

To the Graduate Council:

I am submitting herewith a thesis written by Rubina R. Siddiqui entitled, "Architecture and Zen Calligraphy: Shaping Spiritual Space." 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.

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*Architecture and Zen Calligraphy:
Shaping Spiritual Space*

A Thesis Presented for
the Master of Architecture Degree
The University of Tennessee, Knoxville

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(Wu)

acknowledgements

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abstract:

“The ancients penned characters as a means of spiritual elevation, for it was considered possible to express the essential spirit of the universe through brushwork.

...the act of writing a character is seen as parallel to the universal process of creation, and an embodiment of the principles that govern life.”

-Barbara Aria

“The way a word is written can convey as much meaning as the word itself.”

-Haji Noor Deen Mi Guangjiang

“Alas, one who does not enter the gate of this art will not glimpse its mysteries!”

-Sun Qianli, *Treatise on Calligraphy*

Calligraphy is the means by which the intangible ideals and experiences of the enlightened person or Zen master are formed and made visible. The art of sacred calligraphy is used specifically for the purposes of evoking emotion or creating experiences of spiritual elevation (Stevens 144). Though at first glance most calligraphy seems to be uninformed brush strokes, the techniques involved in creating provocative and sacred calligraphy are extremely precise and ritualistic. Zen calligraphy is only considered successful when the calligrapher is able to achieve the elevated spiritual station through the ritual journey and the arrival of the mind and soul.

The eminent calligrapher Mohamed Zakariya stated that a work of calligraphy is only complete when it is

experienced by viewing (6). This can be compared to what the contemporary architect, Tadao Ando has said: “A great building comes alive only when someone enters it” (Auping 25). Both of these statements are an expression of the individual’s interpretation of either the calligraphy or the space, adding the element of a personal experience. Just as in architecture, calligraphy uses the compositional form and space to express emotion or meaning. The experiences, emotion and unity between the person or user within an architectural space and the architecture itself are all reflective of what is achieved by the viewer of sacred calligraphy (figure 1). For this reason, I believe that an architectural space based on the same principles of sacred calligraphy can convey not only intangible spiritual ideas, but also heightened experiences of spirit and soul.

A library project is fitting to the thesis argument because of the close relationship of reading and ritual. According to Louis Kahn, institutions are symbolic of human desires, such as the desire to learn, which can be expressed only in community, through people coming together. “For Kahn, architecture is the art whose concern is human institutions” (Lobell 65). The embodiment of a human desire is the essence of calligraphy. How better to express this desire than through the institution of reading, the library?

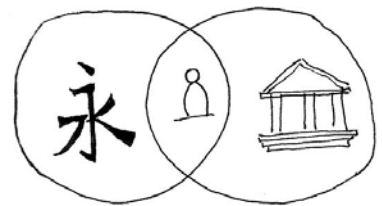


Figure 1: Calligraphy and Architecture Overlap- The relationship of architecture and calligraphy is found with the human spirit (by author).

thesis statement:

This thesis contends that the design of a space can provoke and convey spiritual experiences in ways that parallel the art of calligraphy's ability to convey intangible spiritual aspirations. This can be achieved when the same elements and principles that are used to create sacred Zen calligraphy are implemented to design a space in order to express spiritual ideas and achieve a spiritually heightening experience.

method of investigation:

I will begin with a brief description of the roles that Chinese and Islamic calligraphy play in their respective cultures and religions and how these roles overlap and define a common or shared spiritual aspiration. I will then look at the process, customs, and rituals that one must undergo in order to produce a piece of sacred calligraphy in the Zen Buddhist tradition; the departure or source, journey, and arrival or goal of the master calligraphy before and after the first brushstroke, ending with the experience of the viewer.

I will then identify elements of architecture that parallel those elements of calligraphy that are discussed. Architectural precedents that have successfully implemented these elements in order to achieve experiences of spiritual heightening or enlightenment will be analyzed.

With the analysis then, the proposed end project of a public library located in the downtown of Washington, D.C. will use those same architectural elements in a manner parallel to that used to create calligraphy.

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I. Defining Calligraphy

I will begin with a short definition of sacred calligraphy in both the Zen Buddhist tradition and the Islamic tradition in order to bring out the similarities of the two art forms. I will briefly touch upon the significance that both arts play religiously and spiritually.

“If it was a flower, it would be a rose; if a metal, gold.”

-Early Arabic Proverb on Calligraphy

“Words are the voice of the heart; calligraphy is the painting of the heart.”

-Master Yang

Chan/Zen Calligraphy

spiritual significance

The written character has had spiritual significance in Chinese culture. In ancient Chinese tradition, the scholars penned characters as a means of spiritual elevation (figure 2) (Aria 9). It was considered possible to express the essential spirit of the universe through brushwork. The simple act of writing a character is seen as parallel to the universal belief that was held for the process of creation; almost a reenactment of the Divine in the form of worship.

religious significance

The idea that the Universe was created from an original Oneness, known as the Tao, spurs the thought that every character derives from the first brush stroke; the one that preceded all others (Aria 8).

The Taoist idea of creation begins with the Oneness. From the One came two and from the two came the ten thousand things of the world, each, having have been derived from the One, contains in itself, the germ of the original. However, it has its own way of expressing that principle of Tao that it possesses. Since everything in the Universe is linked by a shared origin and each being has its place in the whole, there exists a natural tendency toward harmony (Aria 10). A shared origin between all things in the Universe also means shared characteristics.

Taoism began as a complex system of philosophical thought that could be indulged in by only a few individuals. In later centuries it emerged, perhaps under the influence of Buddhism, as a communal religion. The goal of adherents of Chan, or Zen, Buddhism is to gain transcendental, or highest, wisdom from the depths of one's unconscious, where it lies dormant. Chan tries to attain enlightenment without the aid of common religious observances: study, scriptures, ceremonies, or good deeds. Thus the development of art and calligraphy flourished with the Zen Buddhists.

flow of calligraphy

Shih-t'ao, an artist monk born during the Ming Dynasty, stated that the action of water is the ideal model for the human spirit. People of virtue are to



Figure 2: Water Calligraphy- A man in Beijing engages in water calligraphy. This hobby emphasizes the importance of the act of writing rather than the actual words themselves (photo by author).

follow their own true nature and do what they do for its own sake. Similarly, the art of calligraphy is seen as a matter of simply letting the true spirit within the calligrapher, the brush, the ink, and paper flow free without hindrance (Aria 13). This is only natural (figure 3).

Islamic Calligraphy

spiritual significance

Similar to the Chinese tradition of calligraphy, Islamic calligraphy is to support and strengthen the spiritual edifice of faith. Calligraphy celebrates the sounds and meanings of the sacred text of the Quran and preserves its accuracy. To write the Quran, or parts of it, is an act of religious devotion and merit. Writing came to be consistent with possessing Divine Power or Energy.

religious significance

“Read” was the first word of God’s divine revelation to the Prophet Muhammad. Because of this, the written word has held a high position in the Islamic religion. The Arabic language became the vehicle for the Revelation, the language of the first Muslims. Therefore, the Arabic language itself possessed its own kind of sacredness. Due to this attitude toward language, it was only natural that writing should

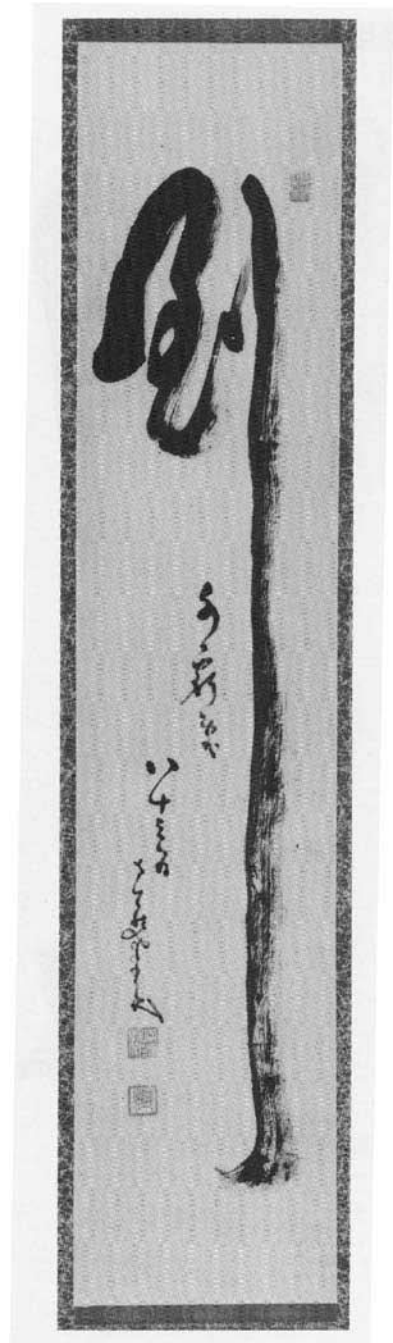


Figure 3: “The Heart shall flow like water” (written by Nantembo).

develop into a major art form in the religion. In the Islamic context, calligraphy became a kind of worship, a religious event that one prepares for as one does for prayer (Zakariya 1).

flow of calligraphy

Kalem cereyani—this Turkish phrase, using words that come from Arabic, means the flow of the pen. Yazir Hoca, the author of *The Flow of the Pen*, says: “It is the state wherein the hand, pen, and ink all work together in a flowing way (Zakariya 12).” The pen should flow like the “breath,” so that the effect of this flowing movement is seen in the calligraphy; it should be seen. Similar to the flow of breath, the pen can have either a natural or an artificial type of flow. In order to be successful, the calligraphy is to hold no effect of artificiality (figure 4). The aim “to flow like breath” is for the pen to advance and go with the utmost innately natural motion (Zakariya 12).



Figure 4: No Harm- “No Harm shall come to those who do No Harm” (written by Mohamed Zakariya).

II. Why Calligraphy as a Generator for Architecture?

“If we define art as part of the realm of experience, we can assume that after a viewer looks at a piece he leaves with the art, because the ‘art’ has been experienced.”

-James Turrell

“Pieces of calligraphy are displayed in the alcove not so much to appreciate the artist’s skill as to discern the spirit concealed in the writing...this tells us something significant about human existence.”

-Omori Sogen, *Zen and the Art of Calligraphy*

The experience of the elevation of the spirit and soul are found throughout all forms of art, including the art of calligraphy. Islamic and Chinese culture are so distinct from one and another and so unrelated, yet their art forms of calligraphy share the same elevated understanding and appreciation, the same inherent spiritual values, and most importantly, they share the common desire to animate, heighten, and enlighten the spirit (figure 5).

I seem to stumble when explaining the spiritual upliftment that can be experienced through the art of calligraphy to those who are unable to read the characters that have been written. The difficulty with calligraphy is the barrier of language. However, this language barrier can be overcome by the semantics of the actual art form itself. A ‘Western’ example of this can be found in the use of iconography in the

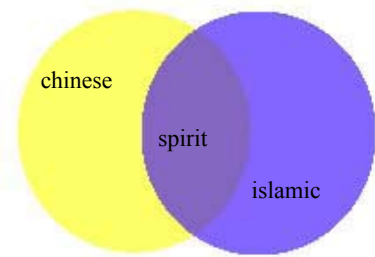


Figure 5: Chinese-Arabic Overlap- The similarities found between Islamic and Chinese calligraphy is the application of the human spirit (by author).

form of frescoes in cathedrals and churches (figure 6). The Byzantine style of iconography was developed in a manner to emphasize the holiness of the figures being depicted, rather than their humanity. These icons, or symbols, allowed for highly complex ideas or material to be presented in a very simply way. This allows even those who cannot read a chance to experience the religious ideals being portrayed.

Though a piece of calligraphy can be appreciated strictly as an art form, the inherent meaning behind what is written can increase the credence and substance of the piece. For one who cannot read the writing, some of the experience is lost. In order for all people to share in the experience of the sacred art of calligraphy, the same principles and rituals used to create calligraphy can be used to generate a “spiritual” architecture that is composed of a universally understood vocabulary, thereby eliminating the barriers of language.

Contrary to the view that calligraphy is based solely on an individual’s inspiration, the creation of calligraphy is achieved by rigorous study, practice, and most importantly, spiritually enhancing rituals. Yesari Mehmed, a renowned Turkish calligrapher is known to say to his students: “Do not forget that while you are writing, you are on a path that is finer than a hair and sharper than a sword” (Zakariya 14). These rituals are extremely precise and concerted and students are not encouraged to stray from them. As historical precedents show, the dictation of the design of an architectural path and space is through ritual. Frank Brown writes in his book, *Roman*

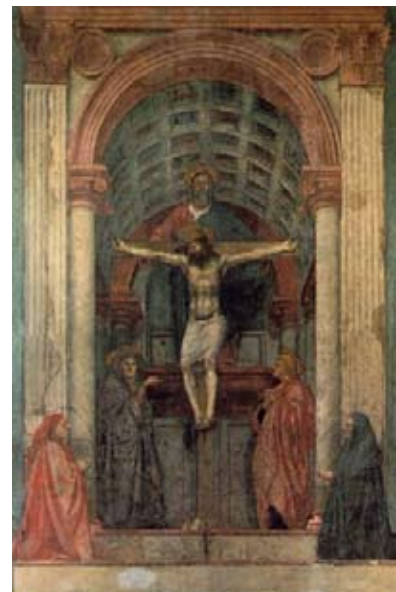


Figure 6: “Holy Trinity”- Italian Renaissance fresco-1425 (by Masaccio).

Architecture, “the architecture of the Romans was, from the first to last, an art of shaping space around ritual (9).” An example of this ritual-inspired design is seen in Louis Kahn’s Phillips Exeter Library. The user of the library is traversing a modern version of a medieval cloister, performing the ritual of reading or learning (Kohane 93).

III. Inherent v. Literate Understanding

As mentioned before, for those who cannot read the characters or words being written calligraphically, the sacredness is not lost altogether. As Mi Guang Jiang stated, “The way a word is written can convey as much meaning as the word itself.” In 1953, a psychologist by the name of John Ridley Stroop demonstrated what is known as the “Stroop Effect.” This test illustrates a delayed reaction time in the recognition of words due to the inherent semantics of how the words are written. For example, when the word ‘green’ is written in blue ink, the mind observes the color blue, before the word green (figure 7). The Stroop Effect exemplifies the idea of a subconscious or inherent reaction to our visual sensory.

This understanding of our visual sensory deconstructs the barriers of language that are erected when viewing sacred calligraphy. The work of calligraphy is seen for more than the words that have been written; instead it is seen for the semantics of the spiritual journey of both the calligrapher and the viewer. To illustrate this further an image of Hakuin Ekaku’s calligraphy is included as figure 8. Even though this kind of calligraphy cannot be read by most people, even those who speak the language, this does not detract from its attractiveness or spiritual effects. What interests the viewer are the vigorous, clear, and beautifully shaped strokes containing the essence of the calligrapher’s spirit (Sogen 30). Hakuin’s calligraphy displays the qualities of the art that can be appreciated by those who cannot read Japanese. This is telling of the unconscious or inherent understanding and reaction to a work of art that appeals to the spiritual sense.

RED GREEN
YELLOW BLUE

Figure 7: Stroop Effect- The mind reads the semantic of the words before the actual letters that comprise the words (by author).

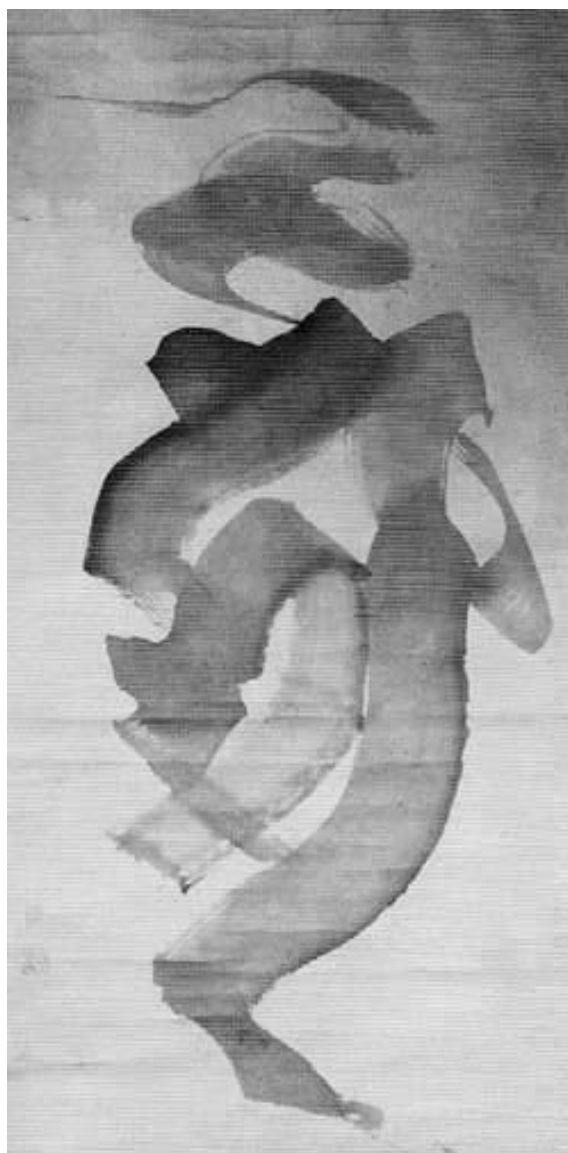


Figure 8: “Hakuin Ekaku”
Even though this kind of calligraphy is unreadable to most people, that does not detract from its attractiveness (written by Hakuin Ekaku, 1760).

IV. The Need for a Spiritual Architecture

Though it may be difficult to describe our era in spiritual terms, it is important to remember that we are not devoid of spiritual values (Barrie 3). Perhaps, in order to animate the spirit, we simply need to have a place in a secular world where a person can tread the path of enlightenment. Regarding his project of the Modern Art Museum in Fort Worth, Texas, Tadao Ando is quoted to say: “If you can be with yourself and your thoughts in a serene place for even just one hour, then this space can provide a special point of energy... I want people to come to reclaim and nourish their spirit and soul. I like to think about being in a space that allows you to forget about the secular side of life, and focus on yourself, which is sacred (Auping 22).”

The sacred cannot be precisely defined. Each of use perceives it through the lens of a unique personal history. For this reason I would disagree with Thomas Barrie’s statement that sacred architecture is “limited to structures intended for communal religious uses.” I would argue that the achievement of architecture is that the mundane, profane, or everyday structures can also enhance and accommodate one’s spiritual journey and make one more acutely aware of the spirituality found in the everyday (Figure 9).

Sacredness in the architecture of everyday does not limit a spiritual experience to a specific audience, nor does it place constraints of time and place to a spiritual journey. According to the Zen Buddhist doctrine, any daily act such as cooking, working with tools or a pen, standing, sitting, lying- these can all be instruments of spiritual forging (Sogen 8).



Figure 9: Interior of the Pantheon- Now a tourist site, the spirituality has not left the space.

Most importantly, a spiritual architecture can make us more acutely aware of our surroundings and those who share it. In a world where the divisions of creed, religion, race, and beliefs have been exploited and have proportionately increased, it is imperative to seek a common language in order to encourage dialogue between all peoples. Using the vocabulary of architecture seems to me to be the obligation of all architects to bridge the divides; providing the necessary point of interaction and communication. The process of awakening the spirit with architecture supports the growing movement towards healing the primary disease of our time: the division of the world into isolated parts (Lawlor, ix). According to Louis Kahn, ritual has to be reawakened as a personal and interpersonal activity. He gave importance to the role of the animation of a participant's soul and spirit, citing that it would encourage the emergence of institutions relevant to "modern life (Kohane 94)." These new institutions, such as the proposed public library, would then, in turn, be new facilitators for interaction and exchange between people.

V. Elements of the Rituals of Calligraphy

“Calligraphy is not an abstract art, but rather an art of given form.”

-Shen Fu, *From Concept to Context*

“The brush never moves without purpose; when it comes down, there must be direction.”

-Sun Qianli, *Treatise on Calligraphy*

Calligraphy can almost be considered a performance art that requires the mastery of specific techniques as well as physical discipline before creative expression by the artist is even considered, or possible. The methods employed to write each stroke, the initial, internal, and terminal movements, and the order of writing the strokes within a character are all prescribed and followed faithfully (Shen Fu 14). Zen Calligraphy is one of the branches of the art that is seen as both structured and unstructured at the same time. As mentioned before, the extremely regimented performance of calligraphy is the underlying foundation of a true piece of art. Zen calligraphy requires the physical discipline of a Buddhist master and the skillful hands of a sword master. Fine calligraphy may be called the result of wisdom and skill achieving joint excellence, of mind and hand acting in harmony; the firm combination of the physical and the mental (Chang 4) (figure 10).



Figure 10: Professor Terayama-demonstrating the raising of the brush prior to the first stroke of Zen calligraphy.

transition/threshold:

Zen calligraphy is always begun with the *zazen*. The *zazen* is the well-known act of meditation in Zen Buddhism (figure 11). Meditation is required to prepare the calligrapher mentally; to place him or her in a “spiritual state” that will increase their inner strength. Inner strength is necessary; it is the life-giving element, to produce scared calligraphy (Chang 13). This enables the calligrapher to allow the brush to be an extension of both the mind and heart. The *zazen* can be considered the opening, the threshold, to the spiritual heightening that is experienced with scared calligraphy (figure 12). More importantly, *zazen* prepares one to enter the “world of *Wu*” (figure 13). *Wu*, the Chinese for ‘nothing,’ is considered the entrance into a certain state of awareness of the temporality of things around us. Entering the world of *Wu* enables the calligrapher to leave the worldly things behind and enter through the gateway of the heart and focus on the world of spiritual experience (figure 14). Based on the Taoist thought of all things containing the germ of the original Oneness, *Wu* is the place from which all things emerge; the brushstroke originates and returns to this place (Sogen 9). Thus, the calligrapher is preparing himself for the departure of the journey of the spirit. In order to create Zen art, the mind must be composed, attachments abandoned, and freedom attained. Without such preparation, it is impossible to project one’s spirit into a work of art (Sogen 7).

After the brush is raised into the world of *Wu*, it is brought down to the paper gently, “as gently as falling dew (Sogen 10).” The first stroke requires a gentle



Figure 11: *zazen*- meditation commonly associated with Zen Buddhism.

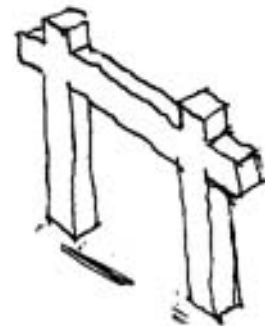
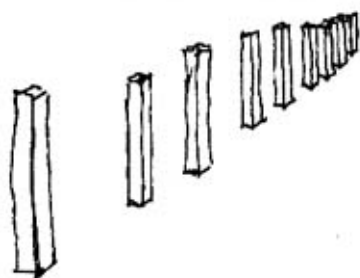


Figure 12: Gateway/Threshold
The act of *zazen* is creating an opening, threshold, or gateway to the spiritual realm (by author).



Figure 13: "Wu"- translated to 'nothing.'



threshold
entering a "focused"
state of mind.

Figure 14: Focusing the Mind
Entering the 'Wu' is becoming more aware of yourself by focusing on your movements (by author).

and slow speed in order emphasize the deliberateness of the stroke and to keep the calligrapher fully aware of his hand and brush. The first stroke is a short horizontal line across the paper known in Japanese as the *ichi*, or the “one” (figure 15). This character is copied numerous times by both students and masters of calligraphy. It is used to practice the art of deliberate slowness, or lingering, without feeling the need for speed or haste. The act of writing the *ichi* is pressed upon all students in order to adequately adapt the hand to the brush. The *ichi* can be likened to the act of *zazen* preformed before writing calligraphy; the *zazen* being mental preparedness, whereas the *ichi* prepares one physically and hones the skills. It is the gateway to further techniques. Only when the act of lingering has been perfected, can one perfect speed of the brush as well (Chang 12). The lingering allows for the first stroke to bleed out into the paper, creating a sense of prominence amongst the other strokes due to its darkness, density, and influence upon the surrounding strokes and paper space.

The Chinese character *yong*, serves the same function as the *ichi*, however, it allows the hand to experience a variety of brushstrokes in terms of direction and speed (Chang 15). The Eight Principle Brushstrokes, as recognized by Li Puguang, are all encompassed in the single character of *yong*. These principle brushstrokes require the techniques of speed, pressure, and direction (figure 16). These are the three main techniques that are mastered by students of calligraphy; the pathways that lead to the creation of a spiritual art form (Chang 14).

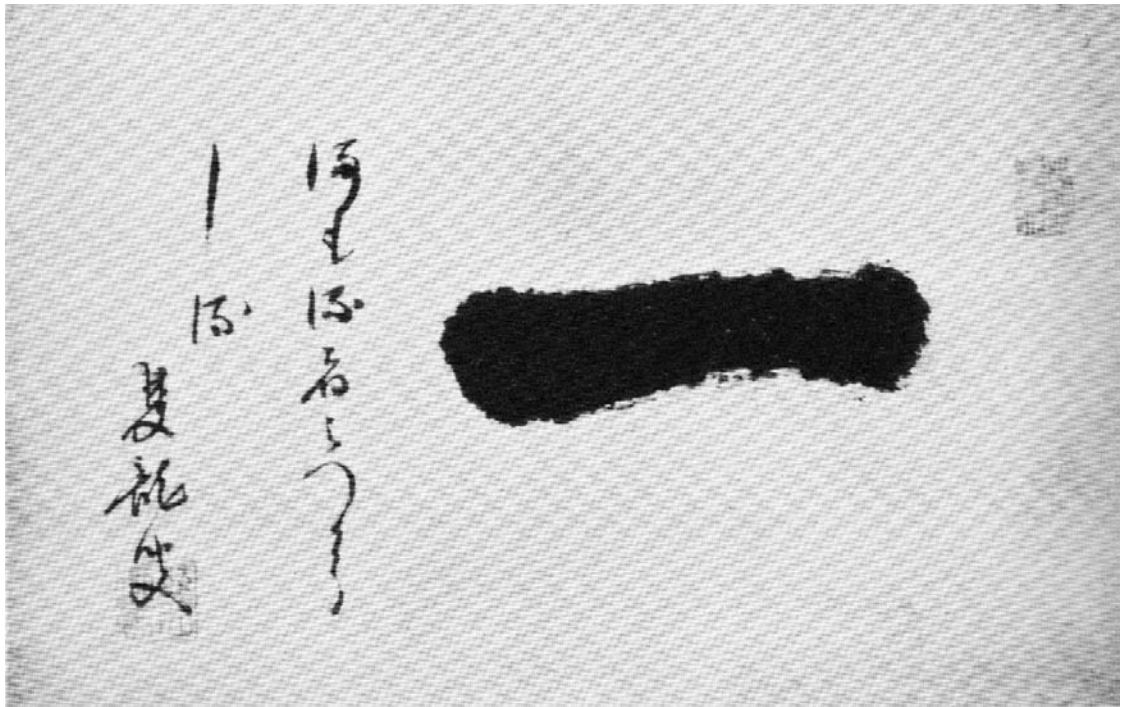


Figure 15: “Ichi”- the first stroke in Japanese Zen calligraphy (written by Jiun).



Figure 16: Yong Stroke Order- the Chinese character *yong*, preceded by the stroke order.

path and pause

I will not go into very much detail regarding the Eight Principle Brushstrokes, but I will touch upon a few of the most frequently used strokes and those that are most significant in terms of creating paths (figure 17). The first stroke of the *yong* is the *Cè* (figure 18). This is treated similarly to the *ichi* in nature. It is seen as a starting point or entrance to the rest of the character. Like most beginning strokes in Zen calligraphy, this is a short diagonal line that begins in the upper left corner and brought down towards the right. The third stroke, known as the *Nǚ* is also called the “iron pillar.” Though this stroke is the not the first one drawn, it acts as the binder of the chracter. It is, as the name indicates, the basic structure that brings all the other strokes together; acting almost as a spine. This is written as a straight vertical line with moderate speed and no variance in thickness. The last stroke of the *yong* is the *Zhé*, known as dismemberment or pressing forcefully. The line thickens as it is pulled down towards the right, showing the increased amount of pressure and speed that is required for this stroke. The *Zhé* completes the character *yong* with sudden speed that brings forth the burst of life into the brush of the calligrapher, carrying him, through his work, to a state of spiritual awareness (Hajji Noor Deen, June 2006) (figure 19a and 19b).

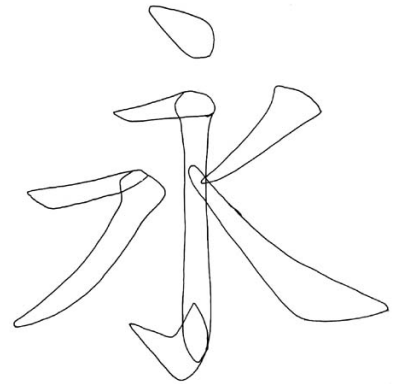


Figure 17: “Yong-Skeleton”
The skeleton of the *yong* (by author).



Figure 18: *Cè* Brushstroke- indicated in red (by author).



Figure 19a: *Nu* Stroke of the *yong*. Translated as the “iron pillar” (by author).



Figure 19b: *Zhe* Stroke of the *yong*. Translated as “dismemberment” due to the swift, downward motion of the brush (by author).

arrival/departure

Upon the completion of the *ichi* or *yong*, the piece of calligraphy is then hung on a prominent wall within full view. Here it can be looked up upon everyday by the calligrapher himself or by those using or occupying the space. The display of the calligraphy is a means of reflection on both the spiritual state of the calligrapher and of the viewer (Stevens 184). How the work is interpreted by the viewer will vary depending on the personal history of the viewer and through which lens he chooses to “read” the calligraphy.

The essence of Zen philosophy is a circle that represents infinity. However, the circle is only completed by the person. Tadao Ando has said: “How you connect the rest of the circle to make your universe is upto your own mind” (Auping 25). As mentioned before, upon viewing the calligraphy, the piece is experienced and, therefore, complete (figure 20).



Figure 20: “Completion”- achieved when the calligraphy is read or the space experienced-by author.

VI. Elements of Architecture

The main elements of the rituals of Zen calligraphy discussed above can be directly translated into essential architectural elements. The architectural elements hold a dependent relationship. That is, one element cannot exist without the other and cannot be 'read' properly without one another. In the proposed public library, the relationship between the calligraphic elements and architectural elements will be similarly read. The calligrapher is analogous to the architect and the viewer to the user. Just like the calligrapher, the architect is composing a work of art for not just his own benefit, but for the spiritual experiences of the user as well.

transition/threshold

Prior to actually passing into the interior of a building, an approach to its entrance along a path forms a type of transitional space, or a threshold (Ching 230).

In the instance of Zen calligraphy, the realization of a truer reality through *zazen* is the catalyst for a transition from worldliness to other-worldliness. The phenomenon of transition appears in architectural history with the conception of a multiple-space building (Gideion 20). An early example of this appearance of transition can be seen in the architecture of the Maltese (Gideion 20) (figure 21). The transitional path is a simple linear element; however, the curved chambers dramatically open wide in contrast to the

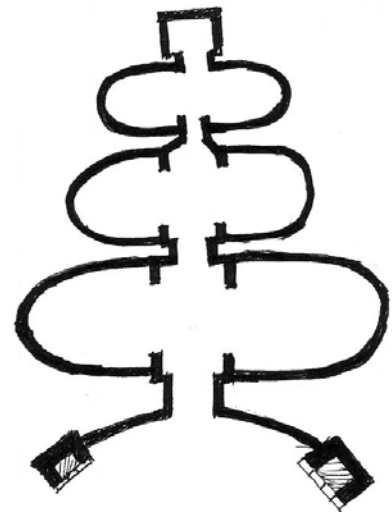


Figure 21: Maltese Temple- plan
The emphasis is on the horizontally spreading semi-circular chambers, linked by an axial corridor -by author.

path. A modern example of this type of transitional element can be seen in Frank Lloyd Wright's Unity Temple in Oak Park, Illinois. An outdoor foyer is at the edge of the streetscape. The outdoor foyer space that is accessed by the exterior path and stairs is enclosed by the two wings of the building. The user approaches from the sidewalk, surrounded by the urban environment. Upon reaching the exterior foyer he turns his back to the street, to the external world and prepares to entry a spiritual place. A very deep overhang at the entrance creates a deception of a tight entry into the foyer proper (Barrie 110). However, once inside, the space opens up in both width and height. This compressive threshold focuses the mind of the person entering, pushing away the external world. The user's attention is turned toward the expansive double story height of the entry and the diffused lighting of the space. The transition is not complete. Upon turning left toward the sanctuary, another constricted intermediary volume appears between the foyer and the chapel space in the form of the corridor that must be traversed to reach the chapel and face the altar (figure 22). A second compressive space prepares the user for the chapel and altar. Only after ascending another six steps is the main floor of the chapel reached (Barrie 110). These transitional elements prepare the user to cross the threshold into a spiritual spatial experience. In the Unity Temple, the final six stairs to the chapel space act as the threshold. The threshold illustrates experiences of transcendence; the departure from one realm to another (Lawlor, 19).

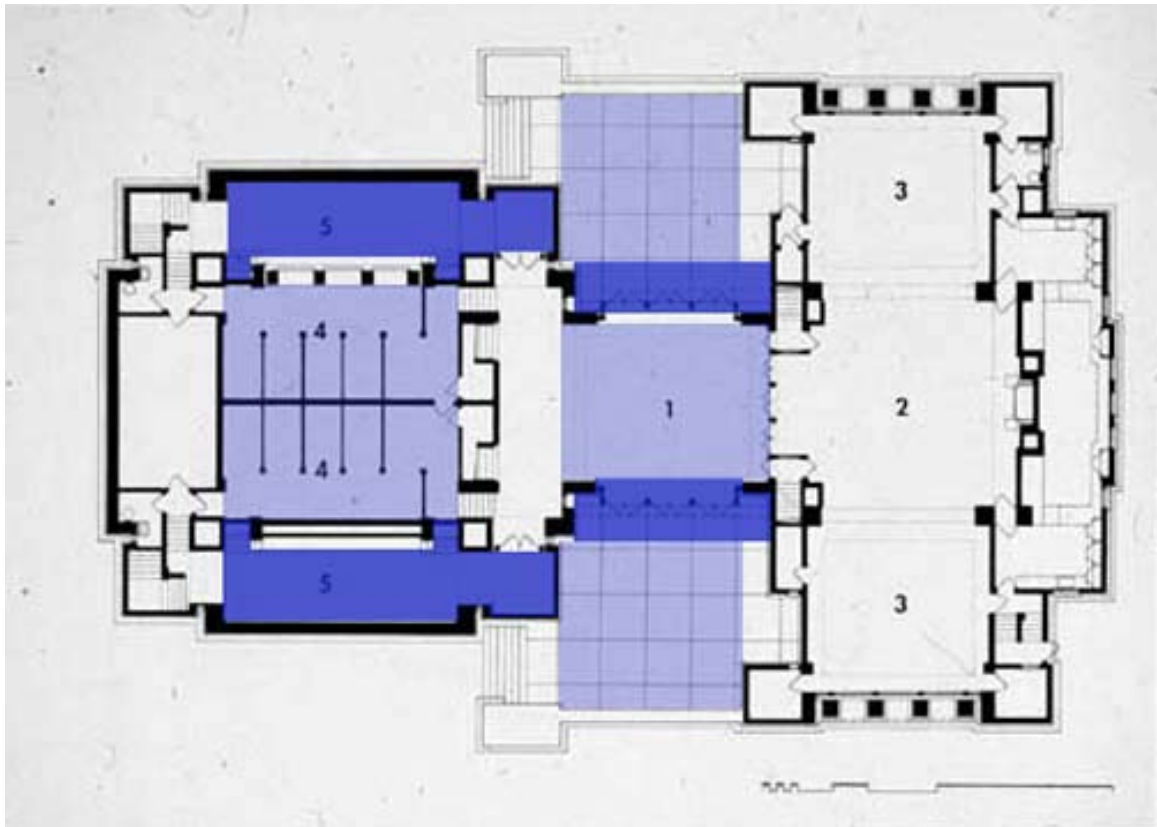


Figure 22: “Compression/Expansion in Unity Temple”
Unity Temple by Frank Lloyd Wright. The dark blue indicates areas of compression in the building. The light blue indicates areas of expansion (by author).

path and pause

Terms that are used to describe the process of spiritual development such as ‘the Way,’ ‘the spiritual path,’ and ‘the sacred journey’ are universal terms. Spiritual architecture can often symbolize the spiritual path and its goal (Barrie, 1). The terms such as “the Way” or “the Journey,” are not by coincidence related to the architectural elements of path, movement, and circulation. The path, as is defined by Kevin Lynch, is “the channel along which the observer customarily, occasionally, or potentially moves (47).” These paths are how the observer experiences the space by way of movement through the space. The path is not limited to just movement and procession. It dictates the spatial quality of a building as well. Movement, spatial quality and sequence, and time all create our perceptual realm. Space is what initiates experience. The path and place in architectural theory are considered essential building blocks or, “the basic schemata of orientation” of design (Norberg-Schulz 24). In architecture the legible path sequence not only orients one physiologically, but psychologically and spiritually as well, preparing one for the destinations of their “spiritual journey” (Barrie 40).

The techniques and rituals related to the creation of calligraphy can be directly related to the creation of an architectural space by way of designing the paths and movement through the space; thereby designing the experience of the space (figure 23).

The design of the path is essentially the design of the experience of a building. How a person moves along the path can create anticipation of an arrival, thus enhancing the experience of the architecture.

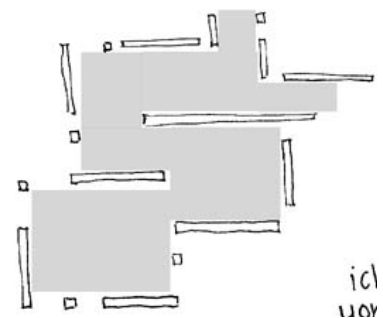


Figure 23: Path-The movements of the brush, hand, and mind when writing the *yong* or the *ichi* vary according to the strokes. The writing of these characters begins your journey- by author.

The Hiroko Oda Museum, also known as the Daylight Museum, by Tadao Ando is a small project that is dictated solely by the movement or circulation of the user through the space (Ando 40). The movement within the site is long and non-linear with glimpses of the small building from different angles (figures 24 and 25). The winding path with the many views of the outside of the museum builds up a sense of anticipation to experience the museum from the inside; creating a desire or longing for the experience. Even when the user has moved into the museum, there is still a long corridor to traverse that is lit with soft, diffused light (figures 26a and 26b). Though the corridor is lit by natural daylight, the translucent glass creates a dimmer environment that causes the traveler of the path to pause and adjust to the light. The soft light coming in from the right side of the user is contrasted with the heavy concrete wall on the left behind which the exhibit space is located. The exhibit space then opens up a larger semi-circular space that is lit by direct sunlight through openings in the roof (figure 27). Ando's use of the path might be likened to the different speeds the brush undergoes when treading the path of writing the *yong*. The slow speed of the first stroke builds up the anticipation and desire for the experience of a written character, ending with a final, swift, short stroke to complete the character.

Similar characteristics can be found in Frank Lloyd Wright's Unity Temple in Oak Park, Illinois. A prolonged circulation (figure 28) leading toward an expansive space heightens the user's sense of

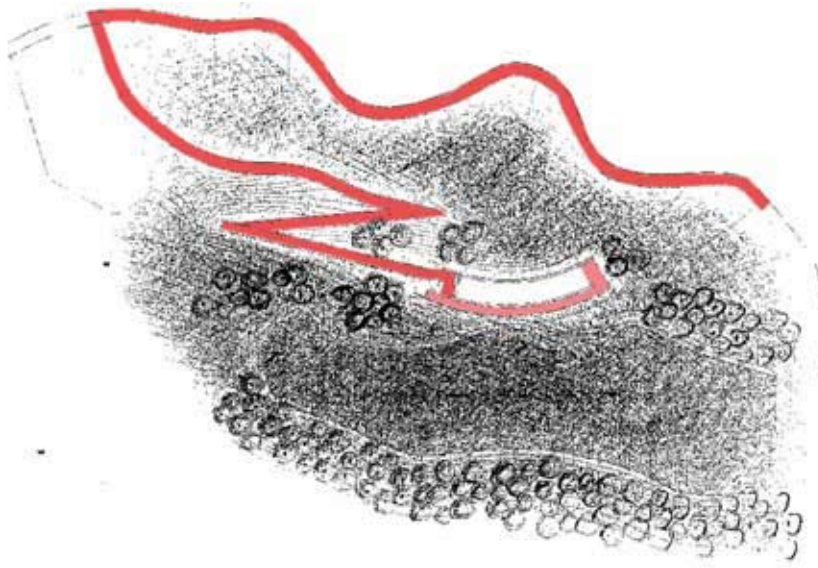


Figure 24: Daylight Museum- Tadao Ando
Winding circulation (indicated in red) -dia-
gram by author



Figure 25: Views from the circulation path
of the Museum. Seeing the Museum before
entering builds a sense of anticipation and fo-
cues the mind on what is to come.

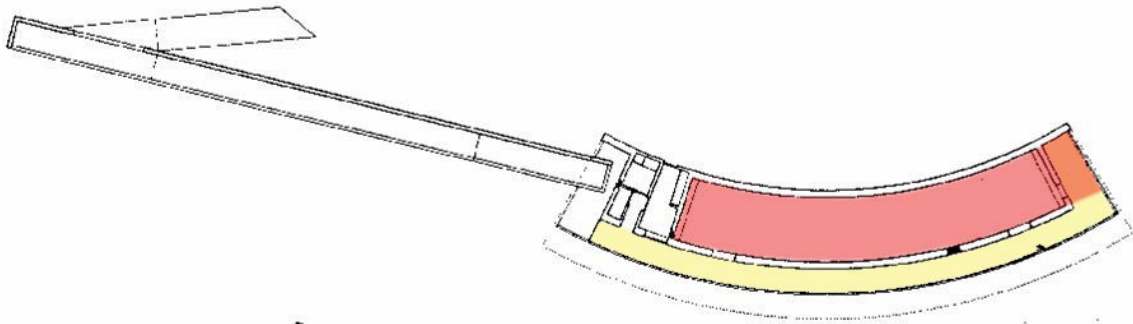


Figure 26a: Interior corridor (indicated in yellow) acting as the “transitional zone,” leading up to the gallery space (indicated in red)- diagram by author.



Figure 26b: Photograph of the interior corridor of the Daylight Museum by Tadao Ando.



Figure 27: Openings in the ceiling in the semi-circular exhibit space of the Daylight Museum by Tadao Ando

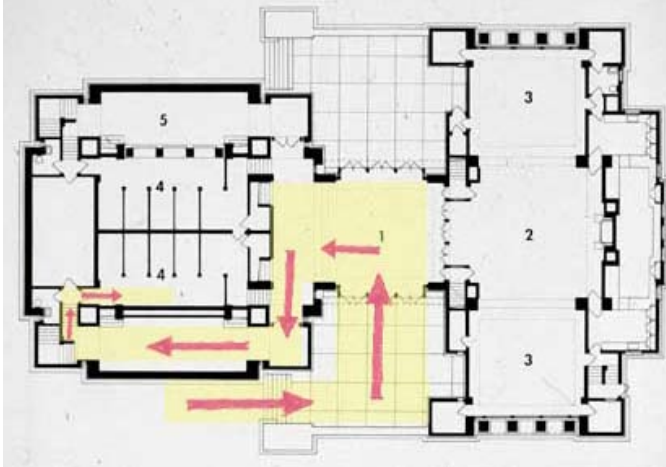


Figure 28: Circulation within the Unity Temple by Frank Lloyd Wright. Shows the procession into the sanctuary space of the church-diagram by author.

procession and arrival upon the space. When the user enters the interior corridor, or the second compressive space, glimpses of the chapel space creates moments of anticipation and pause, also heightening the experience of procession (figure 29a and 29b). Since the chapel space is still elevated in relationship to the corridor, the user is looking upward to catch the glimpses within the chapel space. While the user's gaze is upward, stairs that ascend up to the chapel space divert his attention back to the ground, humbling him. This action is also preparing him for the sight of the altar once he lifts his gaze back up within the chapel space.

A second project of Ando's, the UNESCO Meditation Space in Paris, France, uses the same principles of path as the Daylight Museum. The non-linear path takes the user to different points where the meditation space can be seen before the actual entrance (figure 30 and 31). The path begins at a higher elevation causing the traveler of the path to look down upon the meditation space. When the entrance is approached a contrast between the materials of the elevated path and the ground divert the attention to the feet

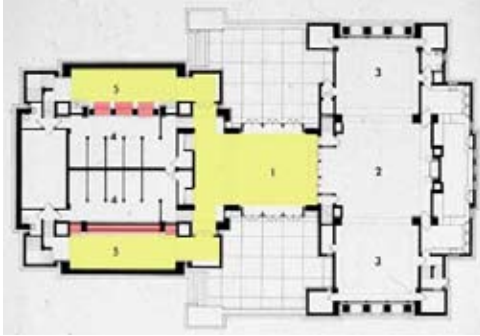


Figure 29a: Moments of Pause (indicated in red) within the circulation path of the Unity Temple- diagram by author.

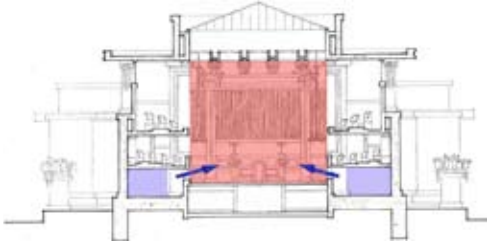


Figure 29b: “Sight-Lines”
Views from within the circulation corridor into the sanctuary space in the Unity Temple- diagram by author.



Figure 30: UNESCO Approach- 1
View of UNESCO Meditation Space from the top of the path.



Figure 31: UNESCO Approach- 2
View of UNESCO Meditation Space entrance from path.

and ground (figure 32). Once inside the meditation space, the traveler is compelled to look upward at the source of light through the ceiling (figure 33). Unlike the exhibition space of the museum, the meditation space is not a final destination, but a stopping point along a continuous path (figure 34). The traveler has the option of the sitting and utilizing the space or of continuing on the path that proceeds on the other side of the meditation space. This can be likened to continuous process of writing and reviewing the *yong*. The completion of the character is not the end of the path that the calligrapher treads, but is a moment when the calligrapher reflects on the character.

Zaha Hadid's Museum of Islamic Arts in Doha, Qatar has a heavy emphasis on circulation and the movement through the project. The paths that the users move upon are prominent in the project as spines or organizational bars from which stems open spaces of the galleries (figure 35).

Hadid herself has likened the project to calligraphy insomuch that there is a fusion between the "gest" and its capacity to signify a "meaning" (Hadid 217) (figure 36). The "gests" being translated into a circulation path can be read as the movements of the users displaying the meaning of these gests. The motifs of gests and cuts organize a number of directional qualities of the user amidst the open and expansive field of spaces (Hadid 217) (figures 37a and 37b).



Figure 32: UNESCO Approach- 3 View from the entrance through the Meditation Space. The contrasting materials used for the two different paths are apparent.



Figure 33: Ceiling- View of the ceiling of the UNESCO Meditation Space.

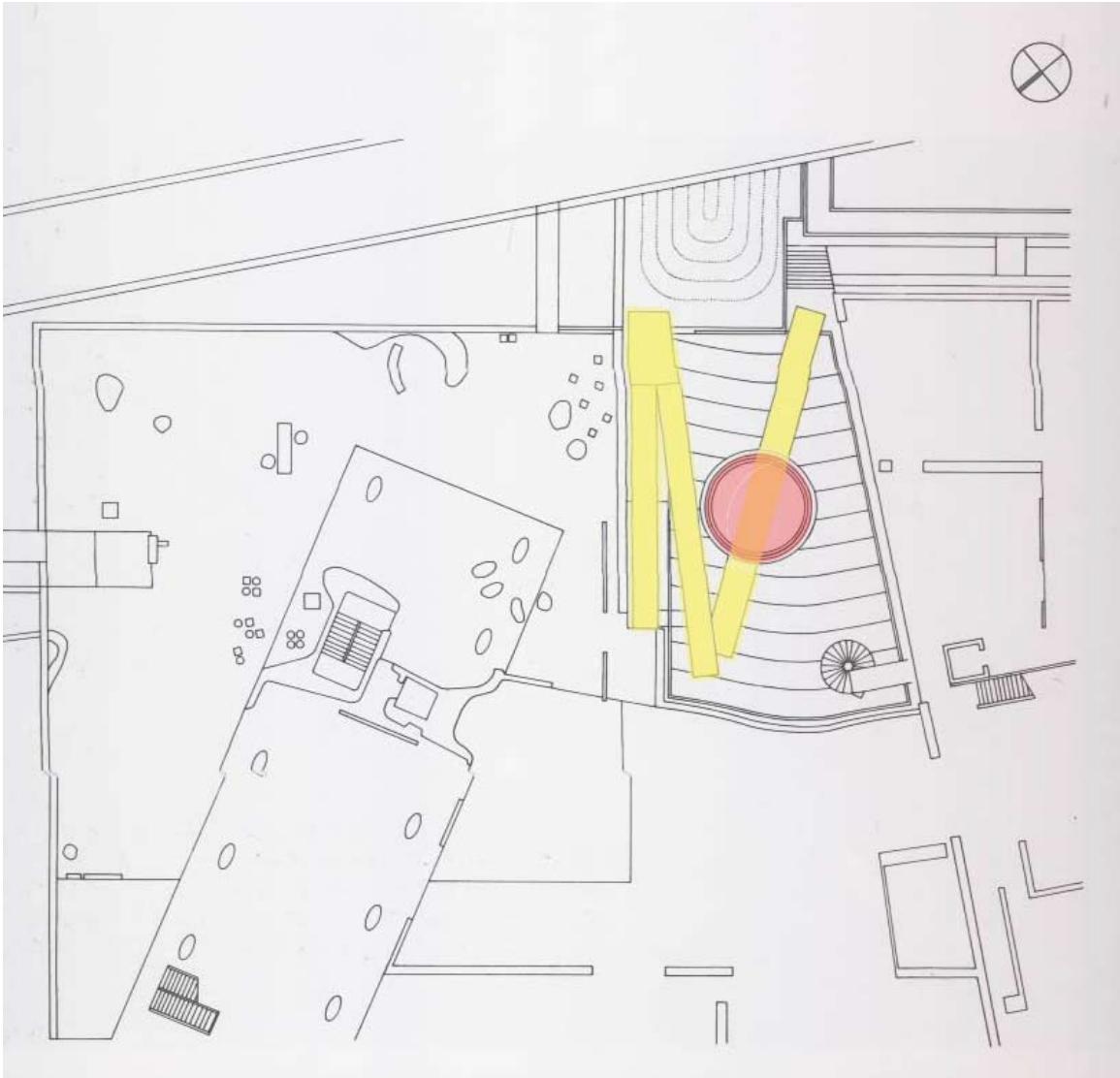


Figure 34: UNESCO Path and Pause
Processional path (indicated in yellow) continuing through the Meditation Space (indicated in red), rather than stopping. This indicates that the space, though a destination, is not a final destination- diagram by author.

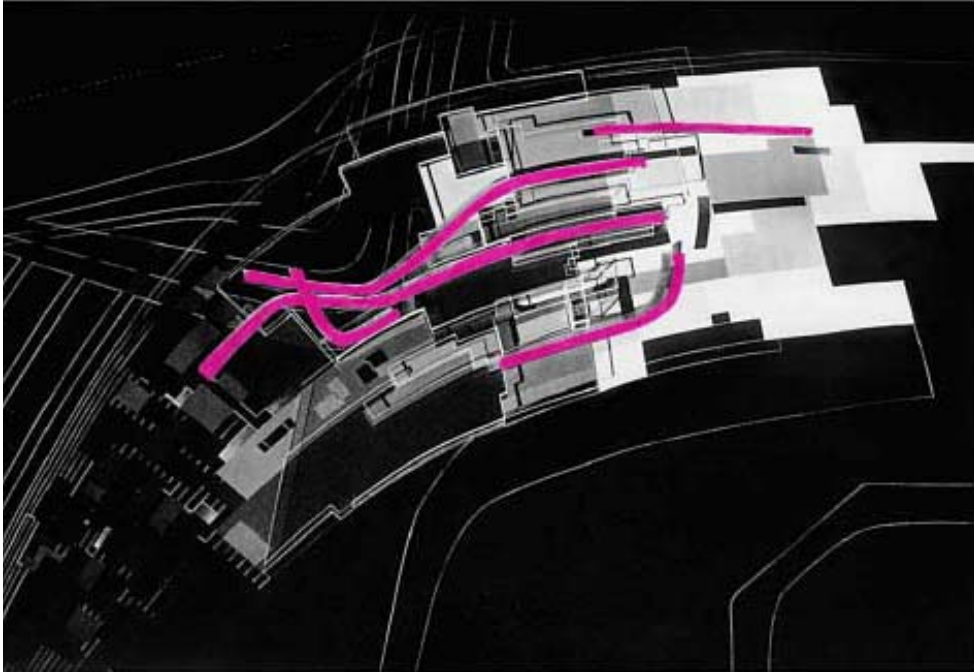


Figure 35: Paths (highlighted in red)- Museum of Islamic Arts, Doha, Qatar by Zaha Hadid- diagram by author.

Figure 36: Calligraphic gests diagram. Showing the flow of the circulation of the Museum of Islamic Arts in Doha, Qatar- diagram by author.



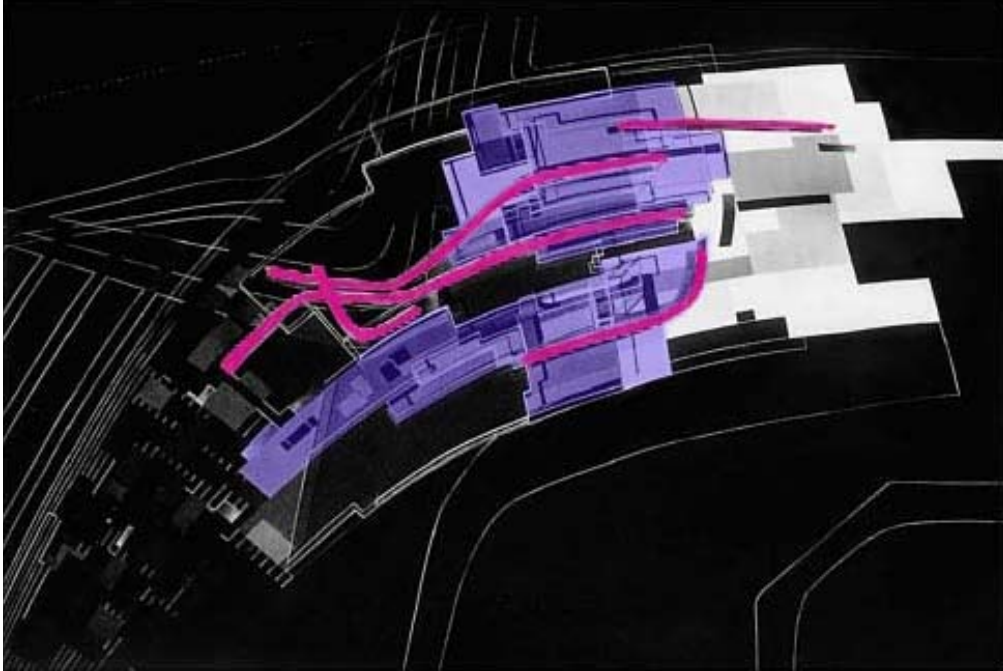


Figure 37a: Arrangement of spaces (indicated in blue) along the circulation paths of the Museum of Islamic Arts- diagram by author.

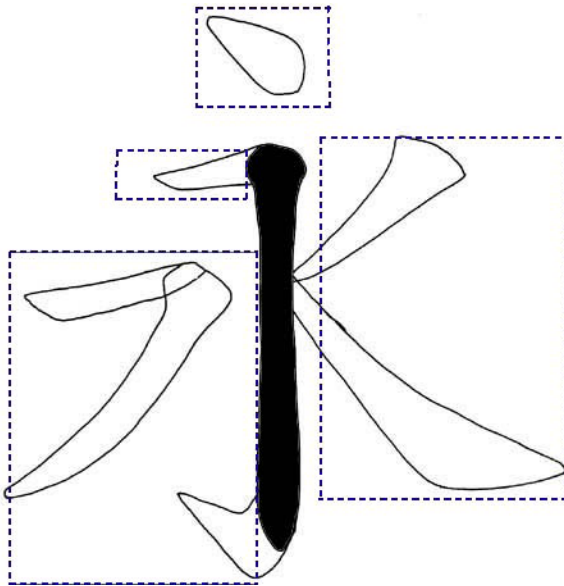


Figure 37b: “Yong Spaces”
Arrangement of the strokes of the *yong* along the “pillar” or “spine” stroke, *Nu*- diagram by author.

arrival/departure

The view and review of a work of a calligrapher suggests that the spiritual journey does not stop with the writing of the character, but is in fact another point of departure. This aspect of the project is fundamental in order to understand the personal and continuous journey the viewer/user takes when seeking a spiritual experience.

Carlo Scarpa's Brion-Vega Cemetery located outside the village of San Vito d'Altivole in the countryside of northern Italy manifests the ideas of multiple arrivals and departures of the cycle of life and death through multiple destinations and thresholds. There are four principle destinations: the meditation platform, the Brion couple's tomb, the priest's tomb, and the chapel (Barrie 236) (figure 38).

The entrance to the Brion-Vega cemetery is located inside the village cemetery around which Scarpa built. Instead of leading to darkness as would be expected for a cemetery, the entrance frames light that is visible at its far end. This draws a person towards the entrance. A brick path surface begins in the village cemetery, establishing a threshold with two courses of lighter colors (Barrie 236). At the entrance there are actually two sets of stairs; the first set consists of three boldly scaled steps, spanning from wall to wall, on which rest three smaller steps, asymmetrically placed within the space. It is the smaller three steps that are to be ascended, and because of their placement and relatively small size, they immediately awaken one to the task, making the user aware of the path they are treading and the place they are entering (Barrie 236) (figure 39).



Figure 38: Four principle destinations- Brion-Vega Cemetery indicated in red- diagram by author.



Figure 39: Entry Stairs- Entrance from the village cemetery marked by contrasting sets of steps and the two interlocking circles.

Once the user enters, he can either turn right in the direction of the meditation platform or left toward the Brion tomb. Upon turning right, the path narrows by a shift in wall. Beyond this point is a glass door that recesses into the concrete floor. This recessed door must be stepped over in order to transition to the outside. This threshold is further marked by a change in ceiling and floor patterns (Barrie, 238). The solid path stretches out over the small pool giving the appearance of floating (figure 40). This change from a solid grounded path to a light floating platform for meditation causes the user to focus once again on what is below or at his feet, making him more aware of his movements. This focusing is also preparing the user for the meditation platform and creating an atmosphere more conducive to meditation.

Multiple instances of thresholds (figure 41) are important in demarcating the different destinations that are present within the single project. Not only does Scarpa use thresholds for these demarcations but utilizes the path as well. This is done by the clearly making the paths themselves; there are a variety of edges formed and a plethora of paving patterns (figure 42). “These patterns change as one walks along the path, which in turn either accelerates or retards the unfolding of the narrative” (Barrie 246).



Figure 40: View of meditation platform at the Brion-Vega Cemetery. One of the four destinations. The platform has the appearance of floating over the pool.

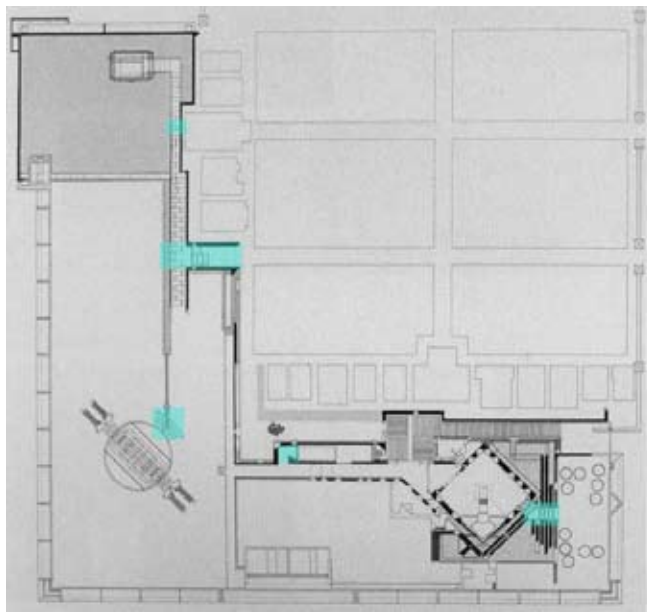


Figure 41: The multiple thresholds within the Brion-Vega Cemetery are indicated in color- diagram by author.



Figure 42: Pathway Material- One of the many variations of paving material and patterns utilized by Scarpa to mark the different entrances and departures of the multiple spaces. The change in material and pattern also keeps the user aware of his movements.

VII. Composition and Arrangement

proportion and relative division

Though there are no inviolable laws governing the composition of Chinese characters in the instance of proportioning of parts, spacing, etc., there are some general principles that are followed. Chiang Yee mentions that these are less laws than they are warnings “against the pitfalls which await the careless or over-confident” (166).

The essential element of composition is the ‘skeleton,’ or the plotting of the parts of the character in relation to one another and the spaces left blank (Yee 167). *Fen-Chien* means ‘relative division.’ The Chinese character is always written in an imaginary square which is divided into either two parts or four parts (figure 43). This is done to help students learn the parts of a character and their relationship to one another. The inherent problem in this type of division is the “disintegrated appearance” the two- or four-part square gives to the character (Yee 167). The separation of strokes in these squares give the character an unconnected look, almost as if two separate characters. They tend to produce the effect of the character “falling apart.” This problem caused by the two- or four-part square is solved with what is known as the ‘nine-fold square’ (Yee 168) (figure 44). The nine-fold square causes two elements of a single character to lean together and form a whole. The character is read clearly and is integrated and harmonious (figure 45). It creates a balanced asymmetry.

The use of the nine- square grid is extremely different



Figure 43: Two and Four Square Division- division of imaginary square into two or four parts- by author.

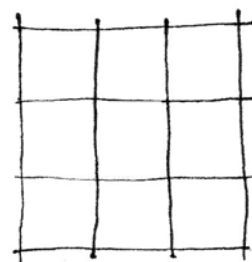


Figure 44: Nine square division.



Figure 45: Tí, or ‘earth.’

in the realm of architecture. The asymmetrical division creates a centralized arrangement that is utilized to create a centralized plan (figure 46). Unlike calligraphy, the centralized arrangement is used to create a separated and divided appearance, with a centralized space, rather than an integrated and whole character (figure 47).

The emphasis on an integrated and whole character rather than a centralized appearance in calligraphy resonates with the Zen idea of spiritual harmony. It can also be compared to the thesis's design idea of a continuous path with no final or centralized destination (figure 48).

negative space and light

Pu-Pai, or the arrangement of spaces, is not merely the left-over white space that is created when black ink is placed on the paper. In calligraphy, the white space, or negative space is used in the same manner as in Chinese painting. The white spaces “constitute unstated expressions of such things as sky, land, or water” (Yee 169) (figure 49). White space plays a similar role in calligraphy. The ‘empty’ portions, or white space, of the imaginary square in which the character is written is full of elements that are joining stroke with stroke (Yee 169). These empty, negative

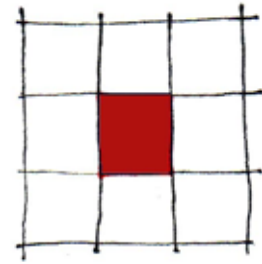


Figure 46: Nine Square Division- Centralized space that is created by the nine-square division as utilized in architecture- by author.

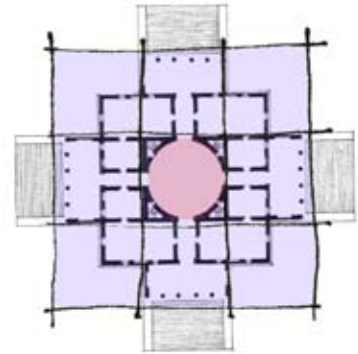


Figure 47: Nine Square Rotunda- Centralized space in the Villa Rotunda by Palladio. Overlay of the nine square grid shows the division and separation created by the square- diagram by author.

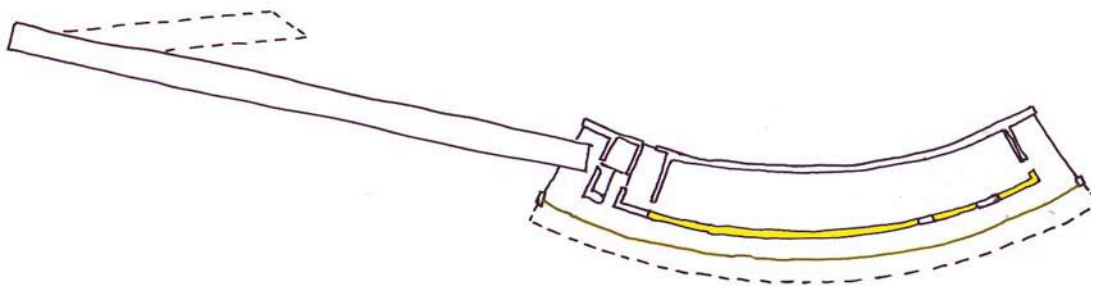


Figure 48: Nine Square Yong- The *yong* with a nine-square grid overlay. The destinations are multiple and can be read any way- by author



Figure 49: “Fate” by Wang Zhen (1922)

Figure 50: Change in material in the Daylight Museum by Tadao Ando. The light yellow indicates the light, glass material while the thicker, darker yellow indicates the thick concrete wall of the exhibit space- diagram by author.



spaces are expected to exhibit some inherent balance and harmony with the strokes of the character. The empty spaces give freedom, breadth, and 'light' to a character (Yee 169).

Though a literal translation of this negative space can be made to architecture in terms of space arrangement and poche spaces, the thesis will focus more on the quality of space that is created by darkness and light. The reading of the space can be enhanced with the presence of light as well as the absence of light. This can be directly related to the idea of the reading of a piece of calligraphy by way of the presence of ink on the paper as well as the absence of the ink.

Ando's Daylight Museum utilizes light to distinguish between the long corridor and the actual exhibition space. On the right hand side the user sees an extremely light material of frosted, translucent glass while on the left side he is experiencing a thick, heavy concrete wall (figure 50). The dim diffused light through the translucent windows are contrasted against the dark atmosphere of the heavily enclosed exhibit space. The contrasting material that is experienced in the transitional corridor can be likened to the thicknesses and darkness of the strokes in contrast to the white space of the paper upon which the character is written.

The UNESCO Meditation Space, also an Ando project, uses the element of light as a tool to read the space. The dark round ceiling is defined by the light that is entering the space through the openings in the ceiling (figure 51).

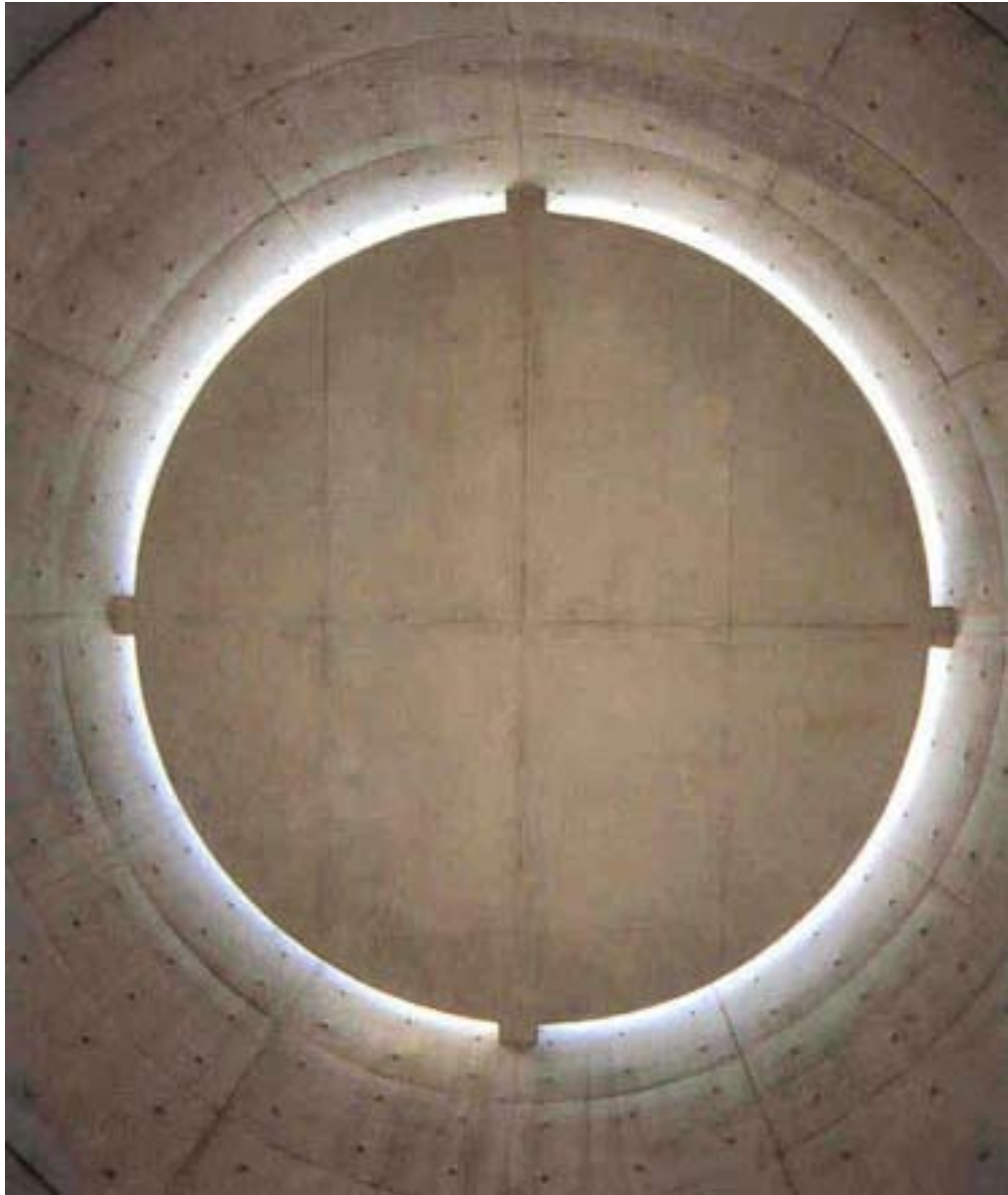


Figure 51: UNESCO Meditation
Space Ceiling- by Tadao Ando.

VIII. Public Library in Downtown Washington, D.C.: Achieving Architecture through Calligraphic Rituals

city and site

The city of Washington, D.C. is a strong symbol of America and its culture of ethnic diversity (figure 52). America, always known as the melting pot, is composed of a population of people who, despite their differences, share the same goals and dreams—most importantly, the spiritual ideals that lead to an “enlightenment.” This is the reason why I have chosen Washington, D.C. as the site for the public library project (figure 53).

The site is an area where numerous neighborhoods, including the “Cultural Corridor,” the Federal Triangle, and the National Mall, come together (figure 54). It is located on the corner of Pennsylvania Avenue and 6th Street. This is directly north of the National Gallery’s West Wing, and two blocks west from the National Capital Building.

In this downtown area, Pennsylvania Avenue acts as an organizational column, or datum, of the city (figures 55 and 56). The districts mentioned earlier, such as the Federal Triangle and the National Mall, are arranged along this road. Many cultural and civic sites such as the National Gallery and I.M. Pei’s East Wing are arranged along Pennsylvania Avenue. These buildings reflect the idea of a provocative public space (figures 57a-d) being present along Pennsylvania Ave. and the National Mall. The placement of the project along the datum

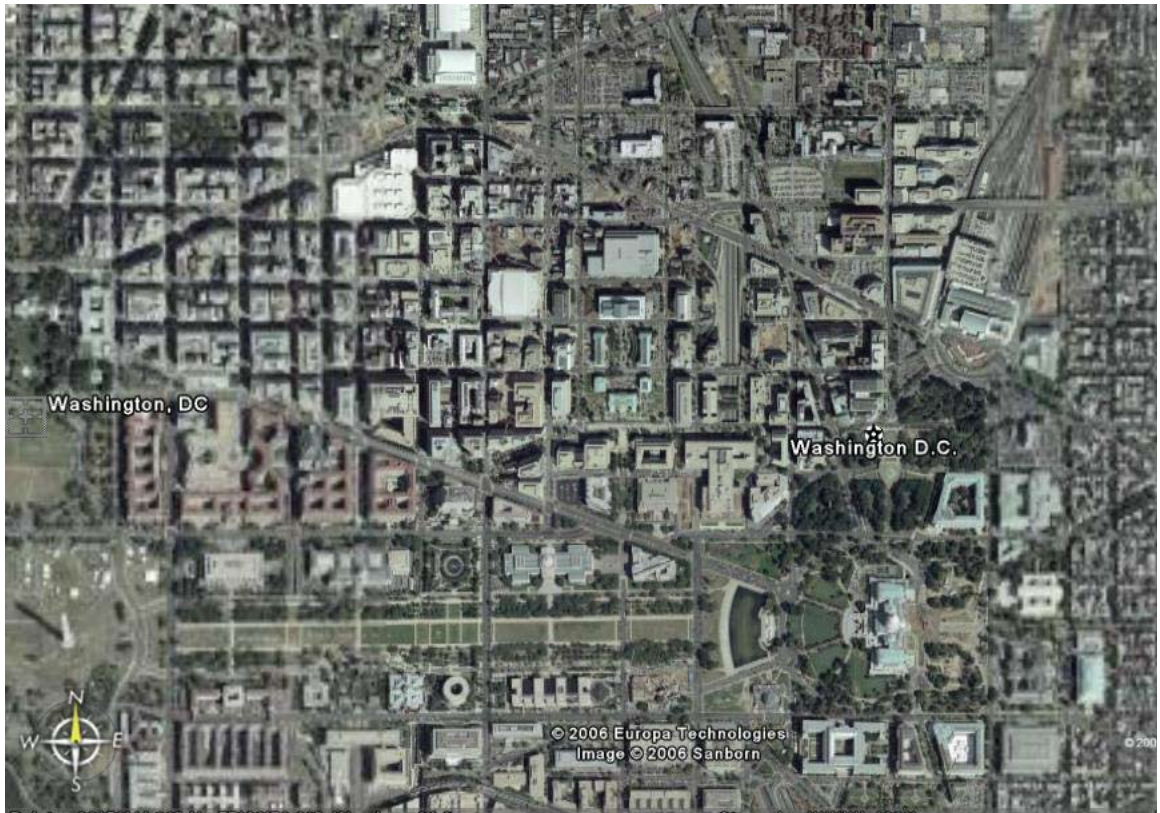


Figure 52: Downtown Washington, D.C.- Google Earth



Figure 53: Site Marker- The site (indicated in red) is located on the corner of Pennsylvania Avenue and 6th Street- Google Earth.



- Shaw Neighborhood
- Chinatown
- "Cultural Corridor"
- Federal Triangle
- National Mall

Figure 54: Washington D.C. Districts- The site is an area where numerous neighborhoods, including the "cultural corridor," the Federal Triangle, and the National Mall, come together- diagram by author.

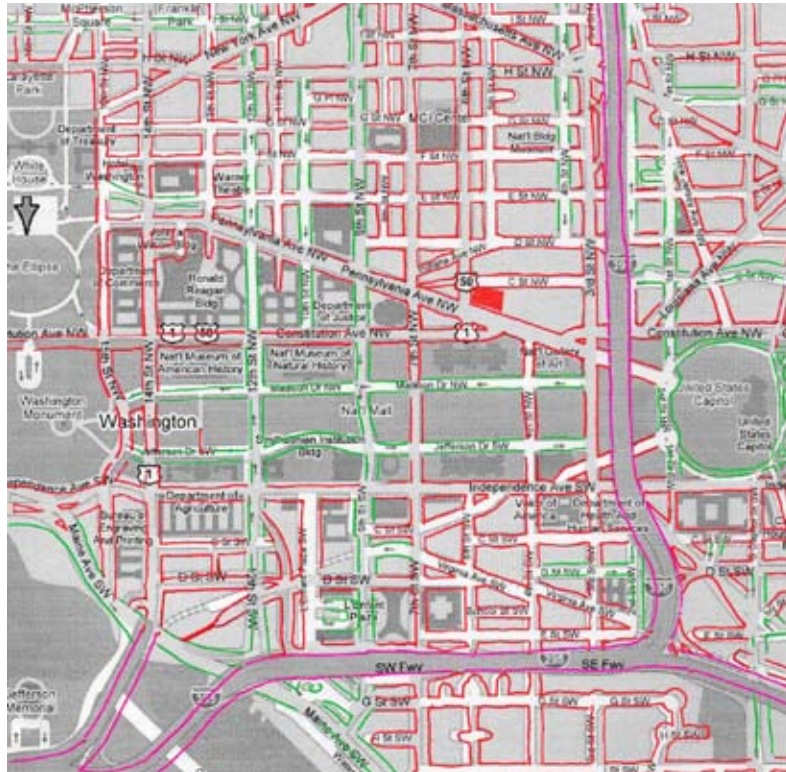


Figure 55 (top): Road map - the downtown district showing the prominence of the diagonally cutting Pennsylvania Avenue- diagram by author.

Figure 56 (bottom): Penn Ave. Diagram- The prominence of Pennsylvania Avenue in this downtown area acts as an organizational spine of the city- diagram by author.





a



b

Figure 57a-57d (clockwise from top left): National Gallery Images- (a) Doorway to an exhibition space in the West Wing; (b) Dome in the West Wing inspired by the Pantheon; (c) Exterior corner of I.M. Pei's East Wing; (d) Lobby of the East Wing



c



d

of Pennsylvania, reflects the formal organization of the “yong” character drawn by a calligrapher (figure 58). The selection of a site that is located along the *Nũ* rather than at the beginning or end of the stroke is to reflect on the idea that the library project is not meant to be a culminating final destination, but a stop along a continuous path towards enlightenment.

The city at a larger scale also allows numerous paths that by-pass, lead up to, and pass through the building site (figure 59). This important characteristic emphasizes two things; first, the fact that multiple paths can lead to the same destination; and secondly, the same paths may lead to different destinations. These ideas are drawn from the fact that a piece of calligraphy is interpreted differently by each viewer, the same how a space is experienced differently by each user. Each of us perceives it through the lens of a unique personal history.

A second aspect that I wish to draw upon from the site is the formality of the organization of the urban fabric as well as the presence of formal gardens and exteriorly-oriented architecture (figure 60). I feel that this is an important element in the project which draws upon the formality of the rituals of Zen calligraphy, especially the idea of transition at thresholds. The idea of the Zen calligrapher entering the world of “Wu,” the world of nothingness, is essential in placing the project in a prominent site that can still hold the same humility of the “no place” (figure 61).

The surrounding buildings are at a large urban scale, with multiple stories (figure 62). I feel that this scale will heighten the sense of humbleness that is required when seeking to enter into the “world of nothingness,”



Figure 58: Yong on Site- The *yong* is superimposed on the site. This shows the place of the proposed building site in relation to the overall site. The idea of the library being a stop, or pause, along the path, rather than a final destination in the site- diagram by author.

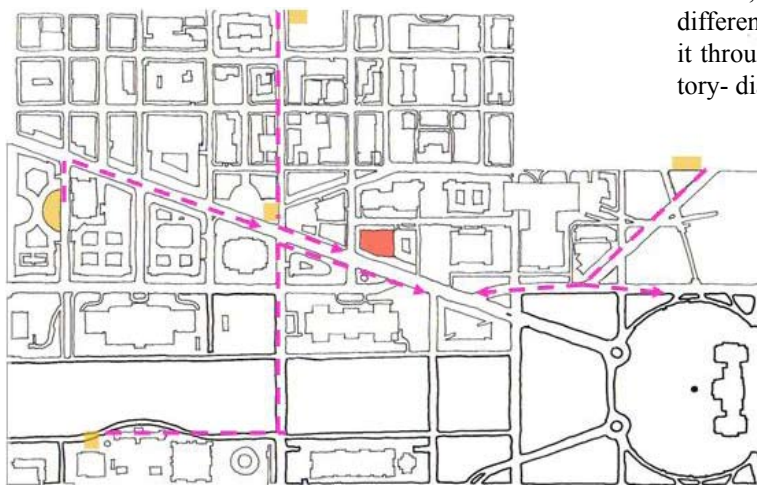


Figure 59: Metro Stop Circulation- These ideas are drawn from the fact that a piece of calligraphy is interpreted differently by each viewer, the same how a space is experienced differently by each user. Each of us perceives it through the lens of a unique personal history- diagram by author.

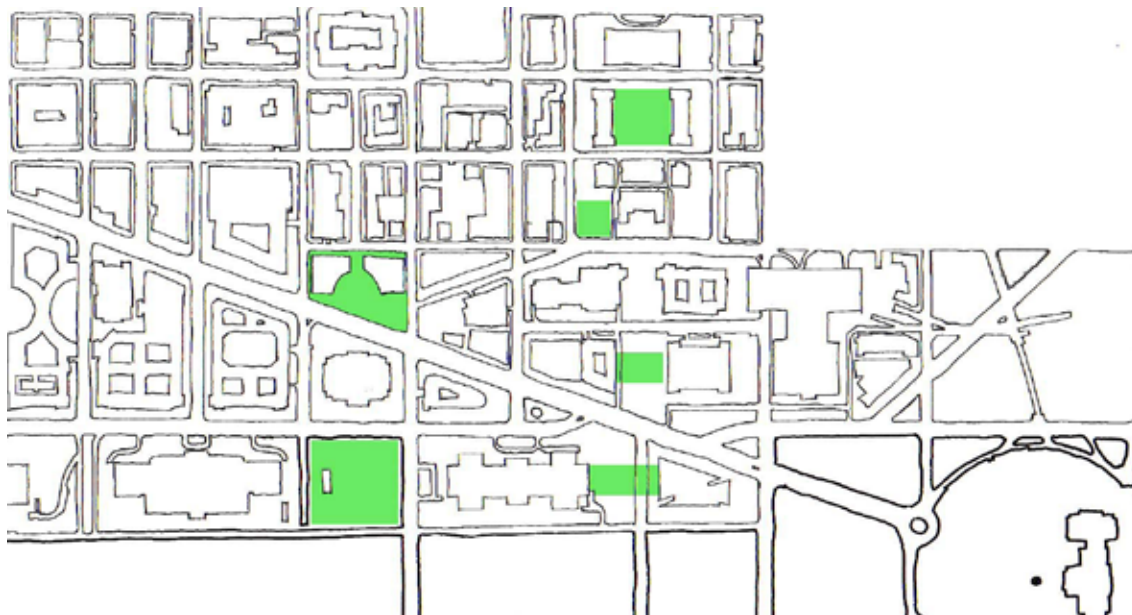


Figure 60: Exterior Architecture- indicating formal hardscape plazas associated with major cultural buildings, the National Sculpture Garden, the Law Enforcement Memorial- The presence of formal gardens and landscaped plazas encourages and supports an approach, threshold, and exterior architecture that relates to the transition of a Zen calligrapher-diagram by author.

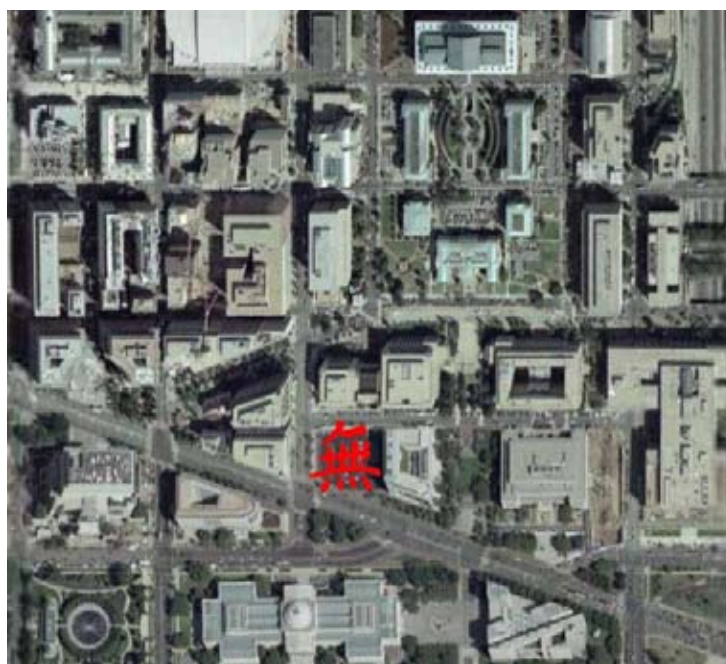


Figure 61: Wu on Site- The formality of the site encourages the awareness of the building. Yet, a dominance of an “exterior” architecture will encourage the obscurity of the building as well. This relates to the idea of a the world of “Wu” that a Zen calligrapher transitions through; a world of nothing- diagram by author.



Figure 62: Buildings' Scale- The surrounding buildings are at a large urban scale, with multiple stories.

preparing the user for an experience for their spirit. The prominence of the site on Pennsylvania Ave. and its relationship to the U.S. Capital Building and the National Gallery enhances the site and library's humility without undermining its importance. The site frames the intensified and enhanced view to these monuments of Washington, D.C. (figure 63a and 63b). I also believe that the scale is practical for the program that is required of a public library project with a large amount of the footprint being dedicated to an exterior architecture.

The library itself is meant to have been "written" into the city fabric. The height of the library is comparable to that of the surrounding context without being overpowered, or overpowering (figure 64). When the library was "written" into the site, the rare book collection, the substance of the project, is regarded as the first stroke, the *cè*. Thus, this first stroke and its bleeding was used to inform the rest of the project. The placement of the exterior space, the courtyard and garden which holds the rare book collection building, in the north-east part of the site puts the private, more intimate element of the library away from the public thoroughfare of Pennsylvania Avenue. The main library, gallery, and other public spaces are located alongside the main streets of Pennsylvania and 6th Street, enhancing the privacy and intimacy of the courtyard and the rare book collection within it. The building which houses the rare book collection within this courtyard is then encompassed by the remainder of the library as well as the surrounding buildings creating an enclosure for the rare book collection and the courtyard (figure 65).



a



b

Figure 63a: View of Capital Building
Figure 63b: View of National Gallery

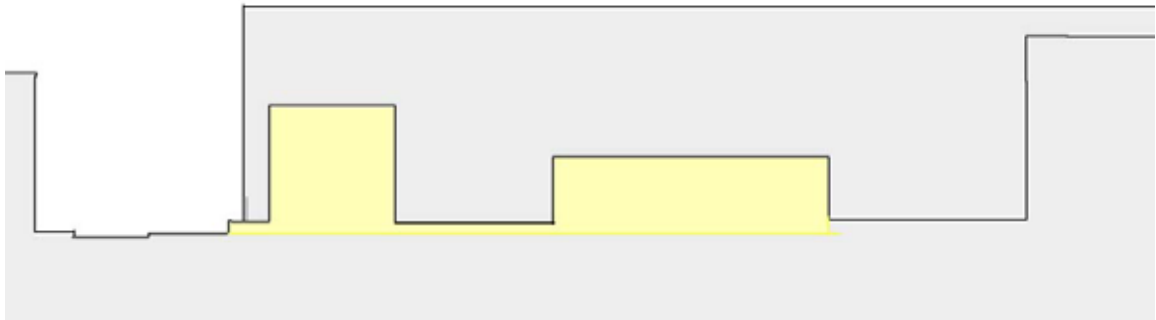


Figure 64 (top): Site Section Diagram- the surrounding context (gray) in relationship to the library (yellow).

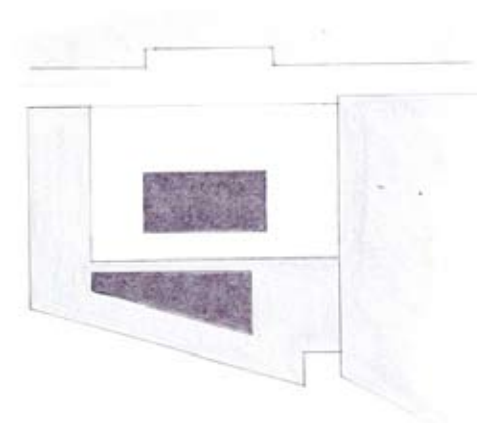


Figure 65 (left): Enclosure- the rare book collection and the courtyard that contains it are enclosed by the surrounding buildings.

Site forces were identified through a study of the flow of pedestrian and vehicular movement as well as the inherent eastward movement that is found in the L'Enfant plan of Washington, D.C. Brushstrokes were created by the influence of these forces and can be seen in figure 66. These site forces were used to inform how the building is “written” into the city. The thick, dark portion of the stroke, based on the speed and direction of movement, (figure 67) indicates an area of high density. This density is translated in the façades of the building as areas of physical density and density created by the absence of light (figure 68). The recessed portion of the façade marks the entrance of the library at the point of heaviest flow of the site forces. The pulled, open-air terrace of the care and the viewing platform on the 4th floor contrasts the entry with its direct light and very little building mass (figure 69). The Pennsylvania Avenue façade bears similar characteristics driven by the same site forces. The thicker stroke along Pennsylvania Avenue translates again into a denser, darker area (figure 70). A recessed colonnade is found along the Pennsylvania Ave. side of the building (figure 71). Elevation other architectural drawings can be found in the appendix.

The common material found in this part of Washington D.C. is large masonry such as the limestone used both wings of the National Gallery. In order to keep the characteristics of the monumentality of the surrounding context, large concrete panels in the proportions of the masonry of the surrounding Canadian Embassy and D.C. Courthouse are used for the main building housing the library, gallery, and

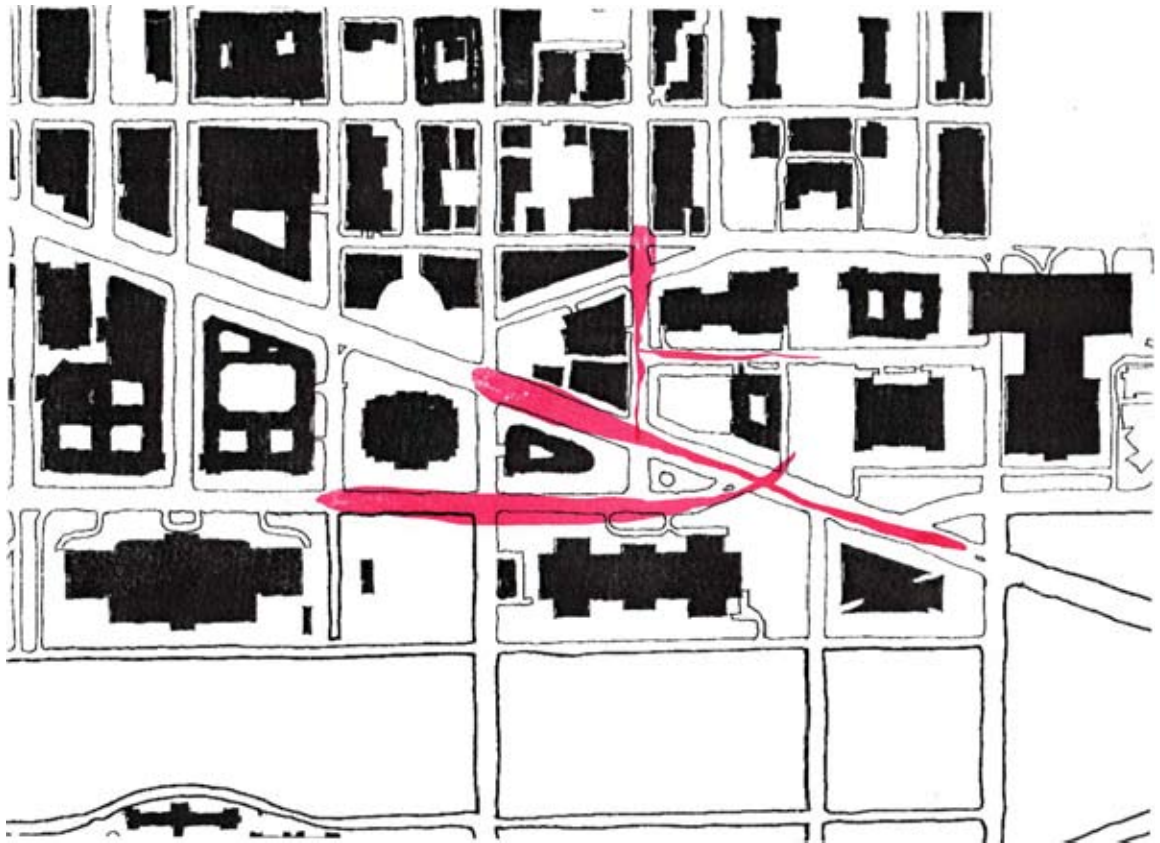


Figure 66 (top): Site Strokes 1

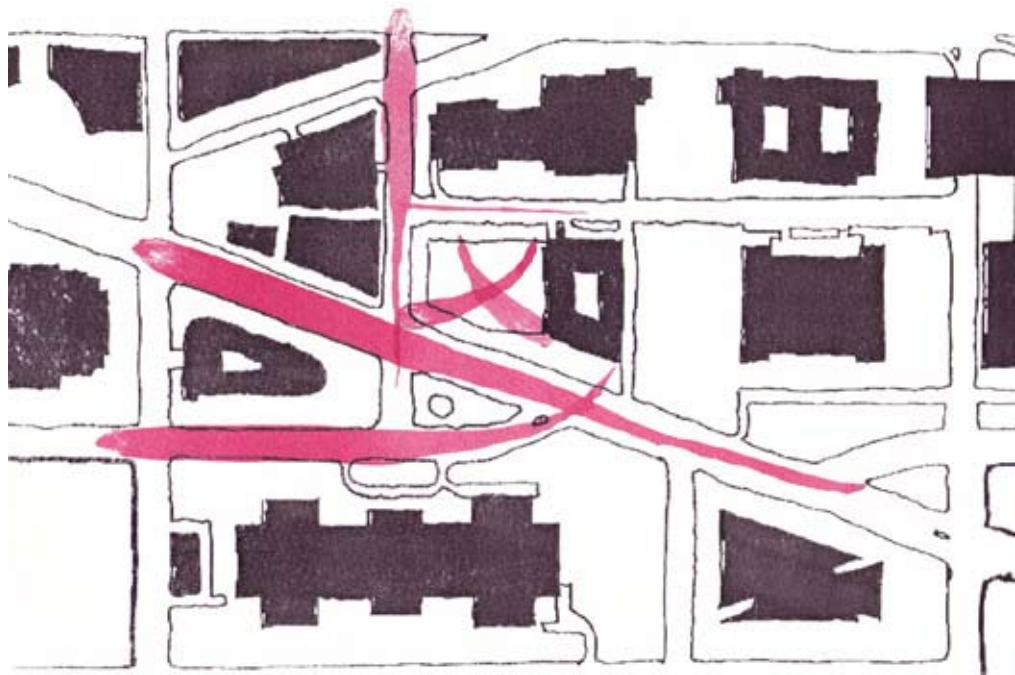


Figure 67 (top): Site Strokes 2

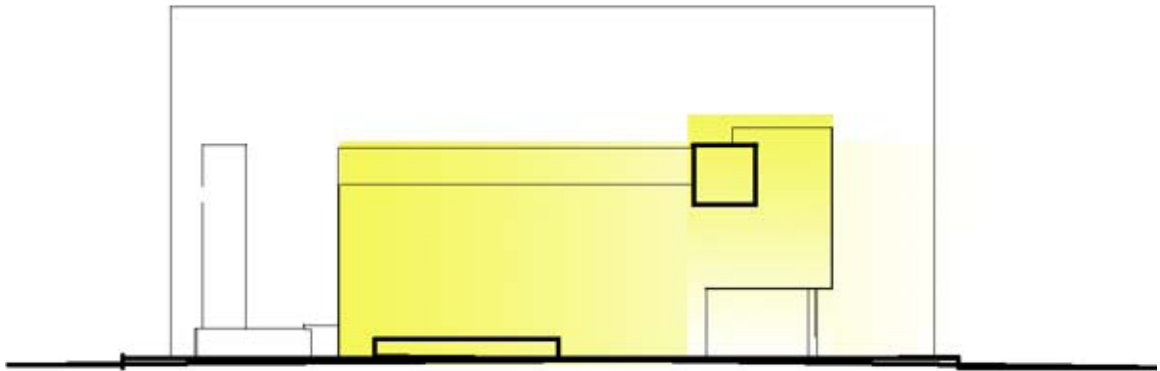


Figure 68: Elevation Diagram 1- the direction of density increase on the 6th Street facade is portrayed by the increased intensity of yellow.

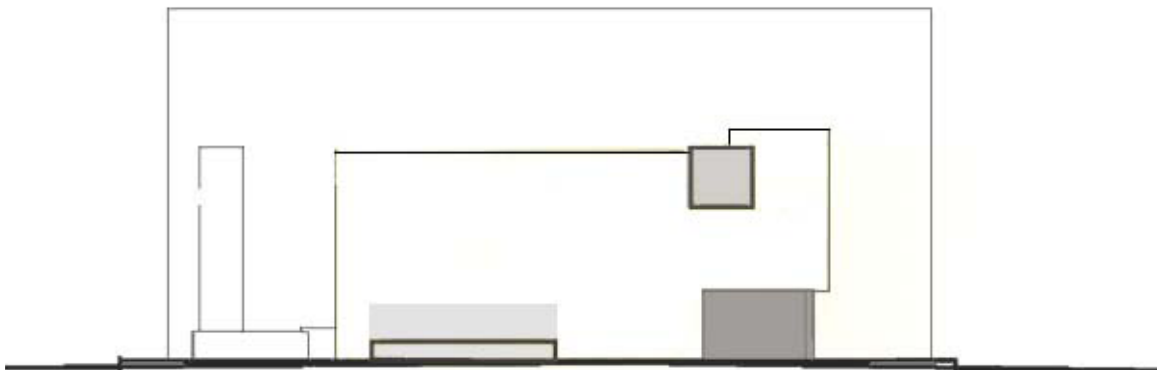


Figure 69: Elevation Diagram 2- areas of contrasting density and absence of light.

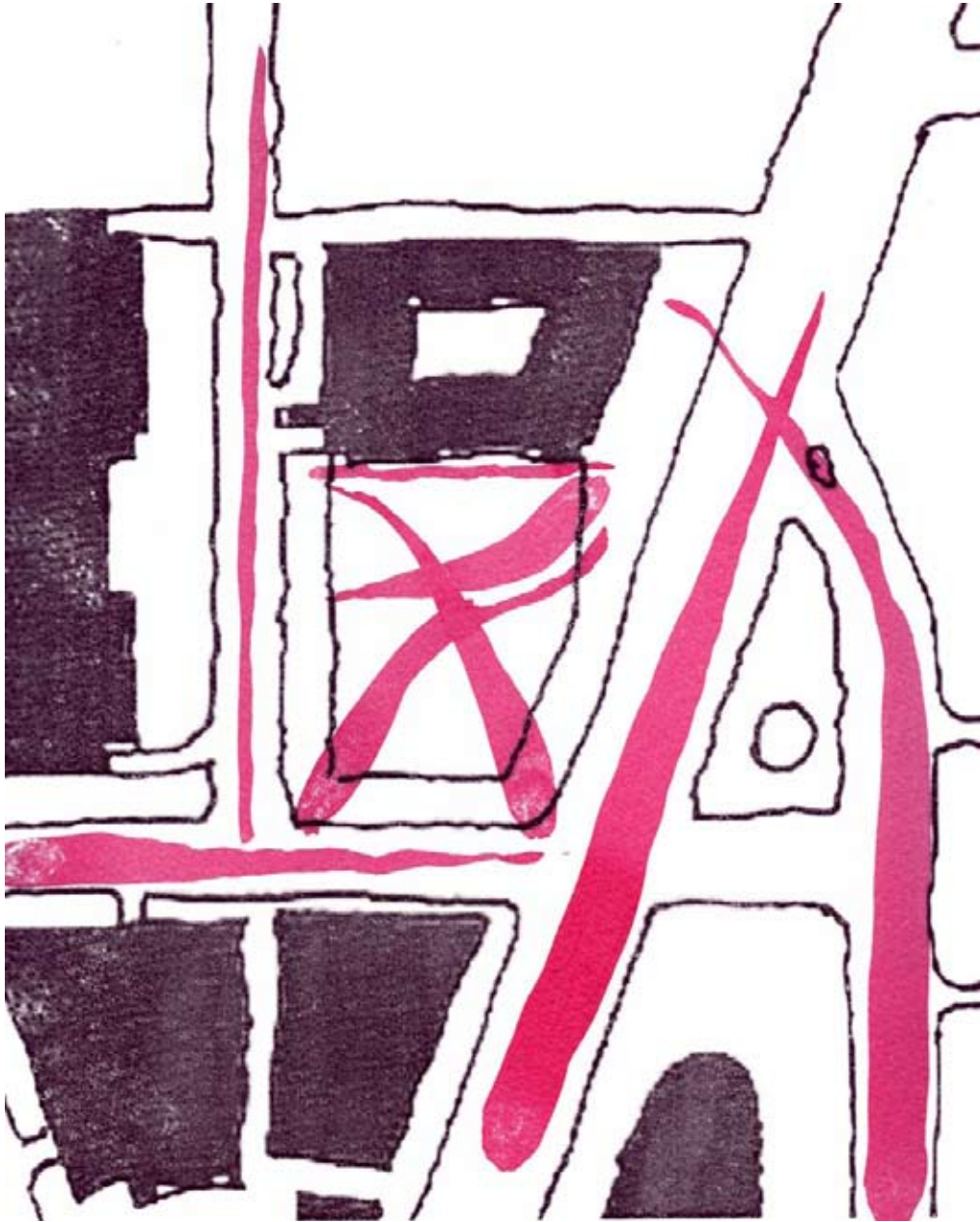


Figure 70: Site Strokes 3



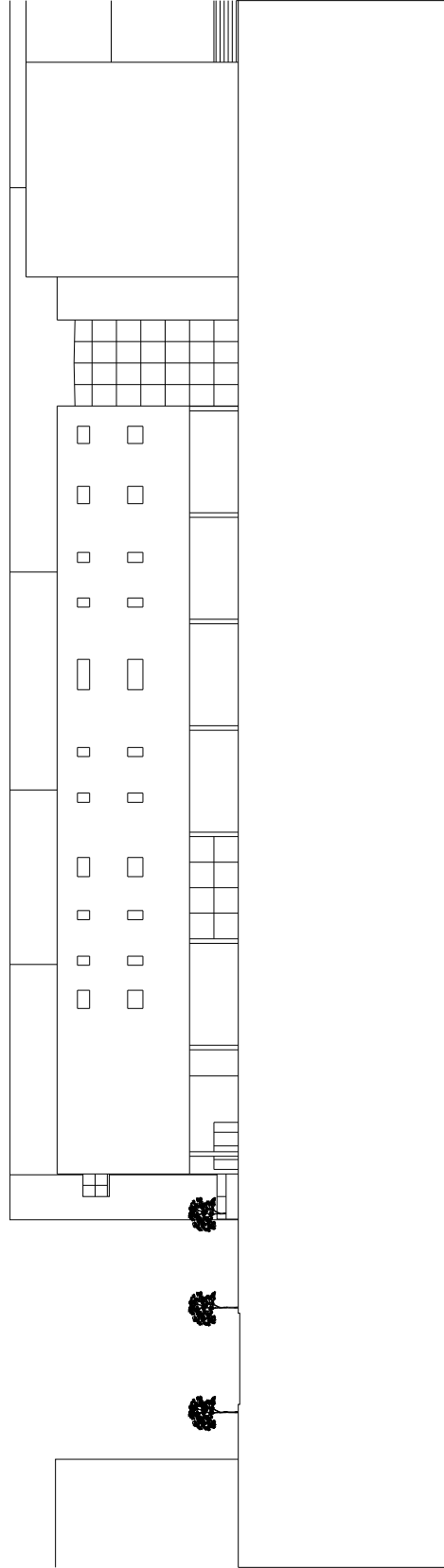


Figure 71: Pennsylvania Avenue Elevation

other community spaces (figure 72). The concrete panels also contain a slight pink color in order to draw from the limestone that is used in the National Gallery and Pei's East Wing of the National Gallery. The rare book collection building consists of a curtain wall of opaque, thin-cut marble. The color and is similar to the marble found in the National Gallery and draws from the proportions of the concrete panels of the remainder of the library (figure 73).

Further analysis of the site can be found in the appendix.

program

compilation of quantitative program

The program for a public library is dependent on the projected population growth of the municipal area being served. Naturally, the majority of the space is dedicated to housing the library collection, which is also dependent on the population growth. However, the traditional method for calculating the space needed to house the library collection does not take into consideration the increasing use of digital media. An increase in digital media will mean a difference in the allocation of spaces for use. Electronic media, or e-media, will require more space allocation for computer stations, magazines, newspapers, and even discussion areas. Therefore the traditional way of storing and displaying media in a library is not sufficient.

The library also plays a significant role in community

The Library will be a communicator, speaking to the individual visitor.

The Library shall be varied and provide options, both silent and lively environments and reading or studying areas for individual work or group work.

The Library shall use the available information technology to support communications amongst users and with users and staff.

"Aspland/Architectural Competition- The Stockholm City Library Competition Brief," p.30.

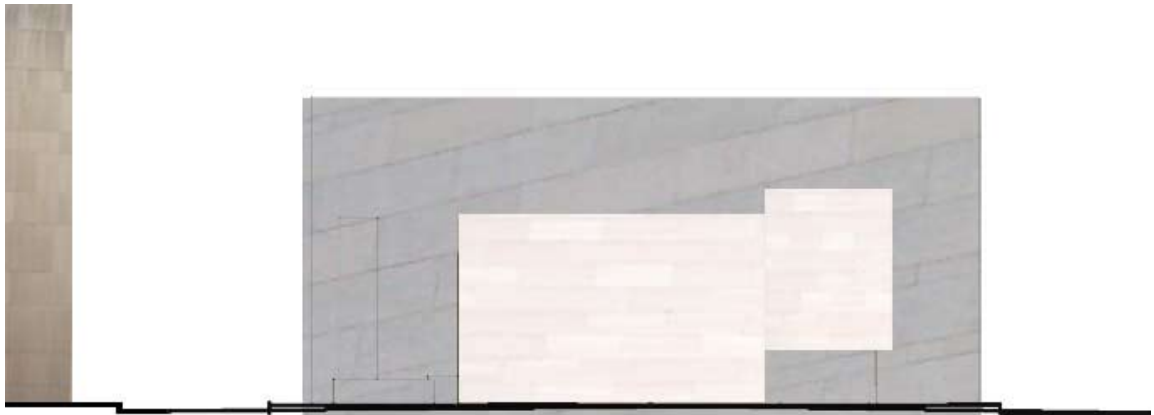


Figure 72: Material Diagram 1- material collage of the 6th Street Elevation



Figure 73: Material Diagram 2- material collage of the C Street Elevation, including the rare book collection

gatherings. It has now become a meeting place for the exchange and discussion of information and ideas. Therefore, the activities that now occur have changed the face of the library from the traditional book repository to a community center.

Calculating the projected population growth, with consideration of residents outside of the municipal area using the library, is called the design population. The design population is then used to determine the size of the book collection that is needed to serve the area. It is important to note that the following compilation of the gross area needed takes into account the services that the nearby Martin Luther King Jr. Library provides, thereby lessening the number for the design population. Further tables and formulas can be found in the appendix.

Equation 1: Finding the Design Population

Projected Population in 2020: 324,927

Percentage of Circulation: 80%

$$\frac{324,927}{.8} = \text{approx. 406,000 Design Population}$$

Table 1: Library Collection Size

COLLECTION SPACE	STANDARD	DOWNTOWN DC AREA
Books	1.57 per capita	254,968 volumes
Periodicals	6.47 per 1,000	788 periodicals
Audio Recordings	93.18 per 1,000	37,831 audio
Video Recordings	42.46 per 1,000	17,239 video

Table 2: Quantitative Program of the Downtown D.C. Public Library in contrast to the Standard Program.

STANDARD	DOWNTOWN DC AREA	
5 reader seats per 1,000	406 seat	Reader's Seats
25sf per reader seat	10,000sf	
WORK STATION COMPONENT	NUMBER OF WORK STATIONS	
Circulation	3	
Technical Station	3	
Children's Station	1	
Director	1	
Special Collection (maps, etc.)	2	
Gallery/ Program Coordinator	2	
Cafe	1	Work Stations
Computer/Microfiche	2	
Janitorial	2	
Total Number of Stations	17	
STANDARD	DOWNTOWN DC AREA	
150sf per work station	2,550sf	
MEETING ROOM SPACE	STANDARD	
General Meeting Space	10sf per seat + 100sf podium	
Conference Room Space	25sf per seat	
Story Time Space	10sf per space + 50sf presentation space	
Medium Gallery Space	1,000- 2,000sf	Meeting Room Spaces
NUMBER OF SEATS/ OCCUPANTS	SQUARE FOOTAGE NEEDED	
General Meeting Space: 200	2100sf	
Conference Room Space: 20	500sf	
Story Time Space: 30	350sf	
STANDARD	DOWNTOWN DC	Special Use Spaces
10% of net area	11,873 sf	
STANDARD	DOWNTOWN DC	Non-Assignable Spaces
20%- 25% of finished building area	23,746sf	
GROSS AREA NEEDED FOR LIBRARY FACILITIES	94,986sf	Total Gross Area Needed

qualitative program

A library project is fitting to the thesis argument because of the close relationship of reading and ritual. According to Louis Kahn, institutions are symbolic of human desires, such as the desire to learn, which can be expressed only in community, through people coming together. “For Kahn, architecture is the art whose concern is human institutions” (Lobell 65). The embodiment of a human desire is the essence of calligraphy. How better to express this desire than through the institution of reading, the library?

The program will be divided into three major zones; the communal zone, the individual zone, and the utility zone. The communal zone will contain the elements of the program that involve public gatherings or the interaction and intermingling of the users such as the gallery, café, computer stations and open electronic collections. The individual zone will consist of the elements such as reading carrels, open stacks, and the rare book collection. The utility zone will consist of staff work stations, administrative offices, and management (figure 74). These zones will vary in their degree of light, circulation, stillness, quietude, etc., based on architectural elements that were recognized to parallel the rituals and principles of Zen calligraphy (figure 75).

precedent

For Louis Kahn, the participants of ritual move along a path comprising a series of spatial events. In the Exeter Library the student traverses and extensive path, both interiorly and exteriorly. An external arcade is first passed before entering the building. Stairs are

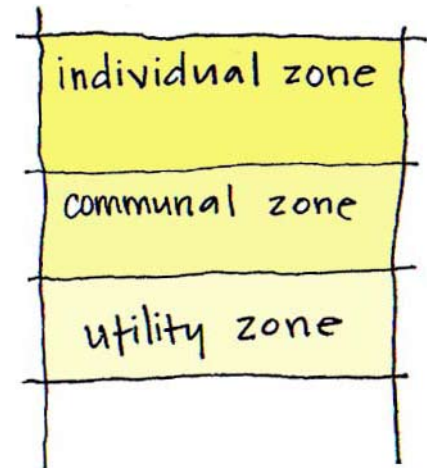


Figure 74: Hierarchy zones- by author.

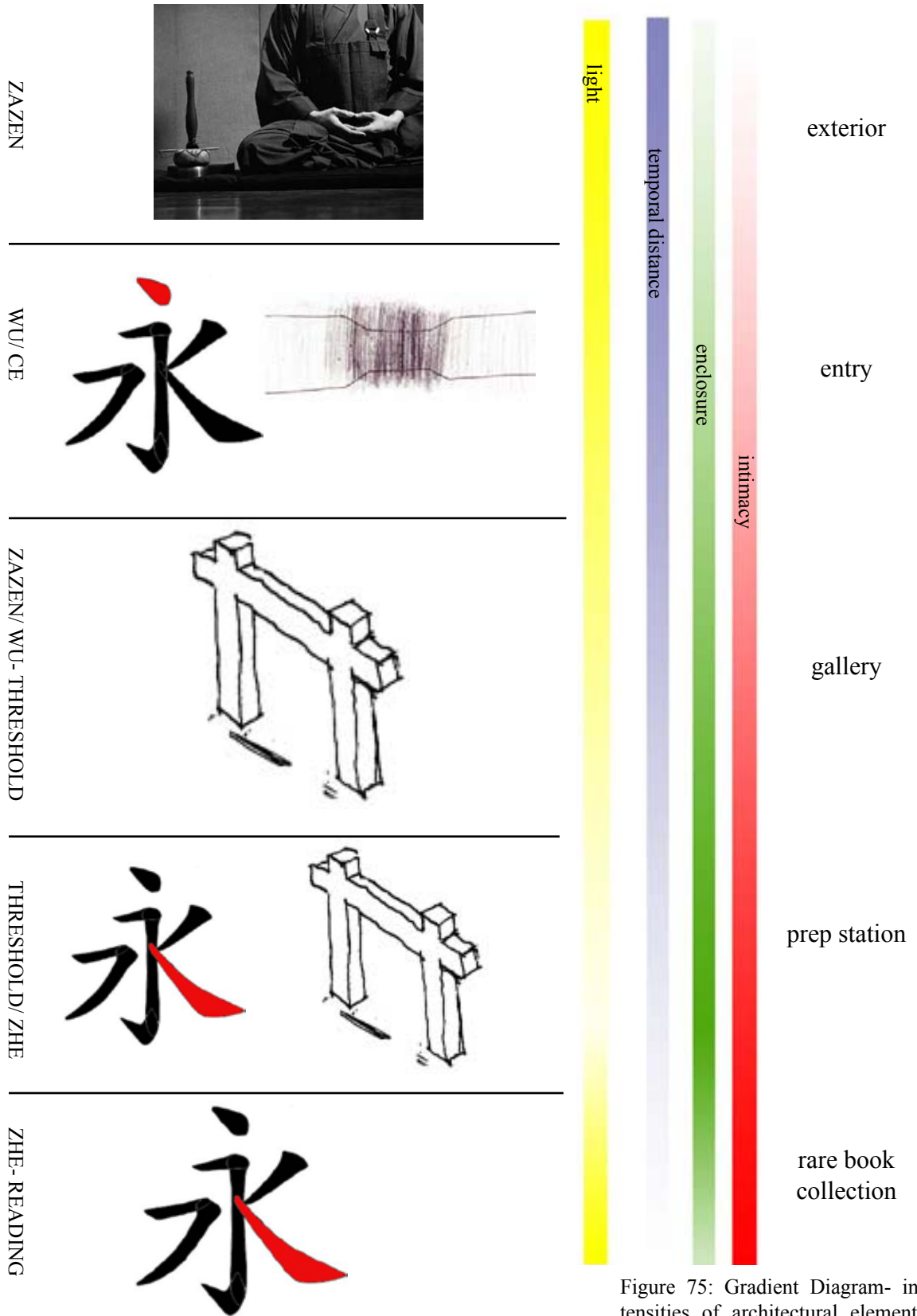


Figure 75: Gradient Diagram- intensities of architectural elements corresponding to the sequence of spaces

then ascended to enter into the central hall (figure 76 and 77). This extensive entrance procession causes the main elements of the program to be placed on the floors above the ground floor. Figure 78 shows the path of entrance in the Exeter Library, with a moment of pause in the Central Hall lit by skylights above.

An aspect of Kahn's ritual space manifested programmatically is the placement of the study carrels on the exterior walls in order to receive natural light. The stair wells give access to the dark zones of the book stacks. From here a reader selects a book and moves towards the light. This path leads them to discover a rather welcoming place; a wood space in the form of a study carrel within the brick arches (figure 79 and 80).

The movement of the reader from darkness towards light has many symbolic readings. First and foremost, it is indicative of the modern version of a medieval cloister that Louis Kahn had intended. The ritual of ascending to the repository of books and moving towards the light of the cloister is magnificently captured in the library.

Another analogy for the movement from darkness towards to the lit study carrels is that of a person being enlightened with knowledge. This second analogy is directly related to Zen Buddhism and its goal of reaching spiritual enlightenment, through the art of calligraphy.

In the Exeter Library, Kahn was concerned with how the person and the written word, or the book, come together. These are the same concerns that we find with the analysis of the art of Zen calligraphy; the joining of the human spirit with the written art form.

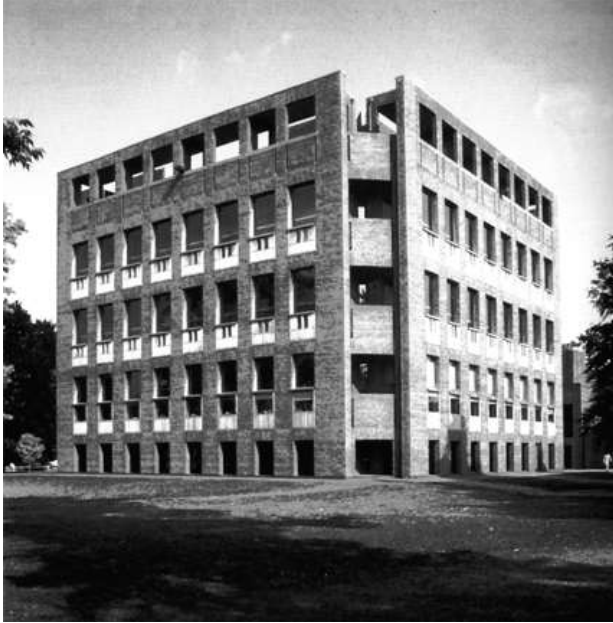


Figure 76: Facade of Exeter Library - showing the external arcade that is traversed before entering the building.



Figure 77: Main Stairs- ascended upon entering the building. These lead to the central hall where the books of the library are displayed.

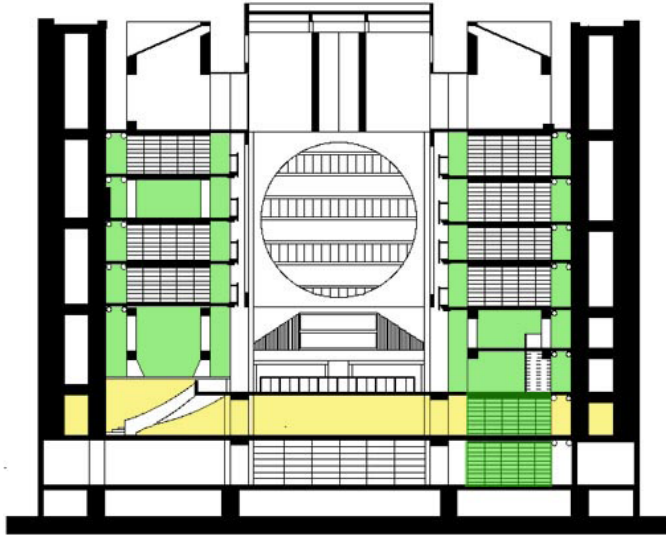


Figure 78: Section of the Exeter Library.- Dominance of the entry sequence (indicated in yellow) is apparent on the ground floor. The green is indicating the further distribution of the remaining program on the upper levels- diagram by author.

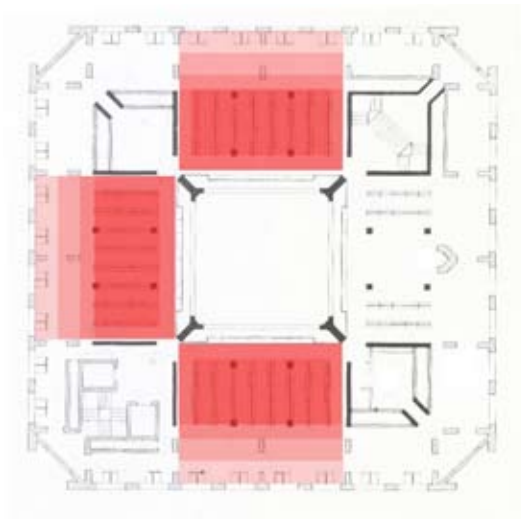


Figure 79: Light Intensity- Changes from dark to light from the book stacks to the study carrels (darker red indicates less light)- diagram by author.



Figure 80: Wood Study Carrels- along the fenestrated exterior walls. The carrels receive direct light from the outside, making them extremely well-lit.

The simple act of reading the calligraphy will activate the art work. When the person and the written word come together, it must activate the space in order to heighten the spiritual experience of the space.

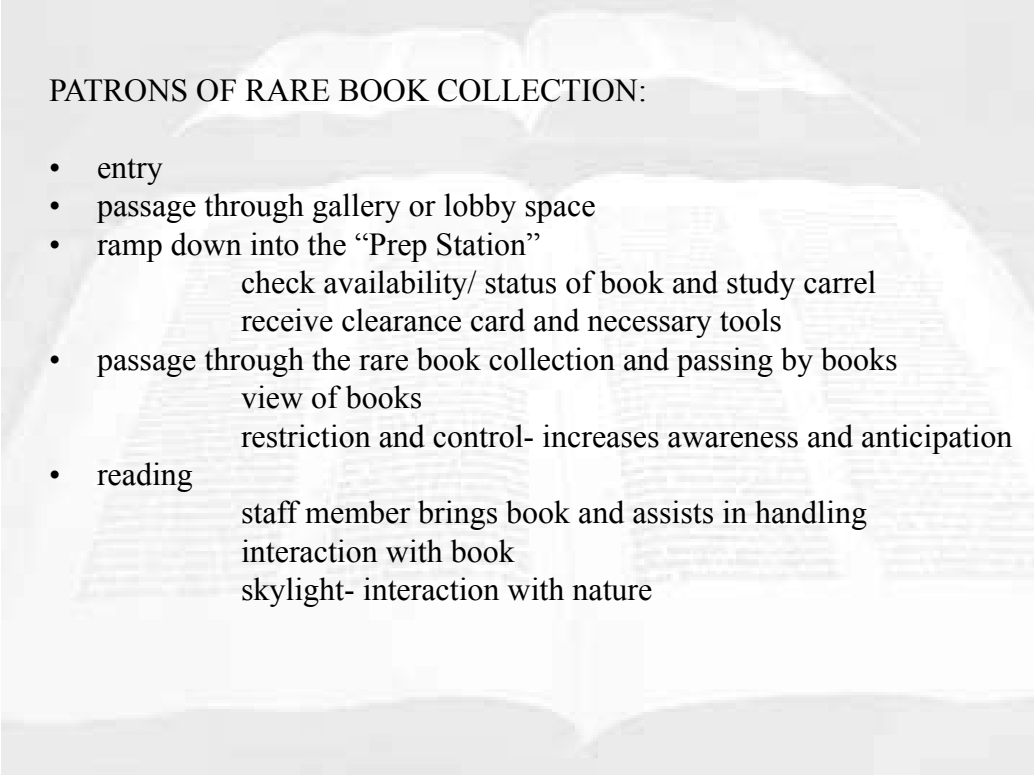
using the library

The main library houses the most public pieces of the program such as the classrooms and lecture hall. The communal zone holds the responsibility of encouraging interaction between individual users as well as with the books themselves due to the relatively little to no restrictions placed on the open stacks in the library. In contrast, the rare book and manuscript collection is a far more individual process that is extremely ritualized due to the many restrictions. The user of the rare book collection may undergo similar actions or steps as the user of the open stacks of the library, but the nature of those actions are experienced differently. Figure 81 lists and contrasts the different steps of the two types of patrons of the library.

the experience

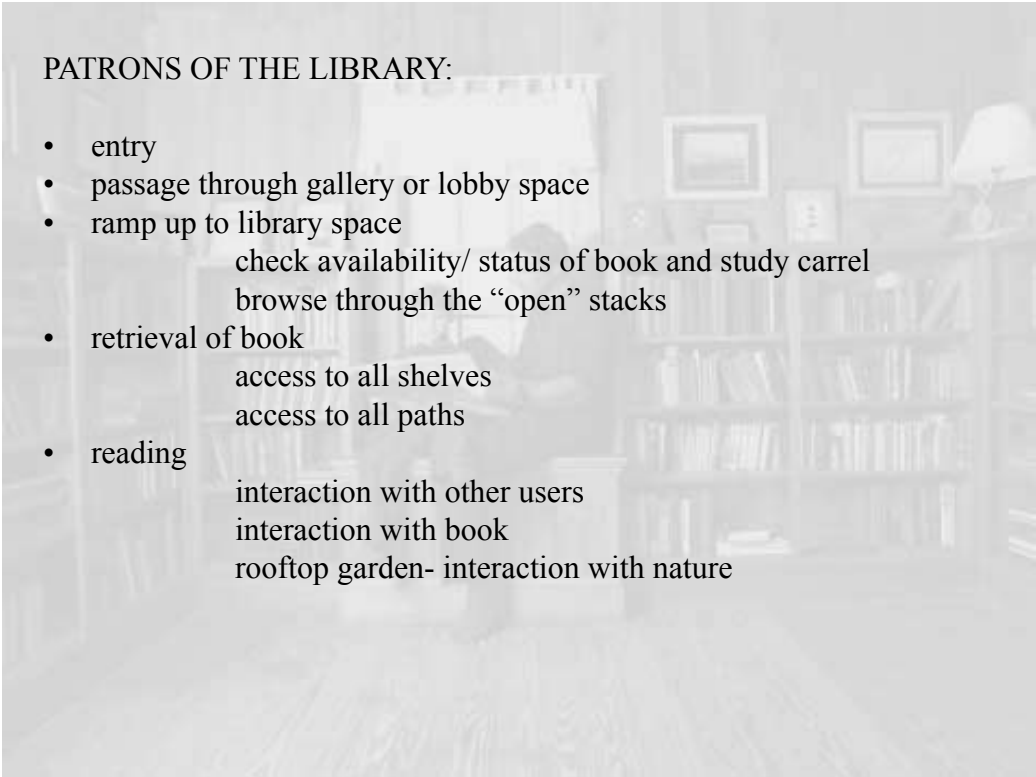
The rituals of Zen calligraphy create a particular type of experience that have been equated with architectural elements that create a similar type of experience. Where these elements are placed within the library were determined by first creating a calligraphic stroke representative of the experiences of the user moving through the library and into the space of the rare book collection (figure 82).

The heavy emphasis on the transition and *zazen* in the rituals of Zen calligraphy will call for an extensive



PATRONS OF RARE BOOK COLLECTION:

- entry
- passage through gallery or lobby space
- ramp down into the “Prep Station”
 - check availability/ status of book and study carrel
 - receive clearance card and necessary tools
- passage through the rare book collection and passing by books
 - view of books
 - restriction and control- increases awareness and anticipation
- reading
 - staff member brings book and assists in handling
 - interaction with book
 - skylight- interaction with nature



PATRONS OF THE LIBRARY:

- entry
- passage through gallery or lobby space
- ramp up to library space
 - check availability/ status of book and study carrel
 - browse through the “open” stacks
- retrieval of book
 - access to all shelves
 - access to all paths
- reading
 - interaction with other users
 - interaction with book
 - rooftop garden- interaction with nature

Figure 81: Contrast of Users

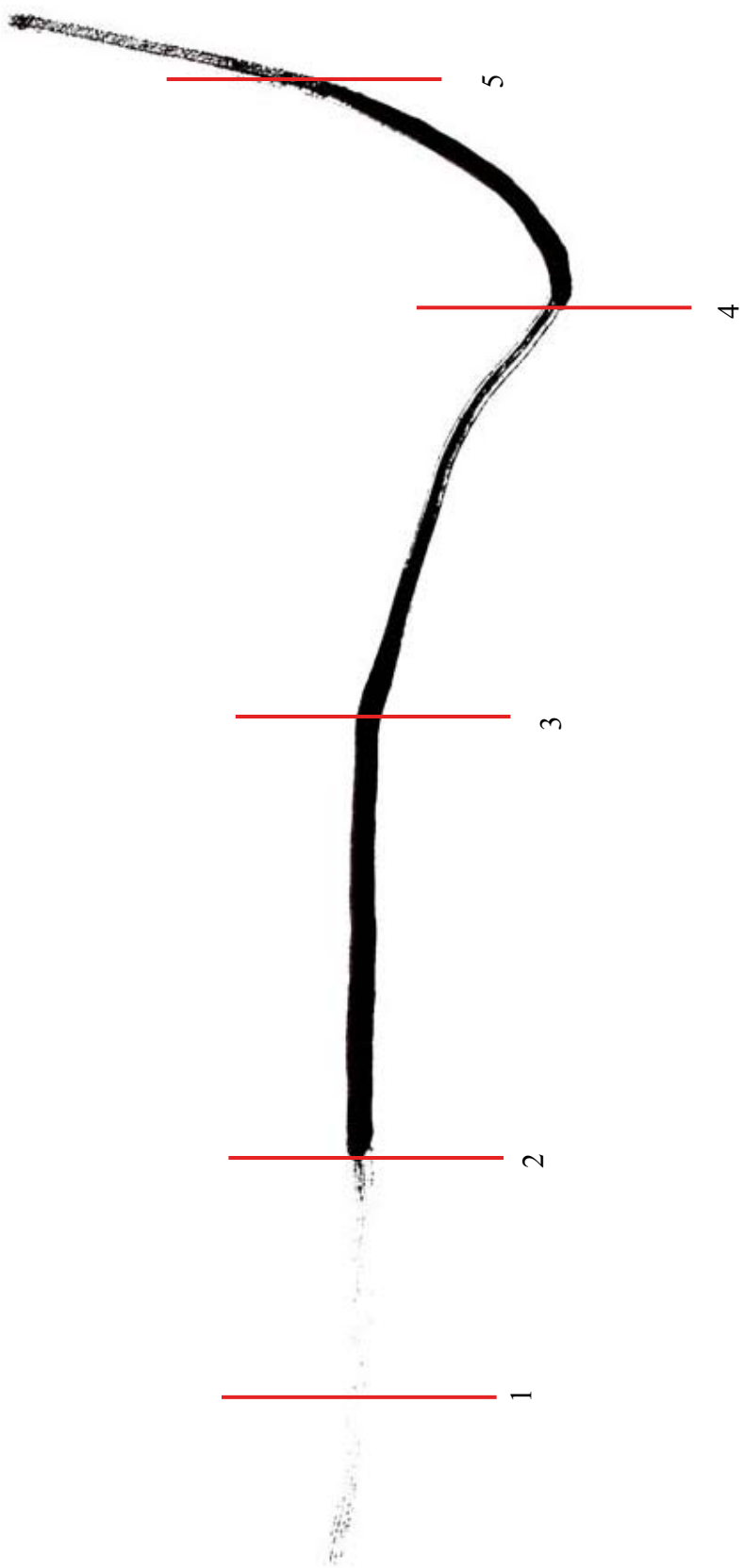


Figure 82: Stroke for Perspective Sequence

and even prolonged entry sequence. The entry will be the point where the user is aware of moving from the world of the city to a far more focused realm of reflection and awareness (figure 83a and 83b).

Once the user has moved off the sidewalk and onto the path into the library, a moment of compression and pause causes the user to be more aware of their surroundings. As in calligraphy, the first stroke is done with deliberateness and a moment of lingering to allow bleedings. The entry is recognized as a moment of bleeding bearing characteristics from the reading carrel in the rare book collection (figure 84a). The moment of pause created by gaps in the wall that allow the user views into the gallery that lays ahead, parallels the strokes moment of lingering (figure 84b).

The gallery space is reached from the compressed entry and the double height space acts as a moment of transition or threshold. The gallery space can lead either to the “communal” spaces of the library, or the Rare Book Collection that is accessible through a sub-level (figure 85a and 85b).

Once the user moves down the large monumental ramps within the “ramp-well” and into the subterranean level he comes across an extremely dense place. This space acts as another moment focusing where the user requests the use of an item from the rare book collection and must obtain a security clearance card. Little natural light is present in this space, except for what enters through the skylight. The skylight becomes the focusing moment as well as a directional marker to the next step of the path (figure 86).

Figure 83a: Focus

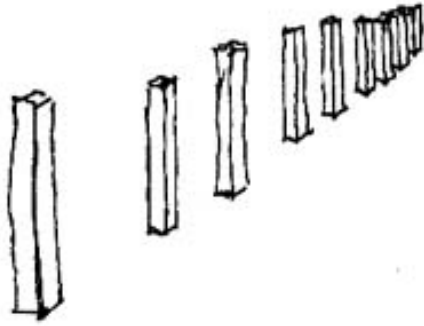


Figure 83b: Exterior Entry Perspective

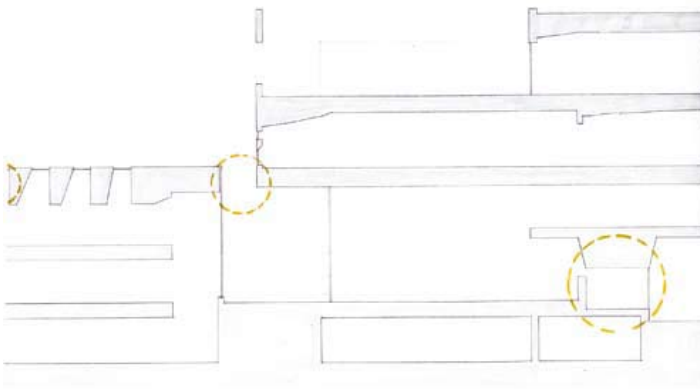


Figure 84a: Bleeding Diagram-marks the compressed entry as a moment of bleeding

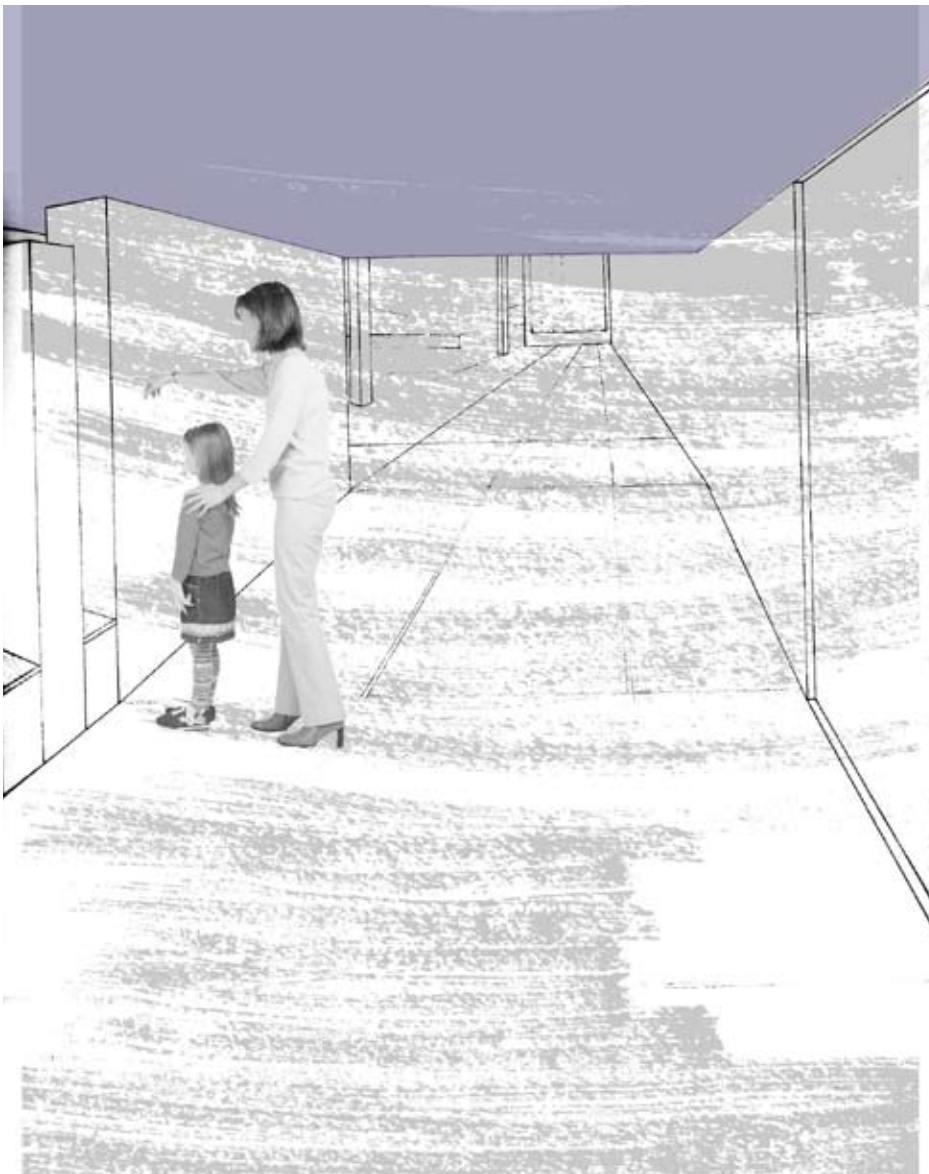


Figure 84b: Path of Ramped Entry

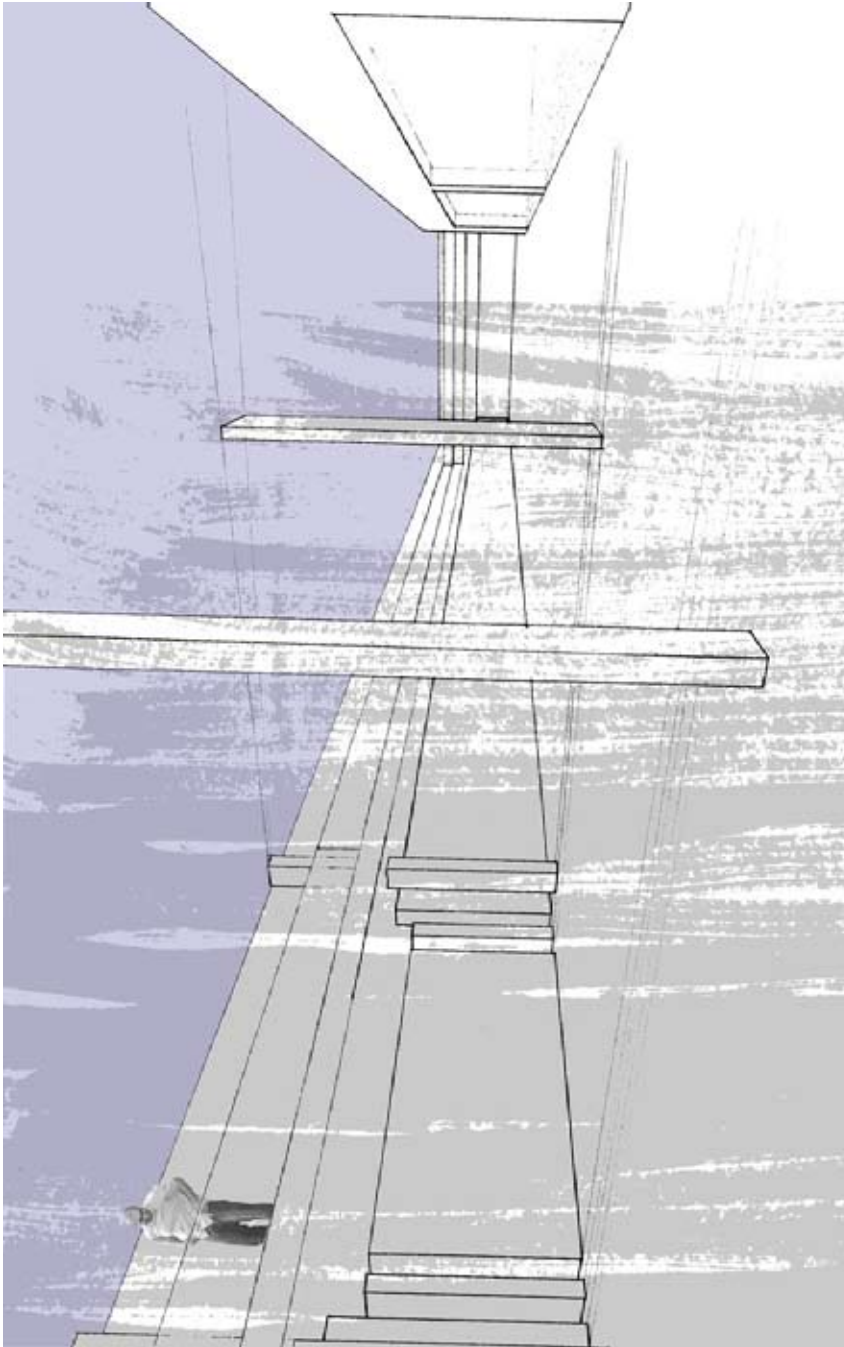


Figure 85a: Gallery Space

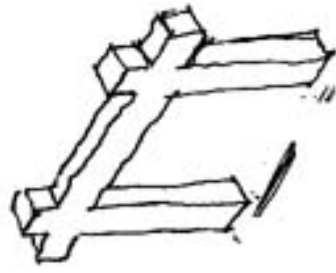


Figure 85b: Threshold

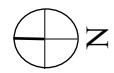
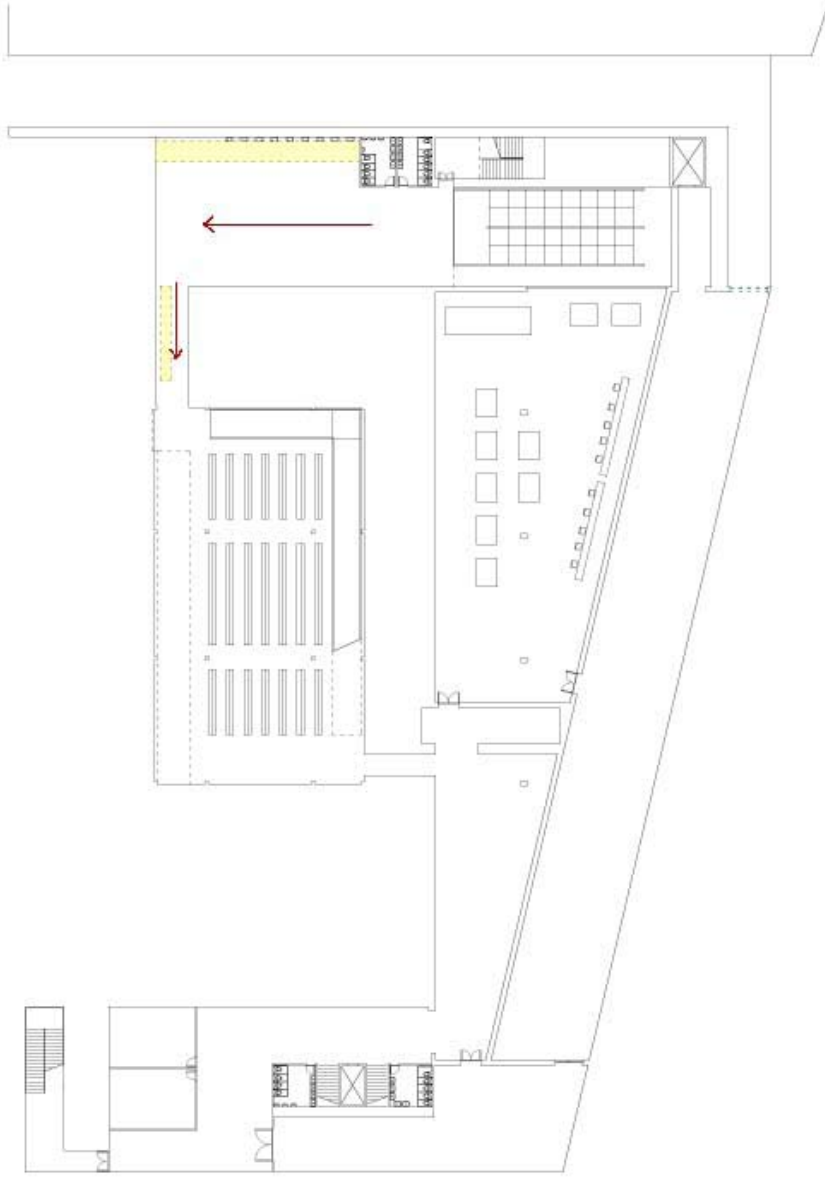


Figure 86: Skylight Path- path indicated in red arrows in the subterranean level

Past the security door, the compressed and narrow path that leads to the rare book collection is traversed quickly and toward the more lit space. Here is another threshold moment that heightens the user's sense of traversing from one space to another, as in the *wu* (figure 87a). The sight of the books also draws the user to the space of the rare book collection (figure 87b).

Within the rare book collection the user cannot remove the books from the shelves, but the path allows the user full view of them (figure 88a). This is reminiscent of the monastic cloister. Viewing the books from afar heightens the user's sense of the space and the anticipation for the reading and handling of the books. This portion of the path is similar to the *zhe* (figure 88b), the last stroke of the *yong*, which represents swiftness for completion and the reading of the character as a whole.

The moment of completion is when the space is experienced. The paths that the user has traversed, passes through the spaces that are necessary to reach the point of "reading the character," such as one (reader and calligrapher) follows the strokes of the character in order to gain a deeper meaning rather than just the simplicity of the character.

At the top floor of the rare book collection in the reading carrel, the user awaits the requested book and receives not only an intimate, one-on-one interaction with the book, but with the library staff as well (figure 89). This intimacy reflects that intimate reading one can have of the calligrapher in reading his or her stroke-work.

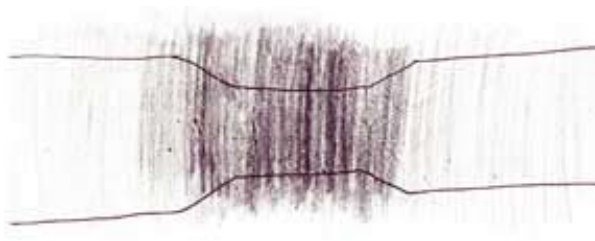


Figure 87a: Transition at the Wu

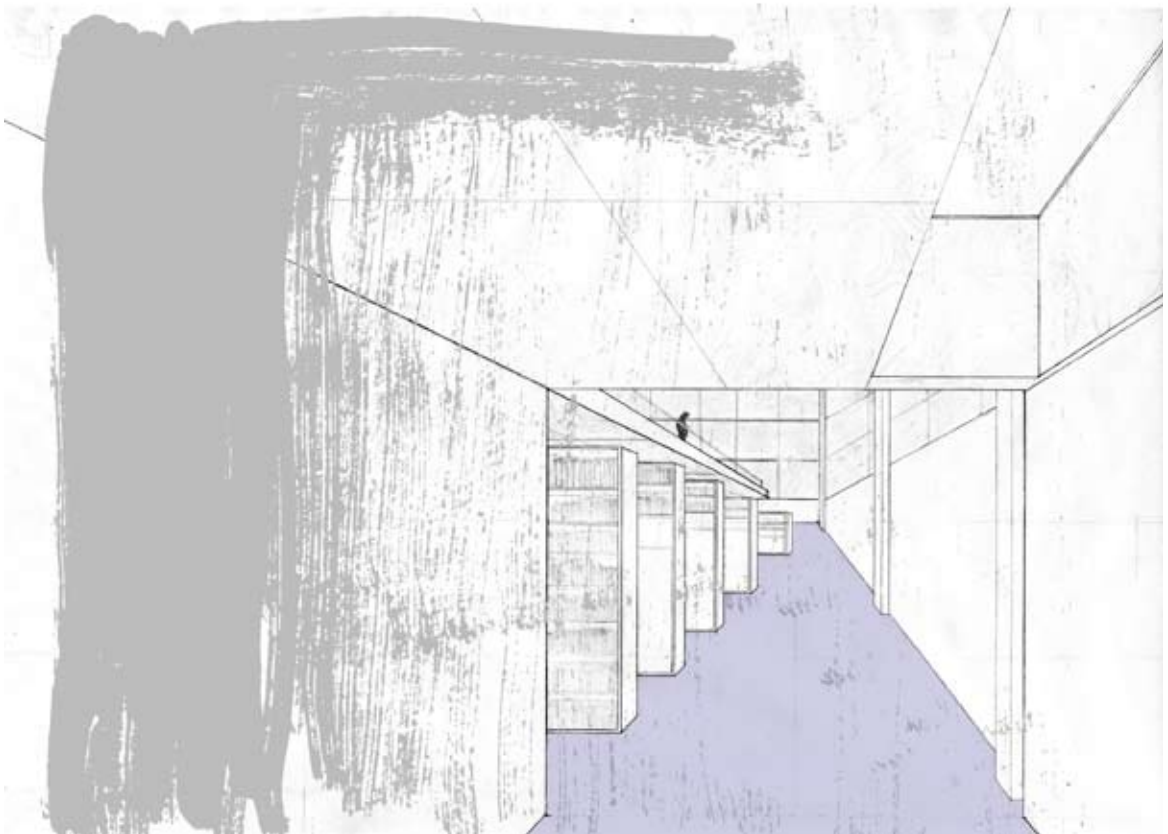


Figure 87b: Transition into the rare book collection space

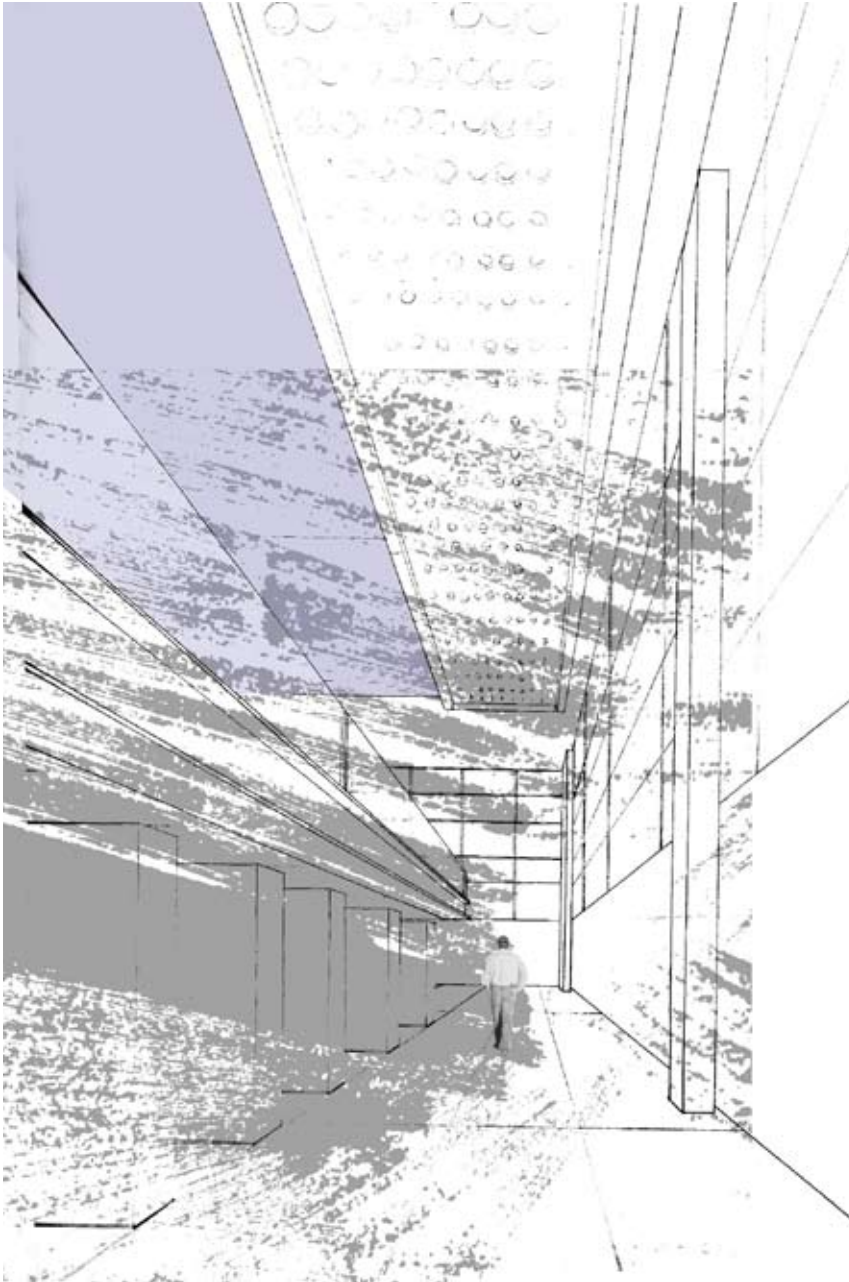


Figure 88a: Rare Book Collection



Figure 88b: Zhe- swiftly ending the path

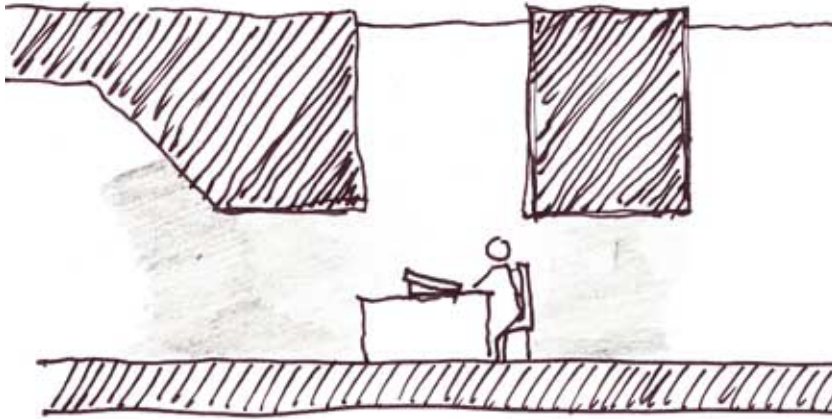


Figure 89: Sketch of Study Carrel

building code

The applicable building code for the proposed public library is the International Building Code. Below is a compilation of the applicable codes. It is important to note that the applicable codes may change as the design project evolves.

occupancy groups

A. Assembly-	Assembly uses include social, recreational, and civic gatherings. The applicable subdivision is:
A-2:	This group includes food and drink establishments.
A-3:	This division includes recreational, amusement, and worship uses not specifically falling under other Assembly groups, including, for example, auditoriums, churches, community halls, courtrooms, dance halls, gymnasiums, lecture halls, libraries, museums, passenger stations and depots and the like.

construction types

I-A: 3 Hour Noncombustible	construction types: structural steel, reinforced concrete, post-tensioned concrete, precast concrete, brick masonry, concrete masonry
I-B: 2 Hour Noncombustible	construction types: structural steel, reinforced concrete, post-tensioned concrete, precast concrete, brick masonry, concrete masonry

fire prevention

An approved sprinkler system is required for Group A-3 whose floor area will exceed 12,000sf.

height and area limitations

(dependent on the approved sprinkler system)

I-A: 3 Hour Noncombustible	Unlimited Height Unlimited Area
I-B: 2 Hour Noncombustible	Maximum Height: 180' Unlimited Area

egress

When the occupant load is between 501 to 1,000 persons the minimum required number of exits is 3.

Occupancy	Max travel distance from most remote point to nearest exit	Max travel distance to 2 independent egress paths	Largest room that may have only one door	Max length of dead-end corridor	Min clear corridor width	Min net clear egress door width	Min stair width
A: Assembly (all types)	250 ft	75 ft	50 occupants	20 ft	44 in for more than 50 occupants	32 in	44 in for more than 50 occupants

IX. Continuing the Path

The simplicity of the form of the building is understood and comprehended at first glance, however that comprehension changes and increases when the actual path is traversed and the spaces experienced. Just like the simple character of the *yong*. It is understood upon first glance but the “reading” of the strokes shows the embodiment of more meaning than first seen. The goal of the library’s design is not to create a Zen meditation space that may only appeal to those who are familiar with or practice Zen in some fashion. It is meant to create spiritual space that is accessible and understandable by all people.

I feel that it is the job of those who are capable to find ways to heal the disease of isolationism and separatism that is rampant in today’s world. Bridging the gaps of differences between people is vital. Appealing to something that every man possess, the spirit and the soul, can begin to fulfill the need of human interaction and fill the void of spirituality in our times. The goal of the library’s design is not to create a Zen meditation space that may only appeal to those who are familiar with or practice Zen in some fashion. It is meant to create spiritual space that is accessible and understandable by all people.

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appendix

appendix a

additional site information

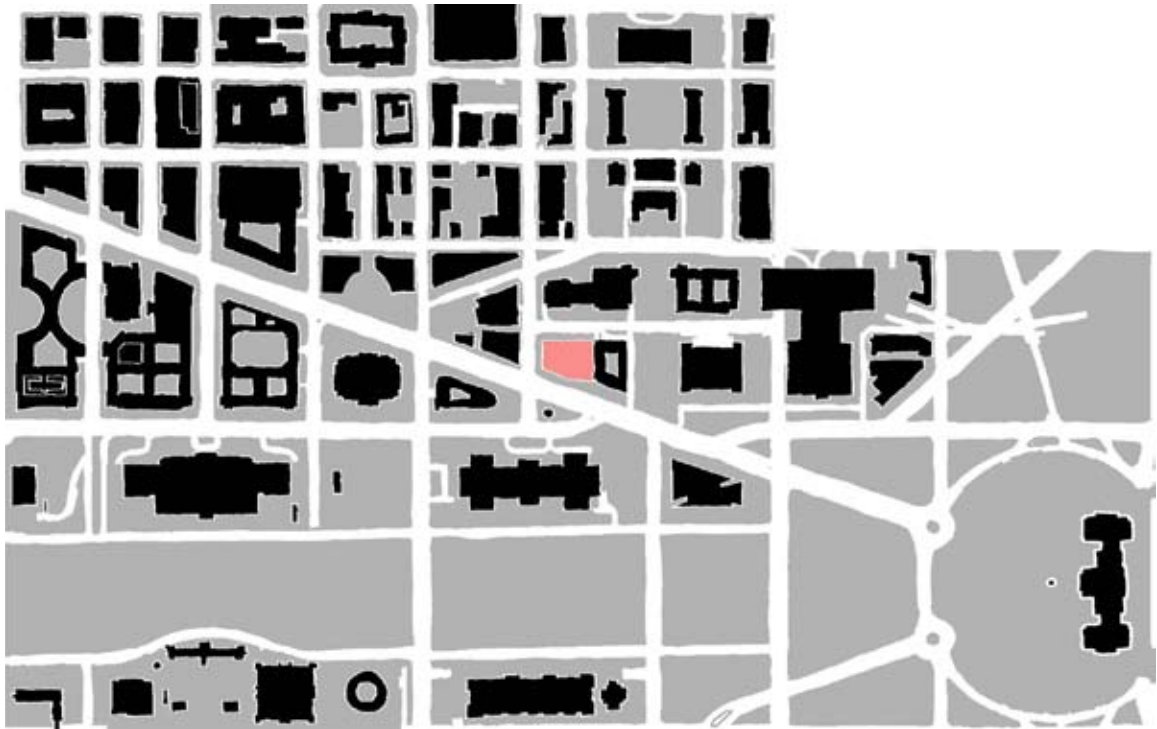


Figure 90: Figure-Ground- diagram by author



Figure 91: Major Landmarks- diagram by author

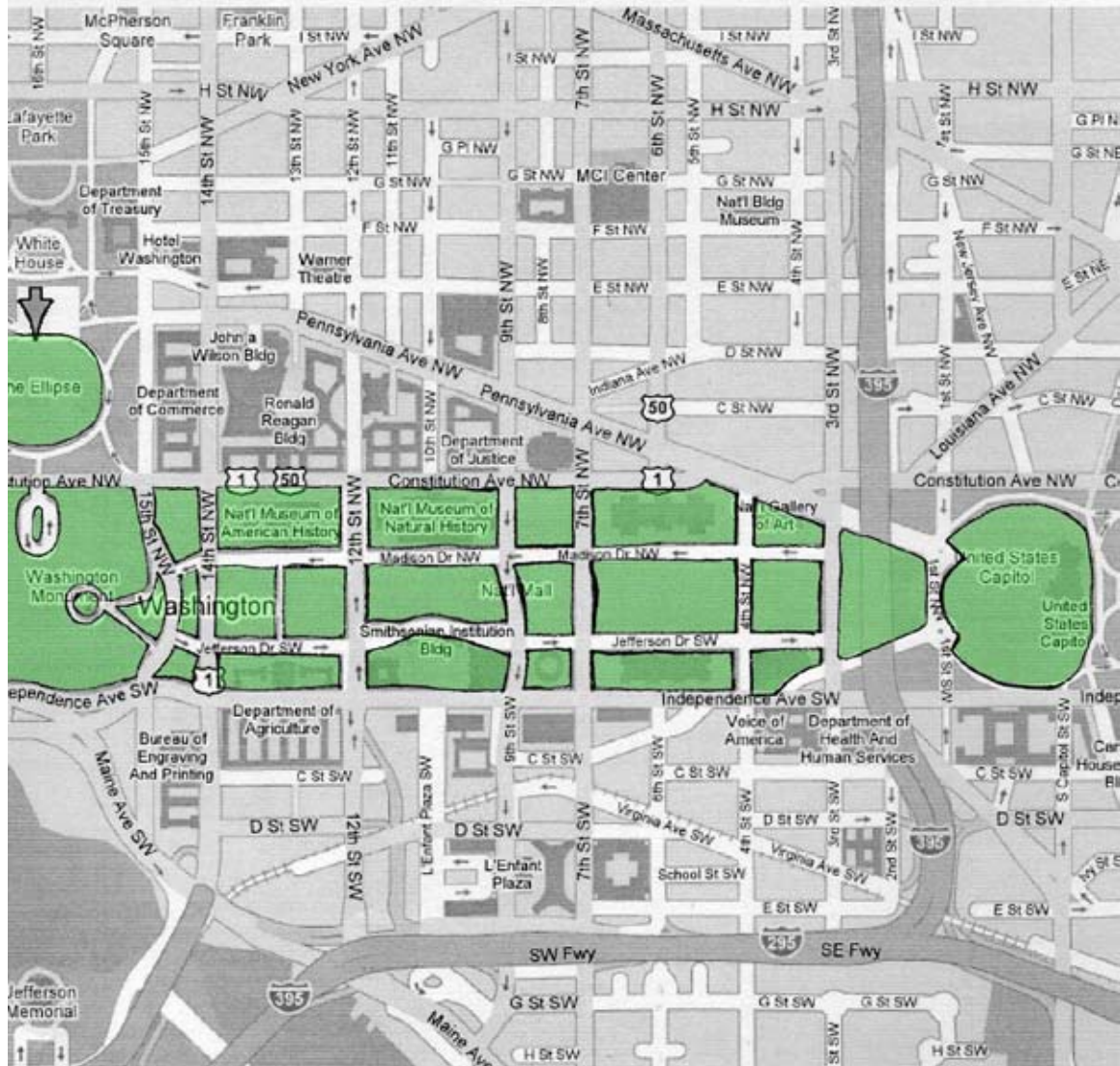


Figure 92: the Mall and Ellipse- as formal exterior, public spaces.

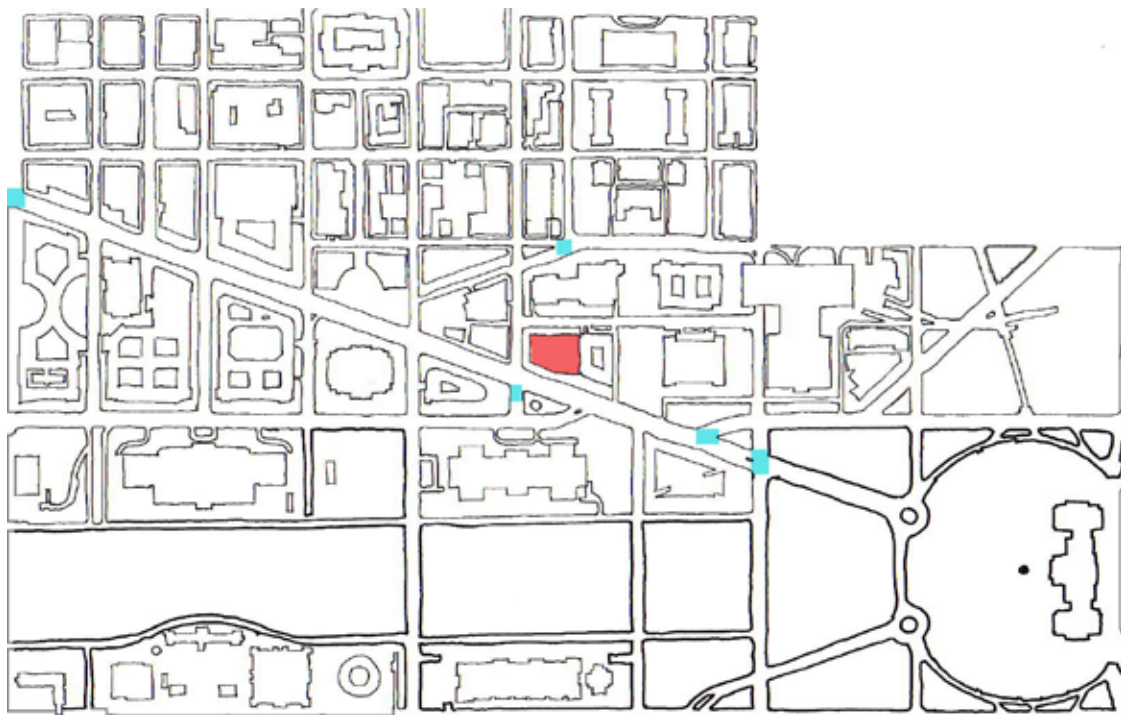
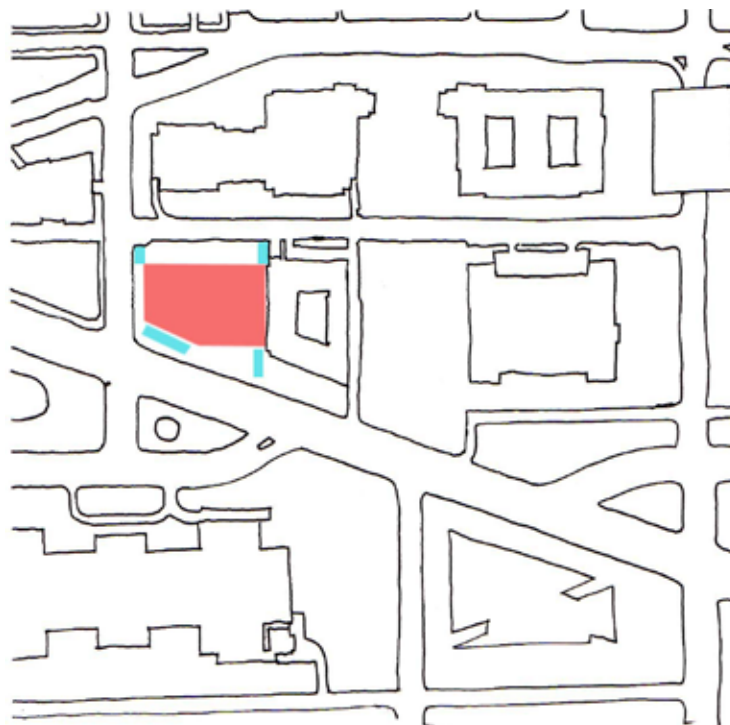


Figure 93: Site Entrances 1- district scale-diagram by author

Figure 94: Site Entrances 2- block scale-diagram by author



appendix b

additional programming information

SPACES NEEDED WORKSHEET

Design Population: MLK usage in 2004: ~63%
(includes non-D.C. residents)
Projected use of new library:
~80% (includes non-D.C.
residents)
Projected population for 2020:
324,927
Design Population: 406,159
(406,000)

Step 1: Collection Space

Books:

$1.57(406,000) = 637,420$ volumes
 $637,420 - 40\% = 254,968$ volumes
 $254,968 \text{ volumes} \div 10 \dots\dots\dots$
25,496 sq. ft.

Periodical (displayed):

$6.47 (406) = 2,626$ periodicals
 $2,626 - 30\% = 788$ periodicals
 $788 \text{ periodicals} \div 1 \dots\dots\dots$
788 sq. ft

Periodical (back issues):

$788 \times 0.50 \times 3 \text{ years retained} \dots\dots\dots$
1,576 sq. ft.

Nonprint:

Audio Recordings: $93.18(406) =$
37,831 audio
Video Recordings: $42.46(406) =$
17,239 video
 $55,070 \div 10 \dots\dots\dots$
5,507 sq. ft

Digital Resources:

One terminal for every 20 visits
150 terminals on average 2004
 $150 + 40\% = 210$ terminals
210 (50).....
10,500 sq. ft

Step 1 Total:

43,867 sq. ft.

Step 2: Reader Seating Space

5 readers seats per 1,000 people..... $1 \times 406 = 406$
seats
 $406 \text{ seats} \times 25$
10,000 sq. ft.

Step 2 Total:

10,000 sq.ft

Step 3: Staff Work Space

17 stations x 150.....
2,550 sq. ft.

Step 3 Total:

2.550 sq. ft

circulation station- 3
technical station- 3
children's station- 1
director- 1
special collection (maps, etc.)- 2
gallery/ program coordinator- 2
café- 1
computer/ microfiche- 2
janitorial- 2

Step 4: Meeting Room Space

General Meeting Space:
200 seats x 10 (+ 100)..... 2,100 sq. ft.
Conference Room Space:
20 seats x 25..... 500 sq. ft.
Storytime Space:
30 seats x 10 (+ 50)..... 350 sq. ft.

Step 4 Total:
2,950 sq. ft.

Step 5: Special Use Space

Step 1: 43,867 sq. ft.
Step 2: 10,000 sq. ft.
Step 3: 2,550 sq. ft.
Step 4: 2,950 sq. ft.
Subtotal 1: 59,367sq. ft
Subtotal ÷ 5..... 11,873sq. ft
Step 5 Total:
11,873

Step 6: Non-Assignable Space

Subtotal 1: 59,367
Step 5 Total: 11,873
Subtotal 2: 71,240
Subtotal 2 ÷ 3..... 23,746sq. ft

Step 6 Total:
23,746 sq.ft

Step 7: Putting it All Together

Step 1 Total:

43867.ft.

Step 2 Total:

10000 sq.ft

Step 3 Total:

2550 sq.ft

Step 4 Total:

2950 sq. ft.

Step 5 Total:

11873 sq.ft

Step 6 Total:

23746 sq.ft

NET AREA NEEDED:

94,986 sq. ft

appendix c

architectural drawings

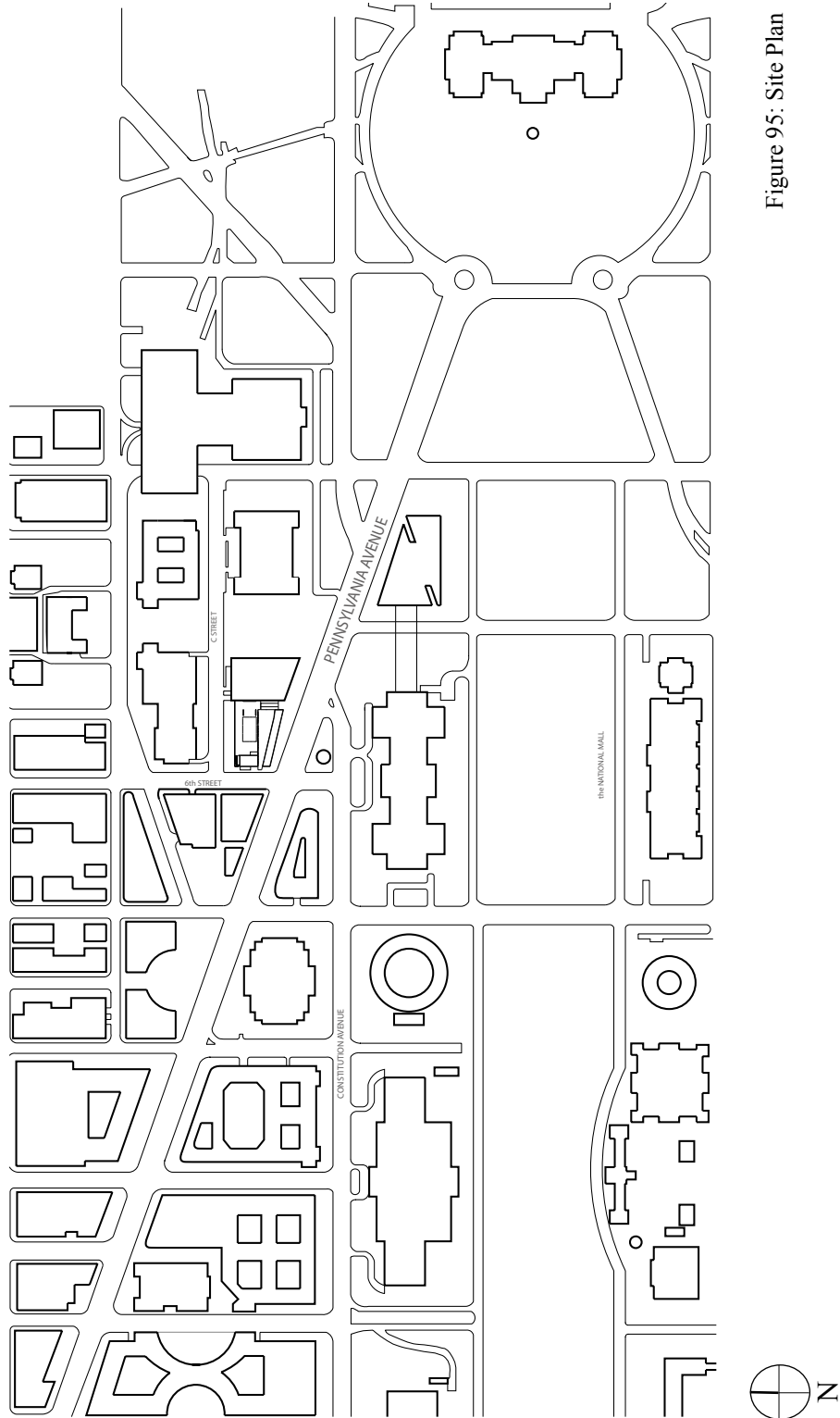


Figure 95: Site Plan

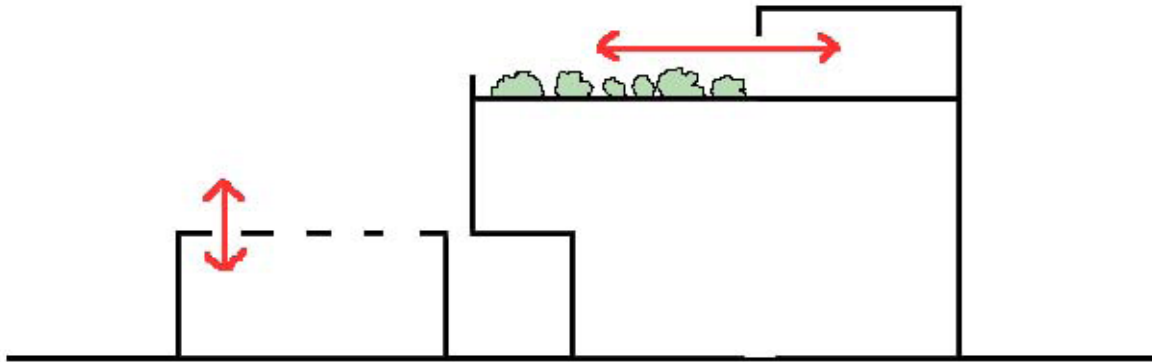


Figure 96: Connection with Exterior

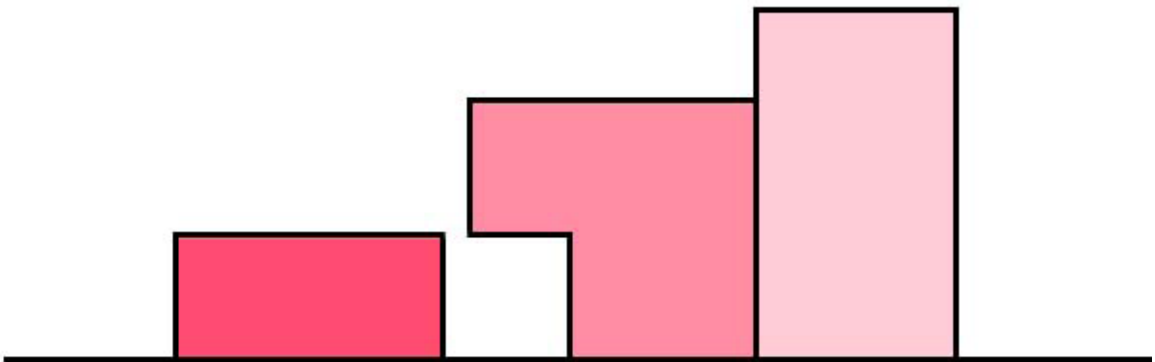


Figure 97: Levels of Intimacy- section

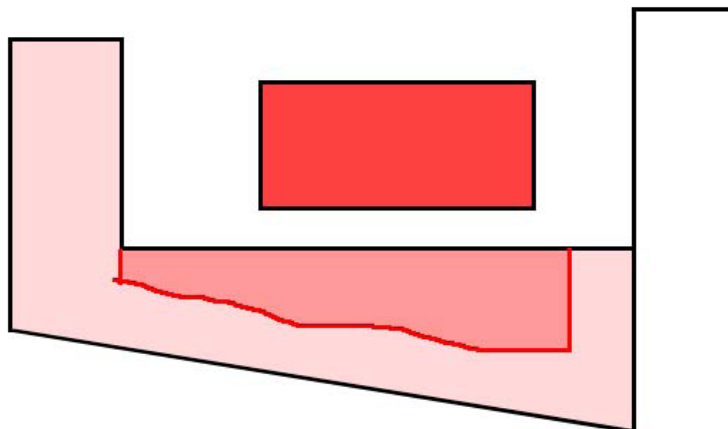


Figure 98: Levels of Intimacy- plan

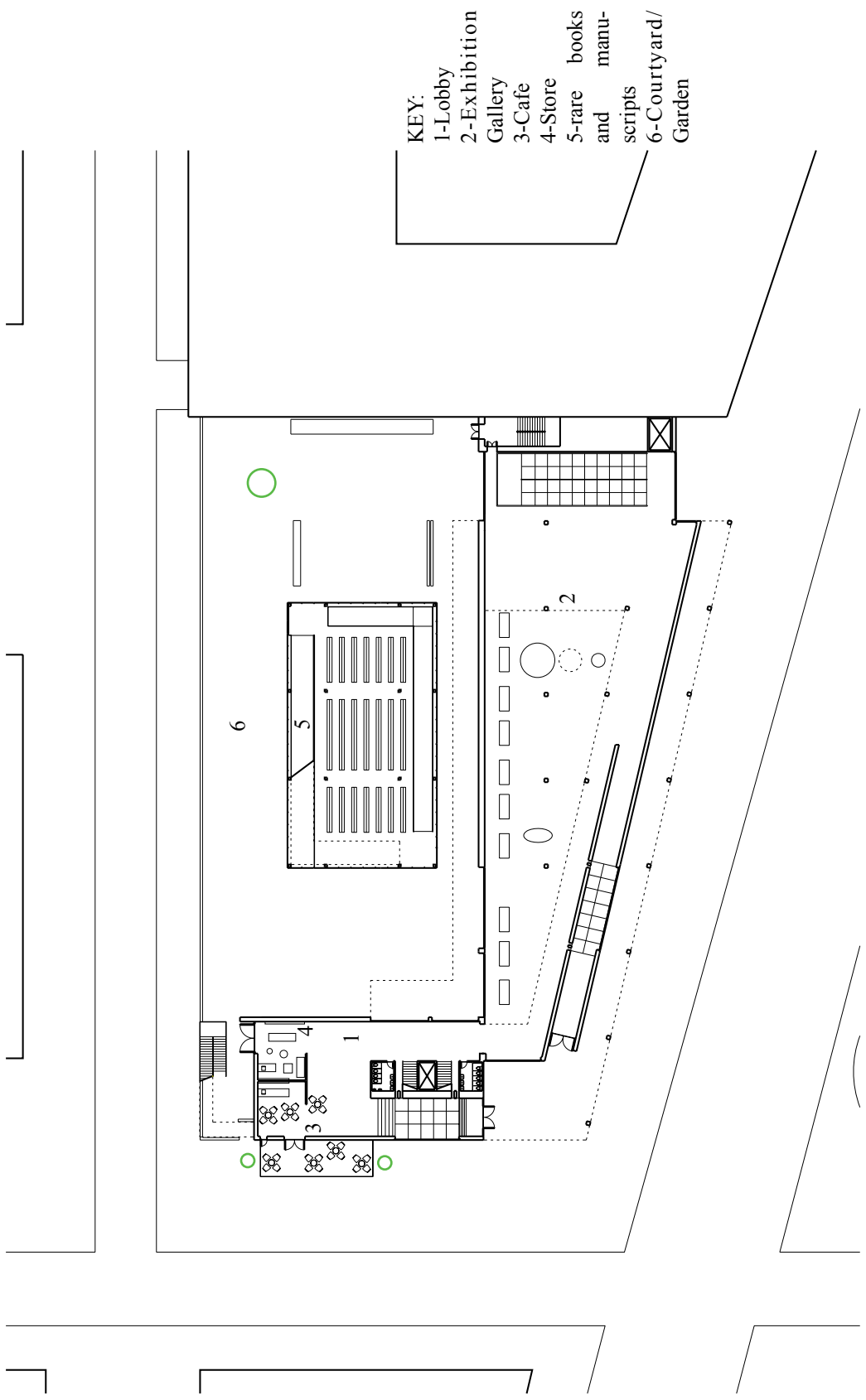
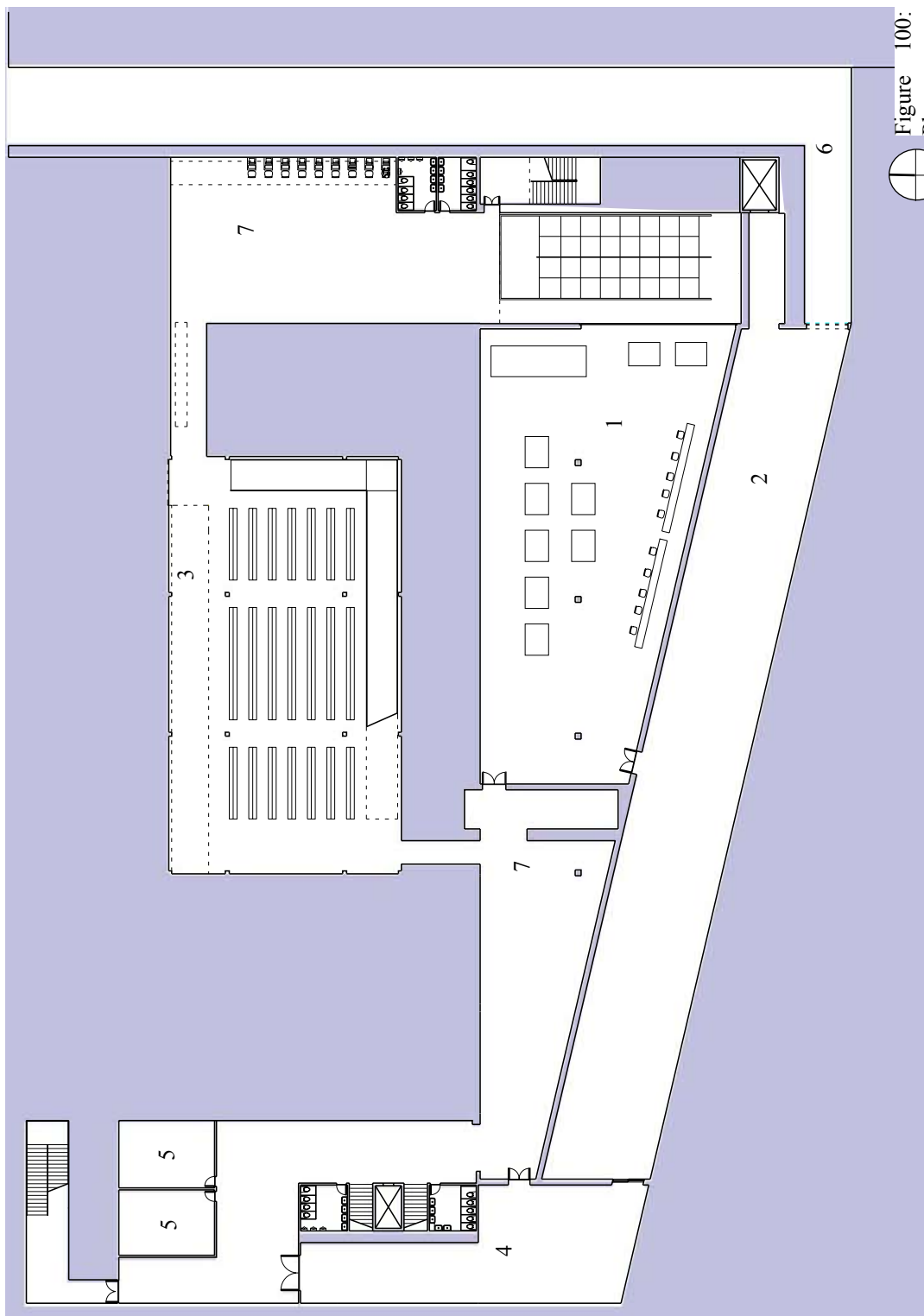
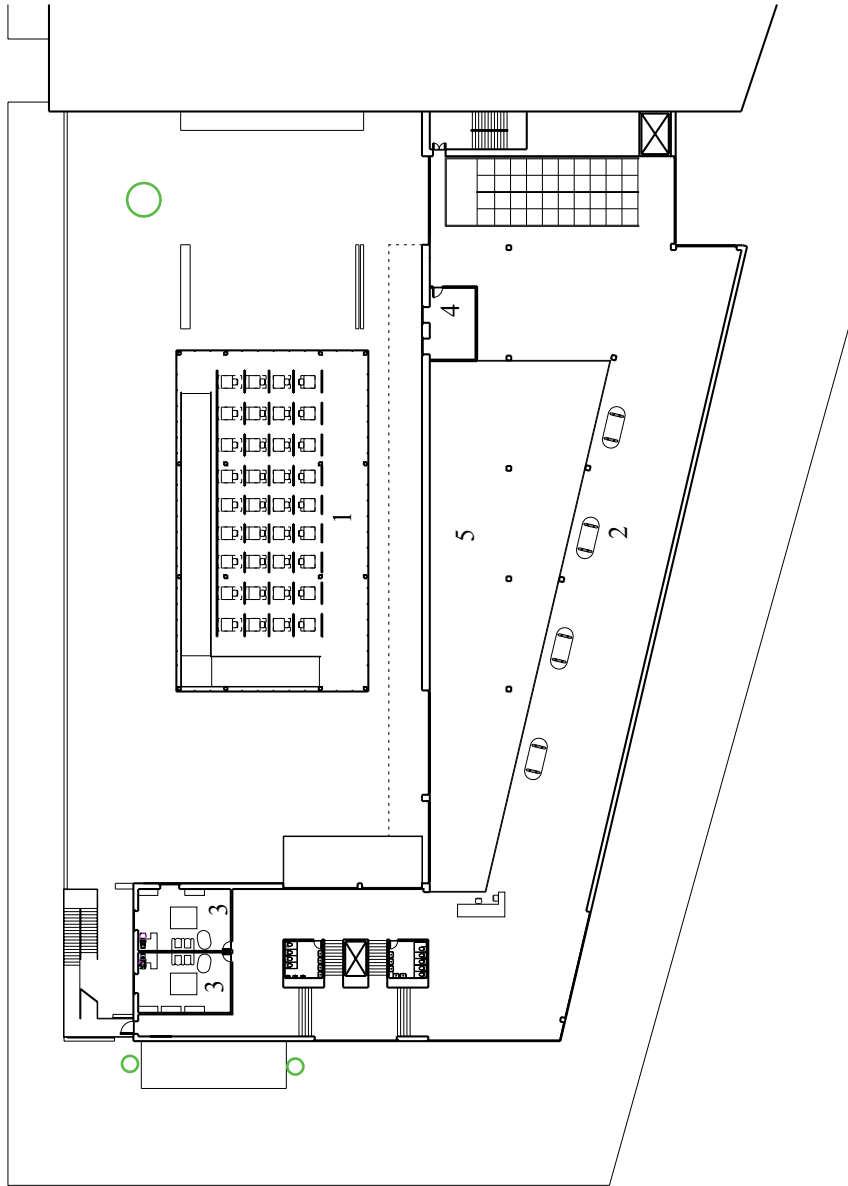


Figure 99: Ground Floor Plan
approx.: 1/64"=1'



KEY:
 1- Repair/
 Restoration
 Lab
 2- Storage
 and holding
 3- rare books
 and manu-
 scripts
 4- Mechan-
 ical
 5- Mainte-
 nance and
 Janitorial
 Services
 6- Loading
 dock
 7- Prep Sta-
 tion

Figure 100: Subterranean
 Plan
 N approx: 1/32"= 1'



- KEY:
- 1-Reading Carrels
 - 2-Exhibition Space
 - 3-office
 - 4-Curator's office
 - 5-Open to Below

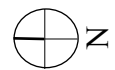
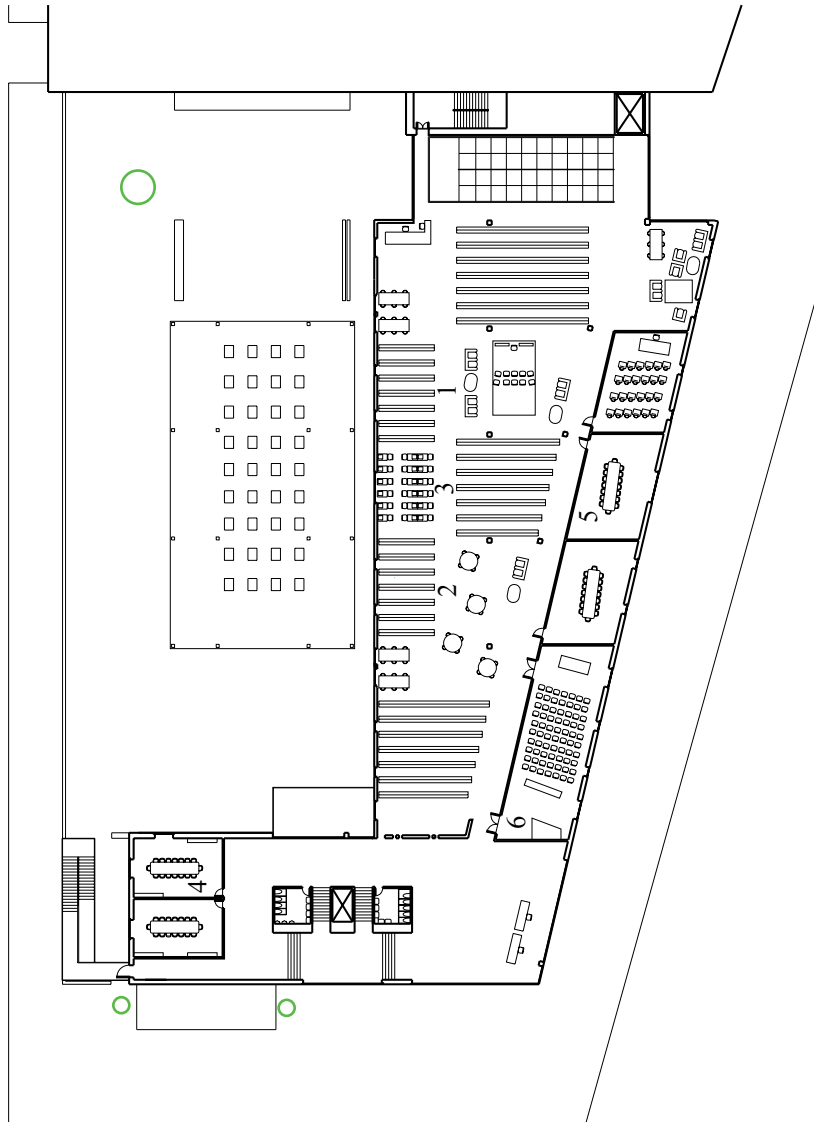


Figure 101: Second Floor Plan
approx: 1/64"= 1'



- KEY:
- 1-Open Stacks
 - 2-Study Space
 - 3-Computers
 - 4-Seminar Room
 - 5-Classroom
 - 6-Lecture Hall

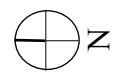
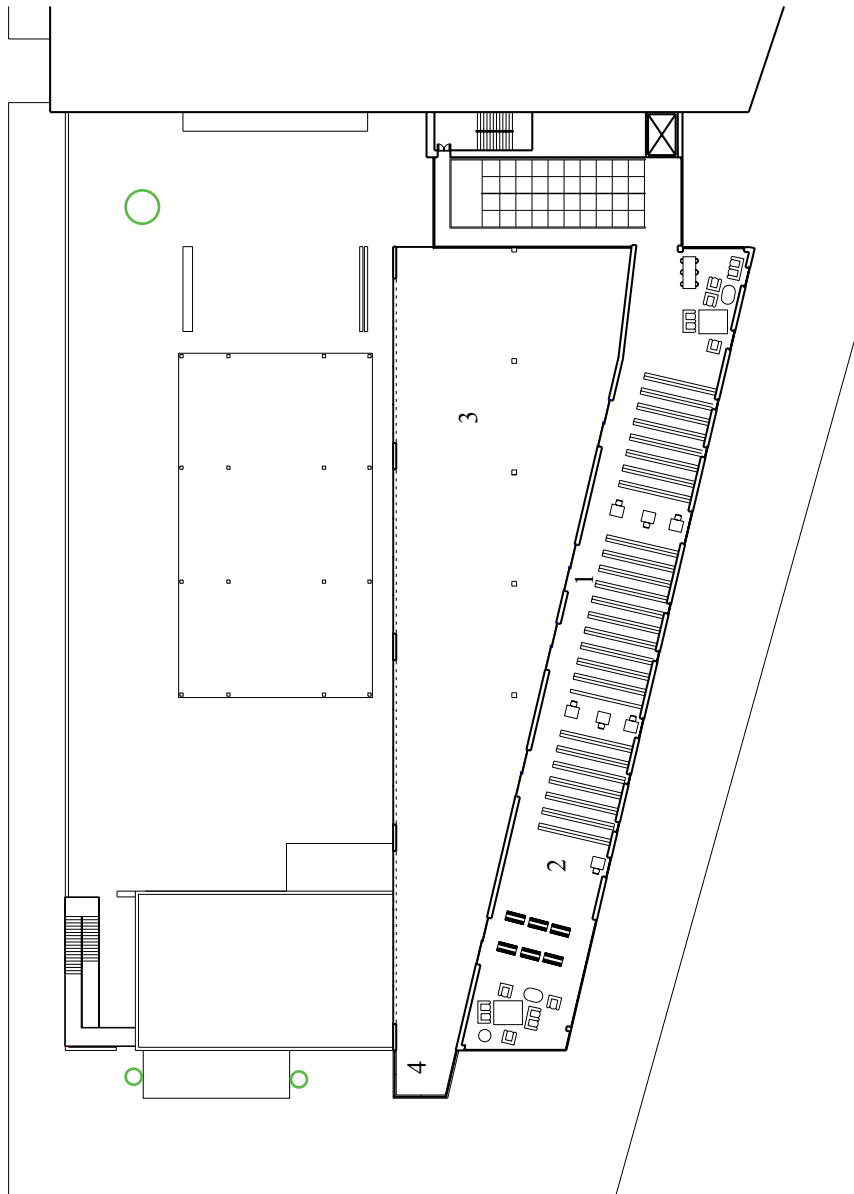


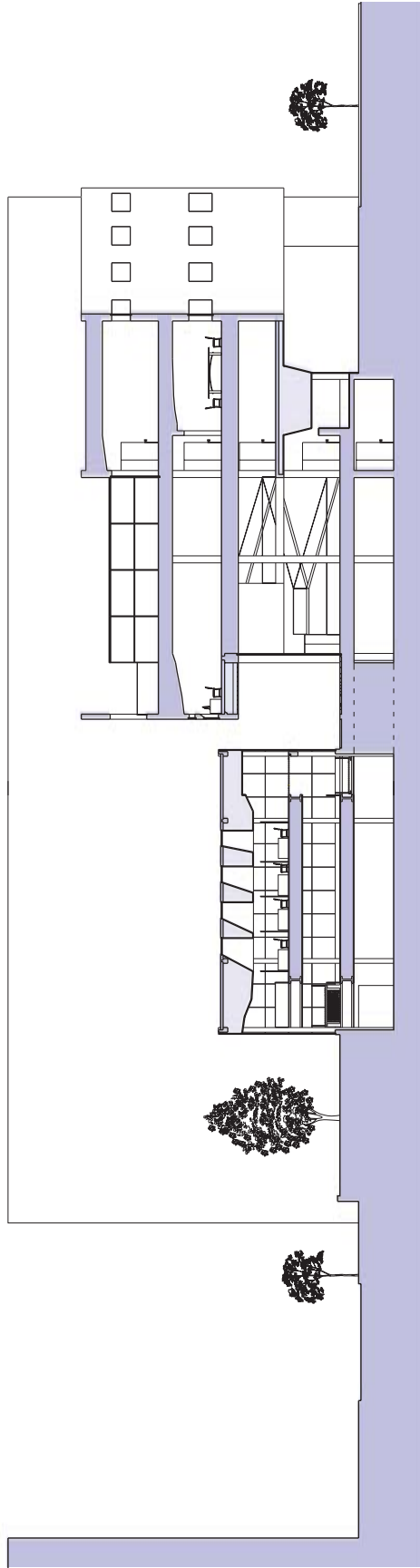
Figure 102: Third Floor Plan
approx.: 1/64"= 1'



- KEY:
- 1-Open Stacks
 - 2-Study Space
 - 3-Rooftop Garden
 - 4-Viewing Platform



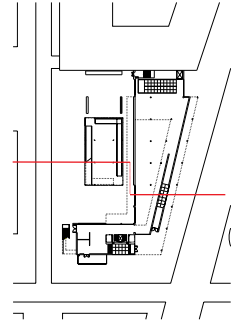
Figure 103: Fourth Floor Plan
approx.: 1/64"= 1'



103



Figure 104: Section A with
corresponding stroke
no scale



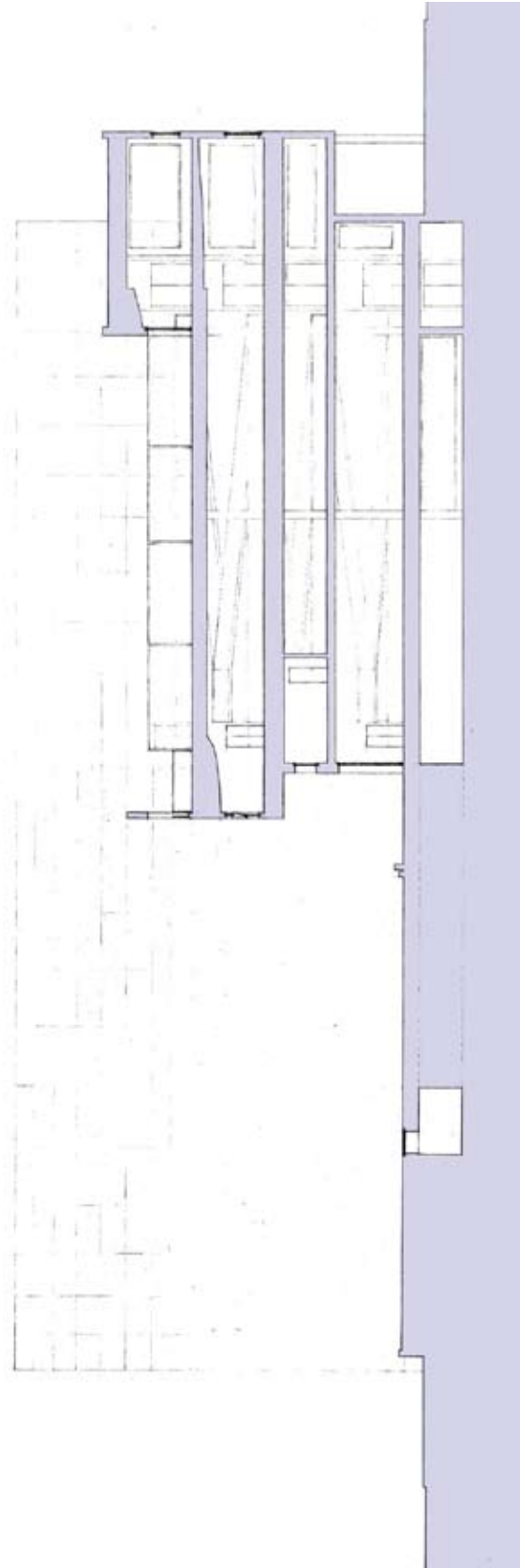
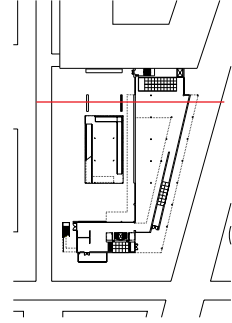


Figure 105: Section B with
corresponding stroke
no scale



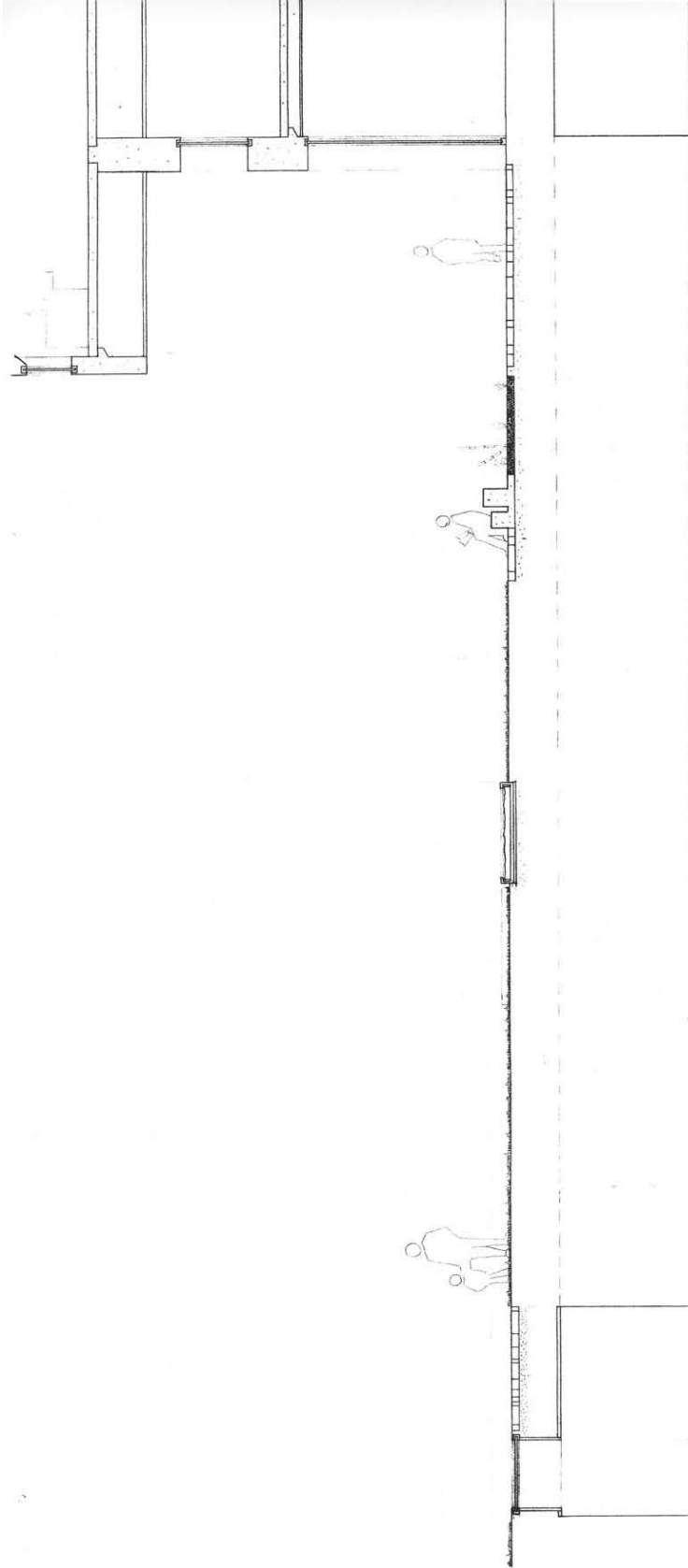
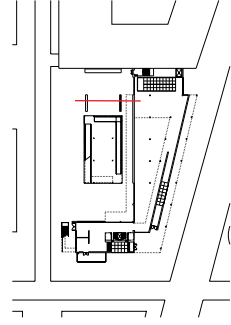


Figure 106: Detail B with cor-
responding stroke
no scale



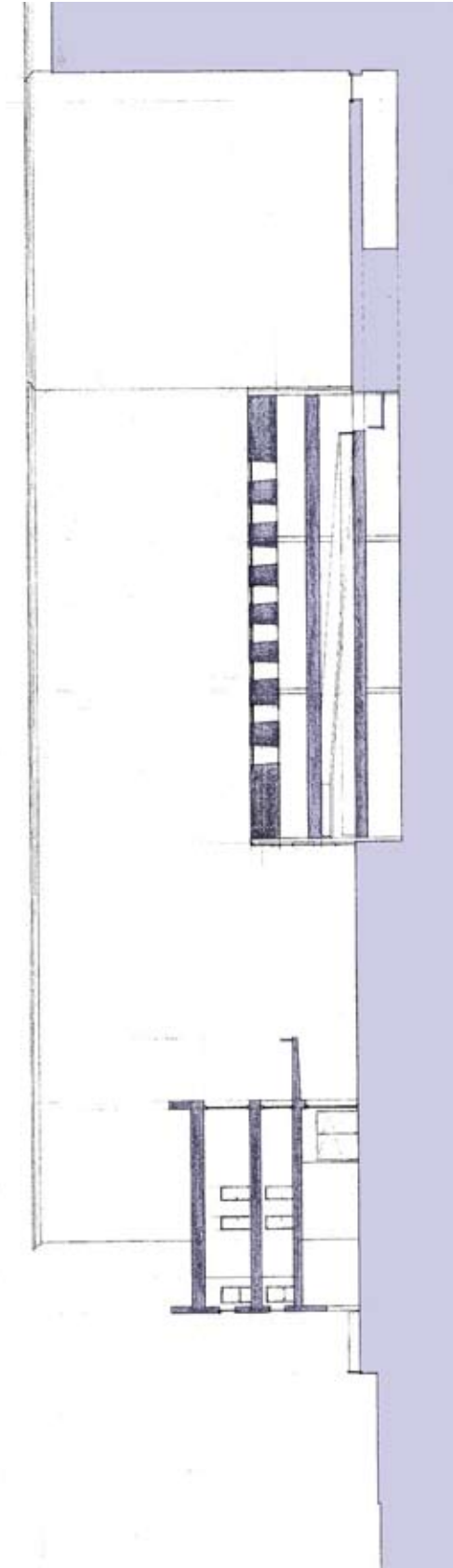
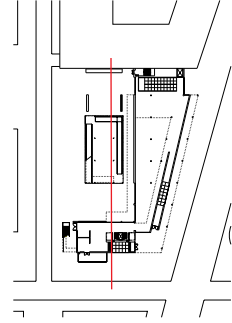


Figure 107: Section C with
corresponding stroke
no scale



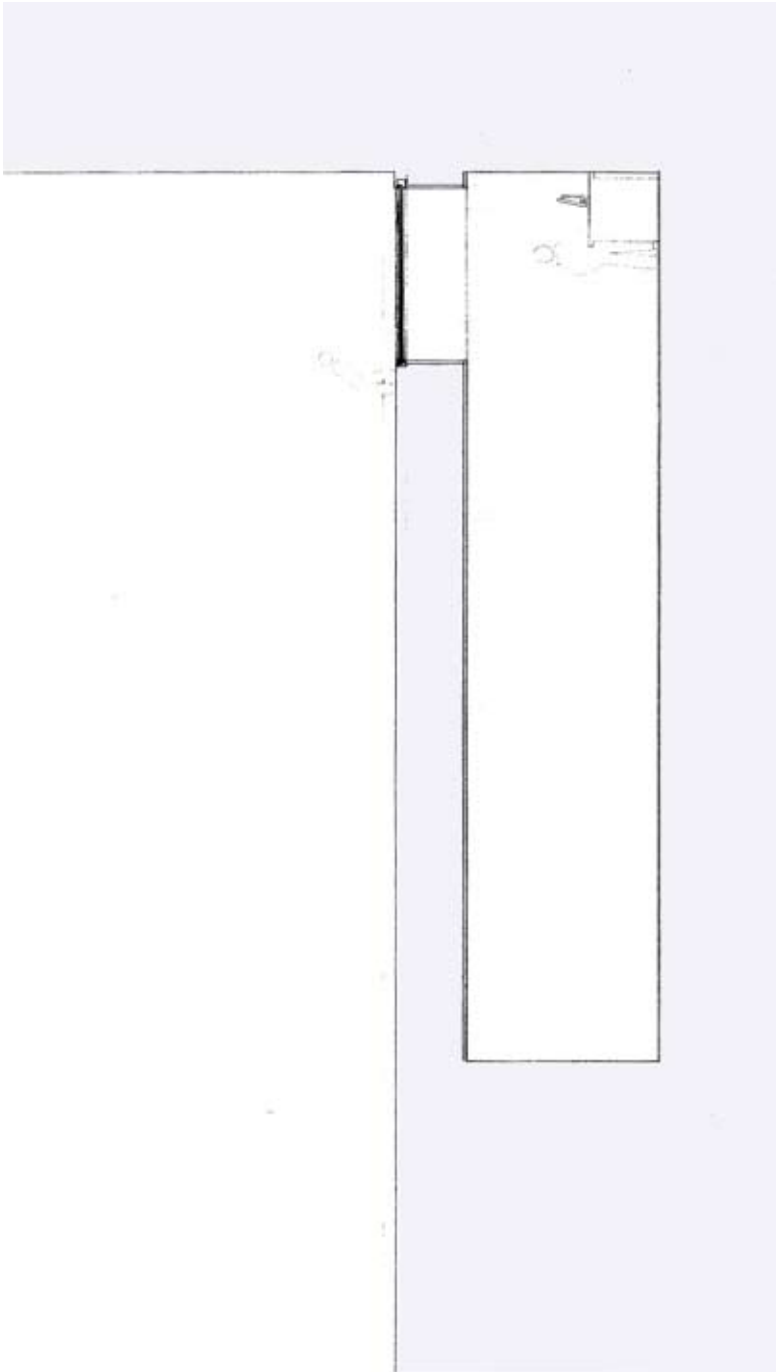
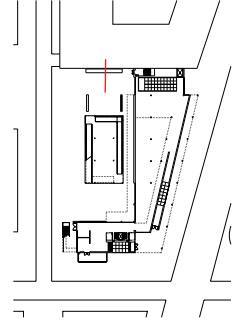


Figure 108: Detail C with corresponding stroke
no scale



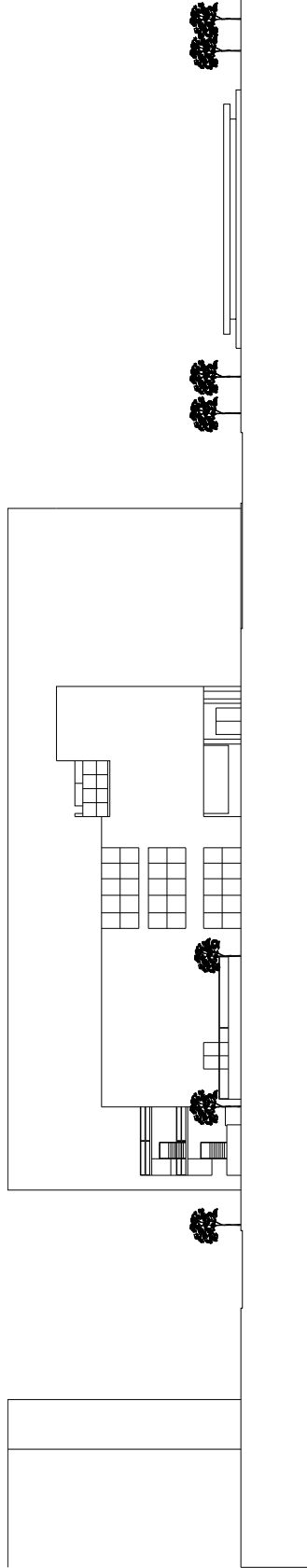
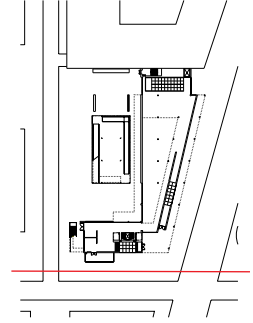


Figure 109: 6th Street Elevation
no scale



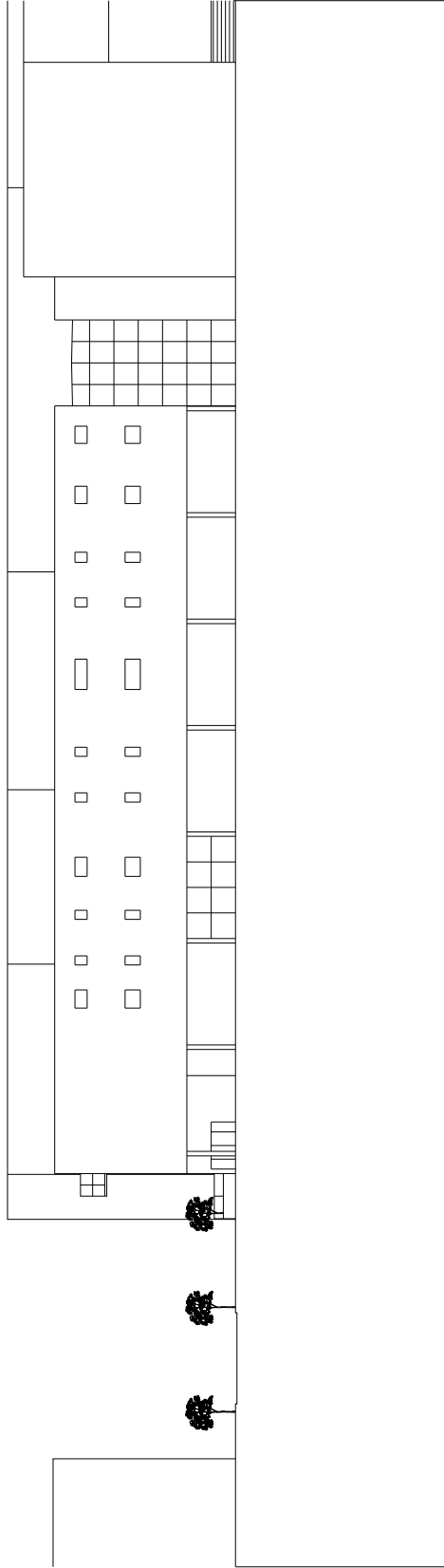
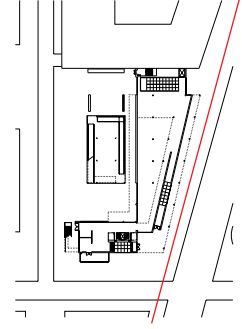


Figure 110: Penn. Ave Elevation
no scale



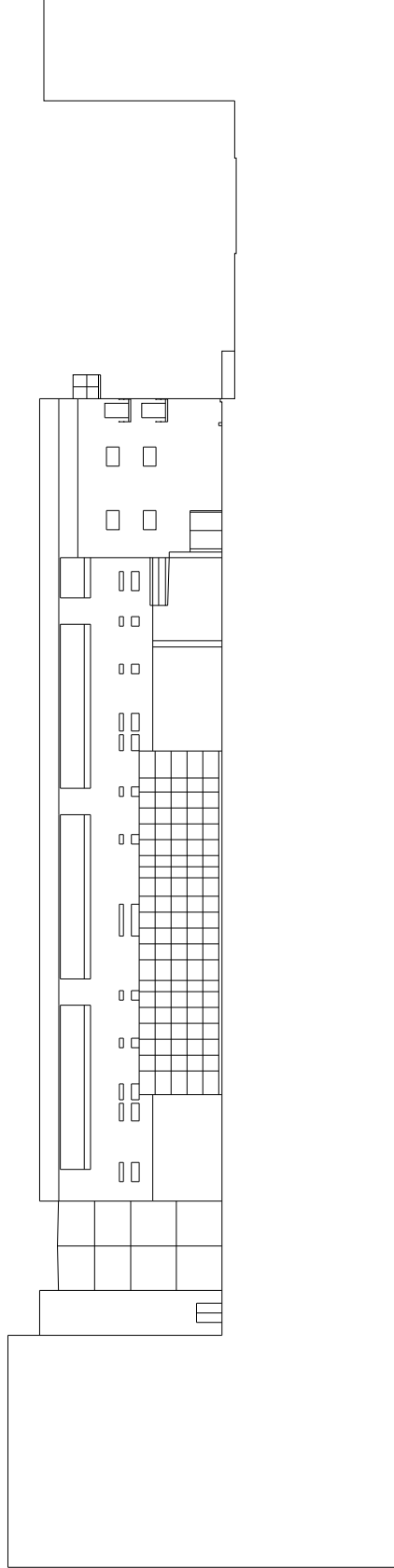


Figure 111: C Street Elevation
no scale

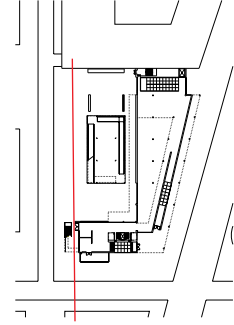




Figure 112: Process Strokes

vita

Rubina R. Siddiqui was born in Huntington Beach, California and moved to Knoxville, Tennessee at the age of 15. After completing high school, she attended the George Washington University in Washington, D.C. where she received her Bachelors of Science degree in Geology and Earth Sciences. While working at the U.S.G.S., she met Haji Noor Deen Mi Guangjiang in Washington, D.C and saw his work for the first time.

She's seen him every year since when he visits the United States and has traveled to China as his student.