To the Graduate Council:

I am submitting herewith a thesis written by Lauren Claire Comet-Greenway entitled “Path, Plaza, and Park: Cross-Programming Space in the City.” I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Architecture, with a major in Architecture.

Scott Wall, Major Professor

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Vice Provost and Dean of the Graduate School

(Official signatures are on file with official student records.)

PATH, PLAZA, AND PARK:
Cross-Programming Space in the City

A thesis presented for the
Master of Architecture degree
College of Architecture + Design
University of Tennessee, Knoxville

Lauren Claire Comet-Greenway
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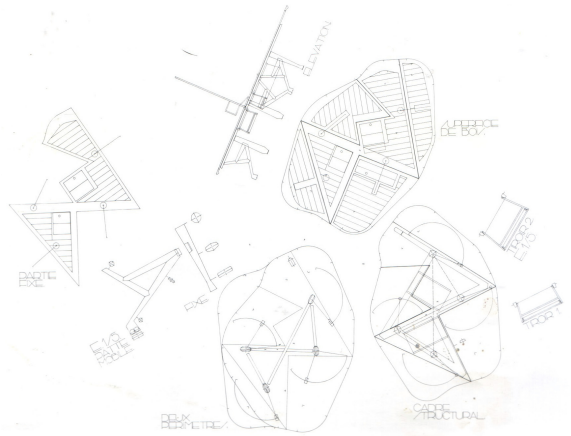
THESIS ABSTRACT

"I tend to operate by variations…When (I) think about the construction of a wall...I am interested in thinking about all of the possibilities that this element can or could contain…I never work by reduction: I try to reveal the multiplicities, the singularities…"
--Enric Miralles

Enric Miralles' adaptable architecture and furniture designs are not merely the combination of disparate things. His designs combine programs and elements which are complimentary and serve to strengthen each other. They can change according to time of day, needs for privacy, requirements for work or play, the number of people using them, storage needs, etc. The above quote by Miralles illustrates how he combines multiple programs, or stories, to create just one object. Like Miralles, I am interested in all of the potentials that a single piece of architecture contains. With careful planning in regards to the needs of the users, the possibilities of the site, and the requirements of the larger city or neighborhood, such programs can be realized in a single multi-faceted project. Such a project can contribute to the life of a city (the physical composition of its structures, the interaction of its people, and the vibrancy of its public spaces) through an architecture of flexibility and experiential connections that serves the different needs and program requirements of individual users and the conditions of the site and city.

PREFACE



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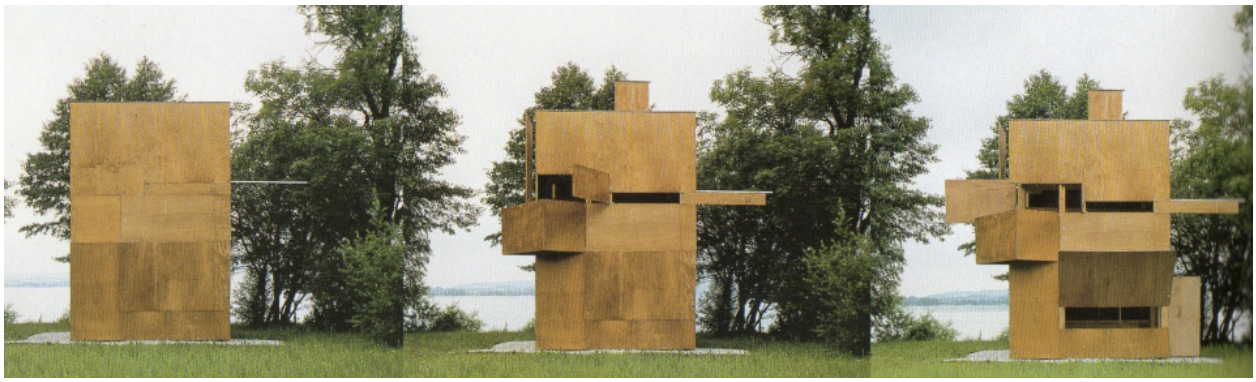
FLEXIBLE ARCHITECTURE

The GucklHupf Mobile Lookout in Mondsee, Austria (Figure 2) by Hans Peter Wörndl was a small structure, or “hut” designed for the Festival of the Regions, which encouraged the building of cultural, architectural, and artistic objects in the Upper Austrian region. It was intended to signify the ‘strange and familiar, quiet and movement, living and traveling’ (Richardson, 2001, p. 42). The hut responds to different light levels and views according to users’ needs and wishes by transforming from a solid box to a lookout and observation tower through a series of manually operable folding and closing panels and planes. It can go from a place of privacy and introspection to acknowledging and interacting with the landscape. Set in a rural setting, the hut could also have functioned well in a more urban environment.

This work represents an architecture of service through flexibility, one of the potentials that a single piece of architecture contains.



2. GucklHupf Mobile Lookout
Image Source: *XS: Big Ideas, Small Buildings*

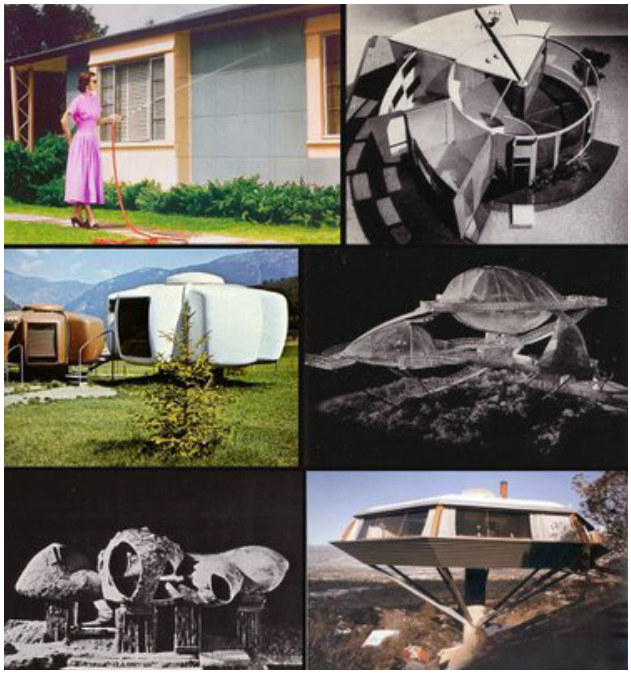
"Flexible architecture 'adapts rather than stagnates; transforms rather than restricts; is motive, rather than static; interacts with its user rather than inhibits'"
--Robert Kronenburg

"Flexible architecture" consists of buildings designed to respond easily, often, and in various ways to change. The qualities of flexible architecture that Kronenburg mentions in the above quote are important features to emphasize because they are in contrast to typical, single-program structures which feel stagnate in comparison.

There are many different ways that architecture can be flexible. Kronenburg identifies several in his book *Flexible: Architecture that Responds to Change.* Adaptable buildings are those that adjust to different "functions, users, and climate changes", transformable buildings are those that "change shape, space, form or appearance by...physical alteration", movable buildings "relocate from place to place" (Figure 3), and interactive buildings "respond to user's requirements in automatic or intuitive ways" (Figure 4) (Kronenburg, 2007, p. 7). This thesis will focus primarily on the qualities of transformation and adaptability as they apply to the urban environment.

Flexible architecture is especially necessary in urban environments because of the many users to accommodate, the small buildable area for buildings, and the multiple programs required, as well as the movement of sustainable design in an era of shrinking resources.

3. Airstream Trailer
Image Source: http://www.airstream.com/products/2008-fleet/travel-trailers/international-line/ocean-breeze/index.html



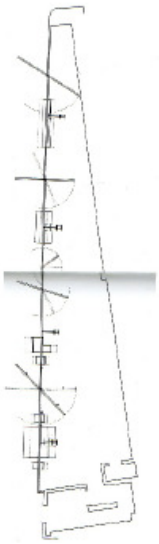
4. Interactive Architecture
Image Source: http://www.fast-arq.cl/antecedentes.html

characteristics

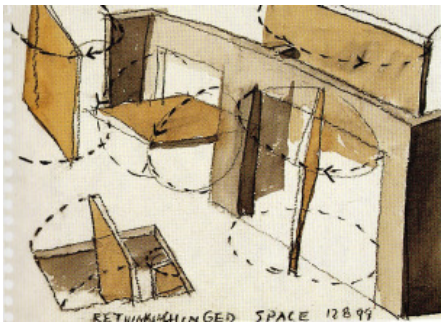
Flexible architecture is transformable, adaptable, often small in scale, and often includes dedicated non-flexible spaces. Buildings that are transformable are designed to “change shape, space, form or appearance by the physical alteration of their structure, skin or internal surfaces. It is architecture that opens, closes, expands and contracts”. (Kronenburg, 2007, p. 10). This transformation does not only involve the rearrangement of furniture or the redecorating of the interiors, but is often a drastic alteration in the character and structure of the building through kinetic physical components.

The building façade renovation to the Storefront for Art and Architecture gallery in New York City, completed in 1992, (Figure 5) is a prime example of transformable architecture. The new façade was a collaboration between artist Vito Acconci and architect Steven Holl. The narrow triangular gallery space forces visitors to confront the artwork intimately and the panels that they designed, when in their open positions, reinforce this constriction. Holl and Acconci cut twelve panels through the façade that pivot either horizontally or vertically to open up the gallery space to the street and to blur the boundaries between interior and exterior. This allows for numerous façade expressions and a dynamic space because of the various arrangements of panels and because of the unique panel sizes and shapes. The façade can also be changed specifically according to the particular exhibit, time of day, and weather conditions. People passing look in and glimpse the exhibitions inside and are drawn in because of the numerous openings. This provides opportunities for chance encounters between people and art and also activates the street adjacent to the gallery. The panels not only serve as doorways, but are also used as tables, display surfaces, pin-up surfaces, and benches, while also acting to frame views both inside (the artwork) and outside (the city skyline and changing weather conditions) (Figures 6-10). This variety of panel arrangements greatly changes the quality of the interior and exterior spaces. Holl intended the panels to provide a physical connection between people and architecture; “The body is linked to wall forms in the crude way that the shoulder is needed to push space out or pull it in” (Steven Holl in NYC Architecture on http://www.stevenholl.com/project-detail).

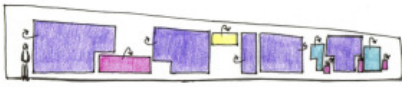
5. Steven Holl and Vito Acconci: Storefront for Art and Architecture
Image Source: *http://www.stevenholl.com/project-detail*



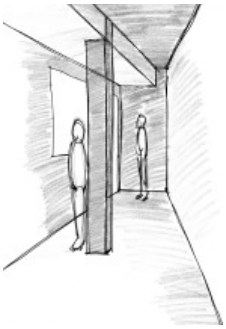
6. Storefront Floor-plan, Steven Holl
Image Source: *Parallax*



7. “Rethinking Hinged Space”, Steven Holl
Image Source: *Parallax*



8. Storefront Functions
Image Source: author

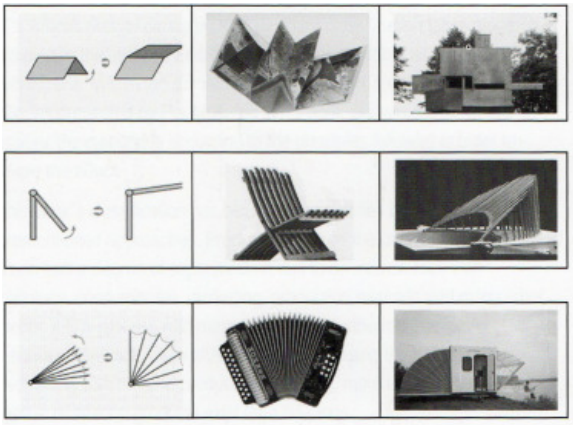


9. Storefront Compres-sion of Space
Image Source: author

10. Storefront Access/Unde-fined Circulation
Image Source: author

Diagrams show some of the ways that objects are transformable (Figure 11). These methods include folding, rolling or sliding, nesting, and tensile and scissor mechanisms, and are applied not only to architecture, but also to furniture and household items.

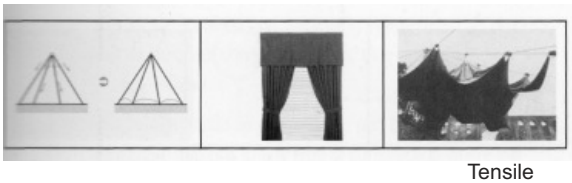
In addition to being transformable, some flexible buildings are also adaptable, meaning that the same space is modified to fulfill specific user requirements, environmental conditions, and different functions, often over time. Adaptable structures are often thought of as “open buildings” with a loose fit of instead of series specifically programmed spaces. Because of this loose fit, many flexible structures are smaller in overall size. The multi-program nature of a flexible building often allows for a smaller footprint than structures with rooms programmed for only a single function, as numerous different programs can be contained in one flexible space. The Igus Factory (Figure 12) is modular and column-free so that building elements and components, like the office “pods”, can be easily relocated. Even individual panels or entire walls can be changed out to allow different programs to happen within the larger space.



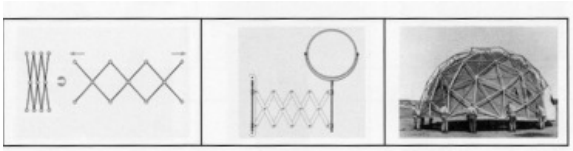
Folding

Nesting

Rolling/Sliding



Tensile



Scissor-Like

11. Transformation Diagrams
Image Source: *Transformations: Paradigms for Designing Transformable Spaces*

12. Nicholas Grimshaw and Partners: Igus Factory
Image Source: http://www.grimshaw-architects.com

In spite of the flexibility of these structures, however, these buildings usually still require dedicated spaces for specific storage, display, or working requirements of the specific users. For example, the storage of one program of the building often cannot be mixed with that of another program because of security, access, different owners, etc, and the users of one program might have different working requirements than the users of another program. The Crate House by artist Alan Wexler (Figure 13) includes all of the typical household amenities packed into one small cube. There are different storage components in each of the four rolling panels, which can be pulled out from the larger storage box when needed or stored away for additional floor space.

13. Alan Wexler: Crate House
Image Source: http://www.allanwexlerstudio.com

rational for flexible architecture

The White Apartment by Parasite Studio in Timisoara, Romania, completed in 2007, show an example of flexible architecture serving the current live-work lifestyle trends of the occupants. Today more people choose to work, live, and relax in the same location, resulting in higher demand for flexible architecture. This apartment was designed for a passionate jazz musician and his family. The white color scheme serves as a backdrop for the rhythm in the paneling, storage cabinets, and operable walls. This rhythm and the colored modulations in the walls were inspired by the idea of music. The space is divisible into separate rooms for working and living, but can be converted to an open floorplan when desired. Additionally, the walls of storage are divided into a aesthetic rhythm but are also carefully designed to hide the specific objects associated with living, working, and relaxing (Figure 14).

14. Parasite Studio: White Apartment
Image Source: http://www.archdaily.com/7715/white-apartment-parasite-studio

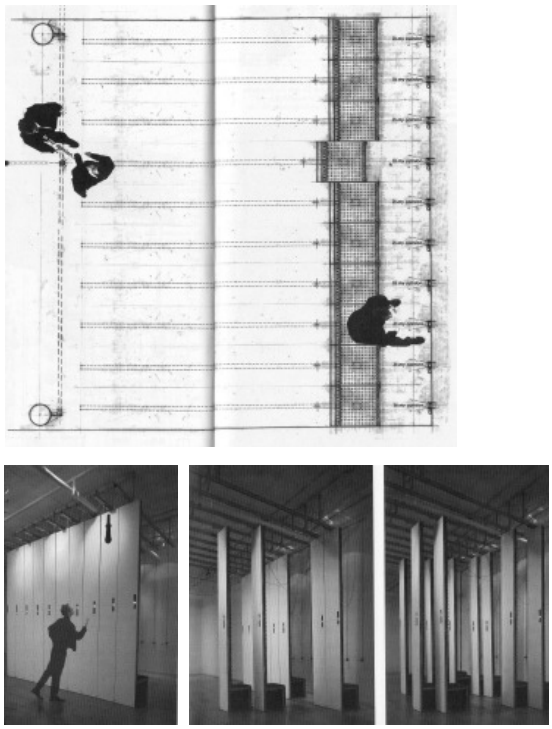
The White Apartment by Parasite Studio in Timisoara, Romania, completed in 2007, show an example of flexible architecture serving the current live-work lifestyle trends of the occupants. Today more people choose to work, live, and relax in the same location, resulting in higher demand for flexible architecture. This apartment was designed for a passionate jazz musician and his family. The white color scheme serves as a backdrop for the rhythm in the paneling, storage cabinets, and operable walls. This rhythm and the colored modulations in the walls were inspired by the idea of music. The space is divisible into separate rooms for working and living, but can be converted to an open floorplan when desired. Additionally, the walls of storage are divided into a aesthetic rhythm but are also carefully designed to hide the specific objects associated with living, working, and relaxing (Figure 14).

Besides meeting current live-work lifestyle trends there are many additional reasons why flexible architecture has gained so much importance in today's architecture. Flexibility is now a necessity to the modern city. Multi-functional buildings and spaces are how our contemporary cities work; buildings can no longer be designed to be single-function and still meet the needs of the various users. This is a reflection of people's current live-work lifestyle trends, space requirements, and economic necessities. Multi-function structures minimize the impact to the physical context, often have smaller footprints and thus can be more easily introduced in existing dense urban environments, while reducing the use of valuable physical resources. "By rethinking standard models and minimizing the size or impact of the structure within its physical context," architects can respond to the "challenge of small…buildings with originality and innovation." (Richardson, 2001, p. 130). This is in keeping with the current movements towards sustainable architecture, in opposition to the throw-away single purpose architecture of the last several decades.

Economically, there is a often a smaller cost associated with these types of structures, and they can be used longer because of their transformable and adaptable characteristics. Urban contexts require architecture that is not only utilitarian, but is also user-friendly, and flexible structures can serve a range of both functional and aesthetic uses.

Flexible architecture is also necessary because of people's compulsions to transform their surroundings. Peter Kronenburg in *Flexible: Architecture that Responds to Change* states that "part of humans' success is our inbuilt need for change and improvement…the design of a building is subject to continuous change, with the ambition of making improvements." (2007, p. 14). Flexible architecture responds to this need and makes changes possible more quickly and inexpensively than by knocking down walls and demolishing entire buildings, which is required to make dramatic changes in traditional single-function buildings. Kronenburg also adds that people like to transform and to rearrange often according to their mood or circumstance (2007, p. 15), which is difficult in traditional architecture but is readily attainable in flexible architecture because of kinetic components. The firm of Lewis Tsurmaki Lewis observed this compulsion in

their “Eavesdropping” installation at Exit Art: The First World in New York City in 1996. The installation was intended to study peoples’ reactions to conversations overheard at the gallery through use of a motorized microphone suspended overhead that was connected to speakers behind ten tall chairs. When positioned in the closed position, these chairs formed a physical wall between the gallery space and the smaller area for eavesdropping. They were also covered in acoustical foam and created a sound chamber. However, visitors often moved the chairs across the room just because they could, which resulted in a breaking the intended sound barrier (Figure 15).



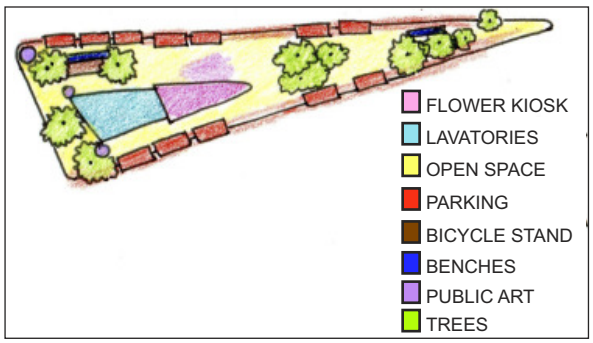
15. Lewis Tsurmaki Lewis: Eavesdropping Installation
Image Source: *Situation Normal…Pamphlet Architecture 21*

Another reason that flexible architecture is so important is to serve the public interest relative to our urban environments. They can act as gathering spaces, reinvigorate urban vitality, and enhance the character of the cities. People look for opportunities to interact with others—they are drawn to places where there is a concentration of people, and this is best achieved with flexible architecture that can bring together many different people to the same place. For example, someone wanting a coffee will linger to chat with the people waiting at the bus stop or buying flowers from the florist if these programs are all in the same location. And that same person will return to that location that night or weekend if there is a different activity being offered that they have use for. Phyllis Richardson says in *XS: Big Ideas, Small Buildings* that "small scale urban interventions [can] produce chance encounters between people and objects" (2001, p. 13) that might not happened with traditional single-function architecture.

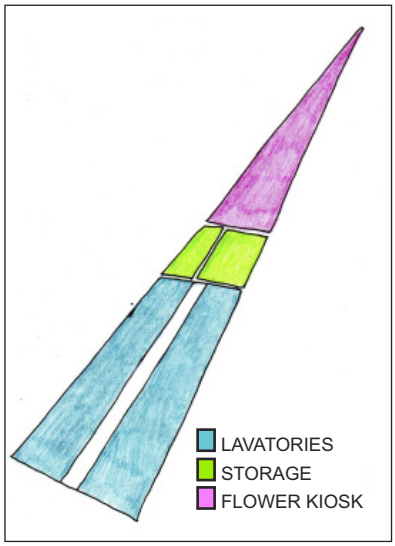
This concentration of architecture can also help solve the need to reinvigorate dead or underutilized spaces to encourage the continued growth of a city. Flexible spaces address local concerns for utilitarian programs but create dynamic, changing environments that can bring together many different types of people to the same spot, which can quickly revitalize the chosen location and completely change its atmosphere. The success of these types of projects serves as an impetus for similar projects in other underutilized places and are beneficial in terms of aesthetics, operating costs, and profit for the area. "Clever design and attention to detail, especially when applied to the elements of our urban…landscape, produce works that become much-needed positive micro-expressions of the aims and aspirations of the community at large." (Richardson, 2001, p. 17). These structures help to impart and determine the character of their city or neighborhood.

An example of flexible architecture serving the public interest is the Public Lavatories and Flower Kiosk in London by the firm CZWG built in the 1990s. This utilitarian project combines two programs usually not associated with each other. The designers also included other beneficial pubic amenities such as bicycle stands, benches, trees, a large clock, and a more efficient parking lot by rearranging the site. By combining flower sales (retail) and public restrooms the architects were able to address pubic needs and improve the quality of life for the local residents and business people. The careful detailing--such as the louvers over the bathrooms that are also a base for a translucent fan overhang reminiscent of the Paris Metro stops, bright materials--such as turquoise glazed brick, natural light, dynamic structure, and cheerful graphics—(the dancing man and woman silhouettes on the bathroom doors and the large clock face)-- give the utilitarian structure much aesthetic appeal (Figures 16-20).

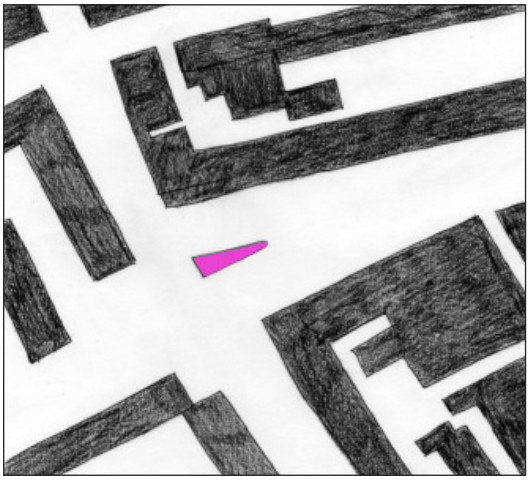
16. CZWG: Public Lavatories and Flower Kiosk
Image Sources: http://3xarc.com/portfolio.php?arch_id=1&sector_id=4&project_id=49, *XS: Big Ideas, Small Buildings*



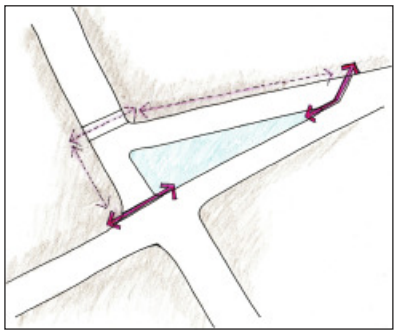
17. Public Lavatories and Flower Kiosk: Site Plan
Image Source: author



18. Public Lavatories and Flower Kiosk: Zoning
Image Source: author



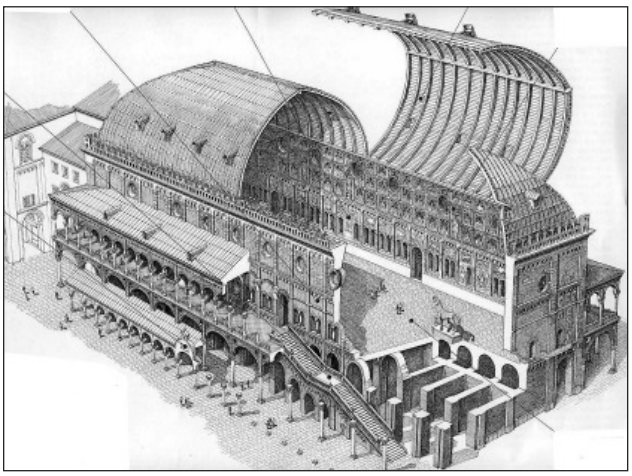
19. Public Lavatories and Flower Kiosk: Figure/Ground
Image Source: author



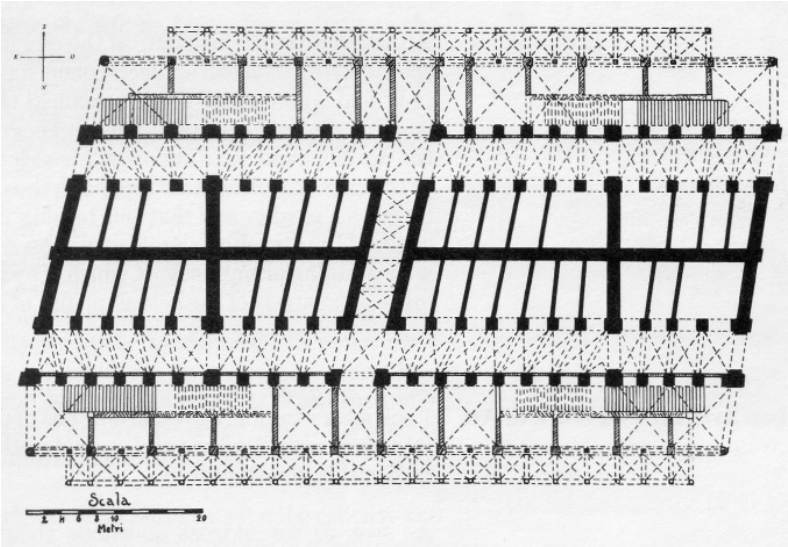
20. Public Lavatories and Flower Kiosk: Access
Image Source: author

Finally, flexible architecture is important to a city's continual vitality not just at the time that it is built and designed for, but also to respond to the changing conditions of the site and the city in the future. As mentioned previously, flexible architecture has a greater capacity to respond to the needs of its users than traditional architecture, and similarly also has a greater capacity to evolve over time and respond to an even greater range of needs. An important aspect of this thesis is how a small scale urban intervention can make positive changes to the larger urban environment, not just at the time that it is planned, but also throughout time as it responds to the changing needs of the city.

Aldo Rossi described this capacity to evolve over time when he illustrated the physical and programmatic changes that have happened over many centuries to the Palazzo della Ragione in Padua, Italy. "[B]y permanence I mean not only that one can still experience the form of the past in this monument but that the physical form of the past has assumed different functions and has continued to function, conditioning the urban area in which it stands and continuing to constitute an important urban focus" (Rossi, 1982, p. 59). The building was first designed to be a town hall to serve as the seat of justice in the twelfth century (Figure 21), but in the fourteenth century the three upper-level rooms were turned into one grand space with the addition of an overarching roof. This allowed the building to also function as a social and commercial space. Over the years the arcade along the bottom level was filled in with various retail and food shops and the plaza in front of the hall now acts as a marketplace (Figures 22-24).



21. Palazzo della Radione, Padua, Italy, ca. Twelfth Century
Image Source: www.skyscrapercity.com



22. Palazzo della Radione: Ground Floorplan as it Exists Today.
(Thirteenth century walls in black.)
Image Source: *The Architecture of the City*

23. Markets at the Palazzo della Radione
Image Source: www.skyscrapercity.com

24. Temporary Markets Outside of the Palazzo della Radione
Image Source: www.skyscrapercity.com

A second example of a space responding flexibly to different needs over time are the Hinged Space/Void Space apartments in Fukuok, Japan by Steven Holl, built from 1989-1991 (Figure 25). These apartments were designed purposely with both diurnal and episodic changes already planned: hinged doors, panels, and cabinets allow the living room to expand during the day but to form bedrooms at night, and rooms can be added or subtracted at a future point to accommodate growing families or children moving out. Thus each apartment can be personalized to accommodate the needs of its users.

25. Steven Holl: Hinged Space/Open Space Housing
Image Sources: www.stevenholl.com/project-detail, *Intertwining*

EXPERIENTIAL CONNECTIONS WITH ARCHITECTURE

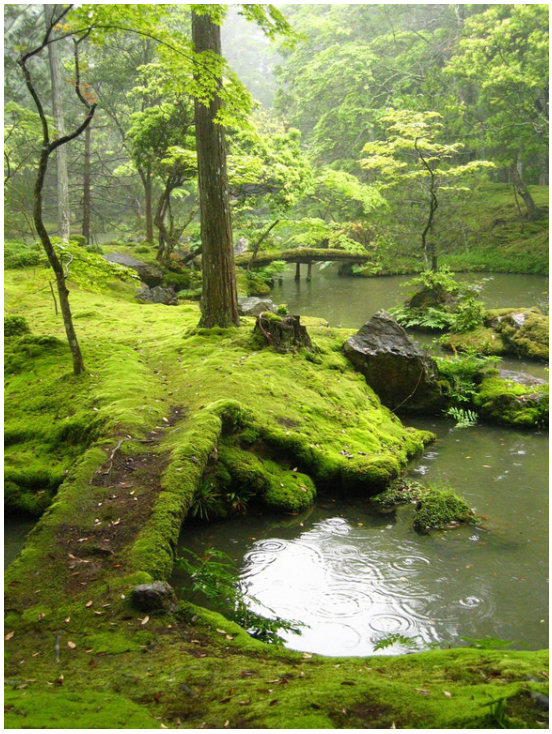
the senses

"Architecture, more fully than any other art forms, engages the immediacy of our sensory perceptions. The passage of time; light, shadow and transparency; color phenomena, texture, material and detail all participate in the complete experience of architecture."
--Steven Holl

In spite of the above statement, Juhani Pallasmaa, author of "An Architecture of the Seven Senses", argues that traditional architecture is typically experienced predominantly through the visual sense and thus flattens into a two-dimensional snapshot (1994, p. 27-37). This is particularly true with traditional single-function buildings that become stagnant and expected, and are often designed with most attention given to the frontal perspective that will be "flattened" to look best in photographs. However, with flexible architecture that has operable, kinetic components, people's other senses are engaged much more directly and frequently. People must lift the panels, feel the texture of the walls as they push them, see the light changing as portions are opened, associate the scale of their body to the things they are encountering, and so forth. In this way, people have the opportunity to "participate in the complete experience of architecture" that Holl described.

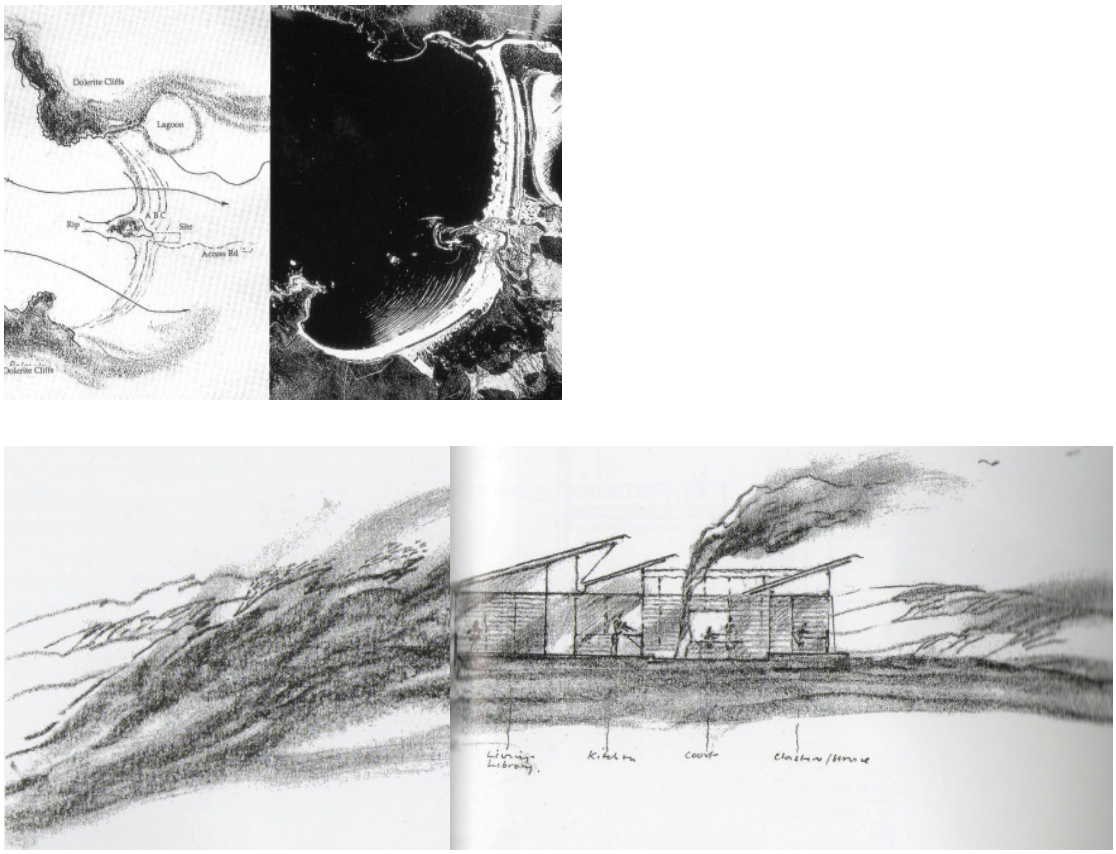
People increase their connection to a structure and to the environment it creates by engaging their other senses and physically interacting with the space. "A real architectural experience is not simply a series of retinal images; a building is encountered – it is approached, confronted, encountered, related to one's body, moved about, utilized as a condition for other things, etc." (Pallasmaa, 1994, p. 35). The other individual senses are also very important in people's experience of architecture. People "read" the texture, weight, and temperature of materials through their skin. They measure the scale of a space through the echo of sound on its surfaces, which is made even easier in the small footprint that flexible architecture often takes. Pallasmaa claims that "[w]e stroke the edge of the space with our ears." (1994, p. 31). He also states that the strongest memory of a space is often its scent, given off by the materials used, the activities conducted there, the organic landscaping elements, etc. People often are reminded of home when they smell a particular scent that is tied to that place, such as the musky odor of old wooden floors or the apple pie that their mother cooked. Even taste is influential because it is so closely tied to tactile and visual experiences (such as the smooth white polished marble floor that once tempted Pallasmaa to kneel and touch it with his tongue) (1994, p. 37).

All the senses reinforce each other for a richer experience. People do not measure space and scale only with their eyes, but also with their ears, nose, skin, and tongues. A walk through a traditional Japanese garden (Figure 26) is relaxing and invigorating because all of the senses reinforce and complement each other. People remember not only the look of the garden, but the sound of the trickling waterfall, the feel of the bamboo stalks against their fingers and the smooth paving stones underfoot, the smell of the lush peonies, and the taste of the air rich with all of those organic elements. A building can “come alive” and become animated through the interaction of all of these senses.



26. Japanese Garden.
Image Source: http://photos.gardenweb.com/garden/galleries/2006/09/japanese_garden_pond.html?cat=great_gardens

A house that Richard Leplastrier designed in 1996, Cloudy Bay Retreat, in Bruny Island, Tasmania, sits as low to the ground as possible in the wind-sheared landscape to avoid the winds of the Roaring Forties (near Antarctica). The roofs are pitched at a steep angle so that the ferocious winds roll off of them. It is easy to image someone fully engaging all of their senses in this house; the push of the terrific winds against the side of the house, the sound of precipitation battling the roof, and the smells of the nearby sea and the fire from the chimney swept along by the wind. This would surely increase their connection to that space and create a memorable and meaningful environment (Figure 27).



27. Richard Leplastreir: Cloudy Bay Retreat
Image Source: *Richard Leplastreir: Spirit of Wood Architecture Award 2004*

A recent commercial mixed-use facility is the Plant Zero Arts Center in Manchester, VA. The building was an old paper plant that has been converted into numerous working studios for sculptors, metal smiths, painters, photographers, woodmakers and filmmakers, a nonprofit gallery space, various exhibition spaces, loft apartments, and the San Marco Cafe. Many of the original architectural features and materials were left in place: the skylights over the studios let in a great deal of natural light, the smooth concrete floors show the age of the paper plant in stains and dents, and the wooded joists groan regularly as the building shifts (Figures 28-30).

28. Plant Zero Arts Center Exhibition Space
Image Source: http://www.venturerichmond.com/downtown/projects-manarts.html

29. Plant Zero Arts Center Skylights
Image Source: freenet.vcu.edu/arts/artspace/aboutus.htm

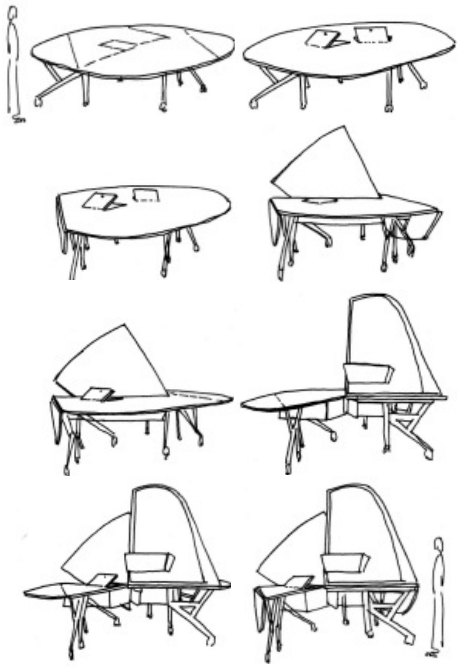
30. Plant Zero Arts Center Courtyard
Image Source: author

scale

"I confront the city with my body; my legs measure the length of the arcade and the width of the square; my gaze unconsciously projects my body onto the face of the cathedral…The city and my body supplement and define each other. I dwell in the city and the city dwells in me."
--Juhani Pallasmaa

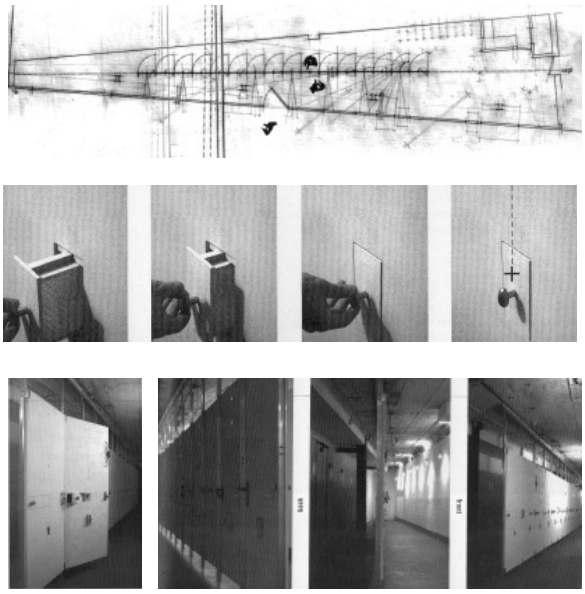
The various senses measure space and make its scale comprehensible to its users. Ancient designers actually used their body as a measuring and proportioning system for their buildings. Smaller structures are on a human scale that can be more easily interacted with and is more intimate and personalized;"[t]he miniaturization of an architecture reduces it to a human scale with which [people] can interact more easily." (Richardson, 2001, p. 9). The eye measures distances and separation, particularly in stagnant single-function architecture, but being able to physically interact with kinetic components in flexible architecture offers instead closeness and intimacy.

Enric Miralles' table is an example of flexible design at a very small scale. Regardless, though, it still fulfils a multitude of purposes. Besides only serving the typical purposes of dining, working, and meeting, the table also physically changes to provide vertical display/pin-up surface, vertical privacy divisions, spots to support laptop computers, specific storage for working, and serves as a sculptural art piece (Figure 31).



31. Miralles Table: Unfolding Diagrams
Image Source: author

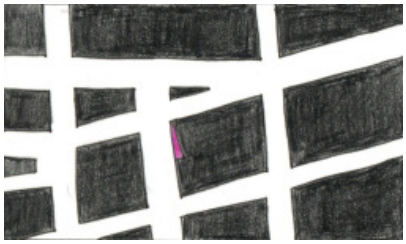
At a slightly larger scale--the scale of a room--the “Pull of Beauty” installation by the firm Lewis Tsurmaki Lewis at the Storefront for Art and Architecture in New York City in 1996 featured a row of conventional doors, with 150 architectural hardware pieces mounted on them, positioned together as a wall down the middle of the gallery space. The architects say that their aim in the installation was to orient the hardware in a recognizable yet alienated relationship to their intended purpose. The locations of the hardware played with scale; for example, the doors were raised off of the floor so that doorknobs that would normally be at waist height were actually at eye height. “Through its engagement with the viewer’s body, the display established a fluctuating condition in which the assembled pieces alternated between utilitarian and aesthetic readings.” (Lewis, 1998 p. 46). The wall of doors divided the already constricted gallery space down the middle, which created a tension between the doors as a wall of display and as a series of doors intended to be operable passageways. Many of the knobs and levers were operational and worked conventionally, but others opened drawers that were upside down or in other cases opened to reveal additional hardware (Figure 32).



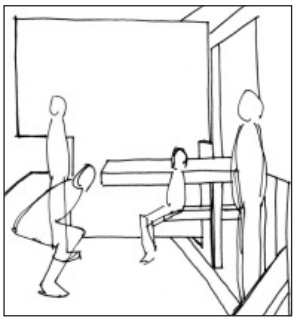
32. Lewis Tsurmaki Lewis: Eavesdropping Installation
Image Source: *Situation Normal…Pamphlet Architecture 21*

The Storefront for Art and Architecture façade, mentioned earlier, is flexible architecture working at the scale of a neighborhood. The gallery is located on the corner of a busy New York City block. The pivoting panels open up the gallery space to the street and to blur the boundaries between interior and exterior. Steven Holl said that the idea behind the façade was that “the city infiltrates the gallery, that the gallery is not a world unto the artist and gallery director only, not an autonomous division from the street, but that the street meets this elite world and they merge” (Futagawa 1996, p. 37). People passing look in and glimpse the exhibitions inside and are drawn in because of the numerous openings. This provides opportunities for chance encounters between people and art and also activates the street adjacent to the gallery (Figures 33-36).

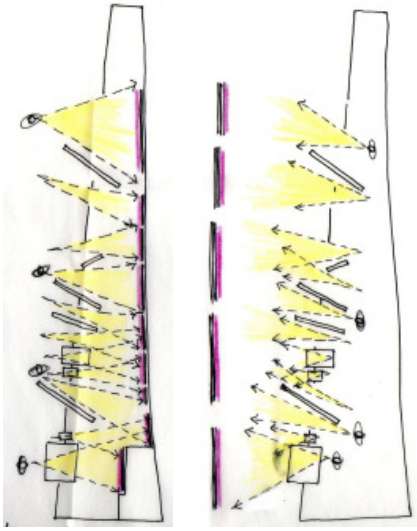
33. Storefront for Art and Architecture: Facade Definition



34. Storefront for Art and Architecture: Urban Figure/Ground



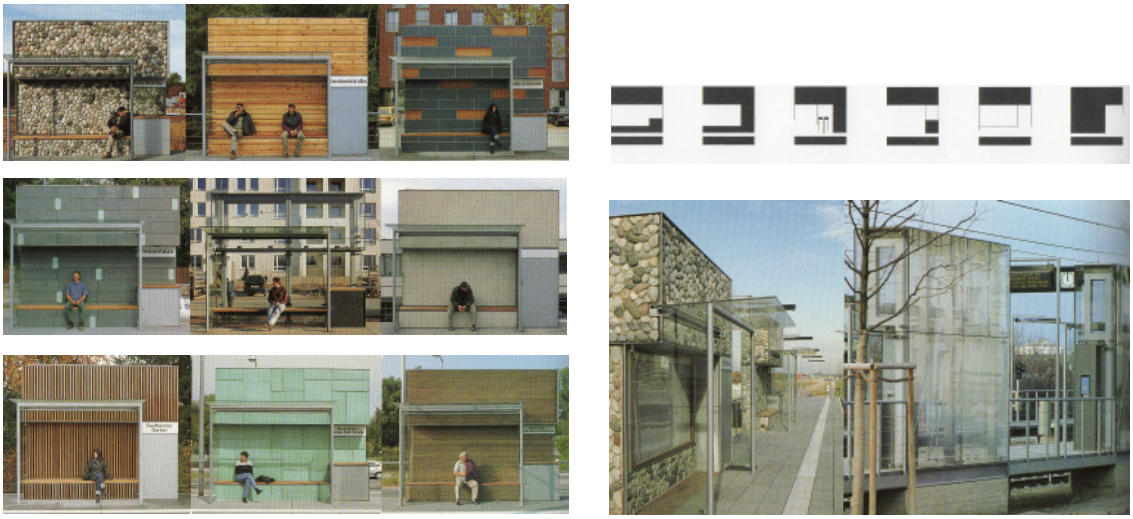
35. Storefront for Art and Architecture: Scale Diagram



36. Storefront for Art and Architecture: Views In and Views Out
Image Source: author

materiality

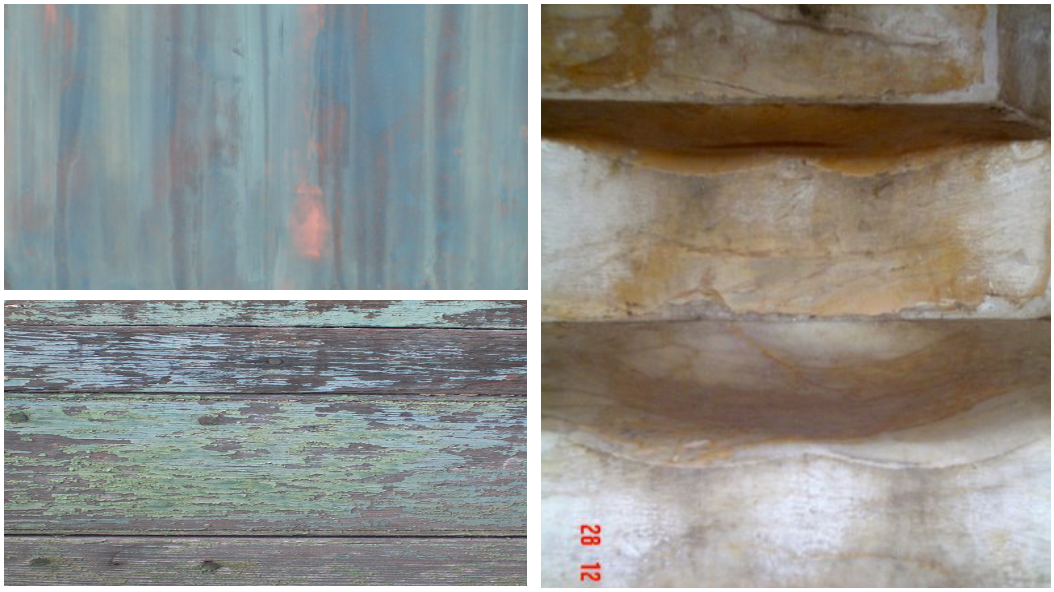
Martin Despang's metro stops in Hanover Germany, begun in 1999, illustrate how important materiality is for engaging the senses in experiential architecture. He developed a system of structures that could be built according to the specific needs of the site and in a range of materials. There are six variations of the stations that each incorporate different arrangements of display, seating, and standing areas. Although each station is based on the same form, each is covered in a different material. These materials reflect each location's individual character. The materials include dry-pressed brick, basalt slabs with glass inlays, prepatinated copper, stone cladding, glass sheets, satin-finished glass blocks, larch strips, stainless steel mesh, and pre-cast concrete (Figure 37). All built-in elements are flush-fitted and all materials were lab-tested for durability so that each station will last and also be vandal-resistant. "To the urban passengers… the shelters Despang describes as 'urban punctuation' present bold exclamation points of pleasant surprise." (Richardson, 2001, p. 115).



37. Despang Architekten: Metro Stops
Image Source: *XS: Big Ideas, Small Buildings*

patina + tactility

Since one objective of flexible architecture is to respond to the needs of users not only at the time of its construction, but also in the future, the patina of the materials is an important factor because it shows the time and usage of the structure and materials as they age. “Patina is everything that happens to an object [or building] over the course of time. The nick in the leg of a table, a scratch on a table top, the loss of moisture in the paint, the crackling of a finish or a glaze in ceramics, the gentle wear patterns on the edge of a plate. All these things add up to create a softer look, subtle color changes, a character ” (Israel Sack in *History Detectives*) (Figure 38). In addition, smaller structures often have a more tactile quality than other buildings because of the nearness of the surfaces, which also reminds the users of the aging of the structure over time. “The tactile sense connects us with time and tradition; through marks of touch we shake hands with countless generations.” (Pallasmaa, 1994, p. 33).



38. Patina
Image Sources: http://www.tlccreationsetc.com, http://www.flickr.com/photos, http://picasaweb.google.com

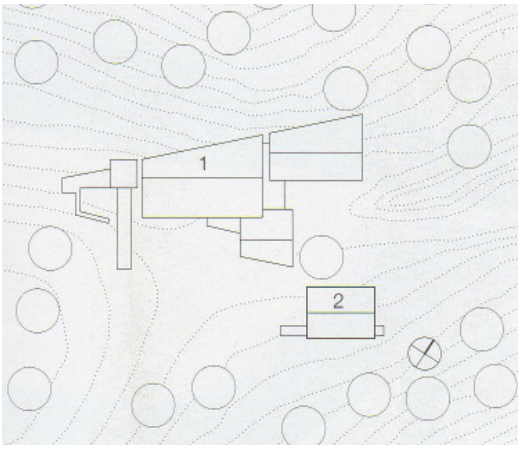
intimacy of detail

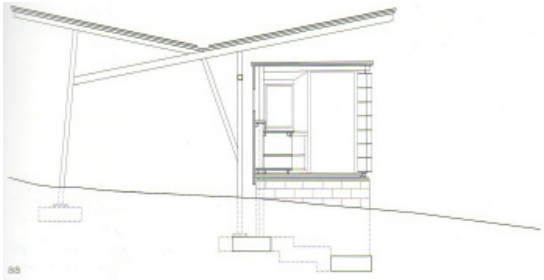
As mentioned previously, flexible structures are often smaller in scale. Buildings of this size typically include more detail and consciousness of craft because of the care that must be taken in regards to space planning and resources. There is also typically specific, detailed construction required for flexible architecture to insure that it operates easily and reliably yet still meets the constraints of weather, storage, etc. "[People] are...drawn to the intricacy of {these building's} conception and detail and by the fact that smaller buildings usually possess a more tactile quality." (Richardson, 2001, p. 9).

ADDITIONAL PRECIDENTS

marlon blackwell: moore honeyhouse

The Honeyhouse in Cashiers, NC, designed in 1999 by Marlon Blackwell was designed as two adjoining structures for a beekeeper (one for processing/displaying honey, and one as a covered carport/outdoor work area) located near her house in Cashiers, North Carolina. Blackwell saw the building as a “utilitarian container” and was inspired by the form and structure of a honeycomb. The primary building has dedicated storage, counter space for processing, and shelving for display of the honey. This is done in the feature wall, which serves multiple programs as not only a display, but also as a filtered light source and part of the structure of the building. This wall is oriented to southeast to capture lots of daylight for the work area. The structures’ materials include wood slats, clear-coated steel, glass, and steel with an aged patina. The patina of rusty metal and the wood will show the gradual aging of the structures. The building’s small size (2.45m x 7.3m) allows the beekeeper to easily access all of the programs at arm’s length (Figure 39).

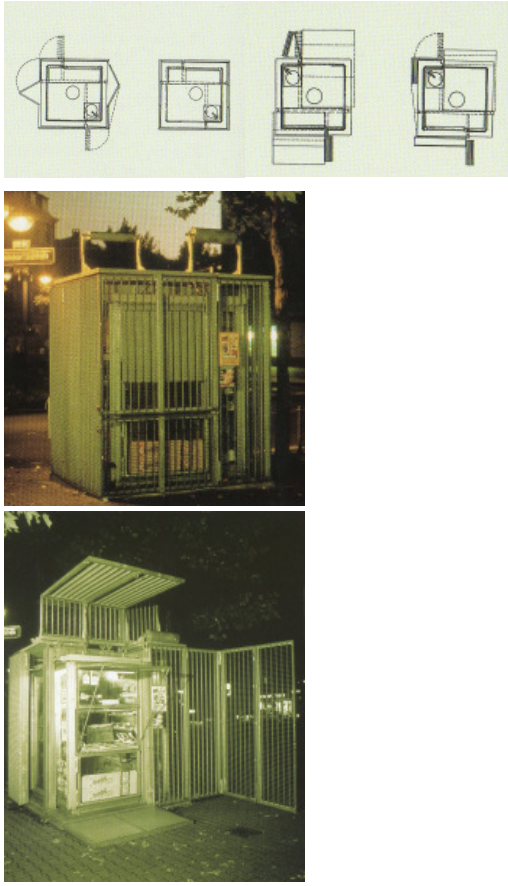




39. Marlon Blackwell: Moore Honeyhouse
Image Source: www.marlonblackwell.com,
‘Honey House’ in Cashiers’

jorg joppien: newspaper kiosk

Jorg Joppien was inspired by temporary traditional produce stands in nearby Schweizer Platz to create his permanent newspaper stand in Frankfurt, Germany. The structure is covered by operable metal grating that is resistant to graffiti and break-ins, but that folds back and up to reveal a glass cube inside that allows all of the merchandise to be displayed during operating hours. The metal panels fold up in a distinctive profile that provides overhangs for outdoor display racks and shade and implied enclosure for customers. The small footprint allows just enough space for the operator to have a chair and small desk and to display the newspapers and merchandise (Figure 40).



40. Jorg Joppien: Newspaper Kiosk
Image Source: *XS: Big Ideas, Small Buildings*

DESIGN

site: world's fair park, knoxville, tn

history

Knoxville, Tennessee was the home to the 1982 World's Fair. The World's Fair was built on the site of the abandoned L&N rail yard and some adjacent industrial lots. The fair drew over 11 million visitors but fell far short of the projected $5 million profit. The Sunsphere, a 266 foot steel tower topped with a five-story gold globe, was designed as the signature structure for the Fair (Figure 41). World's Fair Park closed at the Fair's completion in October 1982 and was not reopened to general events and concerts until 2002. The Sunsphere's observation deck was not reopened to the public until 2007.

41. 1982 World's Fair
Image Source: www.ktnpba.org/departments/pm_sites/wfp.htm

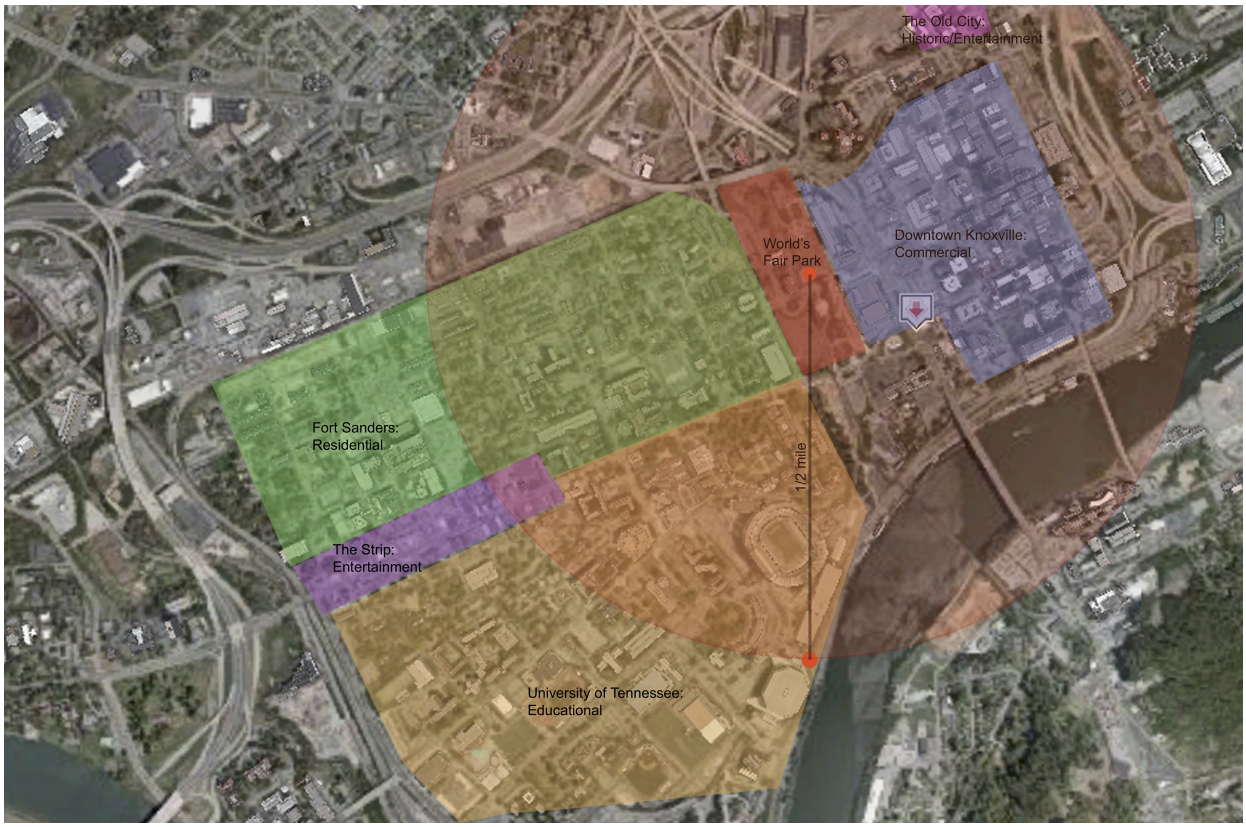
current conditions

The current Work's Fair Park holds several large yearly events including Earth Fest, Greek Fest, Brewer's Fest, and a 4th of July celebration. The park includes several landscaped gardens, water features, and large grass lawns. The Park was chosen as the site for the architecture project for several reasons. Other than the large festivals, it is underutilized much of the year, mainly because it is so hard to access. Also, there are not currently many amenities at the park (Figure 42). Finally, the Park is a gateway to both Fort Sanders and to downtown Knoxville and it can become an important link between the other activity zones at the Strip and downtown.

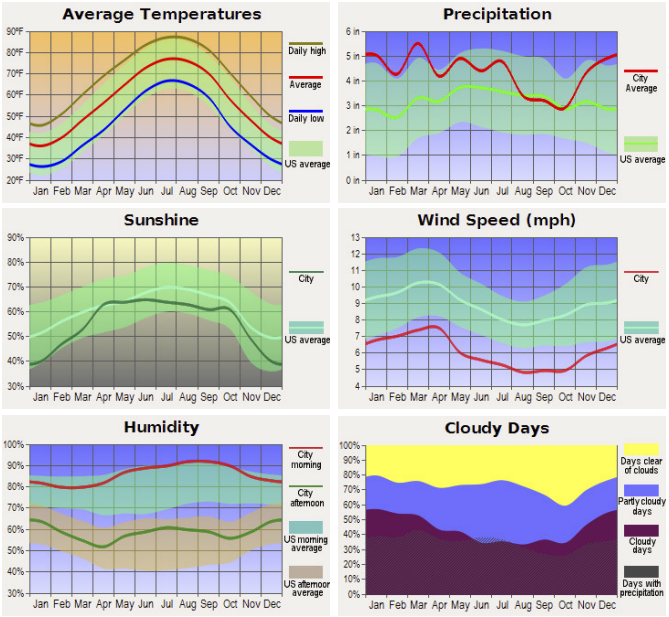
42. Current "Amenities" of Site
Image Source: author

diagrams of knoxville, tn

43. World's Fair Park, Knoxville, TN
Image Source: *Virtual Earth*



44. Zoning of Knoxville, TN
Image Source: author

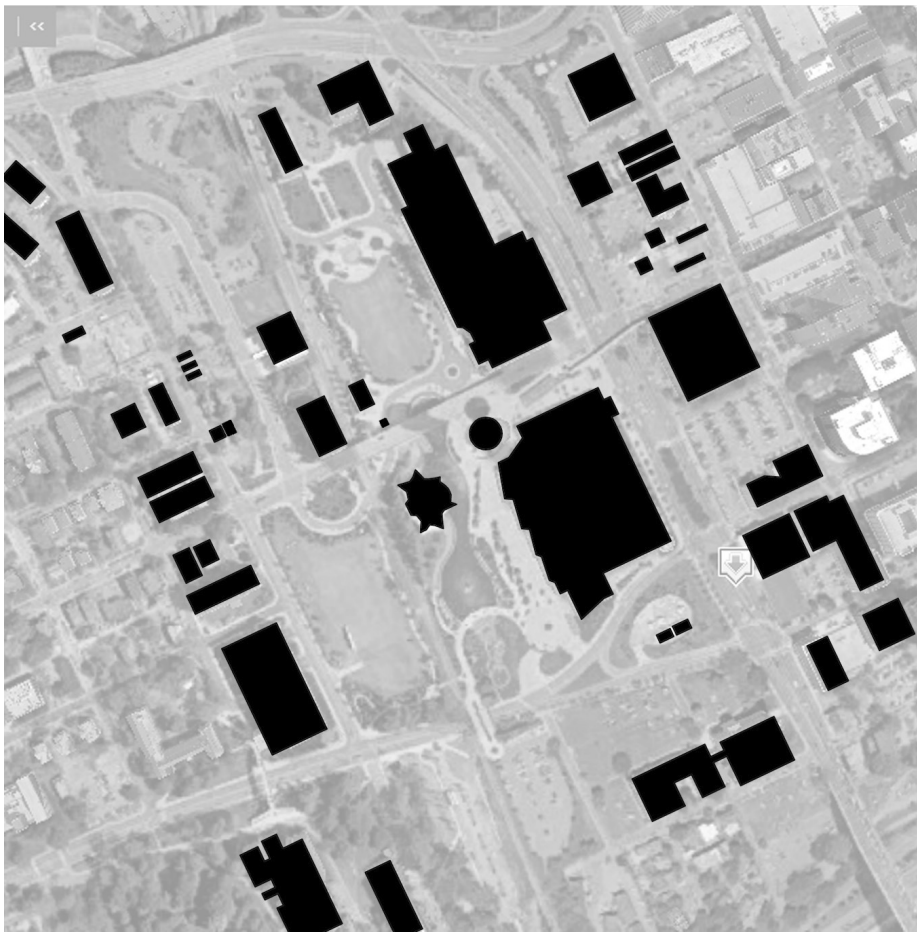


45. Climate Data of Knoxville, TN
Image Source: http://www.city-data.com/city/Knoxville-Tennessee.html.

46. Entertainment and Greenspace Zones
Image Source: author

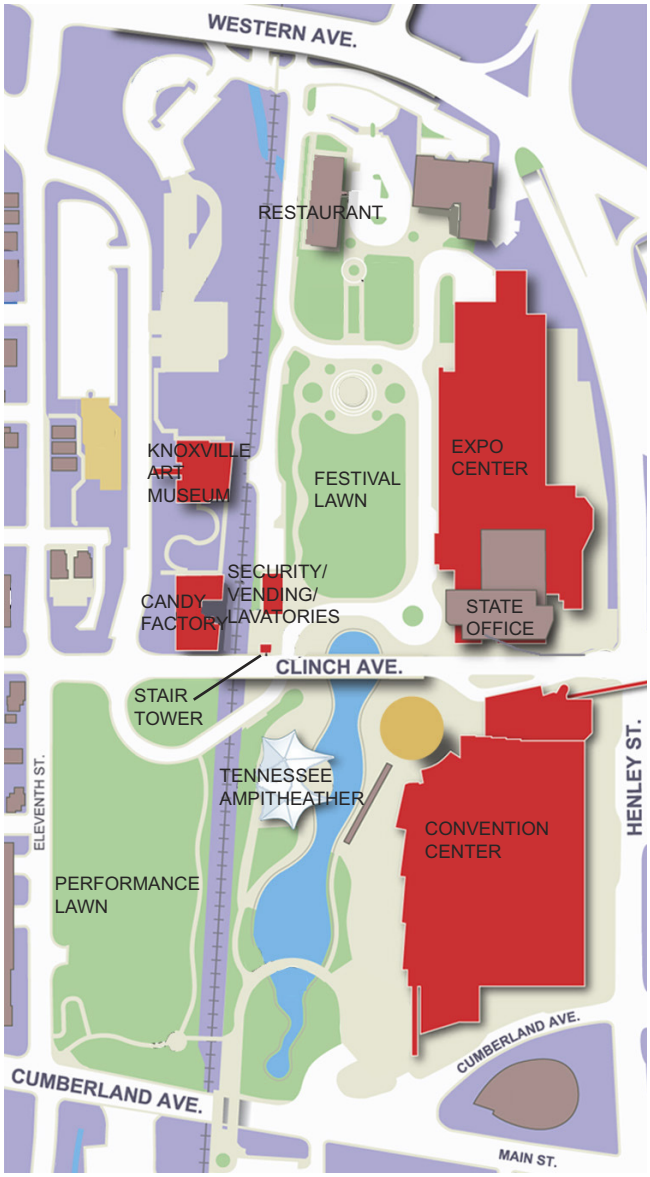
Trolley Lines:
Orange Line: 7:00 a.m.—6:00 p.m. weekdays, every ten minutes
Purple Line: 6:00 p.m.—3:300 a.m. Friday and Saturday (August—May), every fifteen minutes

47. Trolley Routes
Image Source: author

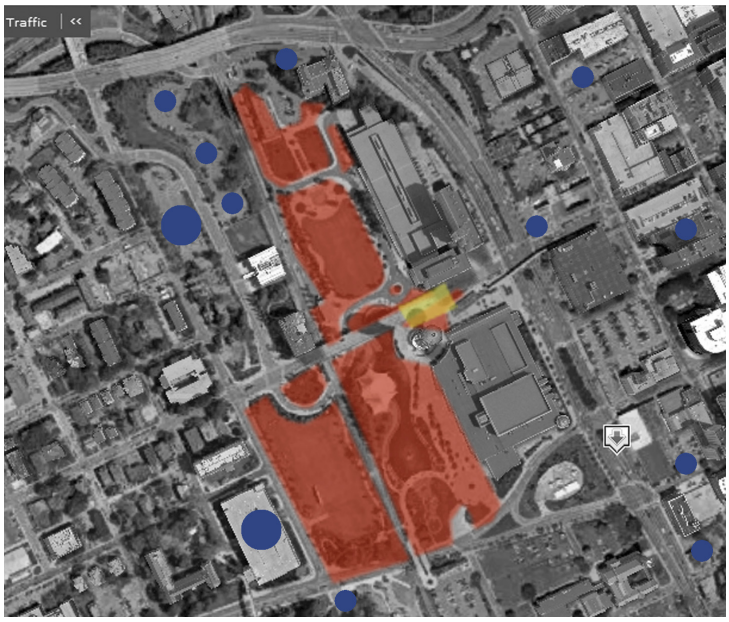


48. Figure/Ground of Downtown Knoxville
Image Source: author

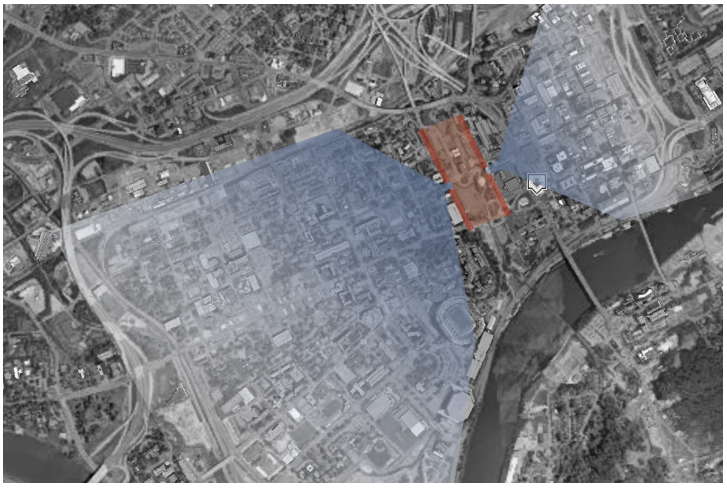
diagrams of world's fair park



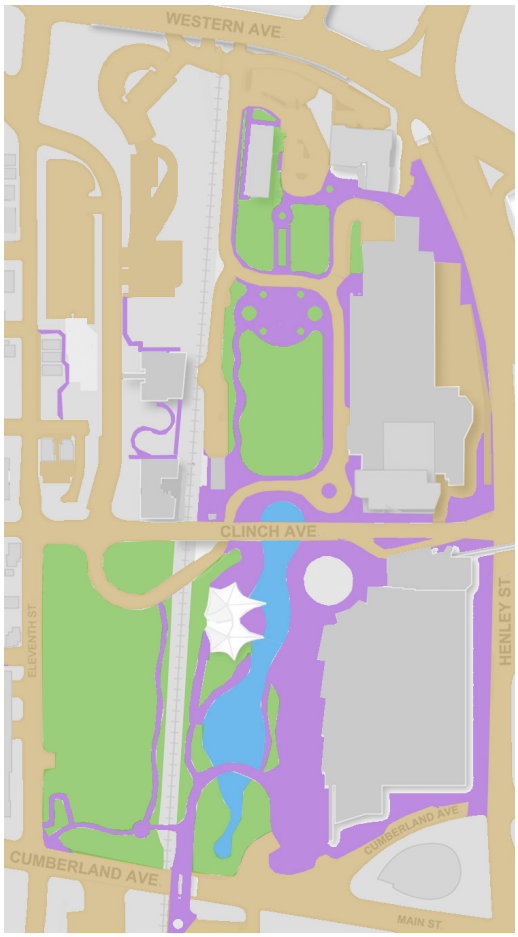
49. Map of World's Fair Park
Image Source: author



50. Parking at Site
Image Source: author



51. Site as Threshold
Image Source: author



53. Lack of Access to Site
Image Source: author

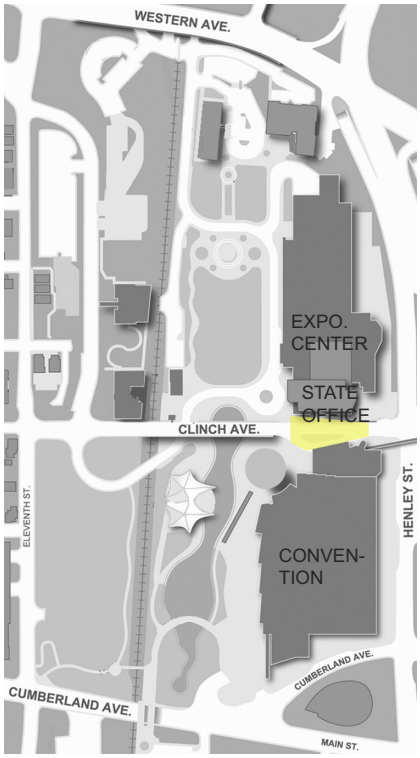
ROADS
WATER
PAVING
GREENSPACE

52. Zoning of World's Fair Park
Image Source: author

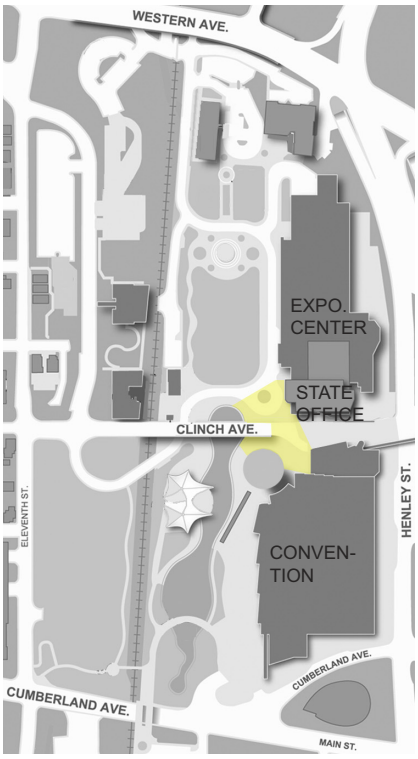
54. Water/Electricity Access
Image Source: www.worldsfairpark.com

selected site

The selected site within World's Fair Park is located at the East end of the Clinch Avenue Bridge, between the Exposition Center and Hotel and the new Convention Center. The site covers two levels; the upper level (or City Level) is on grade with the bridge itself and is thirty feet above the Park. The lower level (or Park Level) is below the bridge at the base of the Sunsphere and beside the artificial creek. This site was chosen because of its location at the threshold of the park, its vehicular and pedestrian access via the Clinch Avenue Bridge and the pedestrian bridge over Henley Street, and its visibility on both levels of the park. Challenges of the site include the change in elevation, the vehicular access directly through the middle of the site, and the small buildable area.



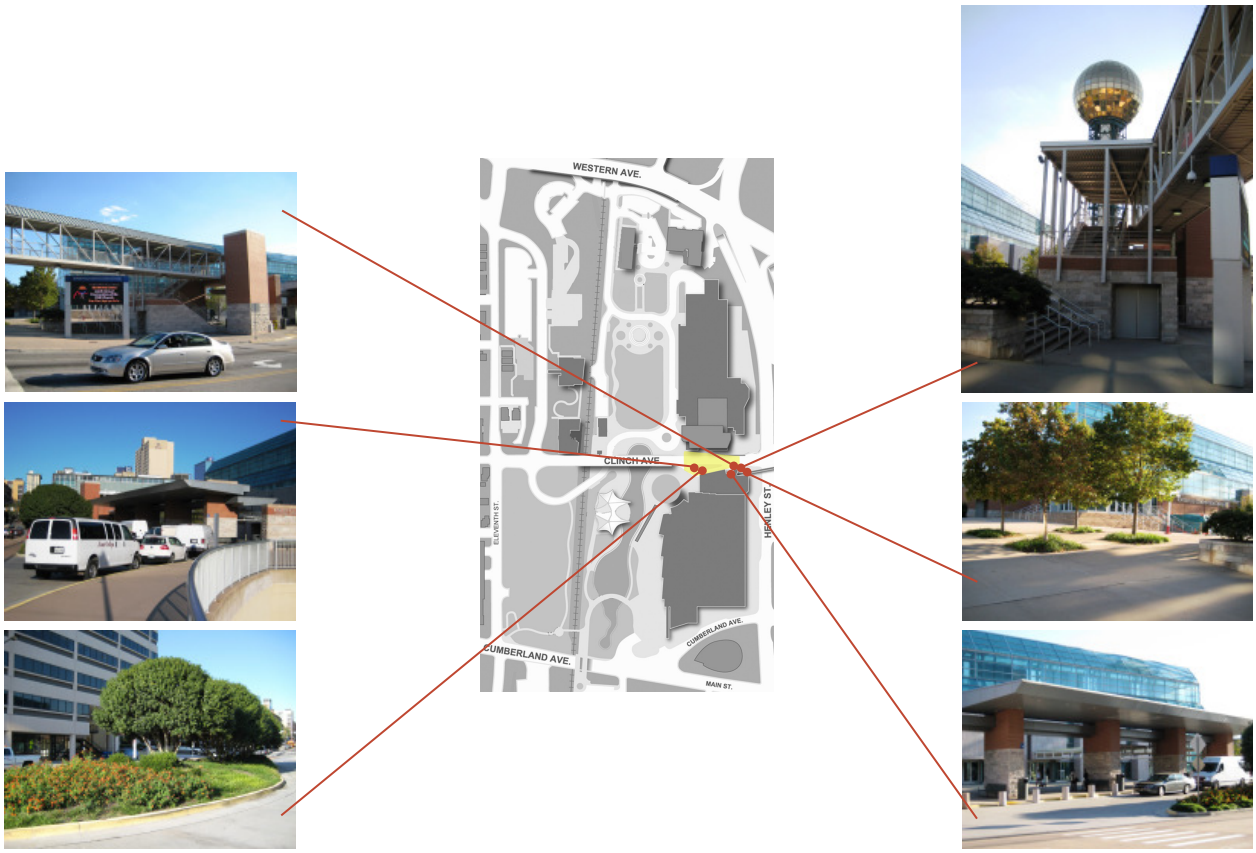
55. City Level of Selected Site
Image Source: author



56. Park Level of Selected Site
Image Source: author

diagrams of selected site

57. Views from City Level of Selected Site
Image Source: author



58. Views into City Level of Selected Site
Image Source: author

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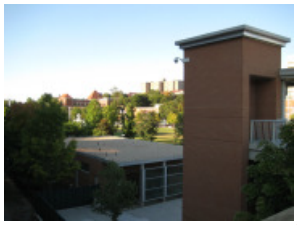
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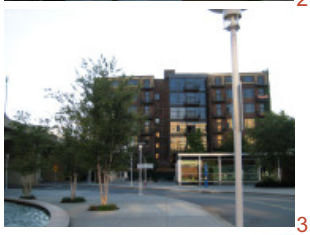
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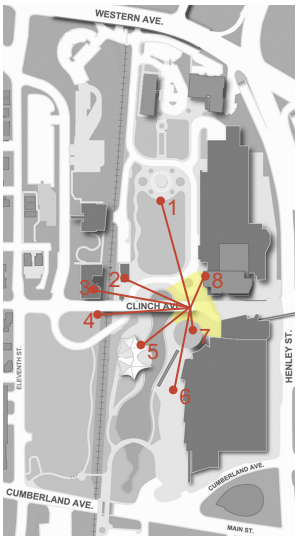

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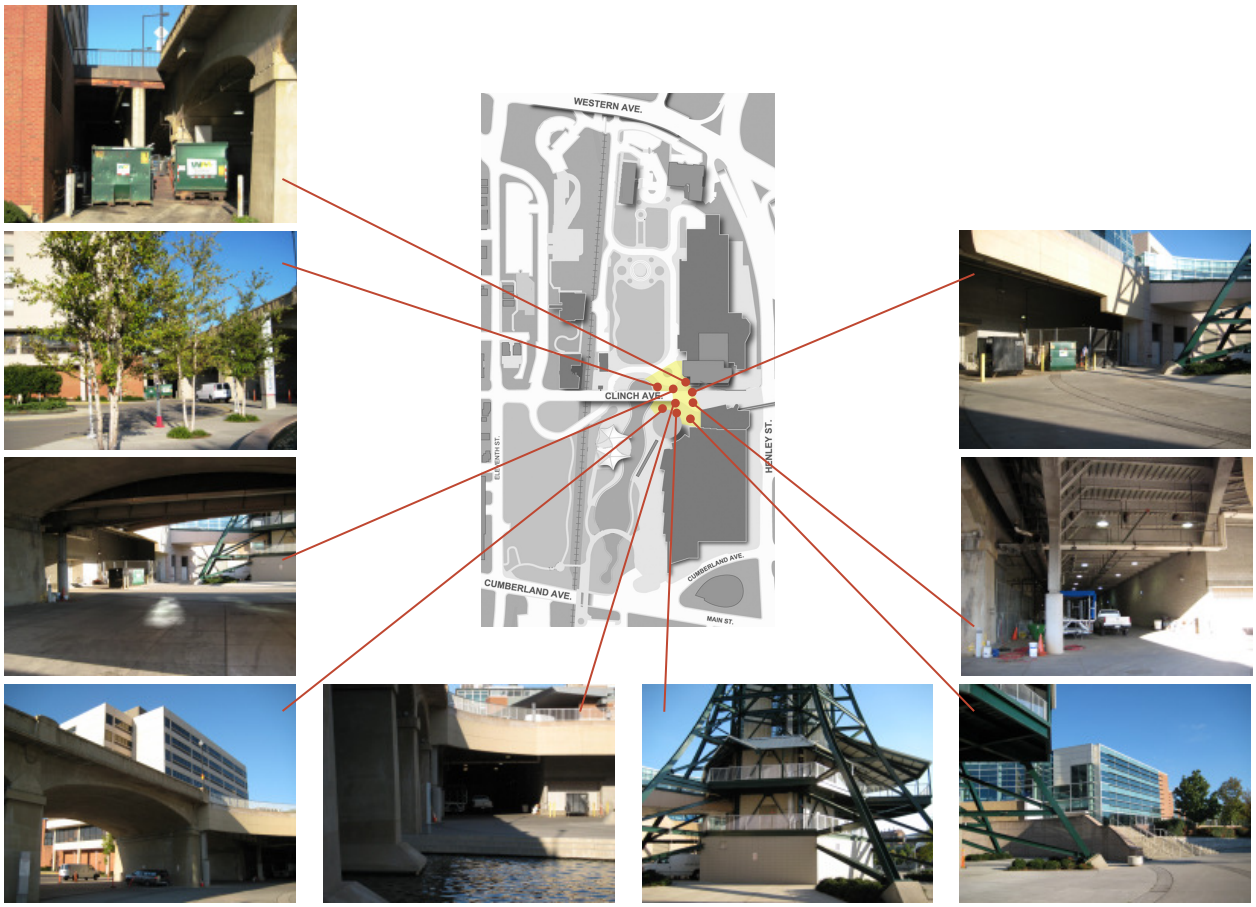
59. Views from Park Level of Selected Site
Image Source: author



60. Views into Park Level of Selected Site
Image Source: author

amenities

Multi-Program, Flexible Amenities:

A. Flexible Markets (rotating programs)

B. Lunch Cafe (day)/Bar (night)

C. Multi-Purpose Theater

D. Outdoor Piazza

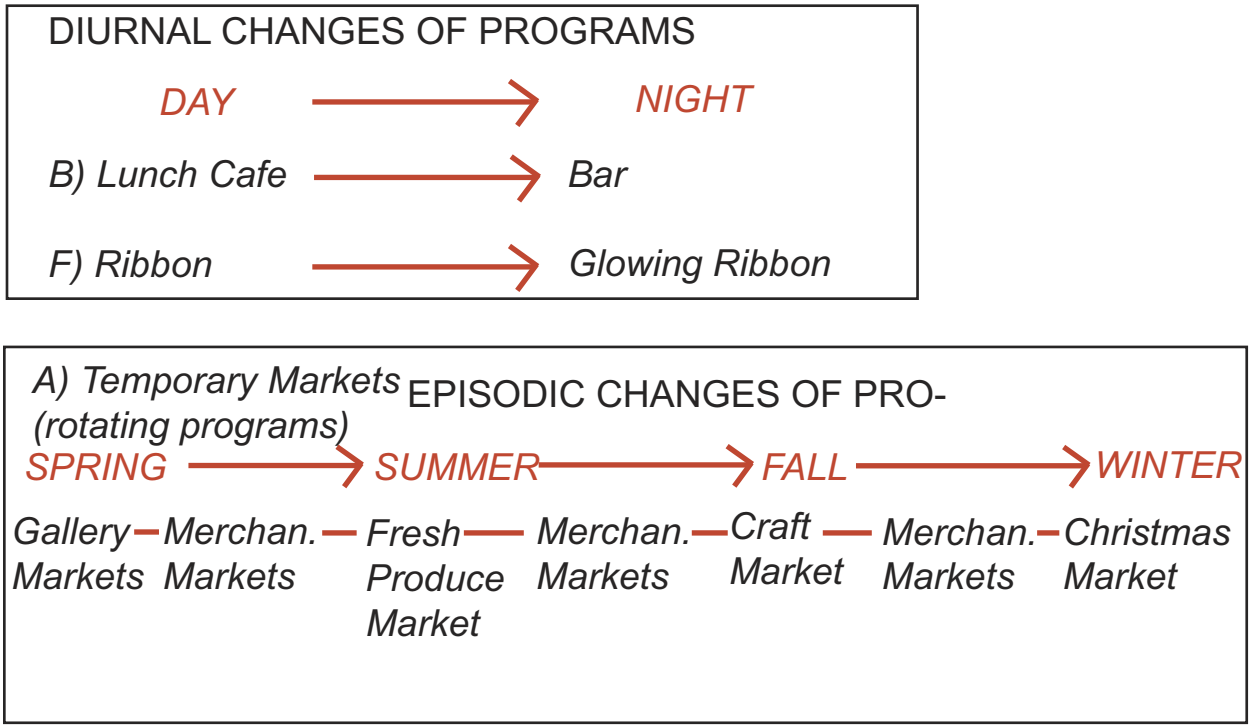
Single-Program Amenities:

E. Newspaper/Coffee Cafe and Bookstore

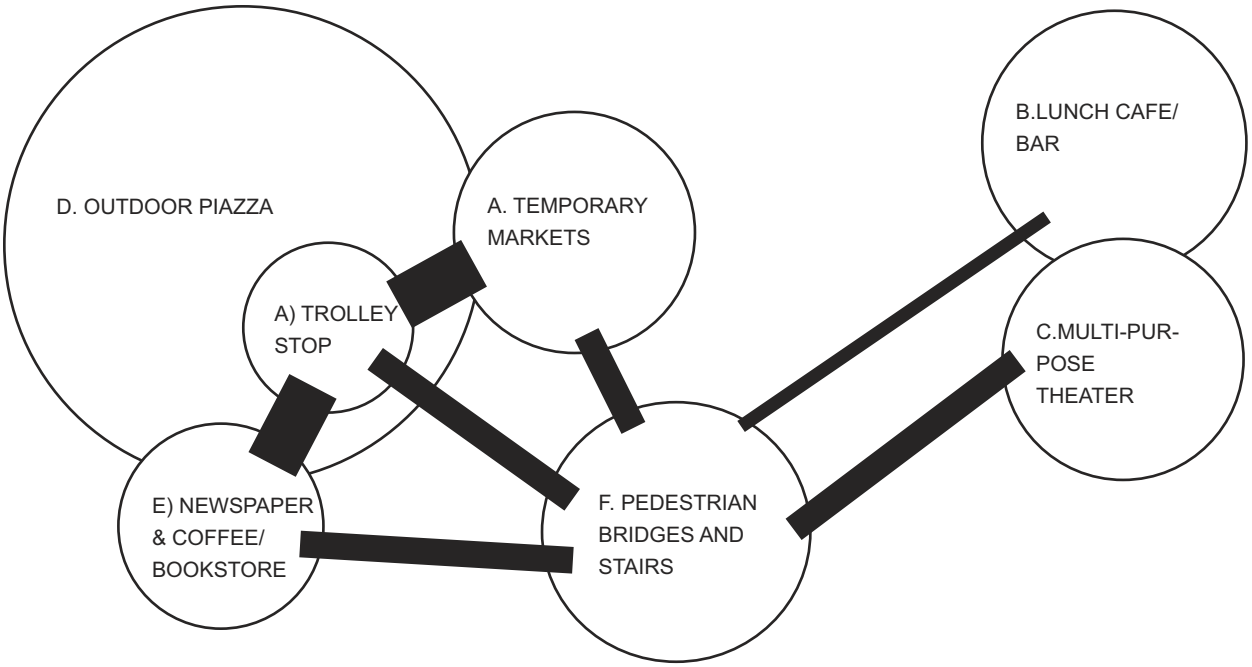
F. Pedestrian Bridges and Stairs

61. Examples of Proposed Amenities
Image Sources: http://www.cemusany.com/web/en/indexnyc.aspx, *XS: Big Ideas, Small Buildings*

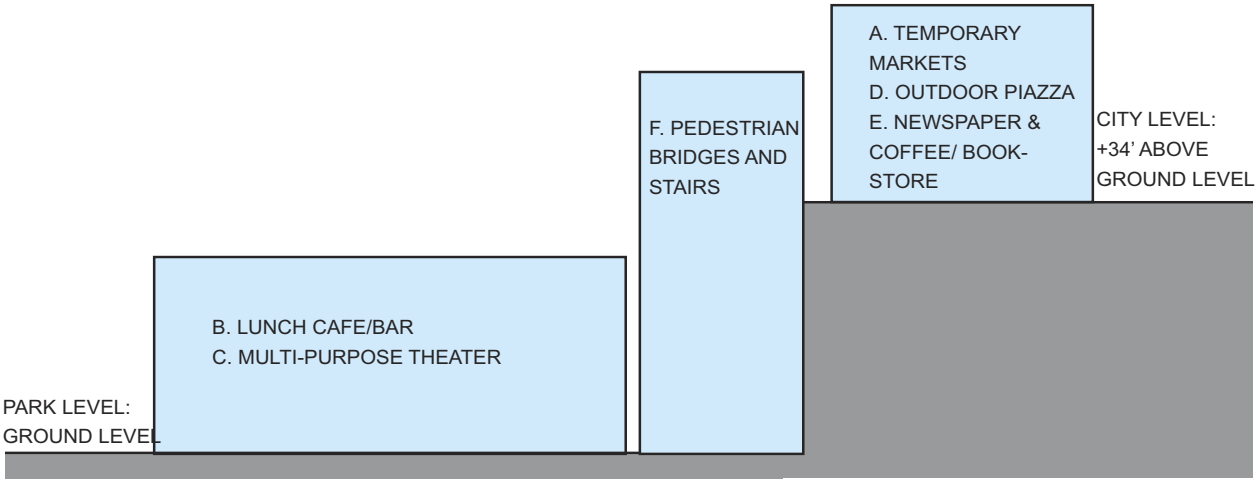
diagrams of programs



62. Diurnal and Episodic Changes of Programs
Image Source: author



63. Program Adjacenties
Image Source: author

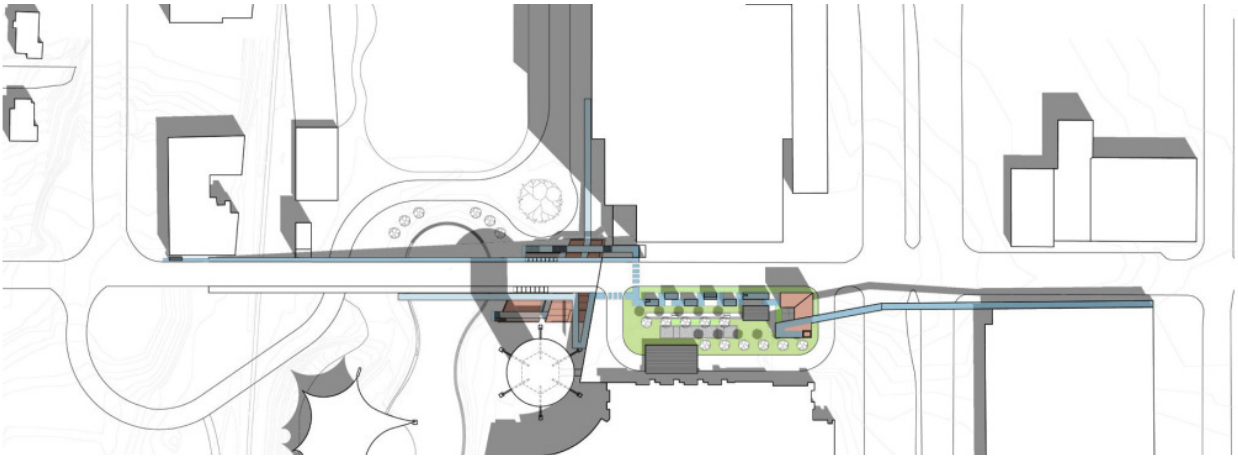


64. Program Section
Image Source: author

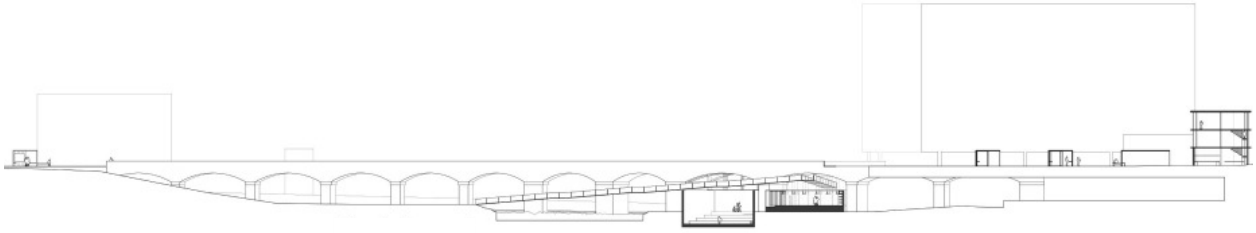
architecture project

The goal of the architecture project is to create a room within the city--an intimate space, a place with "street furniture", and a place for people to come together and congregate. The vehicle chosen to accomplish this goal is flexible architecture, illustrated in the project in several ways: in physical responses to different user needs, weather conditions, seasons, etc., multi-purpose spaces that are not programed for specific functions, and different atmospheres created through changes in lighting so that the spaces can be used through the day and the night.

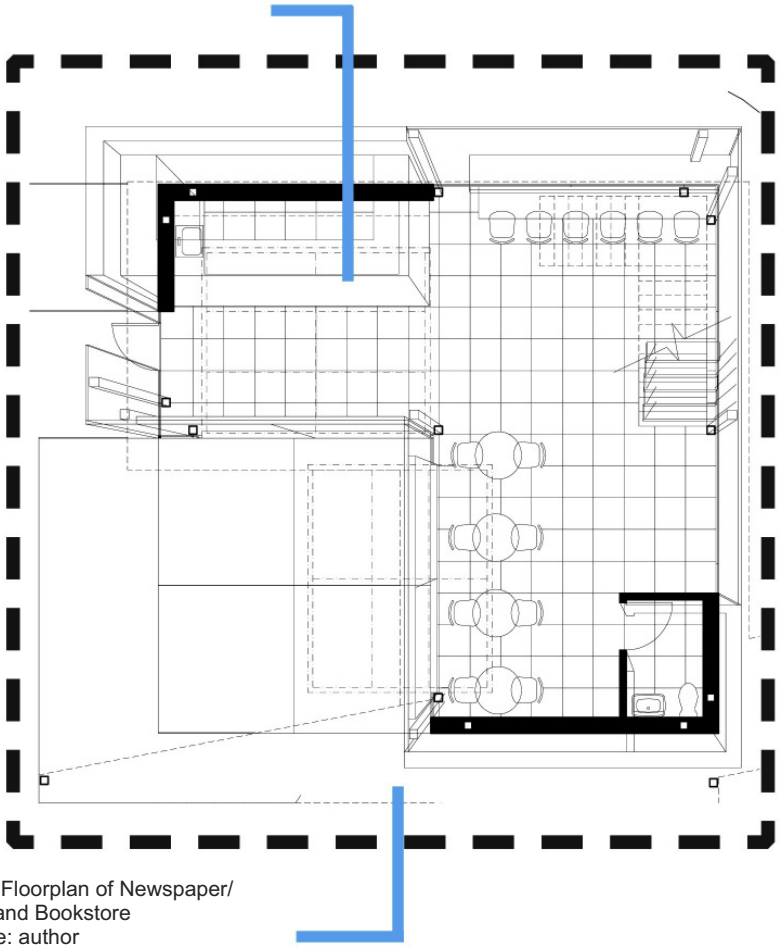
The site plan (Figure 65) and site section (Figure 66) show the over-all project organization. At the City Level, at 30 feet above ground level in the park, the new interventions include a building with a coffee/ newspaper cafe at ground level and a bookstore above, a series of flexible markets, and a piazza. At the Park Level, at ground level, the new interventions are a multi-purpose theater and a lunch cafe/bar. These new interventions and the two separate levels are tied together with a "Glowing Ribbon", a series of pedestrian bridges and stairs.



65. Site Plan
Image Source: author

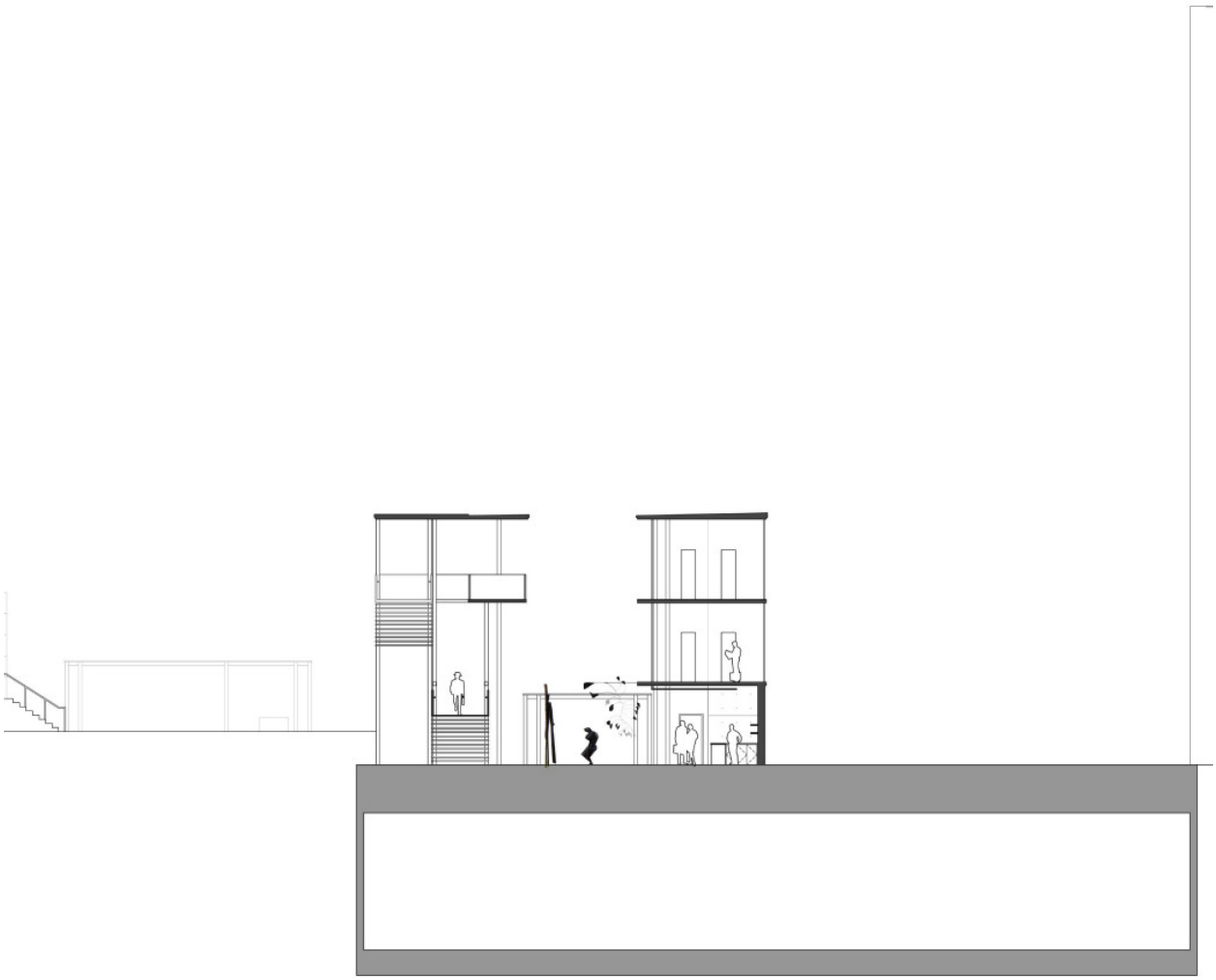


66. Site Section
Image Source: author

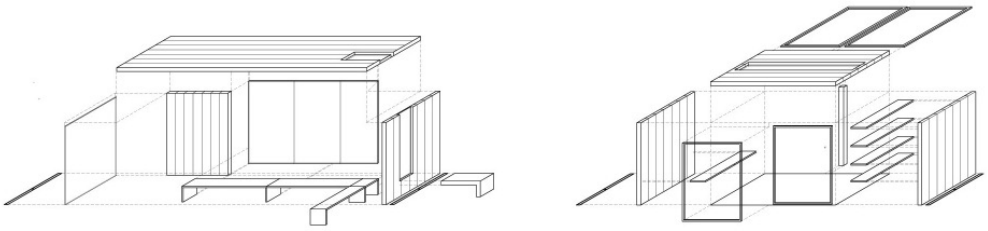


67. Enlarged Floorplan of Newspaper/
Coffee Cafe and Bookstore
Image Source: author

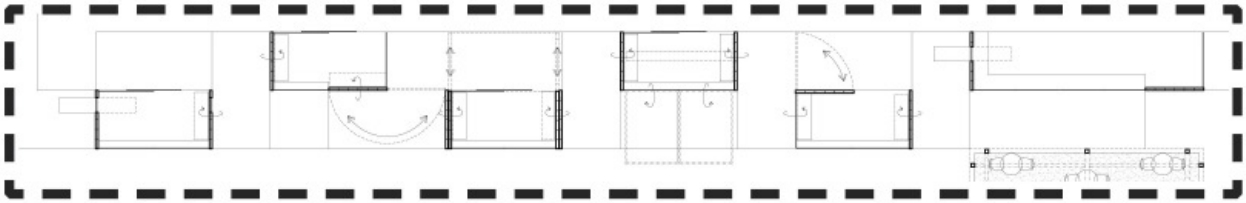
68. Perspective of Newspaper/Coffee
Cafe and Bookstore
Image Source: author



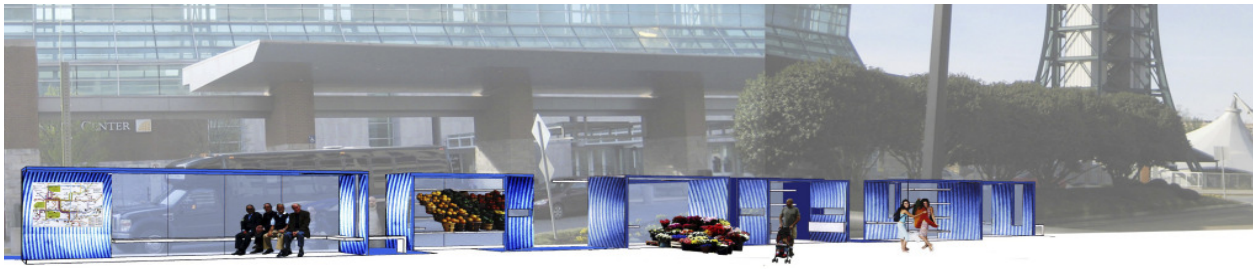
69. Section of Newspaper/Coffee Cfe and Bookstore
Image Source: author



70. Exploded Axon of Flexible Markets
Image Source: author

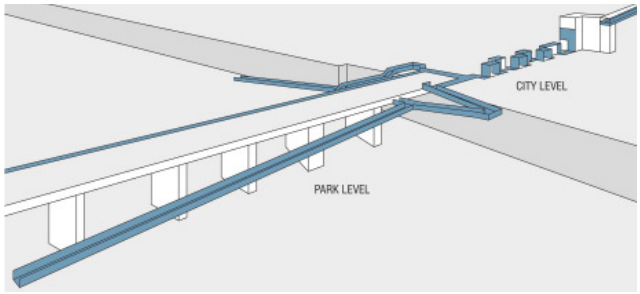


71. Enlarged Floorplan of Flexible Markets
Image Source: author

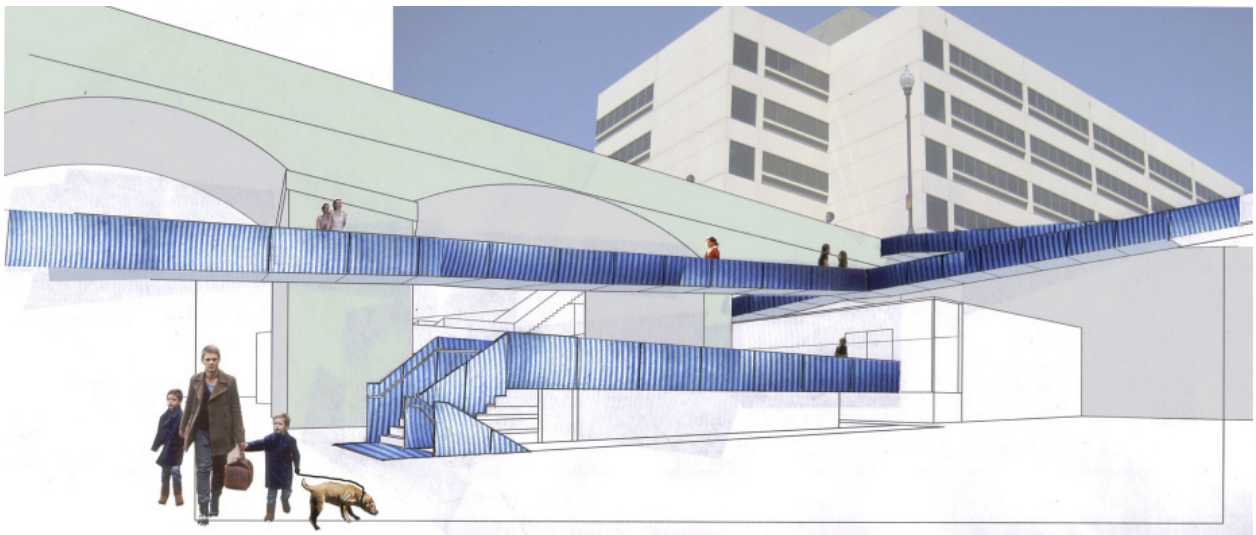


72. Perspective of Flexible Markets
Image Source: author

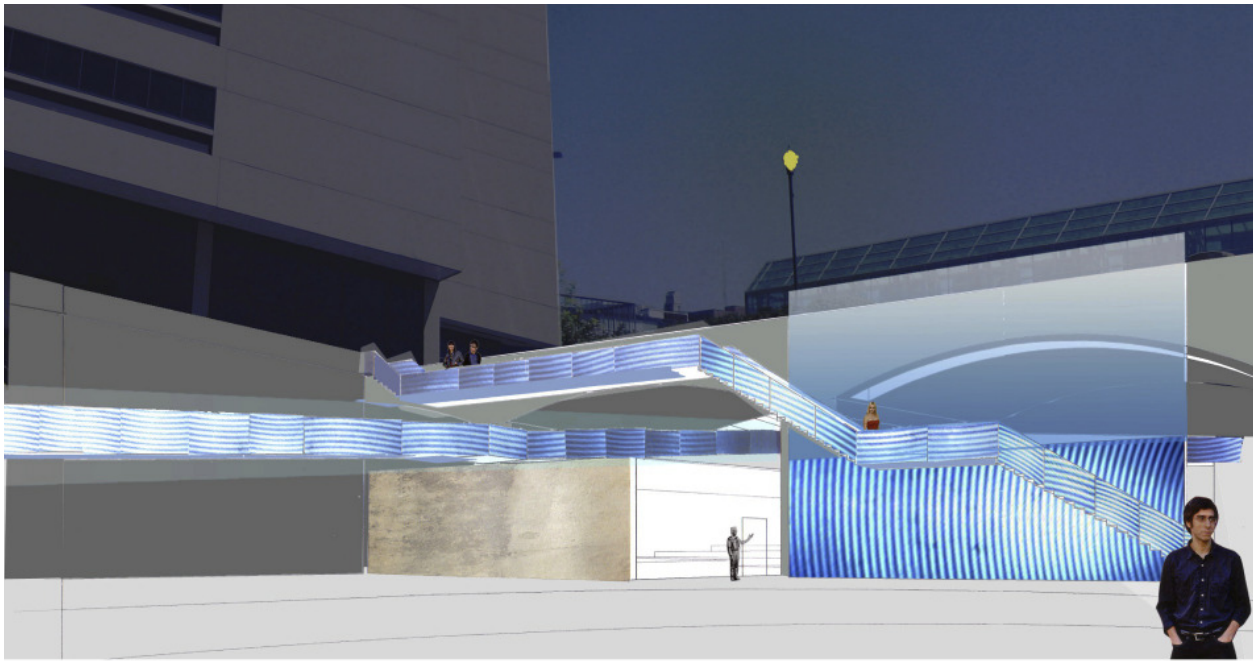
73. Perspective of City Level Piazza
Image Source: author



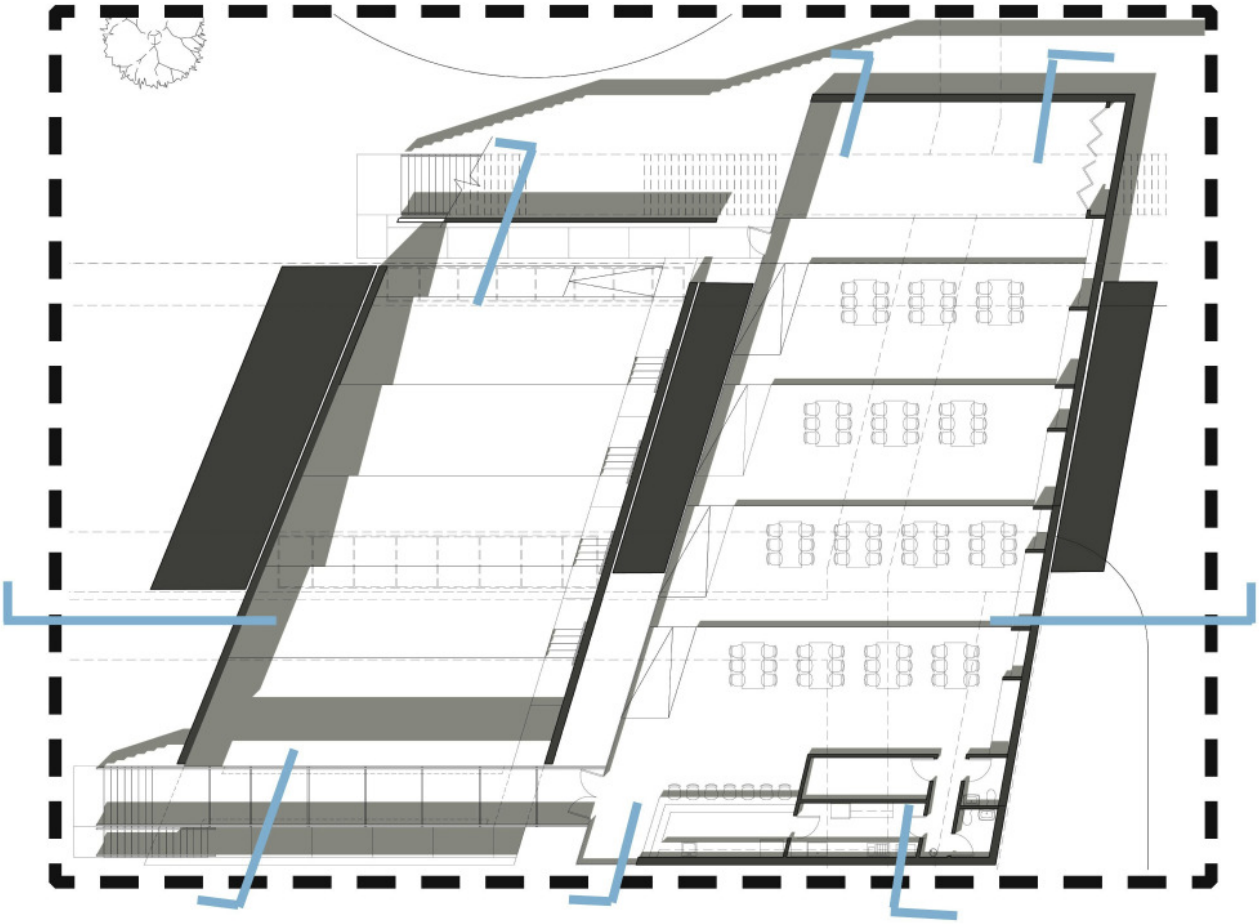
74. Diagram of Glowing Ribbon
Image Source: author



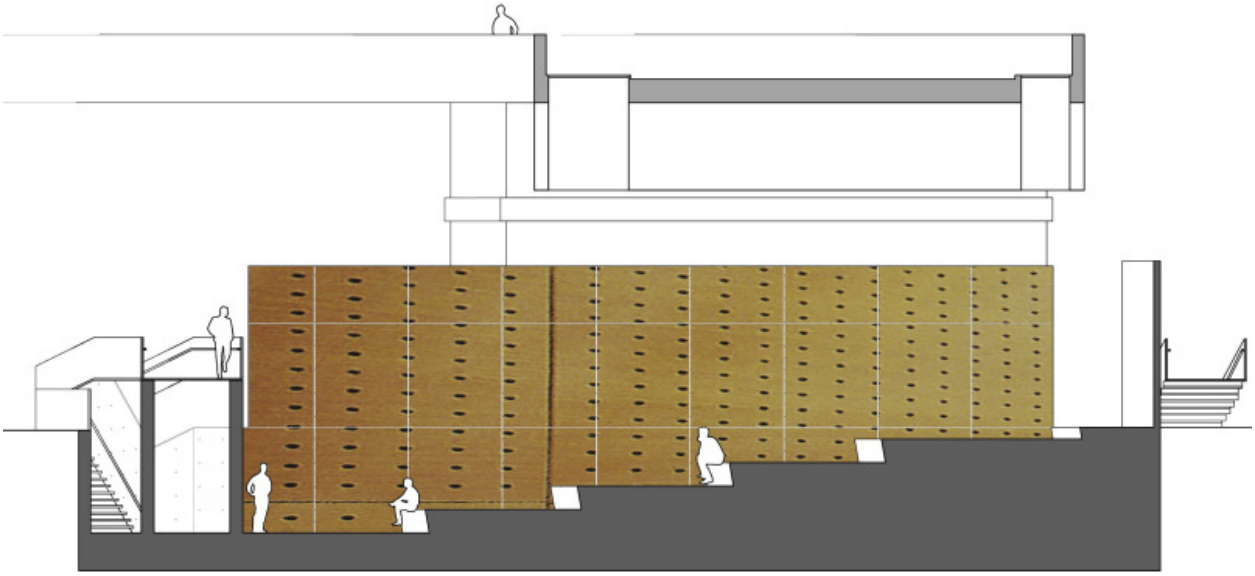
75. Perspective of Pedestrian Bridges, Day View
Image Source: author



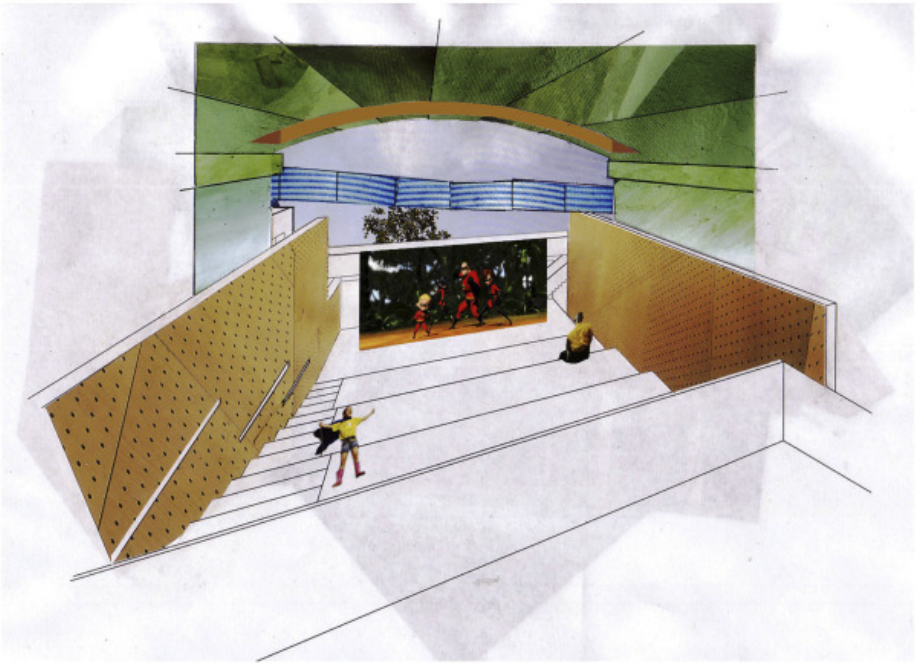
76. Perspective of Pedestrian Bridges Night View
Image Source: author



77. Enlarged Floorplans of Multi-Purpose Theater and Lunch Cafe/Bar
Image Source: author

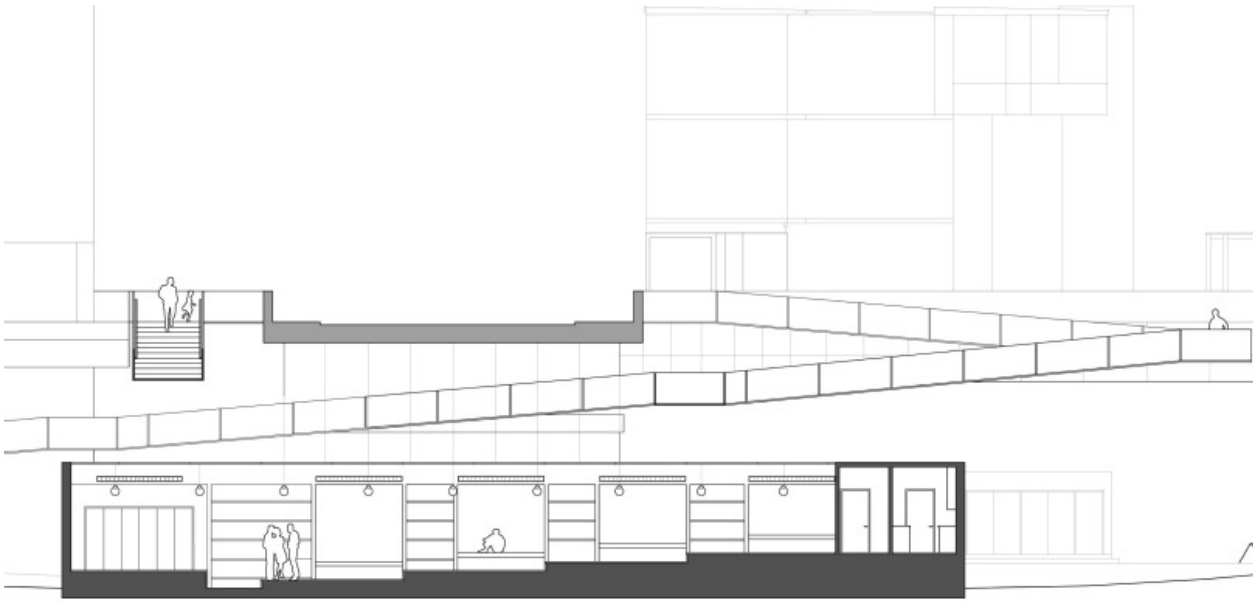


78. Section of Multi-Purpose Theater
Image Source: author



79. Perspective of Multi-Purpose Theater
Image Source: author

80. Section of Graffiti at Bar
Image Source: author



81. Section of Lunch Cafe/Bar
Image Source: author

82. Perspetive of Lunch Cafe/Bar
Image Source: author

CONCLUSION

The goal of this thesis project was to create a room in the city--at the conclusion, I feel that I created multiple “rooms,” both in the city and in the park. I created places where people would interact, gave uses to a park that is greatly underutilized, and gave hope that the forgotten places of our cities can instead become valuable assets.

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VITA

Lauren Comet is originally from Richmond, VA. Her undergraduate degree is from the University of Tennessee, Knoxville, where she graduated with a Bachelors of Science in Interior Design. She worked for several years as an interior designer at a commercial architecture firm in Nashville before returning to Knoxville to pursue her Master of Architecture degree, again from the University of Tennessee, Knoxville.