

ABSTRACT

Title of Thesis: A SCHOOL FOR THE CHINESE MARTIAL ARTS

Evan Currey, Master of Architecture, 2003

Thesis Directed By: Professor Guido Francescato,
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Through the design of a school for the Chinese martial arts, the issue arises of transposing a style of architecture to a time and place other than its original context. Accordingly, the distillation and transformation of principles of Chinese architecture will be a part of the creation of an architecture appropriate to a modern American city.

The goal of this thesis is to design a new school for training in kung fu, specifically the *hung-fut* system. This system teaches traditional kung fu, lion and dragon dancing, tai-chi, and sparring. Students of the Chinese system of martial arts known as kung fu should have a sense of the culture that produced the system of kung-fu. A building for the school must fulfill the requirements for the primary function of education as well as secondary functions such as administration and public performance. The architecture of the school should express the culture and history that created this system of martial arts. Therefore, principles of Chinese architecture, as well as relevant philosophies such as *feng-shui*, should be incorporated in the design of the school.

The site for this project is the corner of H and 6th Streets in Washington, DC's Chinatown, the building will attempt to establish a cultural focus in the historic district and help to re-knit the urban fabric, and to revitalize the neighborhood.

A SCHOOL FOR THE CHINESE MARTIAL ARTS

by

Evan Currey

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Thesis Design Objectives

Building Form

The primary challenge and opportunity inherent in this thesis is involved in the form-making of the building. There are three conditions the building must reflect.

The building should be contemporary, functionally and formalistically. The design intention is not that of purist regionalism, as the world today is changed significantly since pre-industrial China. The main theme of much of modern architecture deals with the notion of a global community. It is important to look at this present and future as well, in which the world can only grow smaller. The challenge in designing modern architecture is making the building unique while at the same time reflecting the values and traditions of the society to which it belongs. The result is that many contemporary buildings look the same whether you're in New York, Paris, or Beijing. Therefore, the building must be modern and reflect post-industrial society, but must also establish a link with relevant tradition and context.

Accordingly, the building must reflect the traditions of Chinese design. *Kung fu* is an art that is tied closely to Chinese culture. The school building thereby becomes not only a training center, but also a cultural institution. The training facility should be designed with a character reflective of, and sensitive to, Chinese culture. Though it would be inappropriate to design an ultra-modern building with no relation to Chinese tradition, it would be equally inappropriate to design a model of a traditional Chinese building. The key is to distill from tradition those principles which guided vernacular and high style Chinese architecture, and to explore the manner in which these may be brought into 21st century America.

Finally, the building must be designed in a character appropriate for Chinatown in downtown Washington, DC. The building should be designed in a manner sympathetic to its immediate context of row houses and apartment buildings. The buildings in the neighborhood are primarily row houses and a few high rise apartment buildings. As an institution and cultural focus, the building must stand out, but not be garish or completely out of place.

Bringing these three design approaches together is the primary goal of this thesis design. This objective will be best achieved through the exploration of the building form. Significant topics of exploration includes broad issues such as construction, massing, and scale, in addition to the finer points of detailing such as materials, colors, textures, and decorative elements. In the end, it will be in the detailing of the building that the exploration of the three approaches to form-making may be resolved.

Building Function

The building must provide state-of-the-art facilities for training in the Chinese martial art known as *kung fu*. Serious practice of *kung fu* involves rigorous physical activity; therefore the school's primary function is athletic training. However, as martial art training involves not only the body, but also the mind, the building must also provide space for relaxation and mental conditioning.

Urban Strategy

The design of the *kung fu* school will also help to revitalize Chinatown in a number of ways. First, and most basically, the building will help to re-knit urban fabric by replacing what now exists as surface parking with something of form and character.

The building will provide a monumental focus to complement the Friendship Arch and strengthen the center and edges of Chinatown.

The form of the building will also assist in the development of Chinese character in Chinatown with architecture sympathetic to Chinese precedent. Finally the building will establish a Chinese cultural institution that will complement the Chinese-based retail Chinatown is currently known for.

Chinese Martial Arts

The following is a brief overview summarizing the salient aspects of the Chinese martial arts. The understanding of where the martial arts originated, its reason for being, and what its practice entails is vital for an understanding of the functions of a school for the Chinese martial arts. The following is by no means comprehensive, but rather is intended to serve as a quick reference for those unfamiliar with martial arts.

Brief History

The term “martial arts” refers to a wide range of combat systems and sports originating primarily from East Asia. Some of these systems were evolved as a form of combat training for warriors, others for personal self defense, physical and spiritual development, or simply for sport and recreation.

In China, prior to the beginnings of formal systems of martial arts, boxing, wrestling, and weapons training did occur and was primarily recreational in the case of boxing and wrestling, or was for military purposes. This training was largely informal and uncodified.

According to legend, formal martial arts training began in China around the 6th Century AD when Bodhidharma came to China, bringing Buddhism from India. At the shaolin temple in the Hunan province, Bodhidharma began the tradition of *Ch’an* Buddhism, in which followers search for spiritual enlightenment through meditation. However, his Chinese students lacked the required physical stamina to accomplish the long, rigorous meditation sessions. Bodhidharma therefore devised a series of exercises designed to improve the strength, flexibility and stamina of the monks. Over time, these exercises evolved into a form of combat.

While the story is largely fictitious there are elements that ring true.

Bodhidharma did visit China to spread Buddhism, but sources indicate that Buddhism had come to China as early as the 1st Century AD. It is true that the monks of shaolin were renowned for their combat training, and it is speculated that this training may have evolved for a number of reasons. The motivation to train physically may have been motivated by a need to improve physical condition in order to withstand the rigors of meditation. More likely though, the combat system evolved out of a need for a system of defense against bandits and wild animals.

Over the years, shaolin martial arts spread and evolved into a number of styles and systems each branch sharing similar roots but beginning to take on characteristics distinctive to the time, place, and people involved in the training.

The shaolin heritage was all but ended when the Communist party defeated the Nationalists, and took over China. The temples remained largely neutral during the political turmoil of the time and were accorded the status of an enemy by both sides. Many of the temples were destroyed and monks killed, and the practice of traditional shaolin martial arts was outlawed. What survives today of the old traditions comes down from those who fled or hid from the warfare.

In the 1970's, in an attempt to bolster national pride, the Communist party "re-introduced" the martial arts to China. More accurately, they attempted to reinvent it. Traditional martial art training was illegal, so the government created *wushu*. Unlike traditional martial training, there was no combat or defense emphasis. Instead, *wushu* is a martial art based on competition and performance.

Now, martial arts styles are various and sundry, owing to the migration initially to other countries in East Asia, and also within the past century, the rest of the world. It is only in the past forty years though that the study of martial arts has become truly accessible with the advent of the martial arts motion picture contributing largely to their popularity.

Hung Fut

The Hung Fut system of *kung fu* began 400 years ago in the Southern Shaolin Temple in China. In an attempt to establish a more comprehensive style, a Buddhist monk known as Wun Lei combined the style of Hung Gar, a hard style emphasizing fast and powerful movements, with Fut Gar, a soft style emphasizing grace and fluidity of motion. The result was Hung Fut, a style that incorporates both hard and soft techniques, emphasizing “movements that are powerful and explosive, yet precise, flowing, and without rigidity.”¹

Hung Fut began in mainland china, but later moved to Hong Kong to escape political turmoil. This system of *kung fu* has been passed on for eight generations, and is currently headed by *Sifu* Tai Yim, the Grandmaster of the Hung Fut system, who in 1977 brought the system to the United States.

The Tai Yim Kung Fu School, teaching traditional Hung Fut Kung Fu, is located in Kensington, Maryland. As the school of the system grand master, it is the flagship school for Hung Fut training. The school is located on the second floor of a two story commercial building. As class sizes begin to swell to sizes of up to forty students at a time, the building is no longer large enough to function efficiently. Furthermore, the

¹ www.kungfu1.com

building has few redeeming qualities in terms of architectural character, and certainly is not sympathetic to Chinese tradition. Therefore, this thesis proposes a new building for the Hung Fut system of kung fu.

Training

Kung Fu

The system of martial arts with roots at the shaolin temple became known as *kung fu*. *Kung fu* means, in loose translation, “hard work.” There is an implication involved in it though, and some suggest that the meaning that best reflects the meaning of *kung fu* is “great skill achieved through hard work.” One can have good *kung fu* in anything that a person works hard at, though over the years the phrase has come to be associated mainly with the Chinese system of martial arts.

Open Hand Forms

The forms are the vehicles for passing down the traditional techniques of the system. A form consists of a series of movements such as punches and kicks put together in combination. Open hand forms or “handsets” are intended to be done without the use of a weapon, simulating barehanded fighting.

Often forms are associated with a particular theme of inspiration, such as the animal forms, the drunken forms, or the cripple forms. These methods of identifying forms came about due to the resemblance of movements to that of a particular animal or a drunken person.



Figure 1: Tiger Claw.² (Left) James Whitley demonstrates a tiger claw technique, named after the position of the hand, resembling the claw of a tiger, and the fierceness with which the technique is applied.

Figure 2: Fu Jow.³ (Right) Wai Moy demonstrates the tiger claw technique known as *fu jow*.

Weapon Forms

Weapon forms, like their open-handed counterparts, are a series of movements performed in combination, except with a combat weapon. Weapons are classified as either long or short. Long weapon forms include but are not limited to: staff, spear, and whip forms, while short weapon forms include but are not limited to: broadsword, straight sword, and double dagger forms. Typically, as they extend the range and destructive capability of a user, training in weapons requires more space and care, and is reserved for advanced students who are able to demonstrate a greater degree of control.

² Ibid.

³ Ibid.

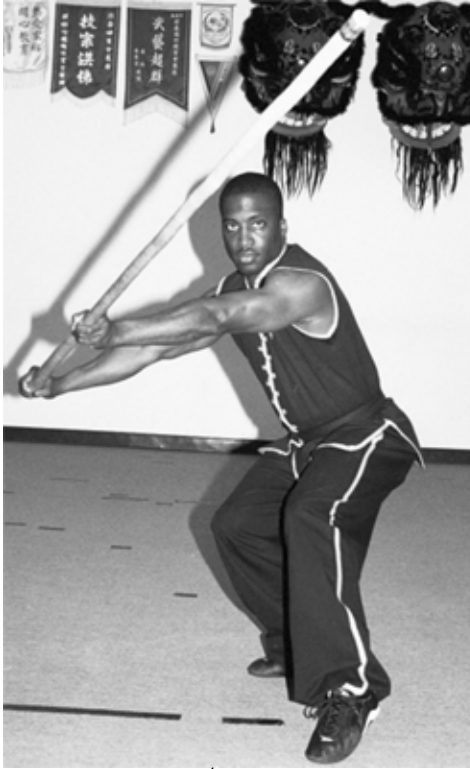


Figure 3: Staff.⁴ (Left) Ed Pratt demonstrates the staff. The staff form is an example of a long weapon form.



Figure 4: Broadsword.⁵ (Right) Diego Duran demonstrates the broadsword. The broadsword is an example of a short weapon form.

Sparring

Sparring, or fight training, refers to the aspect of training in the ability to defend oneself against an opponent. Where the traditional forms focus on teaching the movements and techniques of a system, sparring focuses on simplifying the techniques so that they might be practically applied in a threatening situation. Sparring training involves the use of bags to develop speed and power, as well as controlled combat with other individuals in order to test one's skill and develop the ability to react to an opponent.

⁴ Ibid.

⁵ Ibid.

Tai Chi

Tai chi, or moving meditation is closely related to the study of *kung fu*. In fact, most of the movements in *tai chi* are the same. The difference is how the techniques are practiced. Where *kung fu* practice is vigorous, *tai chi* is meant to be relaxed, its movements performed slowly and calmly. One is focused inward, meditating and developing inner power and tranquility while moving from one technique to the next.

Lion Dance

The lion dance is a performance re-presenting the tale of the mythical lion, the guardian of the south gate of heaven, and his transformation from a force of destruction to a protector of humanity. The dance symbolizes that true victory comes not by defeating your enemy, but by making your enemy your friend. The lion dance is a team effort requiring seven people at the least: two for the lion and five for the musical accompaniment. The lion itself is made up of a paper mache head attached to a twelve foot silk tail. One dancer operates the head and another, the tail.



Figure 5: Lion Dance.⁶ (Left) In the end of the story, the lion becomes the protector of the village and comes to scare away evil spirits.

Figure 6: Lion Dance.⁷ (Right) The lion prepares to eat the magic vegetable, seen in the lower right, left by the citizens of the village to drug the lion.

⁶ Ibid.

⁷ Ibid.

Project Site

Site Location

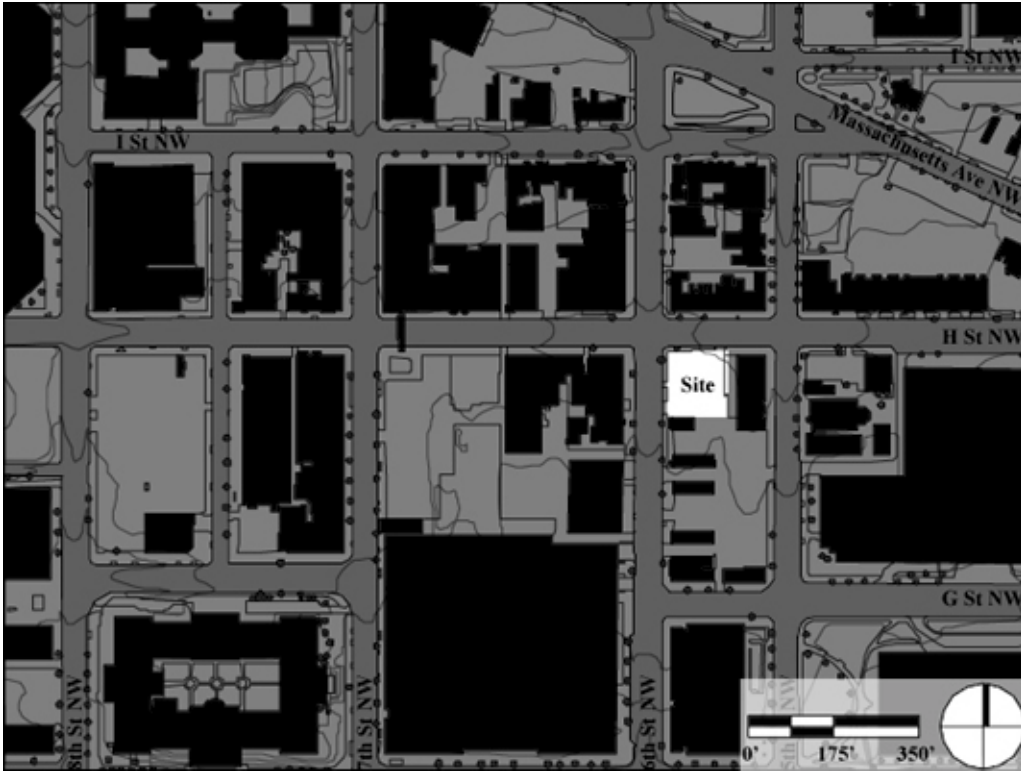


Figure 7: Project Site in Context. This site plan indicates the site boundaries and local context. The site for this project is at the corner of 6th and H Streets in Chinatown, in Northwest Washington DC.

Chinatown is a historic and cultural district bordered by Massachusetts Avenue on the North, G Street on the South, 8th Street on the West, and 5th Street on the East. Most of the buildings are of a small scale, two to four story row houses, and a few larger scale buildings such as the Wah Luck House apartment building, the MCI center, and the new Gallery Place Project.



Figure 8: Project Site. This site plan shows the project site in its immediate context at a larger scale. Currently, the site is a paved surface parking lot. The dimensions of the site are approximately 100' East to West, and 130' North to South, bringing the area of the site to about 13,000 SF.



Figure 9: View to Site. This view from the corner in front of the Wah Luck House shows the project site and immediate context.

Adjacent to the site on the East is a twelve-story apartment building. To the South are three-story row houses with retail on the ground floor and living quarters above, as well as another paved parking lot.



Figure 10: Project Site and Apartment Building to the East.



Figure 11: Row Houses and Parking Lots to the South of the Site.

Across 6th Street to the West are three and four-story row houses of a similar configuration. Across H Street to the North is more of the same. Located to the Northwest across the intersection of H and 5th Streets is the Wah Luck House.



Figure 12. Row houses across H St.



Figure 13: Wah Luck House. The Wah Luck House (meaning House of Happiness) is a 153 unit, subsidized apartment building. The ten-story building is designed in a Chinese spirit and includes a Chinese garden and a 6000 SF community center.⁸

Only a block to the West on H Street is the Chinatown Friendship Arch and the entrance to the Gallery Place-Chinatown Metro Station. To the Southwest, on F Street, between 6th and 7th Streets is the MCI center.

⁸ Alison Mara Friedman, *The Rise and Decline of Chinatown, DC* (The Concord Review, 1999); 6.



Figure 14: The Chinatown Friendship Arch. Completed in 1986, the arch acts as the focal point of Chinatown. The arch is a testament to the coexistence of Chinese and American culture combining Chinese *dou gong* carved wood roofing with steel and reinforced concrete support.

There is not a tremendous change in topography across the site, and the area is relatively flat. Overall, the Chinatown area slopes upward from south to north at approximately a one percent slope, or a ratio of one foot of rise for every ninety-five feet of run.



Figure 15: Topography. Chinatown sits on land that slopes down from about seventeen meters above sea level in the north, to about twelve meters in the south.

Site History

In the 1880's Washington DC's Chinatown began as a haven for Chinese immigrants facing *de facto* and *de jure* discrimination. From the late 19th century to the 1920's, Chinatown was located on the south side of Pennsylvania Avenue between 3rd and 4th Street, where the east building of the National Gallery of Art currently sits.

Chinatown began with a few Chinese immigrants selling tea and spices. It was relatively small, with a population of around 400 by the late 1920's. Most Chinatown residents worked in local laundries or restaurants and lived above or behind these establishments.

In 1929, the government forced Chinatown out in order to create space for the Federal Triangle project and for the expansion of the government along Pennsylvania

Avenue. Consequently, the Chinese Merchants Association bought property along H Street, between 6th and 7th Streets. What was originally a German and Jewish neighborhood became the new Chinatown, and by 1936 approximately 800 families were living in Chinatown.⁹

After the Second World War, people became more accepting of Chinese, causing the laws limiting their rights and immigration restrictions to be lifted. This increased with the civil rights movements of the 1960' and accordingly, Chinatown's population began to grow and with less discrimination, adapt to American culture. By this time DC had a Chinese population of around 3000.

In the 1970's however, this influx of immigrants coupled with the proposal and construction of the DC Convention Center caused many established residents to move to the suburbs. Chinatown became decentralized. In 1983, the Convention Center was finally completed, after having displaced a great deal of Chinatown's population and demolishing a number of its buildings.

There were, however, measures taken in an attempt to combat the rapid decentralization. In 1982 a 153 unit apartment building known as the Wah Luck House was completed. In 1984, laws protecting the area came into effect and Chinatown became a "special planning area." In 1986, the Chinatown Friendship Arch was erected in an attempt to give Chinatown a culturally expressive monument. These measures were only partially successful. The Wah Luck House housed primarily recent immigrants and the elderly, and by 1990, less than a quarter of property in Chinatown was Chinese owned.

⁹ Ibid; 3.

The MCI center proposal of the 1990's raised concerns that echoed those raised by the DC Convention Center proposal of the 1970's. Residents were afraid that the MCI center would bring in large scale development that would drive out those residents who remained.

The most recent large-scale development is the Gallery Place project, adjacent to the MCI center and above the Gallery Place-Chinatown metro stop. There was an attempt to create architecture with Asian influence in order to help the project blend into Chinatown's fabric. Unfortunately, the scale and use of the building only perpetuates the economic drive that has been causing Chinatown to decline culturally in an attempt to cause it to boom economically.



Figure 16: The Gallery Place Project: A retail-and-entertainment complex at the corner of H and 7th Streets also includes 173 residential units¹⁰

¹⁰ Bodamer, Dave, *TIF Law Paves Way for New Mixed-Use Project in D.C.* (www.icsc.org).

This is not the end of Chinatown. It still hangs on, but the increasing scale of development and lack of space to expand creates an uncertain future. The future of Chinatown is not completely bleak; special zoning helps to protect some of what exists and future projects aiming to revitalize the area can help Chinatown revive instead of merely linger. However without adding cultural significance, how can anyone expect Chinatown to be anything but a stylized retail center? Furthermore, even much of the retail has become chain managed. Chinatown has its own CVS, Fuddruckers, and Starbucks.

Site Analysis



Figure 17: Quarter Mile Radius. This diagram shows the larger context around the project site within a five minute walking radius from the project site.

The site abuts the eastern edge of the Downtown Arts District, whose boundaries are 6th and 12th Streets on the East and West, and L Street and Pennsylvania Avenue on

the North and South. The main goal of this special district is to reinvigorate downtown Washington, DC, and bring in more pedestrians by creating a lasting cultural presence. Its strategies include linking downtown and the National Mall to areas of special interest with pedestrian streets, rejuvenating and integrating the arts into the fabric of the city, and relying on landmarks and attractions to sponsor restaurant and retail functions.

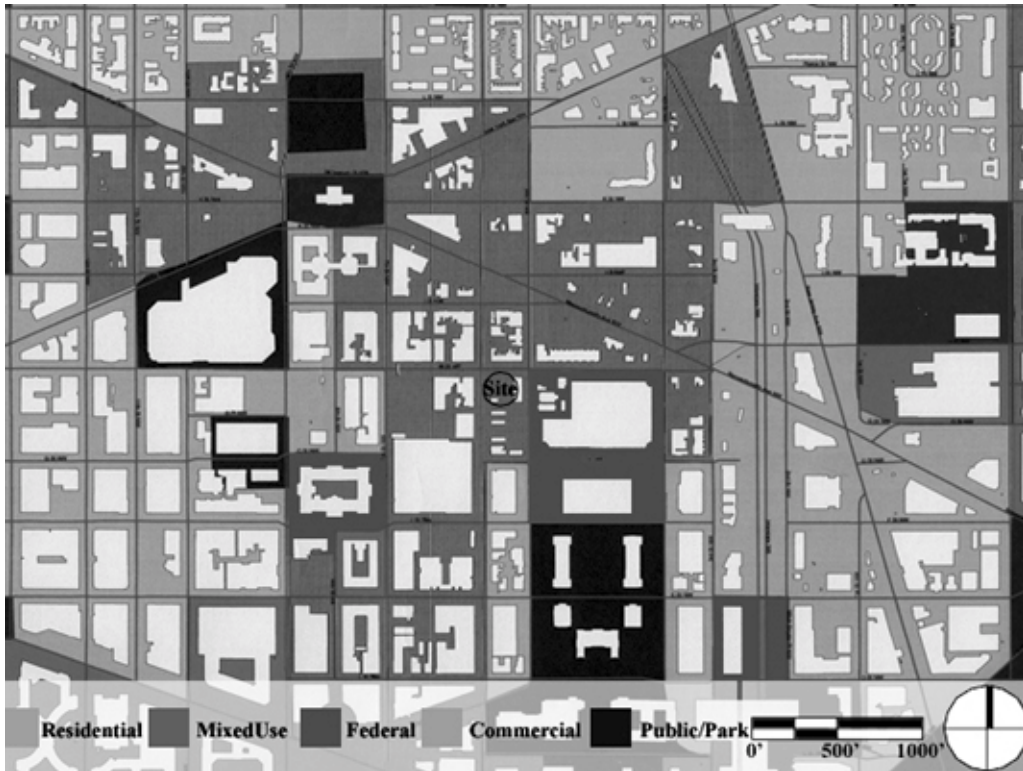


Figure 18: Land Use. The primary use of buildings in the area is mixed-use retail with a special emphasis on Chinese-oriented retail on the ground floor. Chinatown is a multi-use community, primarily restaurants, shops and cultural institutions at street level and residential on the floors above.

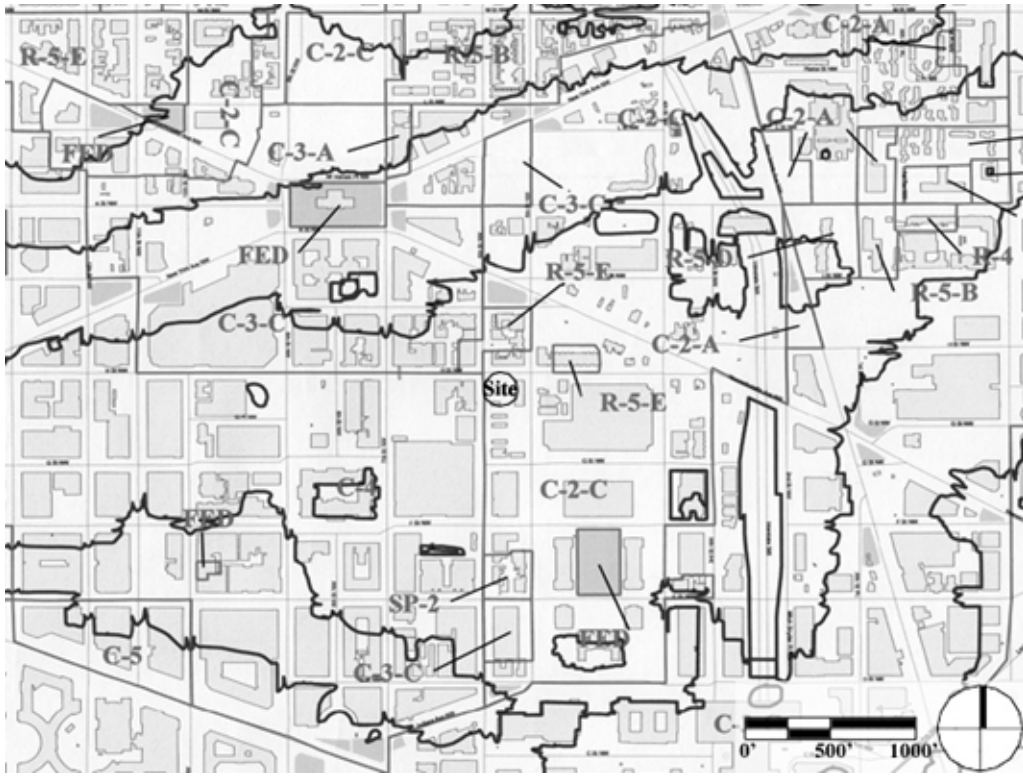


Figure 19: Zoning. The site has been designated C-2-C zoning. C-2-C zoning refers to a community business center of high density.

The Friendship Arch is the symbolic entrance to Chinatown and emphasizes the exoticism of Chinese architecture. Except for the arch, Chinatown possesses no clear landmark, center, or clear cultural focus. Said Matt Bell, AIA, “When you look above the first story, there’s nothing to tell you that you’re even in Chinatown.” Chinese influence has been waning in recent years, and chain establishments such as Starbucks, CVS, and Fuddrucker’s (with signs in Chinese and English), have replaced distinctly Chinese establishments. Chinese influence is limited to restaurants and trinket shops.

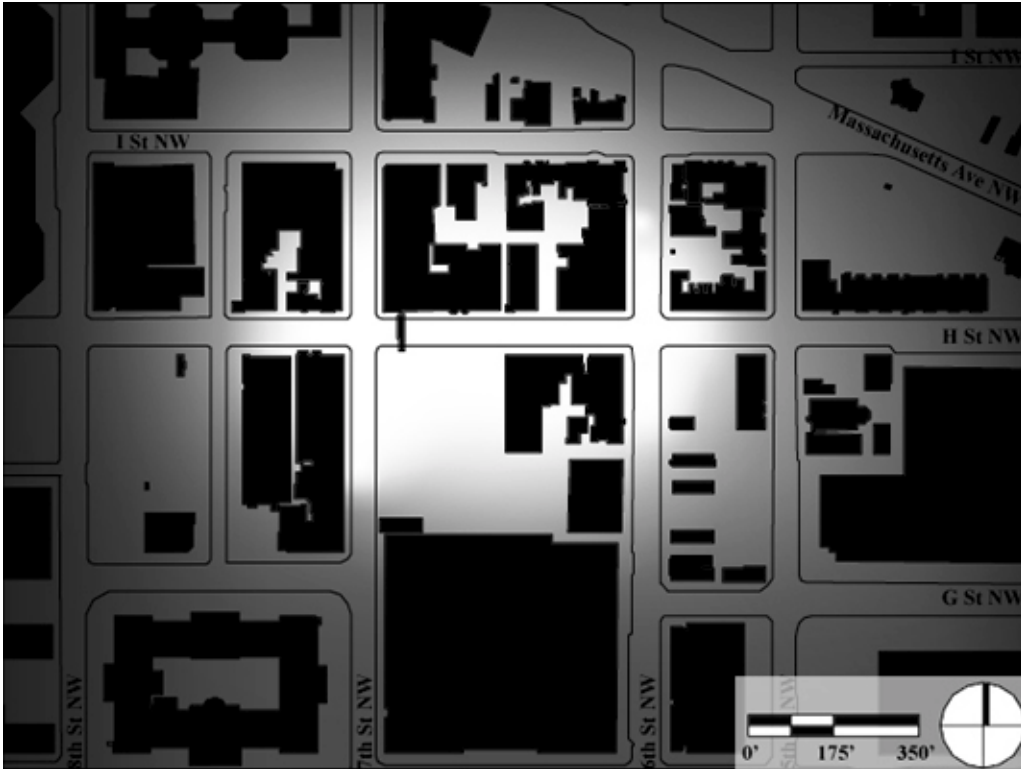


Figure 20: Chinatown. This diagram shows the influence of Chinatown on the nearby context. H Street is the heart of Chinatown, and is the location of the majority of Chinese establishments.

Additionally the continuity of the urban scale and fabric of Chinatown is weak, as a large percentage of surface area is taken up by surface parking lots used principally for events at the MCI center. As a result, much of the time these lots are nearly empty creating a disproportionate amount of open, unoccupied space in relation to built fabric.



Figure 21: Space Negative. This shows the built fabric in black. Development shown begins to break down to the south of H Street.



Figure 22: Space Positive. Now that the space has been rendered black, it becomes more apparent just how much open space there is in Chinatown.

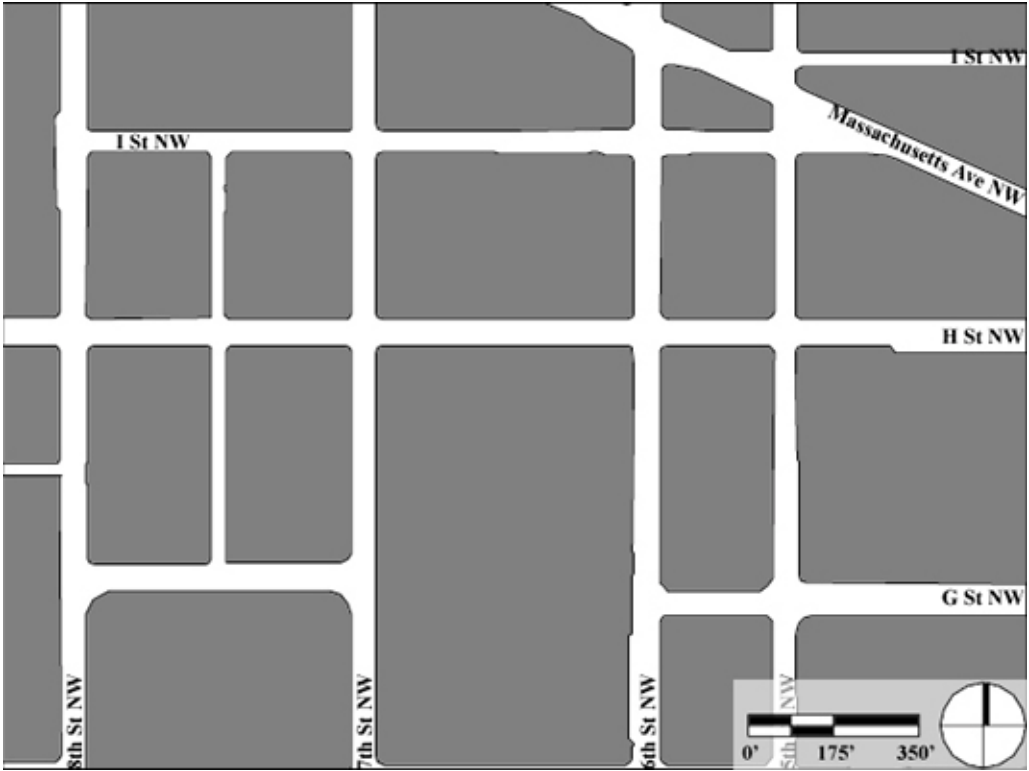


Figure 23: Street Grid. Numbered streets run north-south, and lettered streets run east-west. The diagonal of Massachusetts Ave. divides the grid to the north.

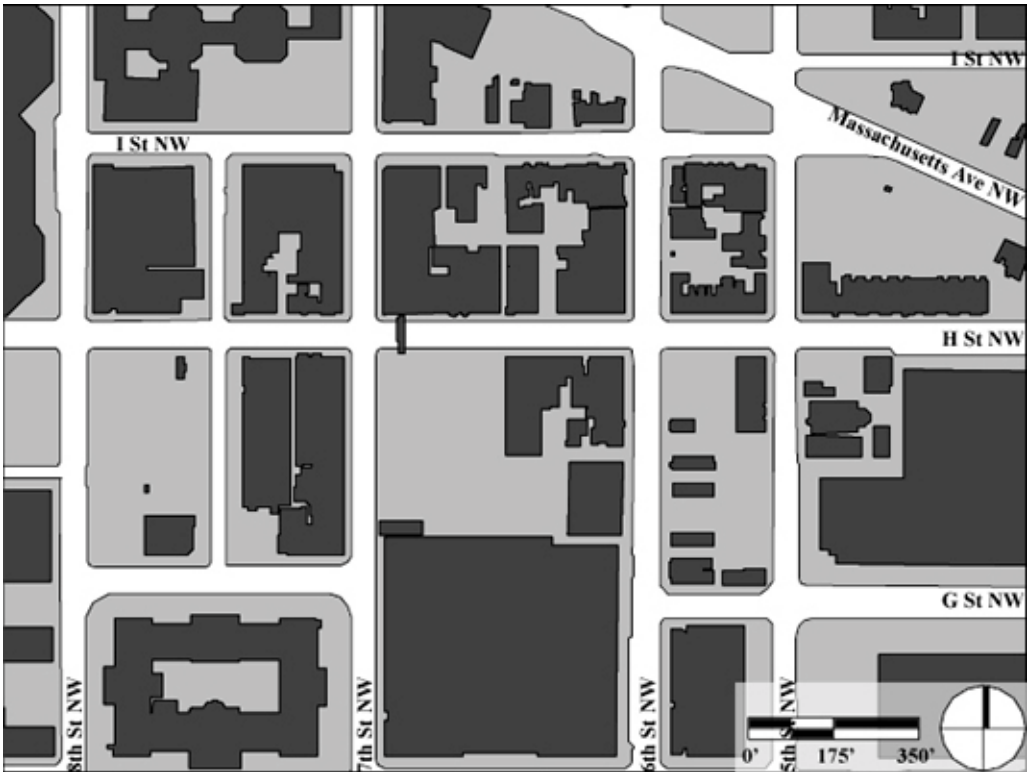


Figure 24: Existing Urban Fabric. The buildings are primarily row houses fronting the street with gaps in fabric used primarily for surface parking.

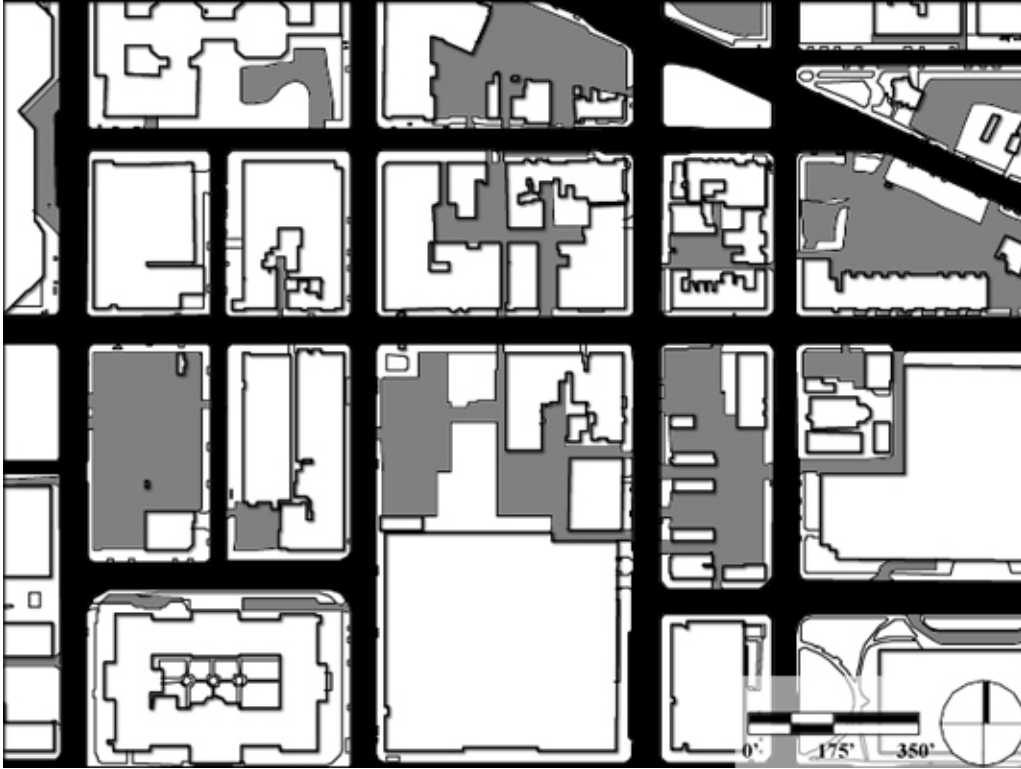


Figure 25: Car Space. This diagram highlights the space designated for automobile traffic, specifically streets and surface parking lots.

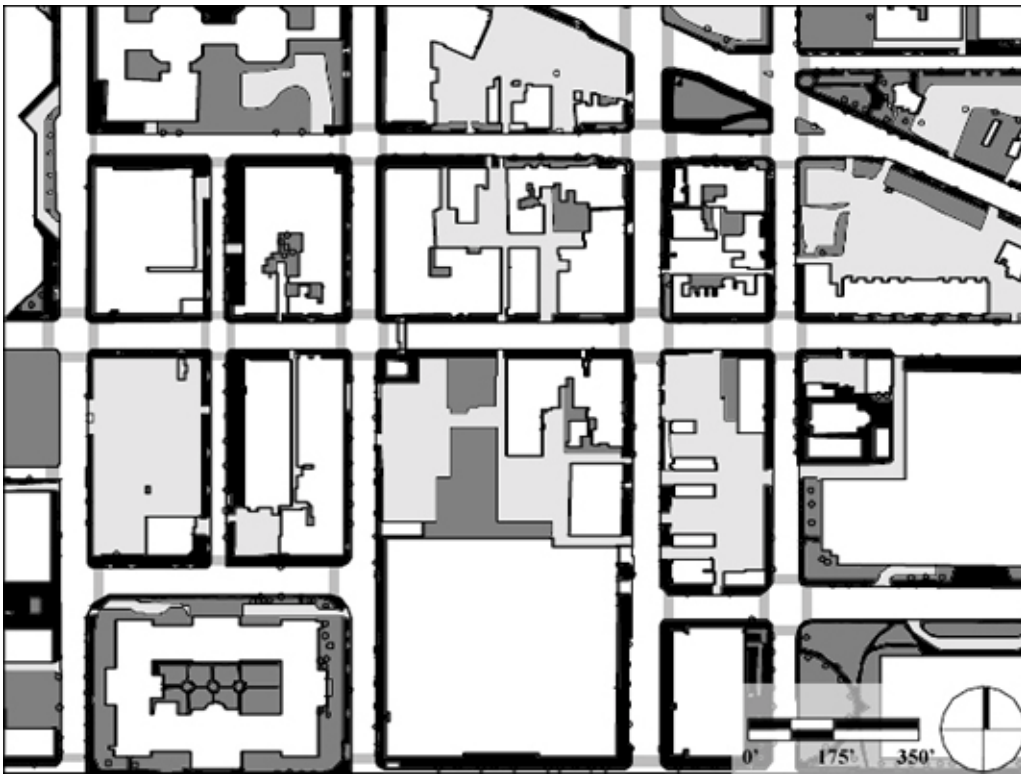


Figure 26: Pedestrian Space. When compared to the amount of space designated for cars, the amount of pedestrian space appears rather sparse.

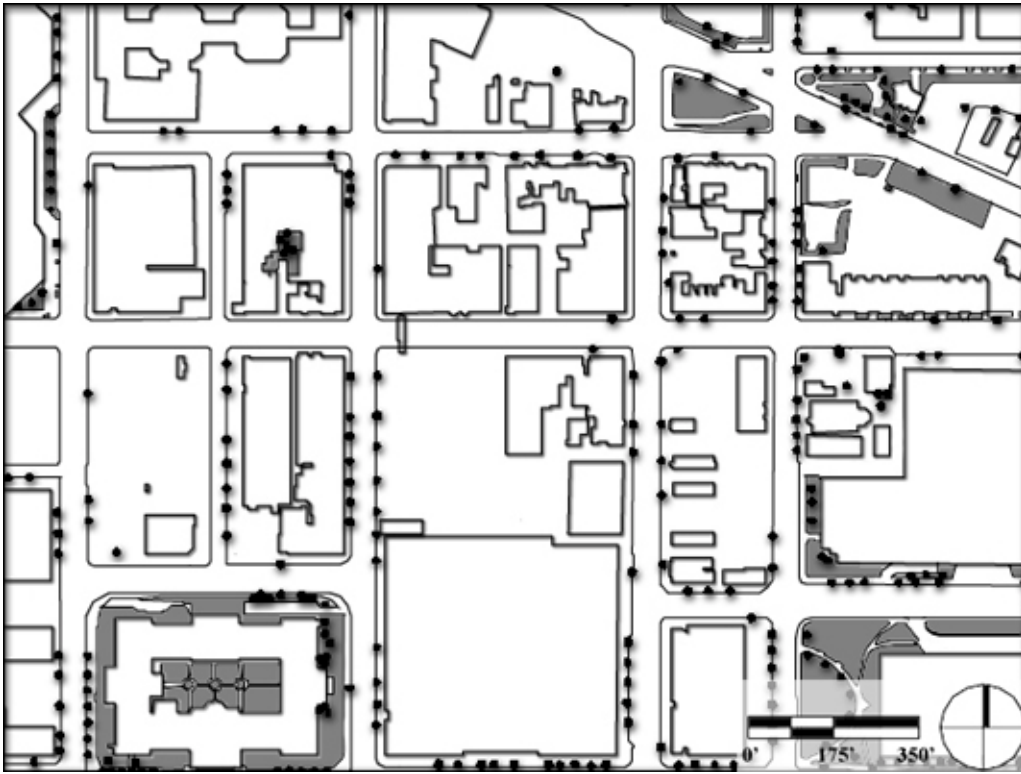


Figure 27: Green Space. As most open space is reserved for paved parking lots, there is not a lot of greenery in the vicinity. Even the trees lining the streets are discontinuous.

Building Program

Program Sizes

Table 1: Public Program

Training Hall	2000 SF
Lobby/Front Desk	600 SF
Supply Store	500 SF
Garden Courtyard	1500 SF
Observation	400 SF
Exhibition	1000 SF
Classroom	600 SF

Table 2: Private Program

Gym	1000 SF
Sparring Room	1400 SF
Study	400 SF
Practice Studio	600 SF
Private Garden	400 SF
Clinic	500 SF
Library	500 SF
Dining Room	800 SF
Guest Rooms: 10 @ 300 SF	3000 SF

Table 3: Support Program

Office	300 SF
Meeting Room	400 SF
Changing Rooms: 2 @ 400 SF	800 SF
Bathrooms: 2 @ 200	400 SF
Bath/Shower: 2 @ 500	1000 SF
Kitchen	500 SF
Laundry Room	250 SF
Storage	1500 SF
Mechanical	1200 SF

Table 4: Program Totals

Public Program Subtotal	6600 SF
Private Program Subtotal	8600 SF
Support Program Subtotal	6350 SF
Subtotal	23050 SF
Total (Subtotal x 1.25)	28813 SF

Program Description

Training Hall

This room is the heart of the school. Here is where training in traditional kung fu takes place. The training hall should be large enough to accommodate about twelve students practicing simultaneously, whereas each practice space should be approximately 10'x12'. Space for circulation, the school altar, and the lions are also required. Also, the ceiling needs to be high enough to allow the comfortable practice of weapon forms, lion, and dragon dancing.

Lobby / Front Desk

The school requires space for “meet and greet” as well as a place for the front desk where workers at the school may answer phones, deal with student questions, and speak with potential students.

Supply Store

Studying the martial arts often requires special equipment, such as uniforms, weapons, and more. The store is open to all customers, but is primarily intended for students of the school, as it is most convenient when they may attain such equipment within their own school.

Garden Courtyard

Nature and the outdoors should be integrated into the design of the building. This is the main exterior space of the building, and could be used for public demonstration, or for holding classes when the weather is favorable.

Observation Space

The school requires a place for people to observe classes without intruding upon the training process. This space is intended particularly for the parents of children participating in the children's classes.

Exhibition Space

Often, kung fu schools give demonstrations of kung fu, lion and dragon dancing. Most often, the demonstration teams travel to outside locations, but following the idea of creating a cultural focus; the school might instead invite audiences into the school for performances.

Classroom

Occasionally, classes and seminars may be given that may require a more typical classroom arrangement. The seminar room should accommodate a wide range of presentation methods and should comfortably seat 30 to 40 students.

Gym

Modern athletic training incorporates all forms of exercise and conditioning. The gym can provide space for activities such as weight training, calisthenics, and aerobic training, and the equipment associated with them.

Sparring Room

This provides a separation of sparring and fight training from the practice of traditional kung fu forms and routines. This room would include a boxing ring, padded floors, heavy and speed bags and other equipment and spaces necessary for sparring practice.

Study

The study provides a quiet, out of the way place to rest and reflect. Often, students come to the kung fu school immediately after school lets out. A study would provide a quiet place for them to do homework before or after their classes in kung fu.

Private Practice Studio

While most training takes place within the main training hall, occasionally a smaller private place may be needed for private or small group lessons, or for students to practice independently of the group classes.

Private Garden

Smaller and for use exclusively by the students of the school, the private garden provides exterior space for relaxation and contemplation, or for small group practice, as in the private practice studio.

Clinic

Associated with traditional kung fu is the practice of traditional Chinese medicine. A clinic provides a place for the treatment of minor injuries associated with athletic training as well as a place for teaching the most advanced students the practice of traditional medicine.

Library

A martial arts library would contain books, magazines, and movies related to Chinese culture, and specifically to the study of martial arts.

Dining Room

There are many occasions in which students eat meals together, particularly after performances. A dining room would allow students a place to comfortably sit together and eat. The dining room should be sized for 15 to 20.

Guest Rooms

Though the school does not currently support overnight guests, in many traditional martial arts schools, there were guests who stayed overnight as well as students who lived where they trained.

Changing Rooms (2)

Students require a place to change clothes and store their belongings when they come to the school to practice. Bathroom and possibly shower facilities may also be associated with the changing room, similar to a locker room at an athletic facility.

Office

A *Sifu* requires space to deal with the business aspects of running a school. This is where he may do paperwork, take calls, and meet with students, instructors, or associates in private.

Meeting / Conference Room

This provides space for small meetings of students or instructors for private discussion or planning sessions.

Restroom / Shower Facilities

Restroom and shower facilities should be provided, particularly in conjunction with the changing rooms, so students may clean themselves after a workout.

Kitchen

The kitchen is intended primarily for small preparations and the reheating of food.

Laundry Room

A laundry room becomes a requirement particularly when associated with overnight guests, as in addition to soiled clothing, bed linens, towels and the like will need to be cleaned.

Storage

Storage is to be associated with almost all the major spaces in the program. The square footage is an estimation of the total, to be divided among these programmatic elements.

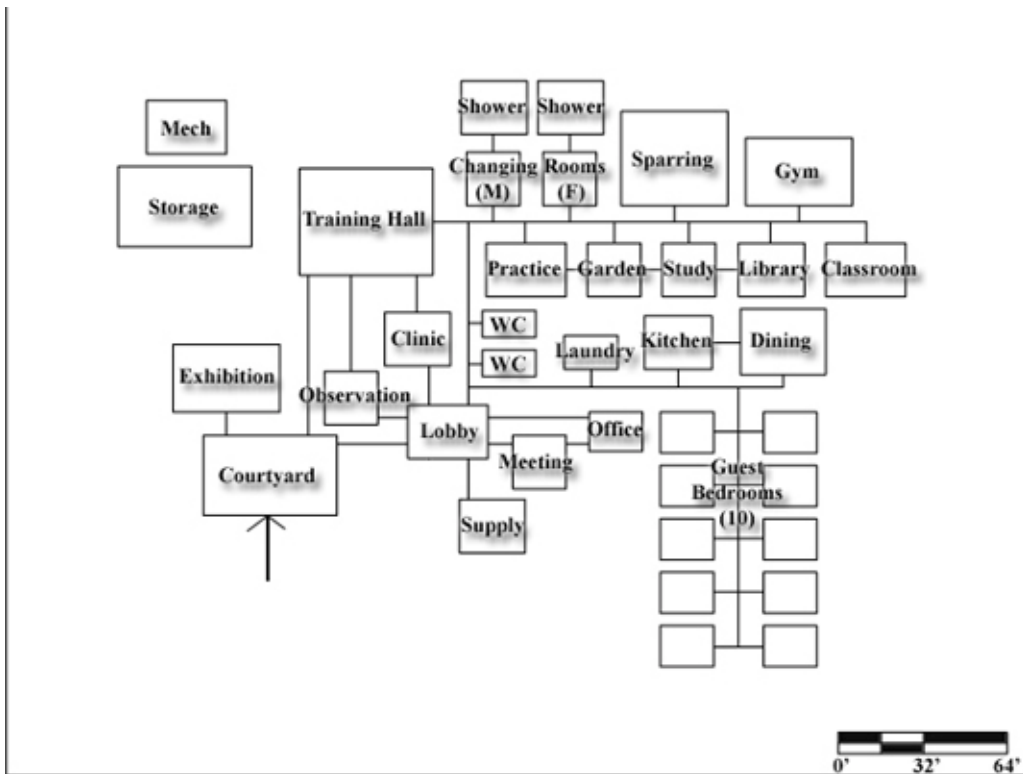


Figure 28: Topological Diagram. This diagram shows the relative sizes, access and adjacency requirements of program elements.

Precedent Analysis

Hsi-Shih Lane Kindergarten

The Kindergarten on Hsi-Shih Lane in Beijing is a good example of a courtyard house typical of those built during the Ch'ing dynasty of 1644-1911. In 1911, this was the courtyard house of a military official of the Kuomintang, but in 1953, the building was restored and converted into a kindergarten. The Hsi-Shih Lane Kindergarten is a one-story building of timber frame construction with non-load bearing brick walls and consists of eight buildings that accommodate two-hundred students (one-hundred of which stay overnight) and a staff of forty.¹¹

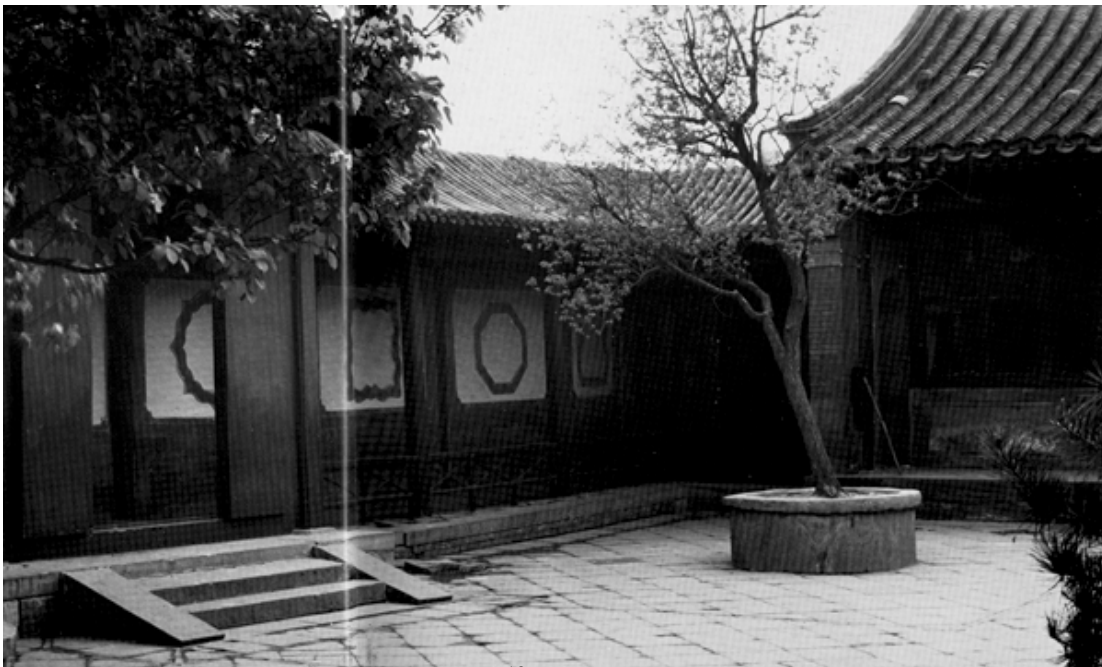


Figure 29: View of Interior Courtyard.¹² In the Chinese Courtyard Houses, buildings are arranged around a series of interior courtyards that provide the house with not only a maximum amount of light and air, but also a private outdoor space for contemplation. In the Hsi-Shih Lane Kindergarten, the courtyard has been adapted to become a playground for schoolchildren.

¹¹ Werner Blaser, *Courtyard House in China*, (Birkhauser Verlag); 14.

¹² *Ibid*, 18.

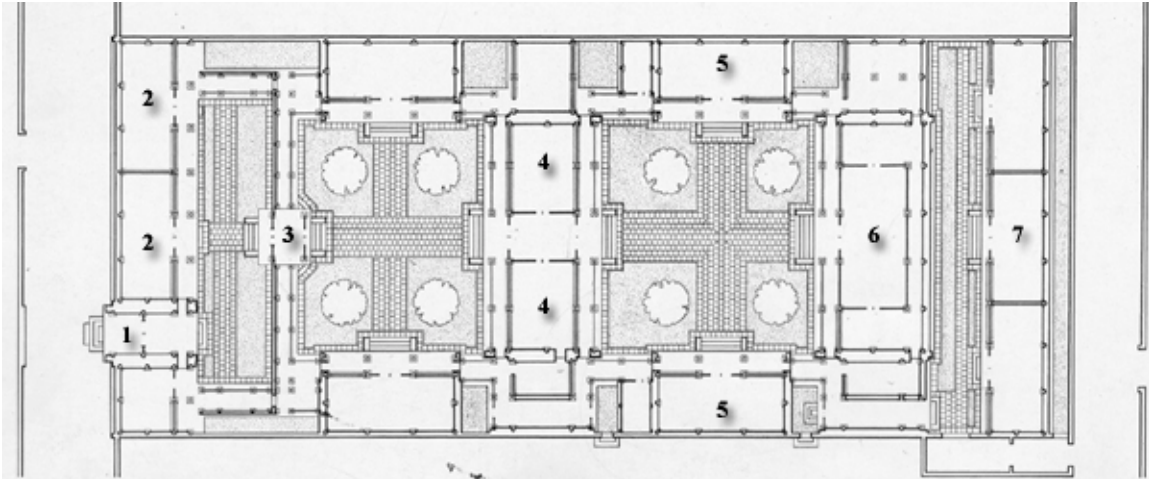


Figure 30: Courtyard House Plan. 1 Entry Gate, 2 Outer Guest Rooms, 3 Interior Gate, 4 Inner Guest Rooms, 5 House Wings, 6 Main Building, 7 Subordinate Building.¹³

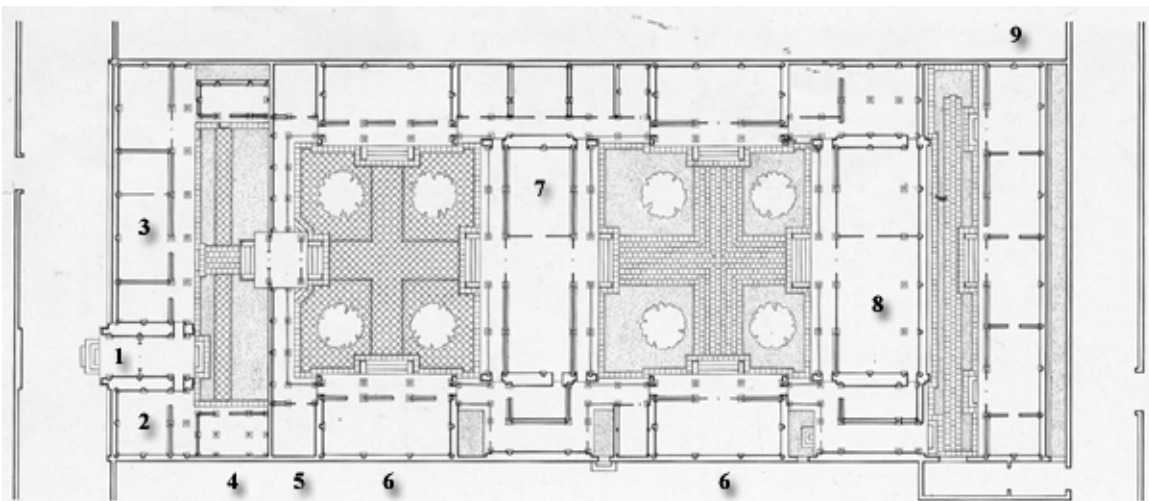


Figure 31: Converted Courtyard House Plan. 1 Entry Gate, 2 Caretaker, 3 Administration, 4 Storage, 5 WC, 6 Classrooms, 7 Bedroom, 8 Music Room, 9 Washrooms.¹⁴

¹³ Ibid, 17.

¹⁴ Ibid, 16.



Figure 32: Longitudinal Section.¹⁵ This section is cut along the main axis of the house, through the entry court and the two interior courtyards.

Figure 33: Transverse Section.¹⁶ This section is cut along the secondary axis of the second courtyard and shows in elevation the main building of the complex.

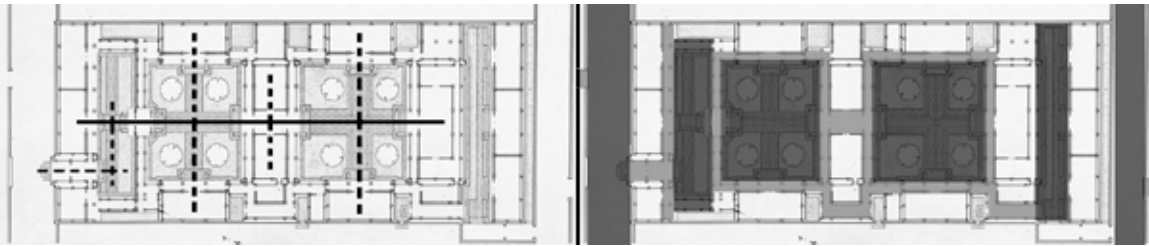


Figure 34: Axes. The primary axis, indicated with a solid line runs from the entry court in the south (left) to the main building in the north (right). Secondary axes are established perpendicular to the main axis in the courtyards, and the middle building.

Figure 35: Spatial Sequence. The sequence beginning at the street, demonstrates a variety of spatial experiences, each space in contrast with the previous and the next. Adjacent spaces are not alike; the transition is always one of contrast: large to small, dark to light, parallel or perpendicular, etc.

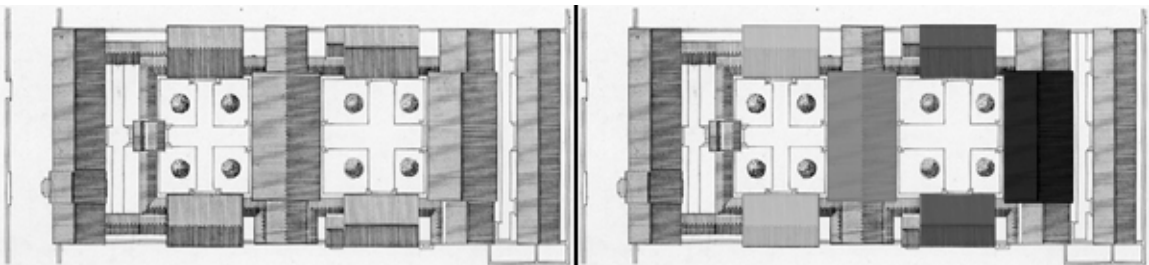


Figure 36: Roof Plan.¹⁷ Note how the main buildings arranged around the courtyard are given a slightly higher roof in order to convey their hierarchy.

Figure 37: Hierarchy of Buildings. The building at the terminus of the primary axis is the most important. The buildings on the primary axis are more important than those on the secondary axis. Furthermore, as one enters deeper into the compound, the importance of the buildings increases.

¹⁵ Ibid, 17.

¹⁶ Ibid, 17.

¹⁷ Ibid, 16.

The Hsi-Shih Lane kindergarten is significant because the courtyard house is prototypical of traditional Chinese building design. The courtyard type is the most widely used in Chinese architecture. The principles of traditional Chinese design are evident, such as timber construction, variety and contrast along the spatial sequence, symmetry and hierarchy along a major north south axis, and the integration of interior and exterior space.

The Fragrant Hill Hotel

The Fragrant Hill Hotel, a 400,000 square-foot hotel complex located outside of Beijing, was designed by I.M. Pei and opened in 1979. This hotel is based on Chinese housing types, specifically the Suzhou villas, and is an example of many aspects of traditional Chinese design.¹⁸

The site is an old imperial hunting preserve located outside of Beijing. The site is steeply sloped and is covered thickly with trees. The building is built low and was designed to zigzag across the landscape in an effort to preserve as many existing trees as possible and to firmly entrench the building in the landscape. Furthermore, the borders of the site are not clearly defined, adding to the ambiguity of what is natural and what is man-made. The principle of coexistence of the garden and the built form is thereby upheld.

¹⁸ Carter Wiseman, *I.M. Pei: A Profile in American Architecture*, (Harry N. Abrams Inc., 2001); 185.

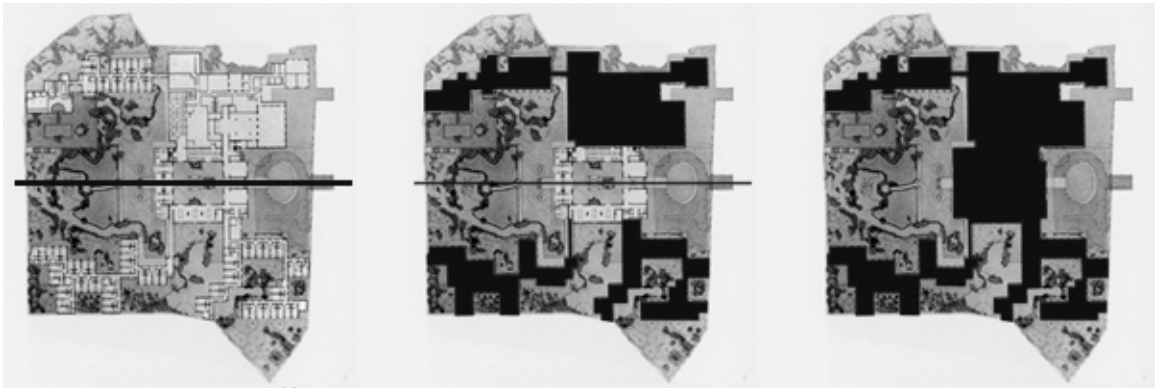


Figure 38: Base Plan¹⁹ with Primary Axis. (Left) The major axis leads from the outer court, inside through the atrium, and then out the back into the landscape-garden.

Figure 39: Nolli Plan. (Center) The primary public space of the building is the atrium space, reminiscent of a traditional Chinese courtyard. The secondary spaces are rendered black.

Figure 40: Building Footprint. (Right) This diagram shows the building as a solid mass and



Figure 41: Spatial Sequence. (Left) The promenade of the building takes a guest along a route containing a variety of spatial sequences. Nothing is ever revealed all at once, rather, things are alluded to and given away a piece at a time to enhance the sense of a narrative procession.

Figure 42: Natural vs. Constructed. (Center) This diagram demonstrates the manner in which the building and clearly man-made structures entrench themselves within the landscape, blurring the distinction between what is natural and what is man-made.

Figure 43: Water Elements. (Right) This site contained the remains of an ancient water mazes, one of a handful still in existence. Pei restored the maze, and one can see how it meanders through the site appearing and disappearing as one moves along the promenade.

The building is constructed of reinforced concrete walls with an off-white stucco finish. The window surrounds and wall details are ornamental, which is uncharacteristic

¹⁹ Ibid; 191.

of Pei's architecture. The detailing creates an ambiguity between what is three dimensional and what is flat, abiding by the notion of interplay of solid and void, and of wall and opening.



Figure 44: Main Façade.²⁰ (Left) This view shows the courtyard in front of the building, and the introduction of the water theme with an elliptical pool in front of the hotel.
Figure 45: Atrium.²¹ (Center) The atrium is reminiscent of the centralized courtyard found in Chinese housing design as a slight variation as in the hotel, it is roofed.
Figure 46: Swimming Pool and Garden Façade.²² (Right) The swimming pool is connected to the interior by a water channel that allows a swimmer to move inside and out without having to leave the water.



Figure 47: Minor Façade Backdrop.²³ (Left) The stark white of the wall serves as a backdrop for the single tree planted in front of it. The reflecting pool adds to this sense of composition.
Figure 48: Major Façade Backdrop.²⁴ (Center) The juxtaposition of rocks and trees against the backdrop of the building façade create a still life that is at once natural and contrived. The effect is that it feels as if nature and building have been crafted solely for the benefit of the observer.
Figure 49: Mountain Backdrop.²⁵ (Right) As the building serves as a backdrop for natural elements, so too does the landscape serve as a backdrop for the building.

²⁰ Ibid; 196.

²¹ Ibid; 197.

²² Ibid; 207.

²³ Ibid; 205.

²⁴ Ibid; 201.

²⁵ Ibid; 195.

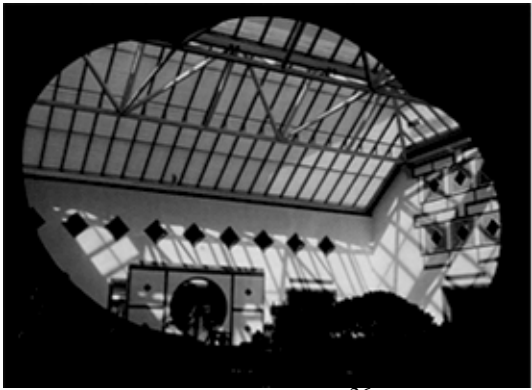


Figure 50: Atrium Framed.²⁶ (Left) On the interior of the hotel, openings of a variety of shapes and sizes open to public spaces along the promenade.

Figure 51: Diamond Frame.²⁷ (Right) A diamond shaped opening in a screen provides a frame through which to look into the atrium.

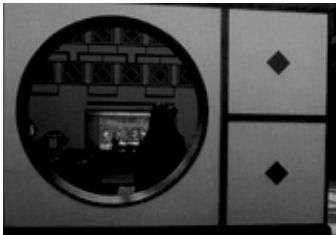


Figure 52: Moon Gate.²⁸ (Left) A circular opening reminiscent of the traditional moon gate frames a view into the atrium and beyond into the garden.

Figure 53: Framed Landscape.²⁹ (Center) Throughout the building, openings “borrow” the scenery of the landscape and create a frame through which it may be seen, representing nature and helping to blur the distinction between the landscape and the building.

Figure 54: Framed Courtyard.³⁰ (Right) The overall idea of the building is presented in pieces to enhance the sense of narrative. Each view is carefully framed and controlled to reveal only enough to enhance the sense of an unfolding story of promenade.

The Fragrant Hill Hotel is a significant precedent for this project as it is a contemporary interpretation of the traditional Chinese principles of space-making: the centralized courtyard, the integration of the garden landscape and the building, a narrative promenade through varied spaces, and the coexistence of solid and void. These principles are used and adapted to fit a modern building type in a contemporary period.

²⁶ Ibid; 198.

²⁷ Ibid; 199.

²⁸ Ibid; 198.

²⁹ Ibid; 198.

³⁰ Ibid; 198.

The Fragrant Hill Hotel is an example of architecture that makes extensive use of ideas from the past without recreating a replica of the past.

Guest House and Pool Building

Though not consciously derived from a precedent of ancient Chinese architecture, James Cutler's Guest House and Pool building are examples of modern buildings that maintain principles of exposed timber frame construction, layering of space, and a blending of interior and exterior spaces.



Figure 55: Guest House Dining Room. Sliding glass doors and continuous floor finish blend the interior and exterior space.³¹

³¹ Morrow, Theresa, *Contemporary World Architects: James Cutler*, (Rockport Publishers 1997); 63.



Figure 56: Pool Building. Intermediate layers of space ease the transition between the interior of the pool building and the exterior space.³²

In both examples here, Cutler uses exposed heavy timber frame construction. Careful attention is paid to detailing connections. Metal connectors and straps contrast nicely with the timber frame and serve the function of holding the structural members together.

³² Ibid; 73.

Preliminary Schemes

Urban Infill Scheme

This scheme focuses on the urban context and looks at how filling in the gaps in the urban fabric with buildings, and reestablishing the street edge might affect the fabric of the neighborhood.

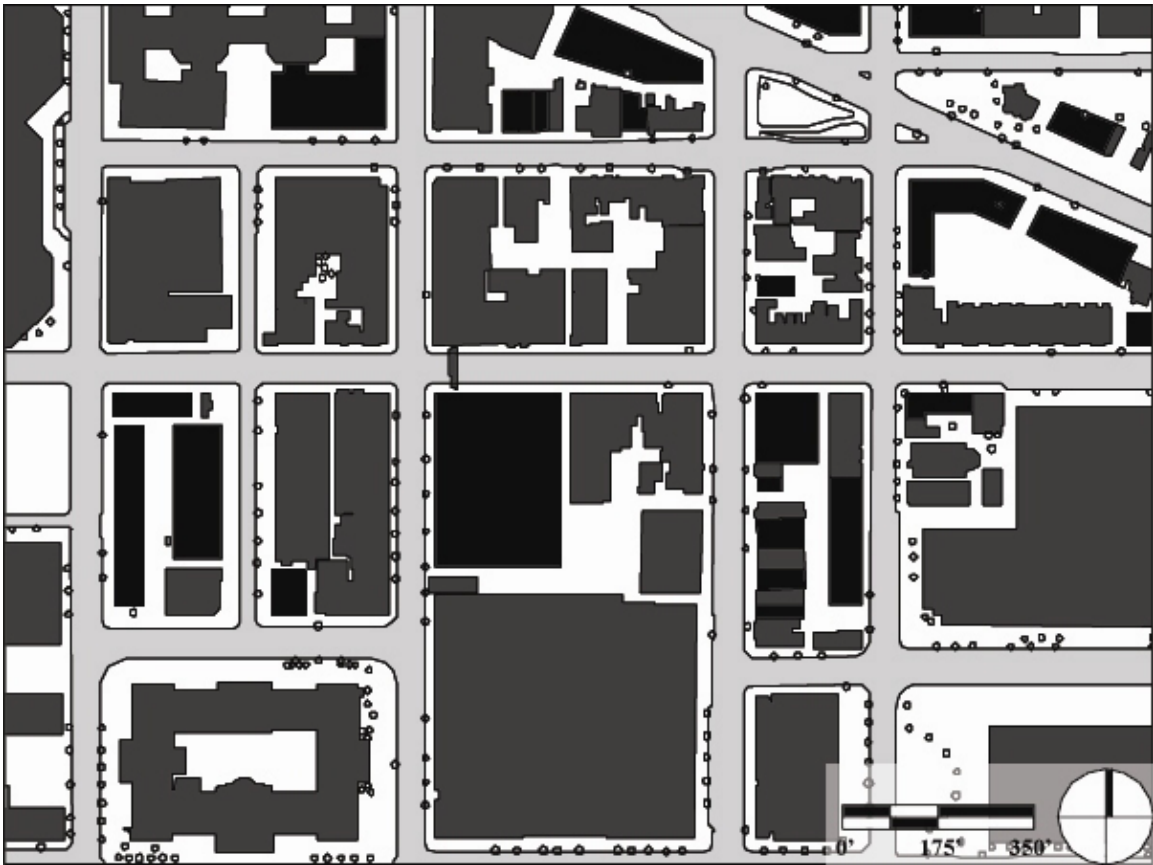


Figure 57: Urban Infill Scheme. By making an effort to fill in the gaps currently occupied by surface parking with new buildings (shown in black), and being rigorous about maintaining the street edge, the blocks become better defined. The drawback to such a proposal is the need for structured parking after the loss of the surface lots.

Courtyard Building Scheme

The part of the first scheme is based upon the Chinese courtyard-house prototype. The notions of the courtyard, layering of spaces, axial relationships and establishment of hierarchy through the manipulation of these are evident in the diagrams.



Figure 58: Courtyard Scheme: Plan. The entrance to the school is on H Street and the axis runs north south, with the primary space, the training hall, on axis fronting the courtyard. Secondary hierarchical elements face the court opposite each other and perpendicular to the main axis. The rest of the program serves as a wrapper for the building complex.

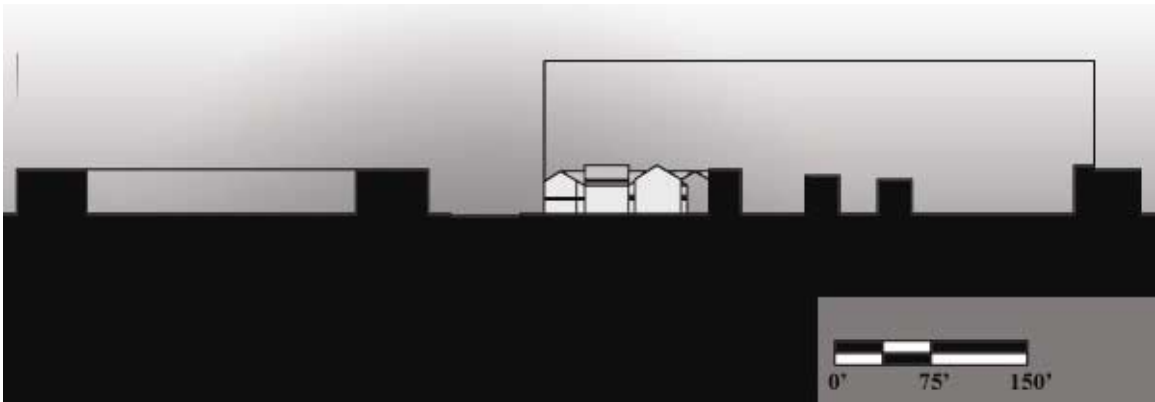


Figure 59: Courtyard Scheme: Section Looking East. This section is taken along the main axis, passes through the entry building, the courtyard, training hall, and private garden, in sequence. The building is two stories throughout with exception of the training hall, which is a double height space. Hierarchy is established through the alteration of roof heights.

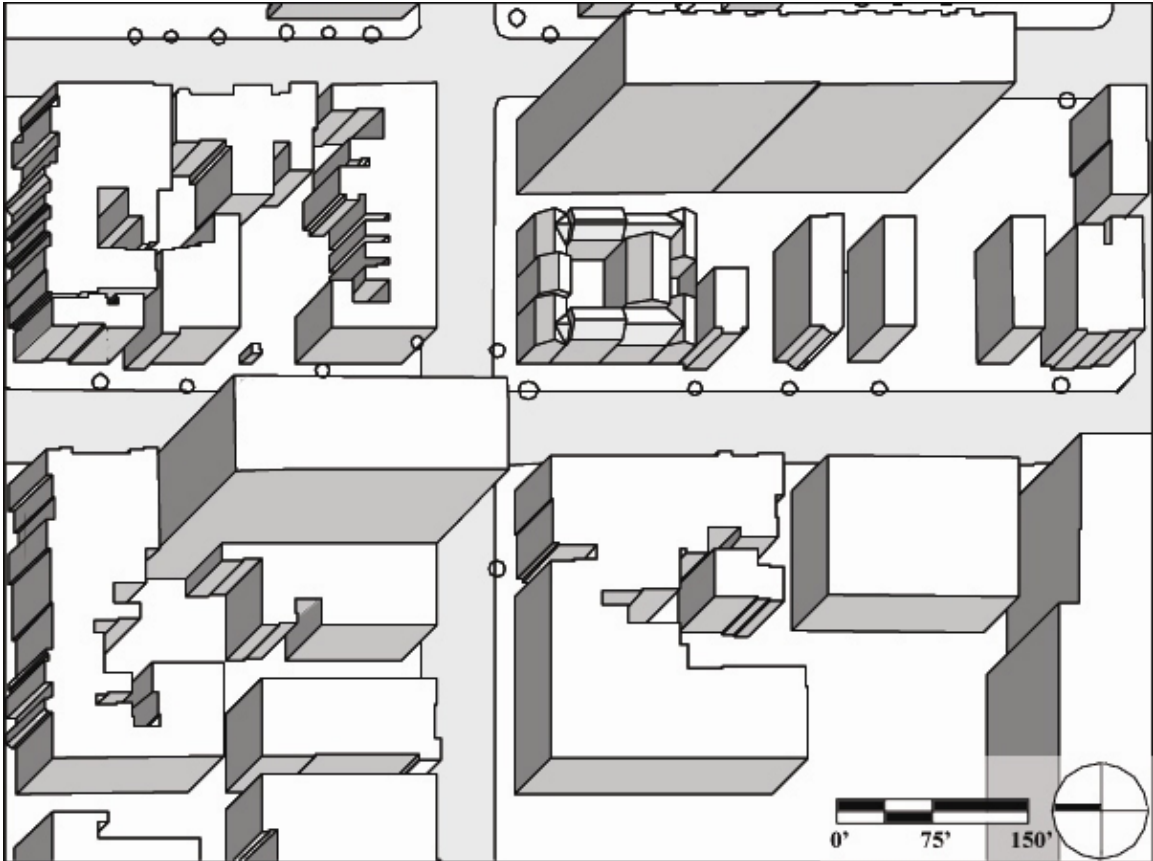


Figure 60: Courtyard Scheme: Axonometric. This drawing shows the general massing characteristics of the building. The hierarchy of buildings is evident based on positioning relative to the primary axis and the change in height.

Open Building Scheme

The intention in this design scheme is to create a more public, semi-enclosed exterior space. The building serves as a wrapper, allowing every room adjacency to the major courtyard space. The building responds to its context by stepping up in height near the taller apartment building, and matching scale at points adjacent to the row houses.

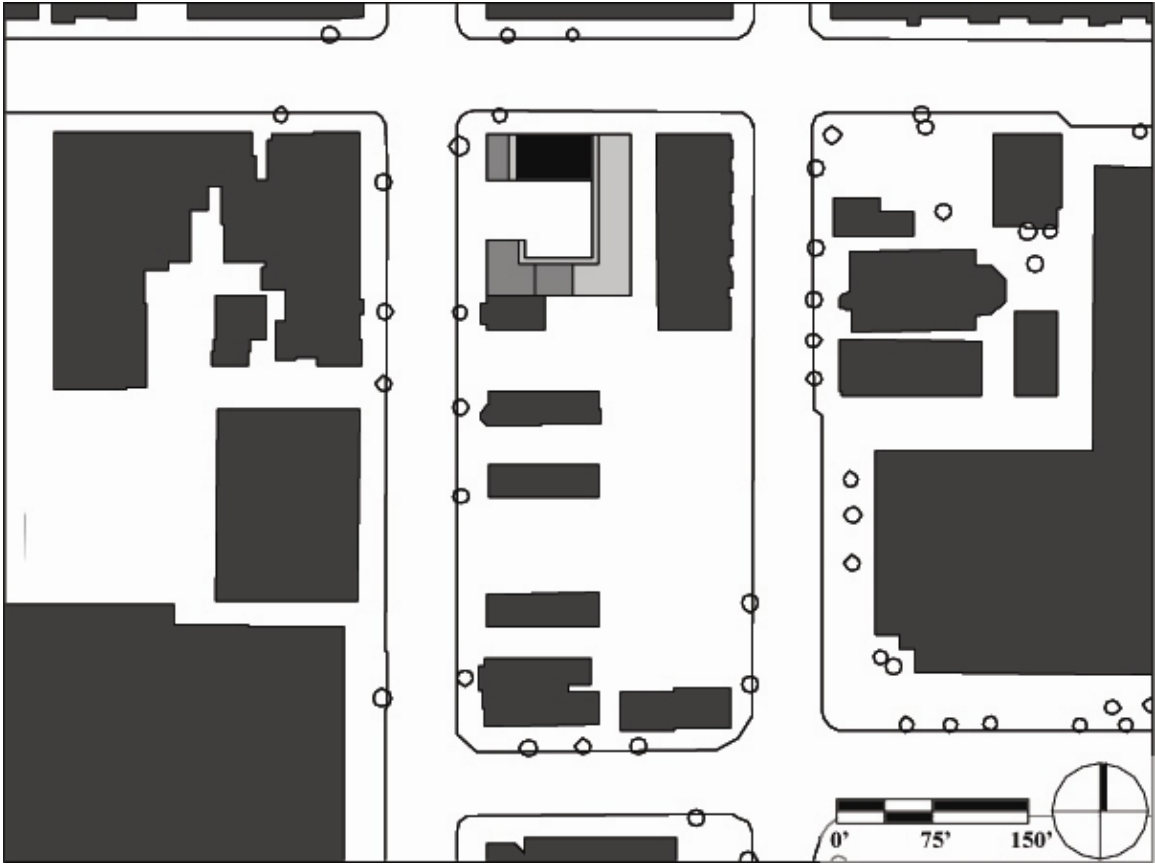


Figure 61: Open Building Scheme: Plan. The building becomes a wrapper around the major exterior space. The training hall fronts H Street, and provides two fronts: one to the street and a second to the courtyard.

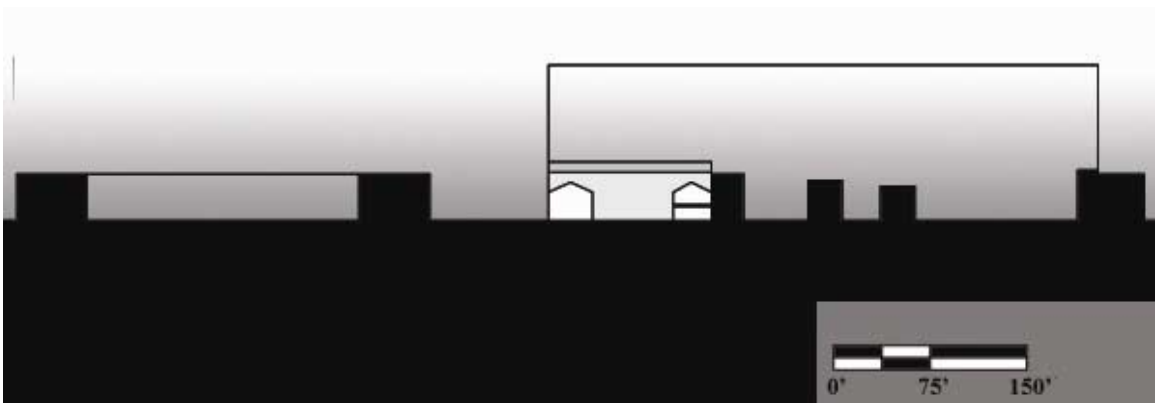


Figure 62: Open Building Scheme: Section. The section is cut through the training hall and the courtyard. The buildings step up toward the east (far) side of the site to respond to the apartment building adjacent to the site. The training hall is a double height space fronting H Street, and the wrapper is three stories on the east (far), and two on the south (right).

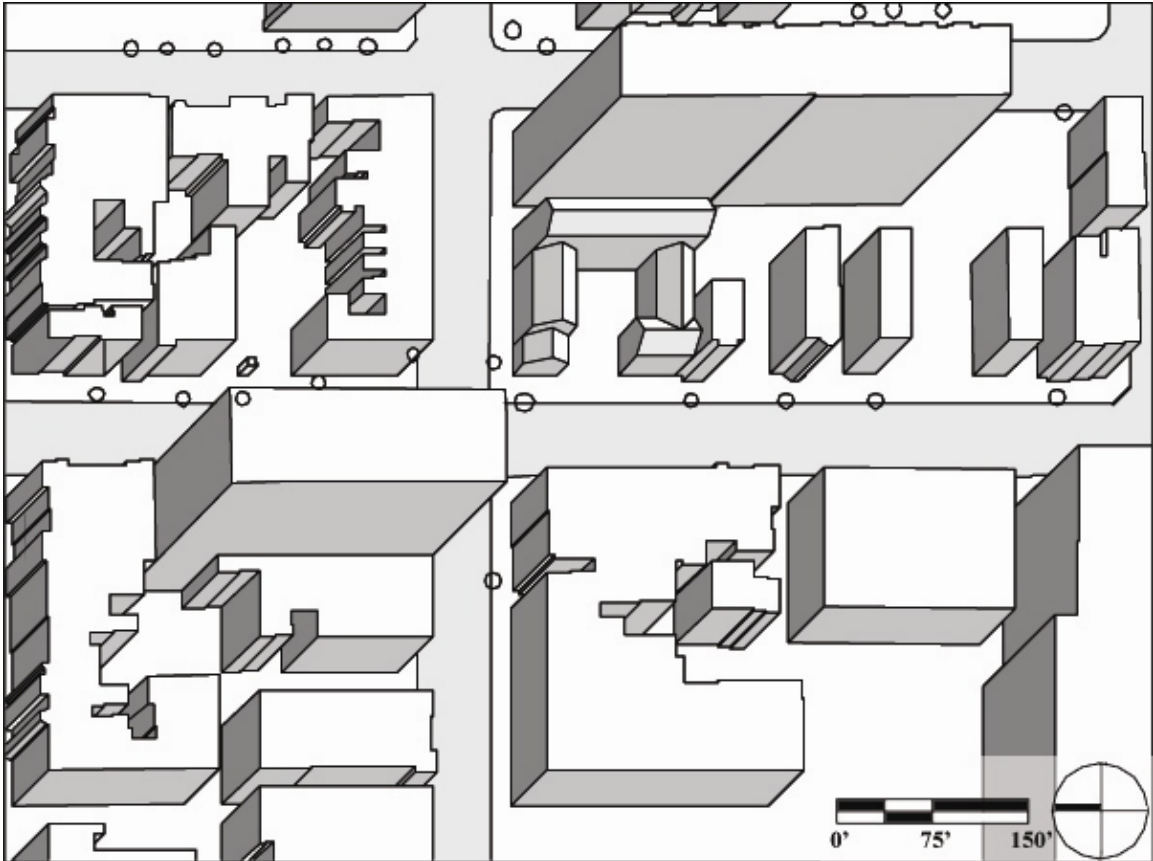


Figure 63: Open Building Scheme: Axon. This diagram shows the way in which the massing of the building attempts to respond to its context, stepping up toward the east side (top), and open to the 6th Street (bottom).

Modified Courtyard Scheme

This scheme is a variation of the courtyard scheme in which the courtyard is terraced, and the training hall located on top of the terrace. The principles of the courtyard scheme are present, except the axis running north and south is applied to the ground plane, but also to the terrace.

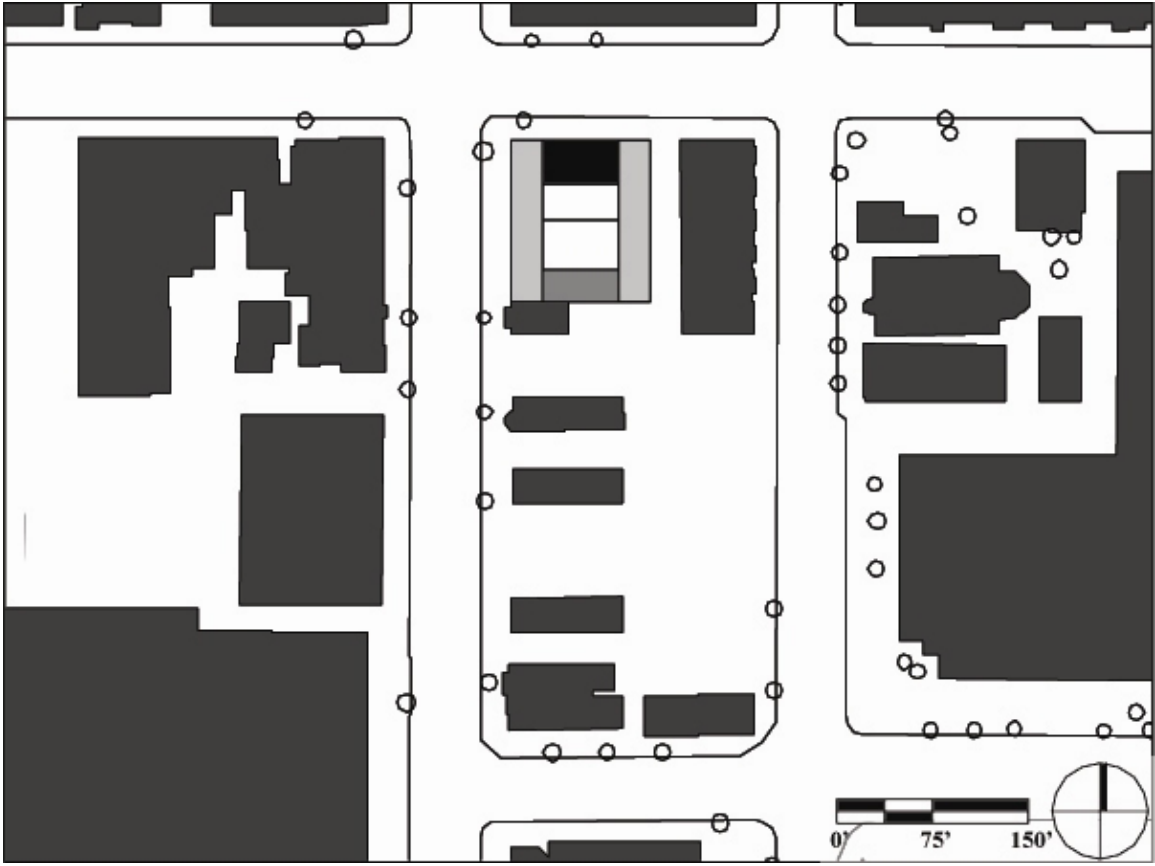


Figure 64: Modified Courtyard Scheme: Plan. The training hall is raised on a terrace and fronts H Street, providing a focal point for Chinatown, and establishing itself as the most important building in the complex.

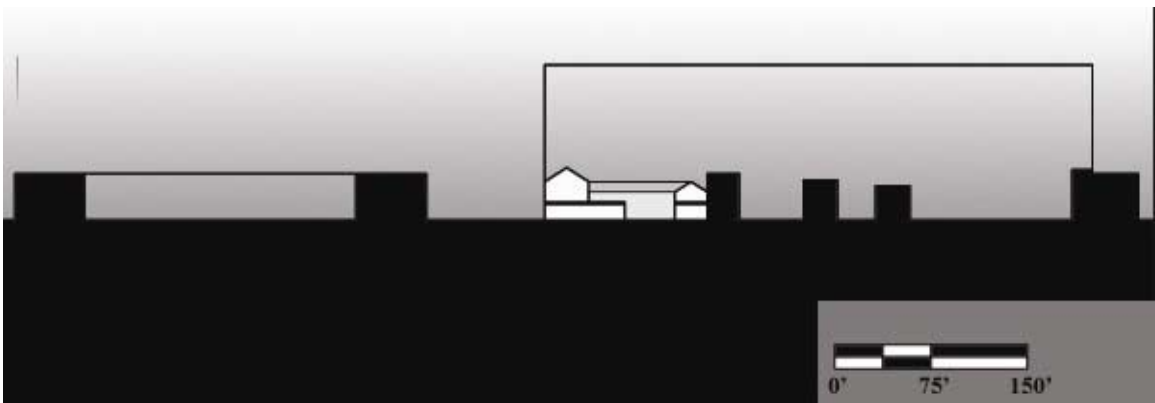


Figure 65: Modified Courtyard Scheme: Section. By raising the courtyard onto a terrace, it increases its privacy, establishes the training hall as the primary space, and allows for usage beneath the terrace.

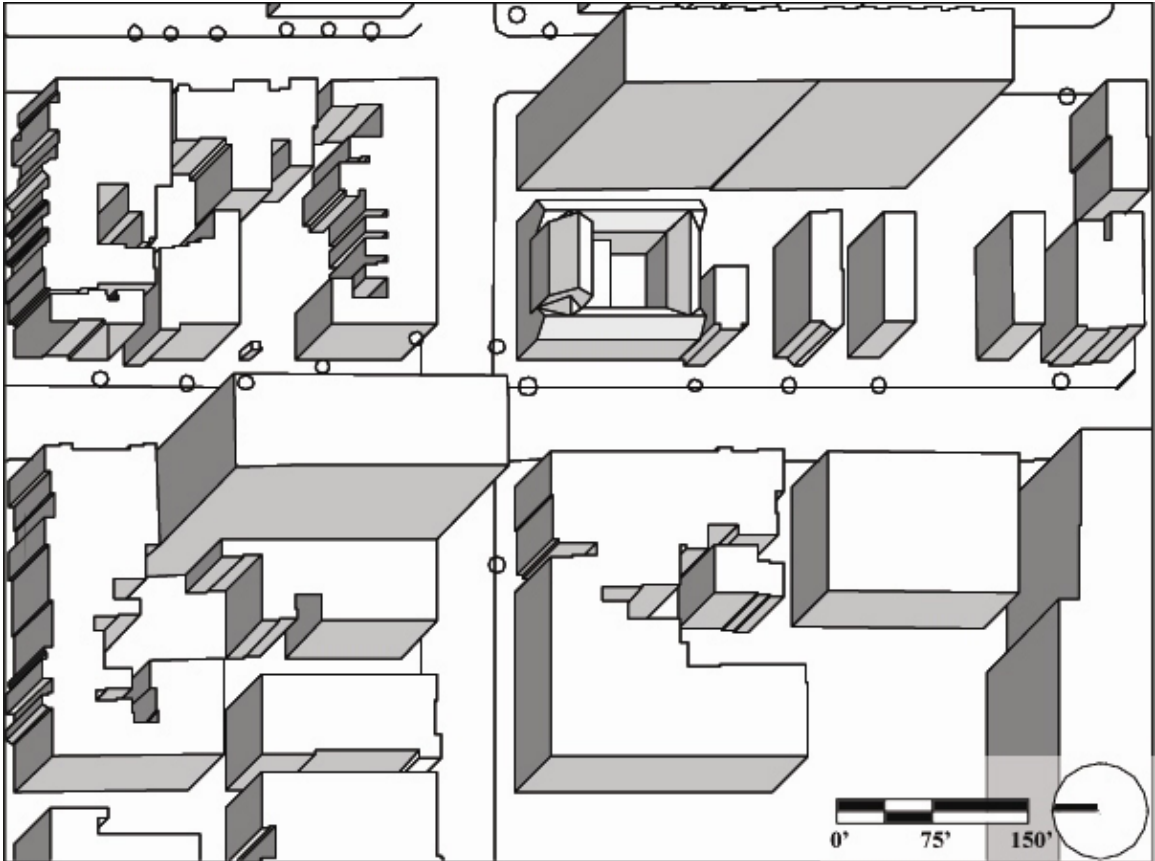


Figure 66: Modified Courtyard Scheme: Axon. The hierarchy of the training hall can be clearly observed in the massing of the building.

The Design Solution

Urban Solution

The two story school is approximately 30,000 SF. Therefore the building is of the same scale as the nearby row houses, rather than the high-rise buildings. Maintaining a human scale for a building such as this was an important factor in creating a cultural institute. The idea of the school is more of a small jewel rather than an overwhelming mass. While the trend is currently development on a larger scale, the school building supports an ideology of creating a human-scale cultural focus amid the rapidly developing neighborhood in an effort to preserve cultural rather than economic influences.

The public garden has taken on a larger and larger role as the project has evolved. Originally the garden was going to be incorporated into the courtyard. Later, a small garden was added to the rear of the building. Finally, in order to express the idea of a Chinese garden fully and more importantly to give Chinatown a public and cultural amenity the gardens boundary was expanded all the way down to G St.

The building itself is located at the corner of H and 6th Streets. Because H St. is the heart of Chinatown, with the Friendship Arch and Metro stop, the main entrance to the school is on H St. Furthermore a wide service alley is preserved between the school and garden and the larger hotel and apartment buildings next to the school. The building's massing is rectangular and maintains the corner and street edges in support of the existing grid of streets and blocks.

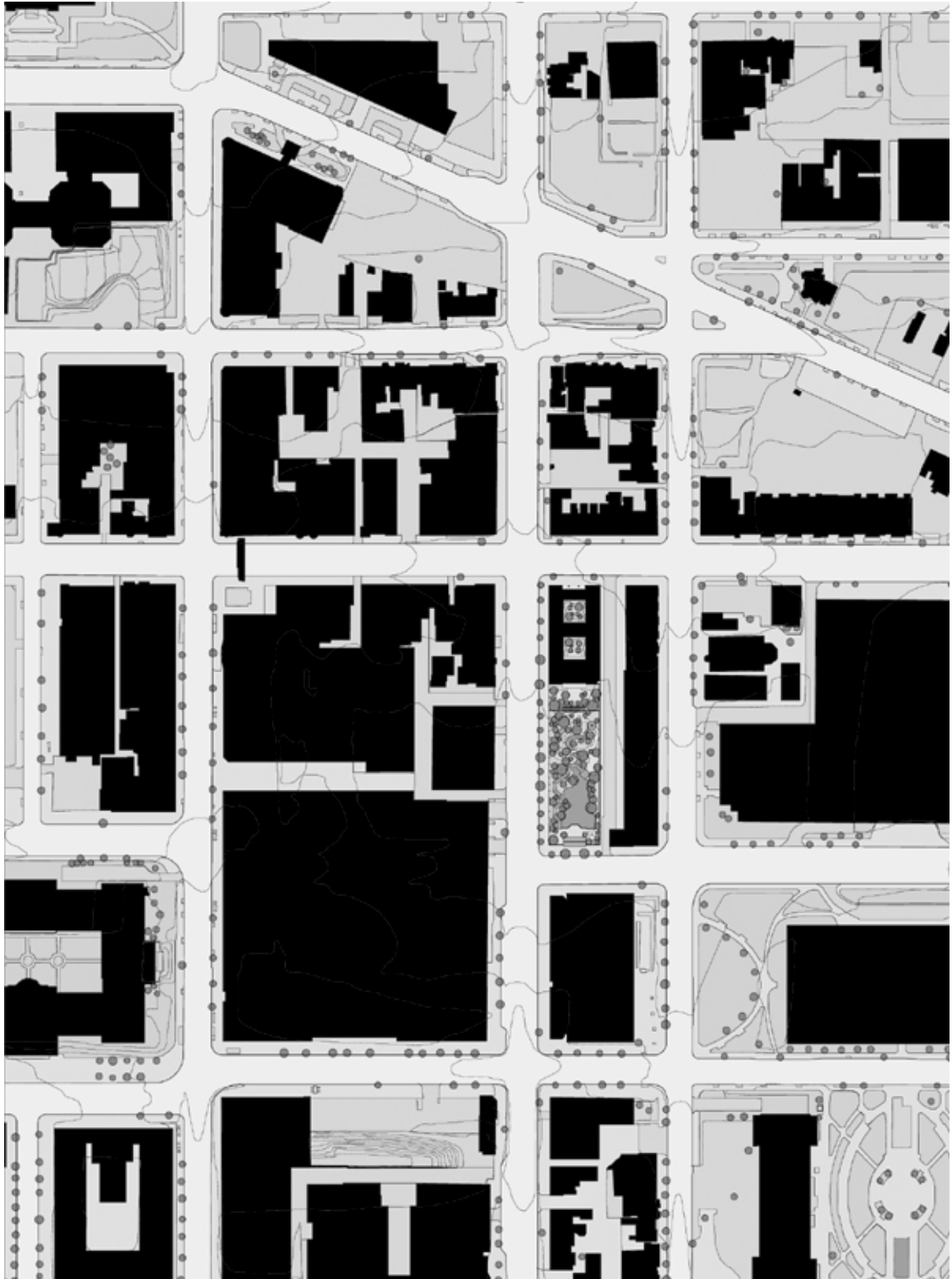


Figure 67: Vicinity Plan. The school and garden design create a cultural focus, as well as a public amenity in Chinatown.

Building Parti and Layout

The building parti is similar to that of the Chinese courtyard house. The building is organized around two courtyards. Furthermore, the principle of axis is used to create a primary axis from the entrance through to the garden which becomes more “sacred” as it takes you deeper into the school, and cross axes along which secondary program is located. Also the building is focused inward. The outer wall is thick and punched by few openings, whereas the courtyard walls are made up of sliding glass panels in an effort to make the interior and exterior united and bring the focus to the courtyards.

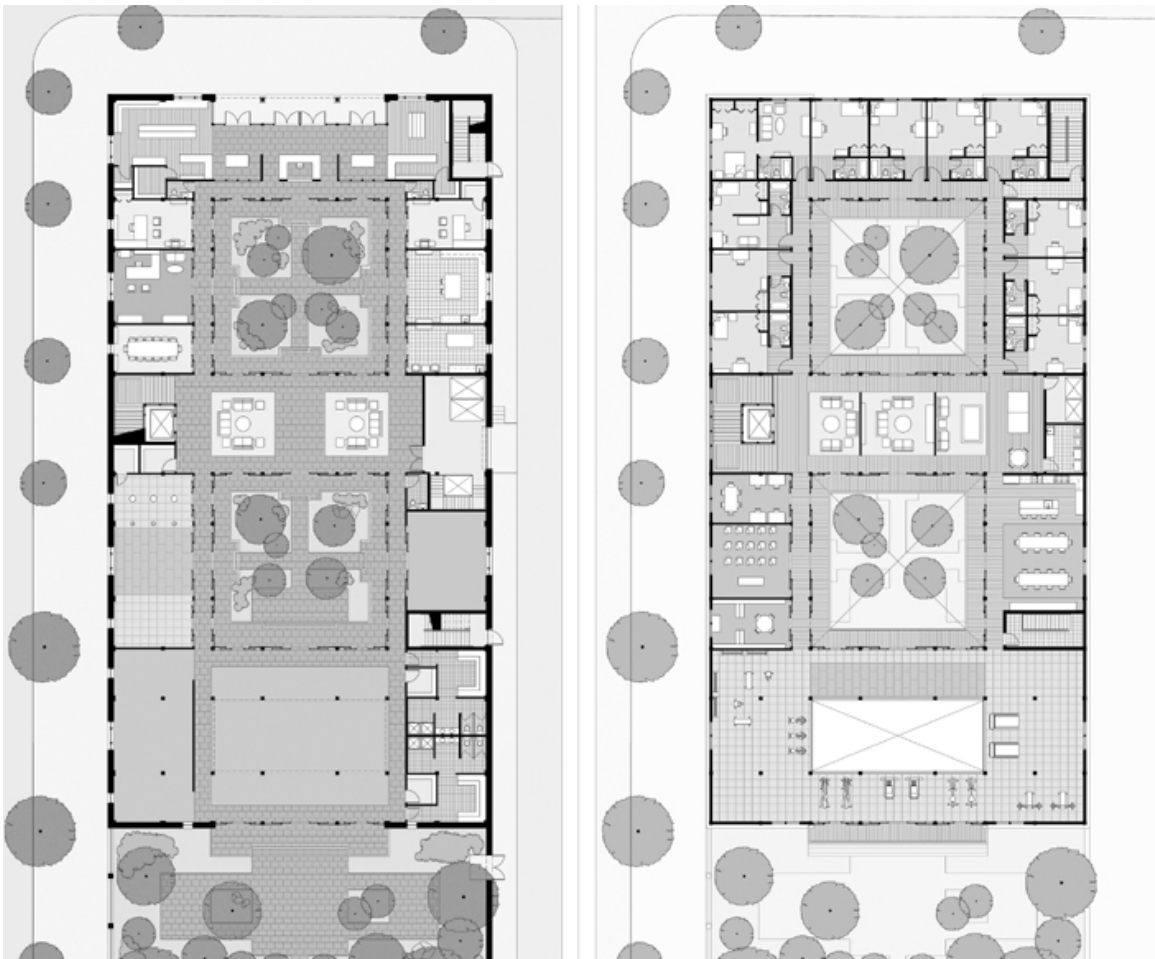


Figure 68: First Floor Plan. The first floor is dedicated to the primary function of Kung Fu instruction as well as the retail and administrative components.

Figure 69: Second Floor Plan. The second floor is dedicated primarily to the residential functions of the school.

Entrance to the school is through the north, or H St., elevation, into a reception space. To the west is the martial arts equipment store, and to the east is the store space for traditional herbs and other paraphernalia associated with the practice of traditional Chinese medicine. Next along the axis to the south is the first of two courtyards. Along the cross axis to the west is the administrative area, and to the east is the clinic. On the second floor around the first courtyard are the student bedrooms.



Figure 70: Cross Section through School and Courtyard. The school is organized around two courtyards. All programmed spaces have immediate adjacency to these exterior spaces, and on the second floor, an exterior balcony runs the perimeter of the courtyard.

Proceeding along the primary axis leads to the central room, or lobby. This large room is used as a waiting area for parents during classes and is reserved for small public demonstrations on special occasions. To the west is the stair and elevator and to the east is mechanical space. On the second floor, this central room serves as a series of common areas for the student residents of the school.

Next along the primary axis to the south is the second courtyard. At the west end of the cross axis is the padded room designated for sparring on the first floor, and the classroom, library and study on the second floor. To the east is a quiet room for contemplation on the first floor and the dining room and kitchen on the second.



Figure 71: View through Courtyard to Training Hall. A viewer on the primary axis looking south through the second courtyard to the most important space, the Training Hall sees through the building to the garden beyond.

After the second courtyard along the primary axis is the most important element of the program, the Training Hall. Here the bulk of Kung Fu training takes place. This is the “sacred space” of the school. To the east are the locker rooms and to the west is a separated area designed for small group or private practice. On the second floor, and overlooking the Training Hall is the cross-training facility where students may perform cardiovascular or strength training to supplement their Kung Fu training.



Figure 72: Training Hall Interior. The sacred space of the building is open to the courtyard to the north and the garden to the south. It is a double height space overlooked by the cross training area above.



Figure 73: View through Training Hall to Garden. The primary axis continues through the Training Hall out into the garden. The wall is made up of sliding glass panels to maximize the feeling that the Hall and Garden are unified.

The Training Hall opens to the private portion of the garden. The boundary is marked by two rows of stone columns supporting a timber trellis.



Figure 74: View of School from Private Garden.



Figure 75: Longitudinal Section through School and Garden. This section through the site shows the relationship of the building to the, and gives an idea of the progression along the primary axis.

Garden

The garden is a public amenity and except for the private court nearest the school, the entire garden is open to Chinatown's residents and visitors. The garden is enclosed by a fence on 6th St. and a wall along the alley.



Figure 76: H St. Elevation and Garden Fence in Context.



Figure 77: Alley Elevation and Garden Wall.

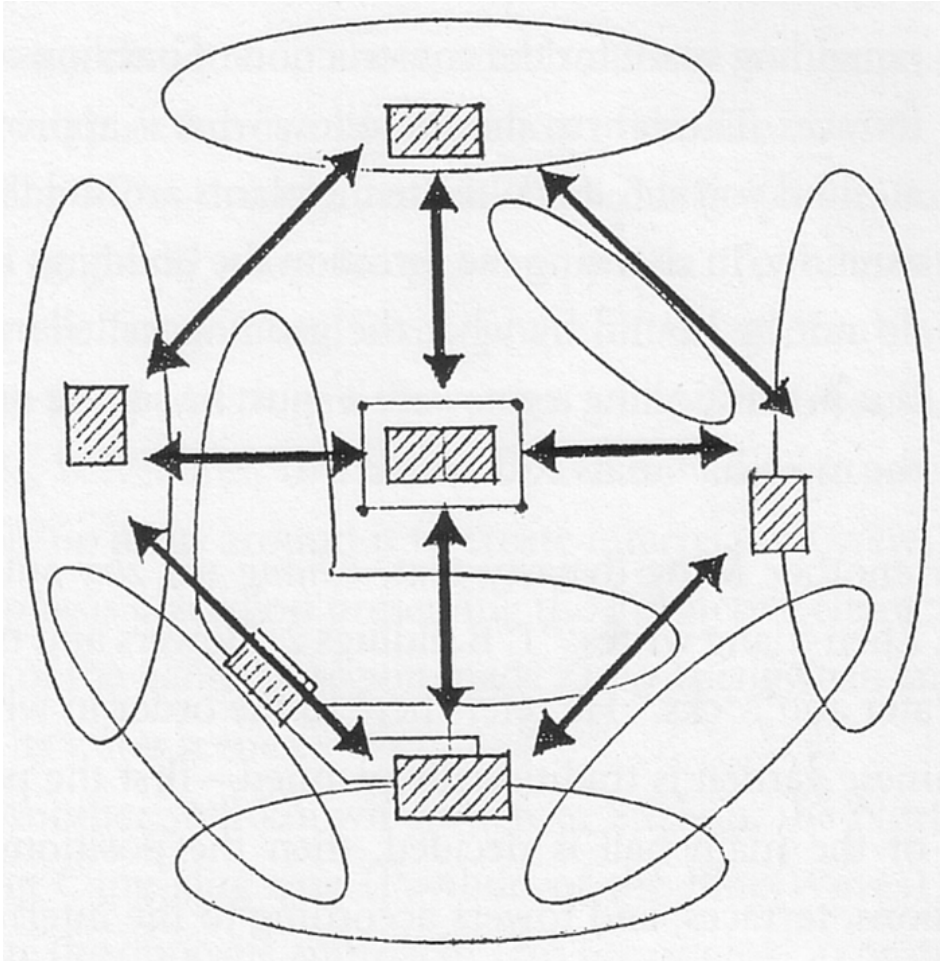


Figure 78: Diagram of Garden Focuses and their Mutual and Intersecting Views. The design for the garden uses the diagram of traditional Chinese gardens as a point of departure.

It is a space designed to mimic nature in miniature. Through the garden is a path on which there are a series of pavilions or similar focuses. These are arranged according to the principle of using multiple intersecting views. More to the point, along the path, a visitor never sees it all at once. Rather views are composed to reveal only a little at a time, so that when a focal point is reached there is a sense of surprise.

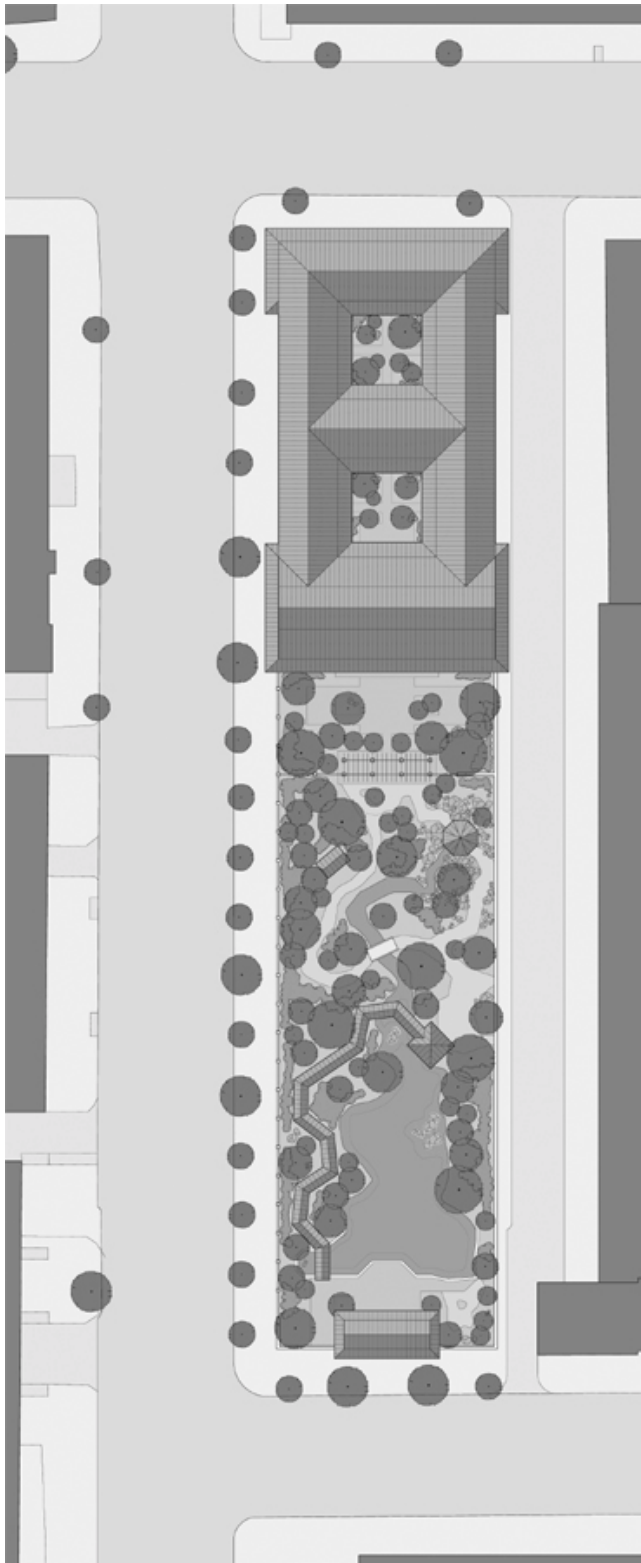


Figure 79: Roof and Garden Plan.

The garden to the south of the building takes up the remaining two-thirds of the site. Then entrance to the garden is through a gated pavilion on G St. which is located at the southernmost terminus of the primary axis established in the building.



Figure 80: Garden Gate Elevation.

Through the gate a visitor enters a pavilion of three 12'x12' bays followed by a small open plaza. The idea is that a visitor begins in a more urban garden and transitions into the more natural and traditional portion of the garden.

To the north is a faux-lake with a winding shoreline and trees and bamboo planted along both sides. Traditionally, water elements play a major role in Chinese Gardens. Circulation is along the east bank of the lake.



Figure 81: View from Garden Entrance to Lake Pavilion. From the entrance plaza the more natural portions of the garden are visible. At this point a few carefully controlled glimpses of the covered walkway are given. The main view though, is a composed look at the Lake Pavilion, with trees and stones placed in the foreground and background to give a feeling of depth.

From the entrance plaza, a visitor then proceeds along a winding covered walkway along which glimpses across the lake are given. Additionally, as the covered walk winds, it traps and composes space similarly to those in traditional Chinese gardens.



Figure 82: A covered walkway in Xiao jin shan, Yangzhou.³³

The covered walkway ends at the Lake pavilion, named for its location at the head of the lake. The main view is a view back along the lake to the entrance plaza, creating an intersecting view. The path then proceeds away from the lake along an uncovered path, continuing the metaphor of going deeper into nature as the vegetation becomes denser in the northern half of the garden.

³³ Inaji, *The Garden as Architecture*, (Kodansha, Tokyo, 1998); 114.



Figure 83: View from Lake Pavilion to Garden Entrance.

The winding path leads then to the next focus, a pavilion placed atop a rocky hill, the metaphor of the temple in the mountains. A small waterfall that feeds the stream that in turn empties in to the lake flows from beneath the pavilion.

The path then leads away from this pavilion and to the stone columns and timber frame trellis separating the public garden from the private. At this point, the visitor is reintroduced to the primary axis and is given a view along this axis through the private court to the Training Hall.

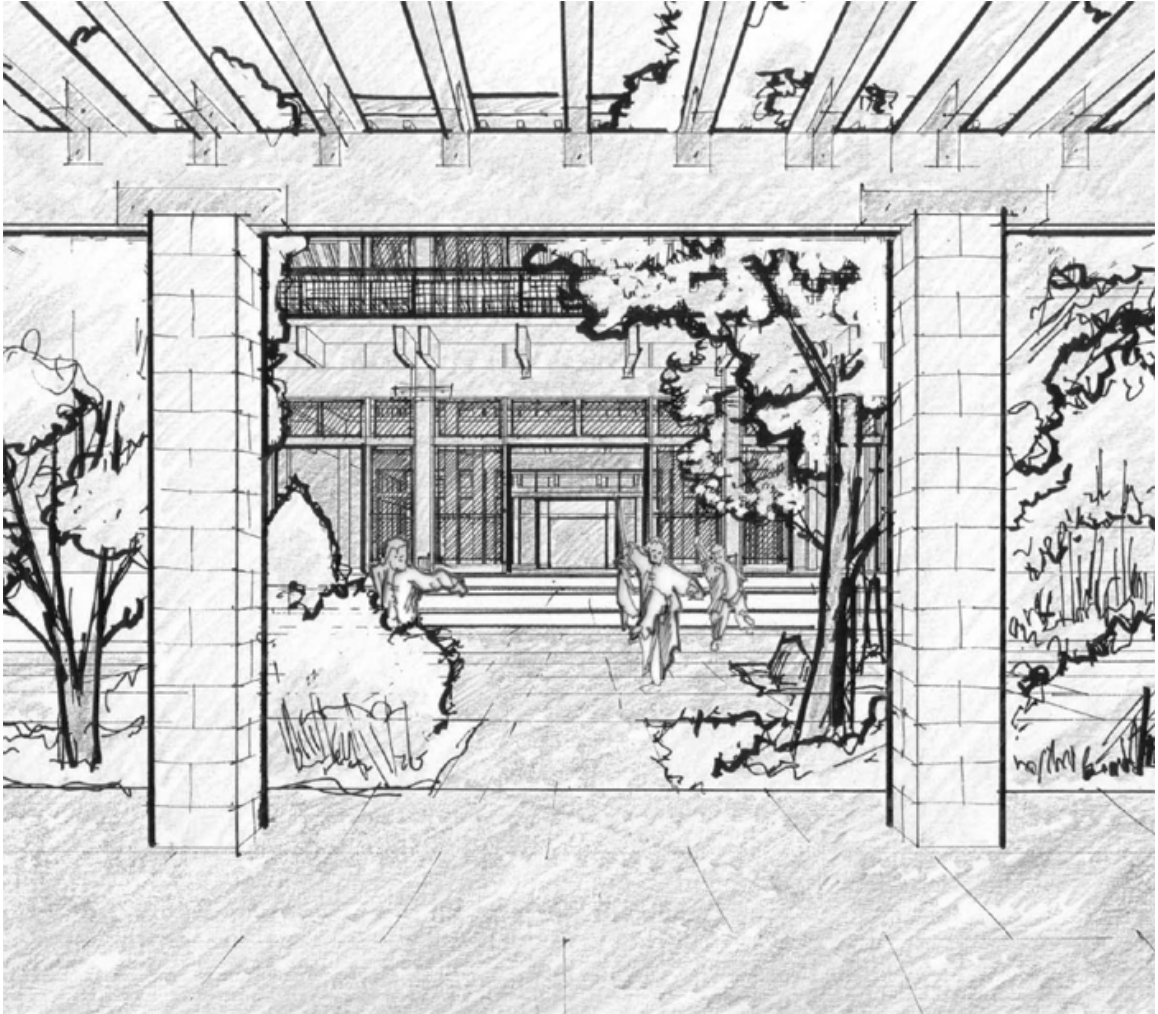


Figure 84: View to Training Hall from Garden.

Following comes the most naturalistic portion of the journey as the path winds through denser vegetation and along the stream. There is another pavilion located beside the road next to the stream for pedestrians to stop and relax along the journey. The path then continues across a small bridge before winding its way back to the Lake Pavilion.

The Building's Faces

The exterior wall is made up of four layers. First is a stone masonry base that provides a sense of stability. Next, beginning at about the height of the window sills is yellow brick. The brick blends well with the neighborhood as there is much brick used in

the surrounding buildings; however the yellow color sets it apart and is also an auspicious color according to the principles of *feng-shui*. The yellow brick extends to the sill of the second floor windows. The thick wall along the lower wall is relatively massive and only punctuated by a few windows. This lends to the sense of the building being focused inward. It also creates a strong base for the framed second floor, creating a metaphor of the frame like plants growing up out of the earthen base. The second floor exposes the structure and frame, with large windows and wooden panel finish. The standing seam metal of the roof contrasts nicely with the brick and wood.



Figure 85: View of School from Corner.



Figure 86: H St. Elevation. The entrance to the school is opened and set back, in order to create a shallow recess to welcome people.



Figure 87: 6th St. Elevation. The shape of the roof changes over the Training Hall, reflecting its importance.



Figure 88: Alley Elevation.



Figure 89: Garden Elevation. A balcony extends over the porch providing protection from the elements.

Construction and Material

The primary support system of the building is glue laminated post and beam. However the first floor exterior wall is stone or brick over 8" CMU creating a bearing wall in which 16" square piers are set. 10x10 glue laminated columns are attached with metal bolts and fastening plates to these piers, and the glue laminated girders and beams frame into the columns with metal connectors. The second floor outer wall is a 2x6 stud wall that fills in the gaps between the columns.

The standing seam metal roof sits on 3" rigid insulation over 3" nominal wood decking on top of 4x10 rafters, tied at their bases with rafter ties sized as attic floor joists. The overhanging portion of the roof is tied back to the main rafters with through-bolts, and supported at their ends with 3" diameter steel tube connectors.

The first floor finish is primarily gray slate over a 4" concrete ground slab supported by 12x36 grade beams. The second floor is a 4" nominal wood deck on 8x14 glue laminated beams. Bamboo is the finish floor material for most of the second floor. Other finish floor materials include carpeting and padded tiles. Interior wall finishes are typically either wood finish or 5/8" gypsum wall board.

All framing and mechanical systems are exposed throughout the building. The primary mechanical space is the small basement below the central room. (As seen in Figure XX).

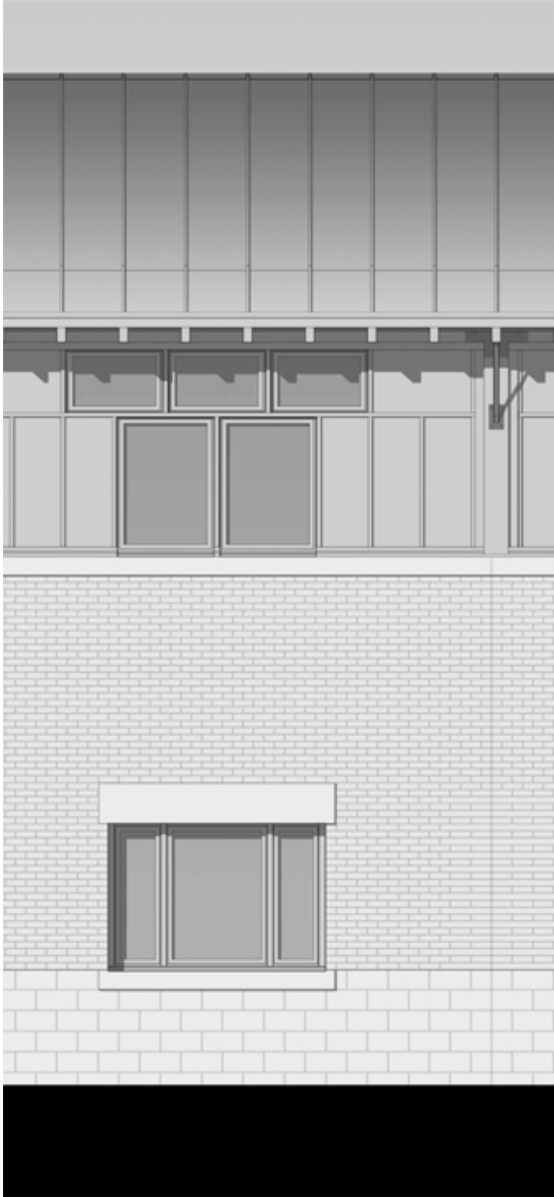
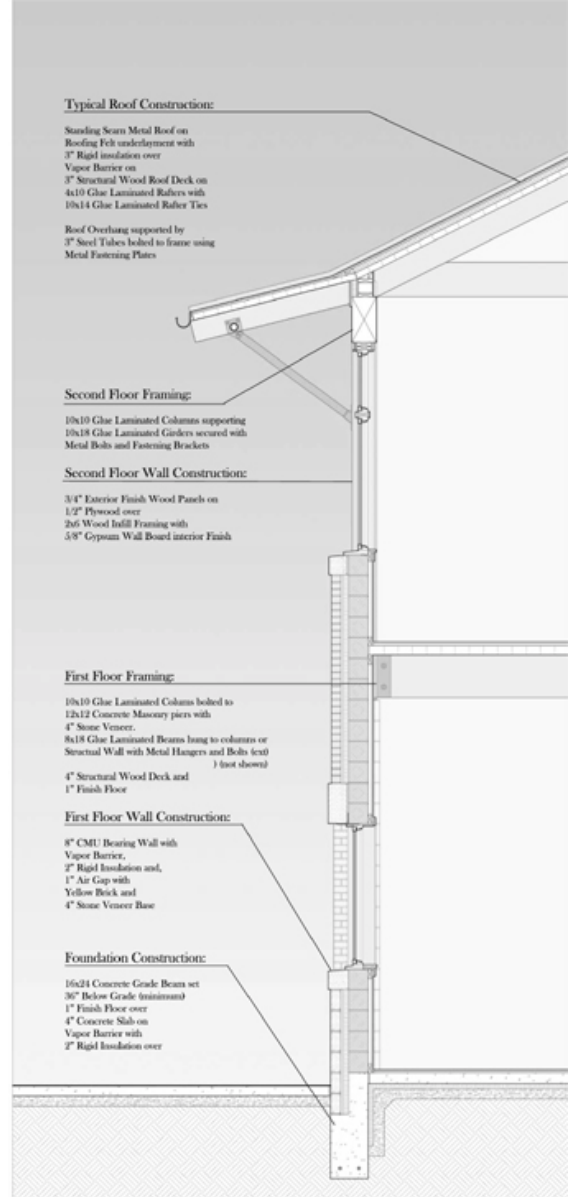


Figure 90: Elevation Detail.
Figure 91: Wall Section.



Conclusion

The greatest challenge throughout the design process has always been the issue of character and can be summarized by the following series of questions. “How much of tradition can we simplify or remove before we lose the connection to that tradition, and how much of this tradition is really appropriate.” In some ways this is a catch-22. Too much tradition and it becomes mimicry, too little and the connection to the tradition is lost.

The intention of this thesis was to distill from traditional Chinese architecture its most important principles, and to apply them in the design of a School for the Chinese Martial Arts. In this respect, the design was successful. The primary principles distilled were: axial organization and hierarchy, inward focus, organization around a courtyard, layering of spaces, creating a union between exterior and interior spaces, a garden as a major element, and finally timber post and beam construction. The final design was not a traditional Chinese temple, nor was it a modernist structure devoid of any allusion to the past. Instead it was something that strove to be of both worlds.

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