. "Becoming Screen Literate." The New York Times [New York City] 23 Nov. 2008, New York Edition ed., MM sec.: 48. The New York Times. New York Times Company, 21 Nov. 2008. Web. 8 Nov. 2009. <http://www.nytimes.com/2008/11/23/magazine/23wwln-future-t.html?_r=1&pagewanted=all>.

[26] TSCHUMI, BERNARD. The State of Architecture at the Beginning of the 21st Century (Columbia Books of Architecture). New York: Monacelli, 2003. Print. pg ??

[27] Peel, Lilly. "Hello? I'm on the internet - and watching the television." The Times. Times Newspapers Ltd, 14 Aug. 2008. Web. 8 Nov. 2009. <http://business.timesonline.co.uk/tol/business/industry_sectors/media/article4526635.ece>.

[28] Hockney, David, and Lawrence Weschler. *Cameraworks*. New York: Knopf, 1984. Print.

[29] Pallasmaa, Juhani. The Eyes of the Skin Architecture and the Senses. New York: Academy, 2005. Print. pg 22

[30] ibid pg 24

[31] ibid pg 24

[32] Zellner, Peter. Hybrid Space New Forms in Digital Architecture. New York: Rizzoli, 1999. Print. pg 8

[33] Pallasmaa, Juhani. The Eyes of the Skin Architecture and the Senses. New York: Academy, 2005. Print. pg 21

[34] Vance, Ashlee. "Training to Climb an Everest of Digital Data." Ney York Times [New York City] 11 Oct. 2009. Print.

[35] ibid

[36] Zellner, Peter. Hybrid Space New Forms in Digital Architecture. New York: Rizzoli, 1999. Print. pg 9

[37] TSCHUMI, BERNARD. The State of Architecture at the Beginning of the 21st Century (Columbia Books of Architecture). New York: Monacelli, 2003. Print. pg ??

[38] ibid pg ??

[39] Zellner, Peter. Hybrid Space New Forms in Digital Architecture. New York: Rizzoli, 1999. Print. pg 9

[40] Benedikt, Michael. For an Architecture of Reality. New York: Lumen Books/Sites Books, 1988. Print. pg 14

[41] Kazys Varnelis, Networked Publics, Cambridge, MA: MIT, 2008. pg 6

[42] ibid pg 17

[43] Eaton, Dustin W. "Interchange." Thesis. Montana State University, 2006. Print. pg 63

[44] de Kerckhove, Derrick. The Skin of Culture: Investigating the New Electronic Reality: from the work of Derrick de Kerckhove. Ontario: Somerville House Publishing, 1995. pg 19

[45] "Another Use for Your Phone: 'Augmented Reality'" The Associated Press [San Francisco] 5 Oct. 2009. Print.

[46] Kazys Varnelis, Networked Publics, Cambridge, MA: MIT, 2008. pg 10

[47] ibid pg 22-23

[48] Lyndond, Donlyn and Charles W Moore. Chambers For a Memory Palace. Massachusets: The MIT Press, 1994. Introduction page xi

[49] Eaton, Dustin W. "Interchange." Thesis. Montana State University, 2006. Print. pg 9

[50] Holl, Steven, Juhani Pallasmaa, and Alberto Perez-Gomez. Questions of Perception Phenomenology of Architecture. Grand Rapids: William K Stout Pub, 2007. Print. pg 37

[51] Zellner, Peter. Hybrid Space New Forms in Digital Architecture. New York: Rizzoli, 1999. Print. pg 15

[52] Holl, Steven, Juhani Pallasmaa, and Alberto Perez-Gomez. Questions of Perception Phenomenology of Architecture. Grand Rapids: William K Stout Pub, 2007. Print. pg 37

BIBLIOGRAPHY

de Kerckhove, Derrick. *The skin of culture: investigating the new electronic reality: from the work of Derrick de Kerckhove.* Ontario: Somerville House Publishing, 1995.

Lyndond, Donlyn and Charles W Moore. *Chambers For a Memory Palace.* Massachusets: The MIT Press, 1994.

Varnelis, Kazys, ed. *Networked publics.* Cambridge, MA: MIT, 2008. Print.

Tschumi, Bernard. *The State of Architecture at the Beginning of the 21st Century* (Columbia Books of Architecture). New York: Monacelli, 2003. Print.

Botton, Alain De. *The Architecture of Happiness* (Vintage). New York: Vintage, 2008. Print.

Benedikt, Michael. *For an Architecture of Reality.* New York: Lumen Books/Sites Books, 1988. Print.

Pallasmaa, Juhani. *The Eyes of the Skin Architecture and the Senses.* New York: Academy, 2005. Print.

Scully, Vincent. *"The Architecture of Community." Modern Architecture and Other Essays.* New York: Princeton UP, 2003. Print.

"Another Use for Your Phone: 'Augmented Reality'" The Associated Press [San Francisco] 5 Oct. 2009. Print.

Overbye, Dennis. *"Art and Science, Virtual and Real, Under One Big Roof."* The New York Times [New York City, New York] 22 Sept. 2008. Print.

Berger, Bruce. *Telling distance conversations with the American desert.* Tucson: University of Arizona, 1997. Print.

Eaton, Dustin W. *"Interchange."* Thesis. Montana State University, 2006. Print.

Vance, Ashlee. *"Training to Climb an Everest of Digital Data."* Ney York Times [New York City] 11 Oct. 2009. Print.

Arrendt, Hannah. *The Human Condition*. Garden City: Doubleday and Compnay Inc, 1959. Print.

Architectural, International. *Next 8th International architecture exhibition*, 2002. New York: Rizzoli, Biennale di Venezia, St. Martin's [distributor], 2002. Print.

Morphopedia. *Morphosis Architects Inc*, 2009. Web. 20 Oct. 2009. <http://morphopedia.com/>.

Zellner, Peter. *Hybrid Space New Forms in Digital Architecture*. New York: Rizzoli, 1999. Print.

Peel, Lilly. *"Hello? I'm on the internet - and watching the television."* The Times. Times Newspapers Ltd, 14 Aug. 2008. Web. 8 Nov. 2009. <http://business.timesonline.co.uk/tol/business/industry_sectors/media/article4526635.ece>.

Kelly, Kevin. *"Becoming Screen Literate."* The New York Times [New York City] 23 Nov. 2008, New York Edition ed., MM sec.: 48. The New York Times. New York Times Company, 21 Nov. 2008. Web. 8 Nov. 2009. <http://www.nytimes.com/2008/11/23/magazine/23wwln-future-t.html?_r=1&pagewanted=all>.

Holl, Steven, Juhani Pallasmaa, and Alberto Perez-Gomez. *Questions of Perception Phenomenology of Architecture*. Grand Rapids: William K Stout Pub, 2007. Print.

"Hugh Laurie on House, fame and LA." *The Times Online. Times Newspapers Ltd.*, 29 Mar. 2009. Web. 9 Nov. 2009. <http://entertainment.timesonline.co.uk/tol/arts_and_entertainment/tv_and_radio/article3617324.ece>.

Hockney, David, and Lawrence Weschler. *Cameraworks*. New York: Knopf, 1984. Print.

Nesbitt, Kate. *Theorizing a New Agenda for Architecture An Anthology of Architectural Theory* 1965-1995. New York: Princeton Architectural, 1997. Print.

O'Brien, Catherine. *"How the Google generation thinks differently."* Times Online. Times Newspapers Ltd., 9 July 2008. Web. 9 Nov. 2009. <http://women.timesonline.co.uk/tol/life_and_style/women/families/article4295414.ece>.

Sullivan, Andrew. *"Google is giving us pond-skater minds."* The Sunday Times [London] 15 June 2008. Times Online. Times Newspaper Ltd., 15 June 2008. Web. 9 Nov. 2009. <http://www.timesonline.co.uk/tol/comment/columnists/andrew_sullivan/article4136782.ece>.

The Matrix. *Dir. Andy Wachowski and Larry Wachowski.* Perf. Keanu Reeves, Laurence Fishburne, Hugo Weaving. Warner Brothers, 1999. DVD.

Will Lion, *Digital Bytes*, http://www.flickr.com/photos/will-lion/2595497078