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I, Jaclyn Gutierrez, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture.

It is entitled:
Urban Escape: Finding Moments of Respite in the Public Library

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Urban Escape: Finding Moments of Respite in the Public Library

A thesis proposal submitted to the Graduate School of Architecture at the University of Cincinnati in partial fulfillment of the requirements for the degree of Master of Architecture in the College of Design, Architecture, Art, and Planning

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The city has a damaging effect on stress levels of urban dwellers. A rapidly increasing percentage of the world’s population is moving to cities, which has a negative impact on the population’s mental health and well-being. This article focuses on the main causes of physiological and mental stress caused by living in the city, which are involuntary social interaction, general sense of chaos and lack of control, and the absence of the healing effects of nature. The alleviation of this trend requires an exploration of how spatial layout, programmatic engagement, and biophilic elements of the built environment can affect users on a psychological and physiological level. This thesis integrates stress-reducing elements into the design of a public library in downtown San Francisco, California.

To understand the principles of this type of environment, the factors of physiology, psychology, and urbanism will be interpreted as they pertain to mental stress. Physiology reveals the different types of stress and in what situations these reactions are most likely to occur. This research will identify and engage design tactics that alleviate various levels of stressful situations within a public facility. Precedents particularly designed for mental stress will be studied to determine how design professionals have addressed the problem in the past. Examples of successful public facilities located in an urban context will help distinguish design tactics that respond directly to the urban realm.
In order to divest the user from external stressors, the library will be shaped by a path that circulates the entire building, designed to gradually slow the user throughout its ascension. The ramp will be lined with strategic programming designed to encourage, rather than require, social interaction. A clear spatial layout with options of circulation and user-adjustable elements will ease the sense of chaos experienced in the city. Biophilic elements will provide their healing effects, contributing to the sense of escape within the urban context of the project. This thesis serves as an example for how public facilities can provide respite from the disquieting environment of the city.
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CHAPTER 1:
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This thesis topic stems back to a lecture in 2012 by Rick Lowe, who is a community activist and the creator of Project Rowe Houses in Houston, Texas. In a low-income, violent neighborhood of Houston’s third ward, Lowe redeemed the charming quality of 22 ‘shotgun’ houses within four blocks of the third ward. He transformed many communities in Houston with low budgets, good design and community participation. Recalling the inspiration felt from this lecture, for my thesis I wanted to expand on the design components of an environment that promotes positive mental health.

With a growing interest in the dynamics within an urban environment, I wanted to address a problem I perceived in the city. I have never had a more stimulating experience than that of stepping off of the bus for the first time on 7th avenue in Manhattan, New York. A swarm of people hurriedly exited the bus behind me and as I stepped onto the sidewalk, I was immediately surrounded by flocks of people going every which way. Throughout my visit, I found the city overwhelming—only finding peace when stumbling upon a pocket park or a quiet shop where the bustle of the street seemed to quiet. I wondered how urbanites assimilated to this type of stressful environment, and compared it to my place of residence in Boston, Massachusetts. Though smaller in area and population, the downtown area there experienced the same stressful triggers, as do dense cities across the country, but did not have
the same overwhelming impression. I questioned, what are the main factors of stress in the urban environment—and as a designer, how would I envision a place of rest for the over-stressed mental state of urbanites?

At first I studied how mental institutions approach design for their facilities. Like other healthcare institutions, there is a scientific backing to the design approach to ensure quality care to the patients with various mental disorders. I found that the problem with designing a mental, therapeutic, or spa facility to better the urbanite’s mental state was that these building types were not accessible to the everyday urban resident, but rather were services needing to be sought after. A public facility like a library, with its evolving civic role and its availability to nearly all urban communities, seemed like the optimal vehicle in exploring a more stress-relieving architecture for the urban population.
The urban environment has a damaging effect on stress levels of urban dwellers, which has a negative impact on their mental health and well-being. In 2007, more than half of the world’s seven billion inhabitants lived in cities, and by 2050, this will approach to about three quarters of a nine billion population. The US is one of the countries predicted to experience the greatest of this growth in urban population.¹ Studies prove that densification has environmental and socio-economic benefits, so it is not something to deter. But with the rate at which the human population is already increasing, Western cities are quickly becoming saturated. Like a ripple effect, the swell in population raises the cost of living in and around urban areas. Furthermore, with less housing affordability within the city, commute times are increased as transit infrastructure undergoes greater pressure. Rapid densification is leaving little time to study the psychological conditions that the inhabitants are subjected to and even less time to provide a proactive response.

To understand what is meant by urban stress, the body’s allostatic system involving two stress-responses must be defined. The first is the autonomic nervous system response, which releases noradrenaline and adrenaline. This is the quick, fight-or-flight response. The other is the slower hypothalamus pituitary adrenocortical (HPA) response, which releases the stress hormone cortisol. This is the response that, endured over time, causes symptoms like diabetes, depression, decreased memory functions, Alzheimer’s disease, and premature aging. Studies measure increases in particular brain function, chemical balances, and heart rate to measure the effects of stress on the body. One example of a conducted stress study was on NY Mag’s writer Clive Thompson, who wore a portable blood-pressure meter to sample his blood pressure to indicate stress levels throughout the day. Spikes in Thompson’s blood pressure were referenced to particular events, which revealed stress triggers inflicted throughout his usual day. The results to this and similar studies support crucial factors of urban stress as involuntary social interaction, general sense of chaos or lack of control, and the absence of the healing effects of nature.

Humans are social beings, therefore are generally happier when they have a sense of

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Humans crave engagement with others but there is a delicate balance. Urban high-rise housing studies exemplify this point; revealing higher stress levels in tenants when they lack privacy and are forced to interact with others throughout their daily routine.\(^4\) When college students were given the choice of residing in a spacious bedroom shared with another person or a much smaller room to have to themselves, they chose the smaller bedroom. The smaller room provides less space but maintains the student’s choice of solitude.\(^5\)

The problem also happens conversely, when tenants do not participate in enough social interaction. The wrong amount of social disengagement can lead to further isolation, which can cause depression. An article published by International Making Cities Livable identifies the elderly to be at the highest risk of social isolation within urban communities. However, children are also sensitive to social isolation. Because their mental capabilities are not fully developed, children are more vulnerable to isolation’s negative effects.\(^6\)

Chaos or lack of control is another critical factor in defining urban stress. An urbanite is often put on alert the minute she leaves her doorstep. Many examples of this stress are experienced while in crowds. It is important here to note the difference between ‘crowding’ and ‘density.’ “While ‘density’ is used to refer to the physical limitation of space, ‘crowding’


is the actual psychological perception of the limitation of space. Social pathology is caused by the stress and social conflict of crowding, but high density does not necessarily lead to a perception of crowding or stress.”

Physical proximity to strangers is commonplace on busy sidewalks and public transit. People tend to turn inwards, keeping their belongings closer to themselves, as a form of protection from the unwanted closeness of other people. This feeling of discomfort derives from the body’s physiological fight-or-flight response reacting to many people, or potential threats, around it. Lack of control also causes a stress response in situations that are not exactly a threat to one’s physical safety, but more psychological. Situations that submit the person to an involuntary state of powerlessness that she cannot control causes psychological stress that results in the slower HPA stress response. Vehicular and pedestrian traffic, waiting for public transportation, or even sitting at a desk with what seems like an unmanageable amount of work recalls the feeling of helplessness in situations that is out of one’s control.

Finally, the absence of nature also has a significant impact on stress levels of urbanites. Humans have an innate love for the natural world, or biophilia, that cities cannot incorporate enough. This is still a relatively new institution, in the past not having had the technology or evidence to support its environmental or ambient benefits. Designing for

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biophilia is now considered a standard practice in healthcare design, having been proven to improve patient mental outlook and reduce recovery time. Designers are now implementing nature in various building types involving therapy and work productivity for its healing effects. It is particularly critical to incorporate nature for its relief from mental fatigue and its improvements on cognitive function. Nature can provide “an urban respite” from the constant stimuli that an urbanite experiences. Many experts in psychology and physiology have addressed issues of stress caused by the urban environment, but there has been a lack of synthesis of design tactics that can address these conditions. The components of these issues generate a pool of sources and theories that aid in the structure of this thesis: first, the physiological components of stress are defined by Mazda Adli, John Campbell, and studies by Edmund Ramsden. Second, Dennis McCarthy and Susan Saegert, Suzanne Crowhurst Lennard, and Anthony Yeh discuss the triggers and mitigators of stress in the urban environment, and finally, David Stone, Terrapin Green, and Mary Jo Kreitzer write about design tactics that designers should implement to relieve mental stress.

Urban Stress and Mental Health

Mazda Adli, a senior physician in the field of psychiatry and psychotherapy at the Charite in Berlin, speaks about the particular stresses caused by living in the urban environment, and its specific mental health effects on urbanites. He begins his article by defining the two types of stresses and their processes through the body. Adli names the biggest stress factor that urbanites face as social stress. Examples of social stress factors are lack of control, social threat, or fear of losing social status. All of these are known to increase anxiety, disturb mood, and cause mental disorders. Measures in brain activity in his study concludes that people living in the city have a higher tolerance for stress and a higher likelihood of depression than that of rural dwellers. This study reveals that people living in the city over an extended period of time have mentally adapted to their environment.12

Reactions to urban stresses are different though, as Adli explains, in adults versus reactions in children’s developing brains. Children respond to urban environmental stresses differently than that of mature adults responding to the urban environment for the first time. Disorders that develop in childhood are more likely to result in epigenetic changes that could

be passed on to future generations.\textsuperscript{13}

Adli states the specific regions in the brain that indicate the subject’s mental reactions during stressful conditions. This article specifies the types of stress that can occur in an urban environment but does not indicate specific possible factors of stress. Adli asserts that social stress is the most indicative of mental disorder but does not give much reason as to why. A comparison of the different types of stresses that conclude social stress as being the biggest factor is left wanting in this article. Adli’s assertions are the precursors to the solution of stressful urban conditions. He states the problem: the urban environment increases the probability of stress and mental disorders and recognizes the need for a solution from various disciplines (life and social sciences, urban planning, architecture, and politics), but leaves the problem solving to the reader.

**Stress and City**

Daniel P. Kennedy and Ralph Adolphs, faculty members at the California Institute of Technology in Pasadena, California, recognize predictions of increased density in cities and its effects on cities’ inhabitants. The authors name studies that support mental disorders being more prevalent in city dwellers, and more interestingly identify the specific physiological conditions that the body endures during a social stress test. Increases in heart rate, blood pressure, salivary levels of cortisol, and significant brain activity in the region

involved with emotion and stress are measured. Their studies explains that activation in the specific parts of the brain correlate with the size of the city in which an individual currently resides and how long the participant lived in a large city during their childhood. The tests also reveal that the effects of urban upbringing shown in the brain correlate with genetic risk for psychiatric disorders, social-network size, and sense of personal-space violation. The findings suggest that this neurological circuit is one in which genetic and environmental risks for mental illness may converge.¹⁴

The authors prove that over time, the brain undergoes significant changes because of its exposure to stressful city conditions. They prove that stress exists in the city and give importance to their findings by making correlations to serious mental disorders. The authors contemplate the urban environment’s crucial contributors of stress: social hierarchy, encounters with strangers, increased population density, decreased amount of living space, and distressing housing types.

Mental Capital and Wellbeing

Through an extensive review of academic articles, health professionals Rachel Cooper, Christopher Boyko, and Ricardo Codinhoto collect data about the physical environment and its direct and indirect impacts on mental health, work, learning difficulties,

and mental capital. The chapter is multi-disciplinary in focus and multi-level in nature, from the small-scale level to the large scale. The authors contribute sensory stimulation (what humans see, smell, touch, taste, and hear) to mental capital and wellbeing. They indicate ambient factors like noise, light, and visual dilapidation having a significant impact on cognitive stress levels, and spatial qualities like layout and way finding as having an impact on one’s feeling of safety and control. Like many others in the field, they also discuss the positive effects of nature in the environment.

These professionals take a unique approach to the problem, categorizing the various types of environments that stress could occur in the urban environment into seven distinct environments with multiple scales of interaction. Oftentimes the problem in distinguishing stress factors is the immeasurable number of variables that can affect the subjects. By distinguishing urban environments, the authors are able to better investigate the specific factors contributing to stress. Another successful tact that they use in their writing is providing examples of remedying stressful environments. They mention incorporating art, way finding aids, and ambient qualities as strategies to relieve stress.\textsuperscript{15}

What Impact Does the Environment Have on Us?

Humans innately seek environments that provide a sense of safety, security, physical comfort, and psychological comfort. Retailers and the hospitality industry are well aware of atmospheric qualities to induce positive experiences, because both institutions have a clear benefit to the user responding to the environment positively. The author of this article, Mary Jo Kreitzer, RN, PhD, gathers evidence supporting psychological wellbeing having an effect on physical health. She emphasizes the importance of mentally healthy environments by remarking on the constant interaction the body experiences between the nervous, endocrine, and immune systems with the brain. Her research indicates that psychological stress has an effect on many of the body’s critical systems.  

What is particularly useful about Kreitzer’s article is her view on design criteria for healthcare design to improve stress levels of patients. Her recommendations are as follows: increase connection to nature, offer patient options and choices, enhance social support, reduce environmental stressors such as noise, glare, and poor air quality, and provide pleasant diversions from the external environment. Relieving stress in healthcare facilities is inarguably necessary to improve patients’ mental conditions, but this paper shines light on how this type of research is neglected in other building types that fail to address stressful conditions in the same regard.


Ibid, Kreitzer.
Fig. 1.1 Examples of common stress triggers in an urban setting
The effects of stress on the human body can be divided into short-term and long-term effects. Short-term effects include increased heart rate, increased blood pressure, and increased cortisol level. Long-term effects include mental disorders, decreased memory function, Alzheimer’s disease, depression, premature aging, diabetes, and decreased metabolic function.
This project proposes to provide moments of respite from the stressful urban realm. A public building that explores programmatic engagement, spatial layout, and biophilic elements will be designed to affect users on a psychological and physiological level. Users will encounter the public library and be gradually divested from external stressors along a ramp that circulates the entire building. Active programming on the lower levels will draw people from the street to engage in a social setting. The project will provide multiple levels of social engagement, with opportunities for social interaction as well as disengagement along the path. The design will focus on encouraging the user to pause along the path to gain distance in the mind from external pressures. Spatial components and path options will encourage the user to feel in control of her environment, all while engaging the user’s senses to natural elements on both the interior and exterior. Greenery on the exterior will serve as a visual and auditory buffer and as a wellness image to the surrounding city. On the interior, green infrastructure will be implemented everywhere possible to engage the senses and cultivate a healthy interior environment.
To accomplish these goals, the stress-relieving principles need to be incorporated into a building type that each resident of an urban area has access to—a public library. The history and evolution of the public library will be analyzed to reveal the appropriate areas to incorporate stress-relieving design elements. In an urban and earthquake-prone area, a thorough evaluation of the project site conditions will be critical in solving natural lighting needs, storm-water management, and structural code requirements. Desirable and non-desirable view shed will be considered from all sides of the project.

The sequence of spaces will be particularly important in this project because the experience along the ramp will be perceived continuous throughout. It will be necessary to gain mastery in the qualities of spaces that allow interaction and disengagement from others. Spaces that are ideal for reading, lounging, and socializing will be considered. Studying examples of external components to draw people in (for that extra encouragement to those that lack the proper amount of social interaction) will aid in addressing sociological issues. Mastery in way finding techniques will be vital in this public building to improve psychological frame of mind. Wall and floor patterns, materials, color, and signage are critical elements to consider in this subject. Flexible programming, circulation options, furniture, and user-controllable systems give users the opportunity to feel power in managing
their own space. Similar tactics to give the user a sense of control and ownership of a public space will be studied. A comprehensive knowledge of how green infrastructure can be utilized within the building will be essential. For example, the systems required to incorporate a green wall, vegetated roof, indoor or outdoor garden, water features, and natural materials on or integrated within typical building systems will be within the range of design tactics studied. Materials native to the area will be chosen for their visual and environmental qualities. Further research on materials will include those that can absorb sound and improve air quality to the surrounding area.
CHAPTER 2: CLIENT
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The site of this project is located in San Francisco, neighboring the main downtown campus of Golden Gate University. GGU is a private university that offers undergraduate and graduate education in Accounting, Law, Taxation, Business, and related areas. In addition to Online classes, they have three other locations in Seattle, Silicon Valley, and Los Angeles. Originating from only offering night classes to adults pursuing higher education in San Francisco, the university continues today as a pioneer of adult education. Now the private university wishes to reach out to the community by providing a public library adjacent to its downtown campus. Since 1901 the university has witnessed the city’s growth, and recognizes the increasingly urban environment at their downtown campus on Mission Street. GGU would like to offer a place for urbanites to stop, slow, and retreat from urban stressors. They recognize that a public institution that promotes continuing education while providing an urban respite will help attract students to their campus next door. Stress has a lot to do with feeling in control, so the university wants to provide a space where adults feel in control of their futures, and can be encouraged to continue their education.

Golden Gate University wants to include green space that is both physically and visually accessible to those occupying surrounding buildings, which will be a positive

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attribute in moving forward through city approvals. An overall image of green infrastructure will bring the university up to date and provide a positive image to the institution. In addition to private grants provided by GGU, it would be in the city’s interest to help fund the project to improve the urban environment within the city’s downtown district. Membership fees, donations, and grants will generate the revenue required to run the facility. The university’s collections of books as well as new technology will be available in the library, and private donors can make contributions of books and equipment. A cafe located on the ground floor will curb expenses on maintaining the project.
The evolution of libraries recalls the earliest collections of clay tablets in 21st century BC. In Greece in 330 BC the first public library is established in order to preserve works of the great dramatists of the time. Both public and private libraries are brought from Greece to Rome circa 40 BC. Of the ancient Greek and Latin texts that survive conquests, most are preserved in medieval European monastery libraries. A few critical examples of European libraries are the 15th century Vatican Library, the oldest public library in Europe, and Laurentian Library in Florence, constructed shortly after. These historical examples serve more than collections of information during their time. For the Vatican Library, in all of its size and grandeur, is a reflection of the power, wisdom, and dominance of the church in Europe. Similarly Michelangelo’s Laurentian Library in Florence is built to announce the Medici family as members of ecclesiastical society. Both libraries communicate these statements through their architecture and the role they perform in the city.

A case study of Seattle Public Library’s nearly 150 year history sheds light on the evolution of the institution’s processes, ideals, and appearance to the public. During their formation in 1868, the Seattle Library Association declares their mission of fostering “mental culture and social intercourse.” Even then the public library is perceived as much a place

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to gather information as it is to engage socially with the community. The health of the institution is largely determined by the success and downfalls of the local economy until the library receives a huge donation in 1886. Similar to the American Carnegie Libraries, when a benefactor makes a healthy contribution, the benefactor pulls significant weight in the decisions regarding the library. Only a few years later, a fire that destroyed much of the library’s archive pushed Seattle’s city department to absorb the library’s responsibilities to the city. The next radical change occurs in 1896, when patrons are finally allowed to retrieve their own books on the basis that the task of the library is not to guard its contents, but to educate its people by having its books read. The Seattle Public Library continues to grow and gain importance in the community to eventually host the iconic building that stands in Seattle today. A closer analysis of the new building’s role within the city is discussed later in the document.

Technology and the invention of the Internet play a large role in the transformation of the library’s role in society. Because information is available on home computers and smart phones, many contemporary libraries choose to put more focus on education and job-skills training at their physical locations. Many public libraries now offer free public Wi-Fi access, summer reading programs, digital literacy training, assistance with Online government programs, job search resources, social events for various age groups, and various

Marshall, Place of Learning.
Fig. 2.5 Typology Analysis
With its increased civic role, the library has gained more program requirements throughout the decades, decreasing the space allotted for reading. Modern reading rooms have become more of public living rooms, full of vibrant activity, higher ceilings, and louder auditory levels. Leisure reading takes place here within other flexible programming. Traditional structured study is now designated to private areas within the facility. Light and sound quality is relational to the type of reading that is emphasized.
uninterrupted space where all necessary shafts, cores and stairs have been reduced to a minimal presence.

The Martin Luther King Jr. Memorial Library combines the characteristics of all three building types, giving MLK its own unique position in the oeuvre of Mies van der Rohe. The exterior shows the regular grid of the skeleton frame building, with the entrance level colonnade.

Inside a remarkable thing appears: the central part of the column grid is opened to make a clear span space inside the skeletal building. The four cores of the building are placed at the corners or the edges of the central clear span space, thus defining this space with a minimal interruption of the open visual connections between the central space and the surrounding skeleton frame building. Placing the cores on the edges of the clear span space, and not in the heart of the building, leads to their position on the ground level between the open heart and the recessed facade. In this position, the cores become a part of the ground floor facade.

All these elements together constitute the essence of the library, and are the starting point for all new interventions. In his introduction to the analysis of Mies' three building types, Peter Carter states: “… he (Mies) fixed only the essentials in his buildings, thereby permitting great flexibility and freedom for both initial layouts and future modifications.”

MIESIAN DESIGN PRINCIPLES
academic programs for as little as the cost of a library card. Culturally the library serves as a representation of the community that the project resides. Nowadays patrons have access to books, music, film and photography equipment, editing bays, situation simulators, and even 3-D printers. Mary Anne Hodel, CEO of the Orange County library system, explains the situation simply: “When the first public libraries were started, books were the technology of the time,” she said. “The technology has changed. But the constant is learning.” Technology has been the catalyst to this shift in the library’s cultural and social role in society. While adapting to technological advancement and changing civic roles, libraries maintain their focus in providing a place for users to gather information.

Throughout the evolution of the library, reading rooms remain the programmatic constant. Analysis of notable libraries throughout history reveals critical changes to user experience and the library’s role in society. A diagram of this study can be seen on Fig. 2.5. The public library, present in almost every urban district, has taken on much more programmatic function to serve its community.

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24 Ibid, Breen.
CHAPTER 3: SITE
SITE CONTEXT

To exhibit the principles of this thesis, the project site requires a dense urban environment with high stress levels that would show benefit from a public library. Forbes Magazine “analyzed quality-of-life data from the 40 largest statistical metropolitan areas” looking at unemployment rates, average weekly working hours, housing affordability, cost of living, traffic congestion, and air quality to name the United States’ fifteen Most Stressful Cities. Of the top fifteen cities, five of them were in California, San Francisco holding the spot for #7 Most Stressful City.25 Another study by a real estate company used similar criteria to name San Francisco #4 Most Stressful City in the nation.26 Demographic maps (Fig. 3.2-3.6) of San Francisco exemplify these studies. The population requirement of what makes a place ‘urban’ is debated, but for the purposes of this thesis, a municipality with over 100,000 would suffice. The US Census Bureau puts San Francisco over 850,000 people for 2014, with over 17,000 people per square mile in 2010, easily identifying it as a city with dense urban areas.27 Downtown San Francisco exhibits the principles that define an urban area and would serve as an ideal site to explore the aspects of a calming environment, suspending stress experienced in the users’ own lives.


Fig. 3.1 U.S. map with largest and most stressful cities illustrated in yellow and red, respectively
Fig. 3.2-3.5 Stress-related statistics for the United States and California
Crime Risk

Commute Times

Transit Corridors

Fig. 3.6-3.9 San Francisco Demographic maps

Library Locations and Districts
Fig. 3.10 Site Context Diagram illustrates sun path, circulation, desired viewshed, and prominent adjacent buildings.
Top Left: Google Maps route from transit stop
Top Right: Fig. 3.11 Google image of the site at 512 Mission St.

Fig. 3.12 Buildings, streets, and parks have been illustrated around the site
From 1st street:

From transit stop:
The site of this project is on an unoccupied lot in the busy financial district of San Francisco. The lot sits on the corner of Mission and 1st Street, streets that run almost 45 degrees in this part of the city. The site measures approximately 123.7’ on its southwest end, and 191.91’ along Mission Street. With the Golden Gate University building occupying the southwest border of the site, there is opportunity to allow for direct access and serve as an extension of their institution. The first few levels of the adjacent building northwest of the project consist of a small garden courtyard open to elements. The approach from the metro stop to the project site is documented with images from Google Street view, as well as the views approaching from northeast of the site. More office buildings are across the street from the site, one with a roof garden facing the street (which can be seen on Fig. 3.9). This is in an exciting part of the city, with huge projects by renowned architects planned within blocks of the site (See Fig. 3.7). The most notable project to come is the new Transbay Transit Center by Pelli Clarke Pelli Architects just East and South of 512 Mission Street. The project consists of a 1,070 ft tall housing and office tower, almost twice as tall as the tallest building currently in San Francisco. The adjacent transit center will occupy 5 blocks and serve as the new transit hub of the city.\textsuperscript{28}

Stepping back to analyze the greater context, the San Andreas Fault splits the state of California longitudinally down to the Mexican border. San Diego, LA, and Big Sur are

More than two dozen projects are under construction or planned for San Francisco’s South of Market District.

Fig. 3.15 Significant and upcoming projects surrounding project site
Fig. 3.16 Transit map of area around site

Fig. 3.17 Programmatic map of area around site
on the Pacific Plate, while Sacramento, Sierra Nevada, and San Francisco sit on the North American Plate. The topography plays a large role in distinguishing San Francisco from other cities in the country. It is known for its “seven hills,” which is actually closer to 70 within the mainland. This particular site is located on the east side of the mainland, on a relatively flat area close to sea level. This is considered a prime location to many San Franciscans, as many go through great lengths to avoid the steep inclines of many parts of the city. Water surround the city on three of its sides, hosting various ecosystems. San Francisco Bay is a large estuary that “allows water from much of California to flow out through the Golden Gate into the Pacific Ocean.” The project site is located only a half mile from the bay within a commercial district.

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CHAPTER 4: PRECEDENT
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The library in Seattle, Washington serves as an iconic piece of architecture that reflects the changing definition of the library. The architects recognize the building type to be in a constant state of change due to the rapid advancement of technology and gathering information. They take the traditional functions and programs of a library to form a diagram that is projected into a faceted 3-dimensional form.\textsuperscript{35} Open floor plates, flexible furniture, and the integration of new technologies are designed to accommodate the changing role of the library in society. One of the things that makes this building successful is that the architects’ intentions are not only understood by designers, but is communicated clearly to the city. The large amounts of open public space, clear way finding, and accessible amenities are a gesture to the community to give them ownership of the space. It makes this building as much a community center as it does a house for books. However, the danger in creating a building with such a bold image is that it can overwhelm the user, deterring interaction. The architects attempt to soften the impression by giving the ground floor a park-like feel, incorporating natural elements with vegetation, projections on the ground floor of natural scenes, and plenty of natural lighting. Brightly colored circulation and numbering on

the floor to reference book locations simplifies way finding in the facility. This building certainly implements some of the stress-relieving principles studied (relative spatial scales and configurations, natural elements, and navigation techniques), but its design on both its expressive exterior and bold interior are geared more toward mental stimulation than tranquility.
The Wren Building at the College of William and Mary

An article published to describe the renovations undergone at the Wren Building at the College of William and Mary reveal the motivations for certain 18th century design elements, as well as conjectures and modifications that the building has experienced during decades of restoration. During restoration, designs from Oxford and Cambridge Universities (where Wren buildings also exist) are taken as precedent to distinguish specific architectural details that may have been lost over the centuries. Thomas Jefferson attended the college in the 1760s and was asked to design an addition to the college that was never constructed but provided detailed plans of the building that have aided in following Wren’s original content. Modern advancement allows only reproductions of what could have been in this library, resulting in a museum of 18th century relics that are to represent the construction and design elements of the era. The Wren library’s plan has dedicated rooms for subjects such as Philosophy and Grammar, alongside the Chapel, Great Hall, and linear Piazza, all organized within a U-shaped plan that opened to a courtyard in the rear. The library also contains the Blue and Common Rooms to serve as meeting and parlour-like spaces for the professors.


Ibid, Savedge.
The images shown depict a symmetrical front facade with monumental proportions and a long procession leading to the front entrance. Following the ancient monastery scheme, the building surrounds a courtyard on three sides with a ‘Piazza’ that acts as the buffer between interior and exterior space. The Grammar School located on the first floor has windows located six feet off of the ground, said to have been designed to prevent students from becoming distracted by external activities.
FORM-LANGUAGE

Mariner Harbor Branch Library by A*PT ARCHITECTURE

The Mariner Harbor Library in Staten Island, New York, is a 10,000 SF facility built in 2014. “The new building, sited between residential and industrial blocks amid dense foliage, derives its asymmetrical two-volume form from the biological image of a cracked-open oyster shell, its roof’s rough exterior concealing the bright pearls of knowledge within.” A biological inspiration spurs an irregular form on a rectilinear site. The architects utilize foliage and natural light to aid in communicating their concept as well as providing a bright and welcoming respite within the greater context. A majority of the spaces are dedicated to community use, hosting “critical needs including job search, computer/multimedia access and training, after-school support, gathering spaces, as well as the library’s traditional function as a book repository.”

The floor plan is clear and simple, with bright open spaces on one side, and closed, private functions on the other, separated by a wide central axis. The public entrance faces the street, and the other leads out to an elevated deck with shade and natural landscape. The maritime inspiration lends a bright and refreshing aesthetic to the design, complete with warm light and cool materials. The architects incorporate a more natural landscape rather than a manicured one to initiate a relaxing environment for this

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Fig. 4.8 View into the reading room shows use of cool materials, natural light, and vibrant colors

Fig. 4.7 Front entrance to the Mariner Harbor Branch Library from sidewalk

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public space. The building achieves an environment appropriate for all ages with bright furniture and an engaging landscape. The open plan on the south side allows for flexibility in this ever-changing building type. The programmatic functions of the facility are much more focused on serving as a community center for the surrounding neighborhood than merely a traditional library revolving around books.

Mediatheque de la Madeleine library by Tank Architects

Tank Architects are responsible for repurposing a 1930s police station into a new public facility at the center of La Madeleine, France in November of 2013. “The original building faces the central market square and now provides a cultural hub for the local community.” The building is designed to act as a “third place between home and workplace” open to the public on the ground floor. The library is composed of a triangular addition with a polygonal rooftop, clad in stainless steel that mimics the pitched roofs of surrounding homes and saw-toothed profiles of factory buildings. On the interior, the ceiling triangulations bellow up and down and converge at columns, draping the room in a tranquil wooden canopy.

The architects create a calming environment within a small project site by implementing an open spatial arrangement, indirect natural lighting, and allowing views to

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Fig. 4.9 Rear access to building lets out onto a shaded deck with natural landscape

Figure 4.10 Seating area with views to exterior courtyard

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40 Ibid, Dezeen.
41 Ibid, Dezeen.
gardens on the exterior. By utilizing wood as the dominant material throughout the project, a sense of warmth is inherent throughout the building. The undulating ceiling distinguishes spaces of various heights within the mostly open plan, naturally allowing guests to gather and privatize their own space. Its spatial qualities imply the choice of social interaction within the interior of the building, eliminating stress caused by involuntary social interaction. The public accessibility and glazed façade allowing views in on the first floor are strategies that aid in attracting visitors to participate in social interaction. A sense of awareness and control is promoted with the open plan and low bookshelves that allow views across the space. The sculptural ceiling creates an artificial natural environment that brings the healing effects of nature to an urban setting.

**Quaker Meeting House and Arts Center by Kieran Timberlake**

This project involves renovating the Sidwell Friends School’s gymnasium to house the school’s weekly Quaker worship service in Washington, DC. The architects intentions were to place “silence and light within a void at the core, with architecture, landscape, and building systems arranged in concentric layers around it…”42 The project incorporates a meeting hall, gallery space, and art studios, while its front plaza now serves as the main entryway to campus. The highlight of this project is the central meeting house, a place that

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traditionally gathers people facing each other to emphasize the spirit of the group, with every member holding equal status. By insulating the walls to deter noise and views to the active exterior, the meeting house displaces the user from the external environment and transports her to this “muted square space within the volume of the former gym.” The reclaimed white oak floors and wall liner lend a sense of warmth and age. Gaps between the wall and ceiling panels give them the appearance of floating—hiding and diffusing light sources while washing the walls in soft light. The garden and loggia provide a transitory space between the outside world and this calming place of worship.

These kinds of religious spaces exemplify calming places because they usually imply a place of silence and introspection. Although not in an urban setting, the project still finds a way to tune out stresses of the external environment to provide a respite with the campus. The arts and worship areas are clearly defined within the building, and the main circulation stair is bright red to ease way finding throughout the project. The concept of layering follows through in the architects’ planning strategy, allowing views across and out of the building into natural settings surrounding the building. A wide central stair, sitting areas, and wide congregation pews allow the opportunity for social interaction without obligation, encouraging minimal levels of stress caused by social interaction. Easy navigability encourages a sense of control in the building. This project provides another example of the

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effectiveness of views to nature, use of natural materials, and natural light within a project to promote a low-stress environment.
Fig. 4.14 This analytique was done to represent the physical spaces within the diagram that derived the form of the Seattle Public Library.
Fig. 4.15 This drawing shows the symmetry in plan and elevation of the courtyard scheme of the Wren Library
Fig. 4.16 This rendering depicts the spatial quality created under the undulating ceiling of the Mediatheque as well as the roof profile as seen by the surrounding city.
CHAPTER 5:
DESIGN INTENTIONS
PROGRAM AND SPACE EXPERIENCE  57
PROJECT OUTCOMES  61
This project aims to incorporate stress-relieving principles into the evolving program of the public library. A ramp will serve as the primary method of circulation through the building, leading the user on a journey of divestment of external daily stressors. The design will seize opportunities in the necessary building program to provide user control, freedom in social engagement, and access to greenery. For the more active program, social engagement and physical exercise will be methods of lowering stress. The reading room, study areas, and diverges from the main path will employ more tranquil strategies for stress relief to remove the user from visual and audible noise.

The project will promote transit, bicycle, and pedestrian travel by providing signage to the building within several blocks and adequate bicycle storage. Those that arrive by personal vehicle will park in the garage across the street. The entry of the facility needs to be an inviting gesture to the public realm to attract visitors and establish its presence in the busy financial district surrounded by high-rises. On the ground floor, the information desk will be clearly demarcated, offering information on material checkout, activities, events, and way finding through the building. A consistent graphic language will be employed throughout the building to promote self-supported navigability. The bottom floor will be dedicated to promoting social interaction at multiple scales with movable seating, a café, and library event
information. The first floor will also be where periodicals with current news and events are available for reading.

The start of the ramp will be clearly marked to access the next level. The wall lining the ramp will play multiple roles, acting as a railing, shelving, and seating, designed to encourage the user to occasionally pull away from central circulation. Seating along the ramp will accommodate single to multiple users to entertain a variety of social situations. Visual cues in the details along the path will slow the user’s rhythm throughout the ascension of the building.

Computer stations with programs to enable job searching, resume building, and research will be available in the working area. The books will be organized by the Dewey Decimal System and available to search in the library’s database. The shelves will be designed to hold the books and accommodate future technologies, such as augmented reality to aid in locating materials. Meeting rooms will be available for patrons to reserve for small classes and gatherings. A multipurpose room with a desirable view of the city will accommodate exercise and creative classes. This space should be transparent as it looks out onto the city but private from surrounding interior program. Small study rooms will have sound-reductive materials and a view to greenery. Controlled views to the exterior will aid in

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buffering visual noise.

The reading room will be the final destination in the building at the highest level, promoting the most tranquil elements of stress relief. Here the design will go deeper into ambient qualities involving the five senses. A water feature will cultivate a calming visual and audible environment. Sound reductive materials will be applied where possible to dampen sound. The architecture will utilize light delicately to avoid any harshness or discomfort for the readers. The reading room should act as the ultimate retreat from city while maintaining desired views to it.
The library will be located within the urban setting of downtown San Francisco, California to provide a place of respite that induces a stress-healing environment. Public libraries exist in most communities of urban areas as a civic service. As public facilities, libraries bear a sense of pride to the city; the building serves as a representation of the community that it is in. They are available and accessible to the public for a wide variety of needs expanding far beyond book rental. The library’s adaptive program suggests the ability to expand the public library’s responsibility to civic service and provide a stress-healing environment for urbanites.

The new public library will serve as a prototype urban development to experimentally explore, and ultimately demonstrate stress-relieving principles. Various architectural techniques involving spatial layout, social behavior, and natural elements will be incorporated based on their relationships to psychological and physiological effects on the user. The project will offer mediation of social interaction at multiple levels, offer control and choice in urban life patterns, and maximize the impact of biophilic principles in order to foster a positive mental, social, and physical environment for the increasing urban population.
APPENDIX A:
WORK CITED
**Psychological Response**


*Building Happiness* discusses the nature of happiness within our built environment. The nature of our environment and how we use it and how we are conditioned by it is considered in detail; particularly the ways this affects our sense of wellbeing or happiness.


This article talks about the importance of social interaction in a community, and the ways to achieve it.


Effects of high-rise housing on residents’ social attitudes compared to low-rise housing. Lack of control, safety, and privacy induced negative social experiences and decrease in well-being.

**Design Tactics**


Mr. Turcza’s thesis studied spatial organization in architecture.

This article differentiates “density” and “over-crowding” and identifies design tactics that cities employ to deal with density and keep vehicular and pedestrian traffic moving to avoid the feeling of over-crowding.

Biophilia


Encounters with nearby nature help alleviate mental fatigue by relaxing and restoring the mind. Both visual access and being within green space helps to restore the mind’s ability to focus.


Stress

Studies reveal a correlation between living in an urban environment with increased stress in brain activity. The next step would be to correlate the specific factors of urban city life that cause stress.

This article names New York as the most stressful city because of its noise, uncontrollable environments, and its excessive social interaction. The author names studies that prove his hypothesis and categorize the types of people that are most affected by the urban stress environment.

This excerpt aims to prove that the physical environment affects mental wellbeing. It names studies that identify mental agitators in the physical environment, which the authors categorize into seven types of physical environments, and discusses ambient properties that also affect mental wellbeing. The authors describe principles that foster a positive mental environment particular to the project type, but do not offer examples or precedents of successful or failed projects in regards to design.


Forbes Magazine analyzed data taken by the Census Bureau to find America’s most stressful cities in 2011.

Libraries

This text provides a detailed history of the Seattle Public Library from SLA’s inception to the institution’s current building by Rem Koolhaas.
This article is a case study on the Orlando Public Library, exemplifying a contemporary model of the traditional library. “When the first public libraries were started, books were the technology of the time, the technology has changed. But the constant is learning.” This library functions more as a mediatheque, offering computer, program, and career classes to the public. The next step in the evolution of this library is the technology center including music, film, and photography studios, editing bays, driving and flight simulators, even a fabrication lab with 3-D printers.


ArchDaily documents the New Jersey library.


Site Context


Maurer, Sam. “Hill Mapper San Francisco.” Hill Mapper San Francisco. Accessed April 9,
More information on San Francisco’s topography is accessed here.

San Francisco’s various ecosystems are laid out here. This site allows the user to input an 
address and find the plants native to the area.

Barclay, Shelly. “List of Four Landforms in California.” Getaway Tips. Accessed April 9, 
The four landforms in California, including San Francisco Bay, is outlined here.

The zoning map is used to locate the site in a commercial district and identify surrounding 
zones.

static-shell.com/content/dam/shell-new/local/country/sgp/downloads/pdf/new-lenses-on- 
future-cities.pdf. 
This article shows population statistics and energy consumption case studies. It will be useful 
in predicting future city densities.

Stress Indicators in the United States and California

Data was attained here to contribute to the stress indicator graphs.

Traffic has been increasing in California, parallel to the increase in population and density.

The American Psychological Association collects data annually to measure trends in the 
mental state of Americans.
“The Economic Report of the President is an annual report written by the Chair of the Council of Economic Advisers. An important vehicle for presenting the Administration’s domestic and international economic policies, it provides an overview of the nation’s economic progress with text and extensive data appendices.”

California income and salary information was attained here to contribute to the stress indicator graphs.

This site was useful in the stress indicator graphs to help determine the state of the economy since 2009.

The information attained here was used to compare the bay area’s cost of living to the national averages during the same years.

The number of hours worked in the US from years 2009-2014 was accessed here.

Rent prices for San Francisco was accessed here to analyze the increase cost of living in the bay area.

Population information accessed here provided population information to calculate density data for San Francisco.
APPENDIX B:
PRELIMINARY DESIGN
MATERIAL PALETTE

tall grasses
moss
arizona lupine
native tree
lavender
blue blossom
hanging ivy
concrete
steel
sand
redwood
plaster
water
cork
Fig. 6.1 Design inspiration photos along the path
**ENVELOPE**
Interior programming is organized by activity engagement, decreasing in activity as the user moves upwards. The outer skin will control light and views to the exterior.

**PATH**
Users are encouraged to circulate the library via the ramp that extends throughout the entire building. The user is gradually transported from the active, hectic environment of the street to the reading room on the top floor. Stress relieving principles are increasingly incorporated as the user moves vertically through the building.

**CORE**
One stair is completely enclosed in the smaller volume, allowing light to penetrate from the top. The interstitial space is lit to produce a glow through the external perforated mesh. The other stair core hugs the larger volume, receiving light from one of its four sides through the perforated mesh. The two cores will reflect light and allow translucency from different angles.
Axonometric View