

ABSTRACT

Title of Thesis: PROGRAM VS. CONTEXT: UNDERSTANDING THE ROLE
OF INSTITUTIONAL BUILDINGS IN THE CITY

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Institutional buildings are necessary in any community whether it is an urban or suburban setting. Typically, these are large program driven buildings that do not relate very well to their surrounding communities because they are often envisaged as large object buildings that create vast undefined spaces. In order to positively promote buildings that are beneficial to the urban fabric, institutional buildings must be studied as a contextual and space defining type instead of being an isolated object in an amorphous field.

The institutional building type to be studied is the hospital because these are often large program driven buildings. The area of interest is southeast Washington DC and the site is located at the end of Massachusetts Avenue and 19th Street. This site is significant because of its accessibility and its larger impact on the healthcare network of the city.

PROGRAM VS. CONTEXT: UNDERSTANDING THE ROLE OF INSTITUTIONAL
BUILDINGS IN THE CITY

by

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Introduction

Institutional buildings are a necessary type in any community whether it is an urban or suburban setting. The spatial relationships of these buildings to a community are influenced by the appropriateness of the facility to its context. To understand these influences the role of the hospital must be studied because this building type is one of the most internally driven institutional programs.

The area of interest is southeast Washington DC and the site is located at the end of Massachusetts Avenue and 19th Street. This site is important because the DC General Hospital was once located here and the closing of this facility creates a healthcare void in the city. DC General was a large public hospital that catered to a broad range of medical services from a trauma center to minor outpatient services. Since this facility is not currently in operation a wide range of medical services are not being offered to the population thus a functional dilemma arises. The site is located next to an existing metro stop, which would allow a new facility to cater to a large group of people outside of the immediate community. This site is significant because of its accessibility and its larger impact on the healthcare network of the city.

For a new hospital to be maximized on this location the building type must be carefully studied. Should the facility be a large scale General Hospital, a Community Hospital or a small Community Clinic? The selection of the appropriate typology will determine how the city and community are addressed as well as how the patients are catered for.

This study will focus on understanding the multiple relationships of a hospital in a larger urban context while simultaneously addressing the more intimate relationship that

the building has with its occupants. The urban aspect of the project is intended to solve the problems of a program driven building in such a way that it does not provide a barrier to the community but mutually coexists with its surroundings. Essentially, the broader issues of institutional verses civic buildings will be studied.

Chapter I: The Hospital Dilemma

The core ideas of Modern Architecture were based on the notion of the functional city. This philosophy was the primary focus of CIAM (Les Congrès Internationaux d'Architecture Moderne) where the city was separated into a series of functional units. These functional units were seen as being independent but at the same time they would contribute to the collective city. Although the idea of a functional city has been heavily criticized as a reduction of the urban experience and fabric of the city many aspects of functionalism are still valid today. Cities require a certain amount of functional infrastructure to operate effectively and healthcare facilities are one of the required aspects, not because they contribute directly to the operation of cities but because they contribute to the welfare of the people in those cities. Jose Sert explains the importance of community services such as hospitals by saying:

“Community services are essential organs of city life. Contributing to the health, education, recreation, and comfort of the inhabitants, they represent some of the distinct advantages of the city. By virtue of their indispensable nature, they may be considered as prolongations of the dwellings themselves and therefore inseparable from neighborhoods, which form the very basis of city life.”¹

This statement by Sert shows how important the functional qualities of cities were to CIAM. Sixty years later, certain functional aspects of CIAM are still valid and it is important for cities to have hospitals to promote the health and welfare of people and their neighborhoods. However facilities that are necessary for the maintenance of communities and neighborhoods cannot upkeep a neighborhood through the mere idea of functionalism alone. This is because hospitals tend to be detached from communities rather than be integrated within them. This detachment is partially due to the changes in architecture that followed the industrial revolution. Louis Sullivan's clichéd phrase “form

follows function” was one of the initial reasons why hospitals began to be detached from communities and they became purely functional objects and entities that were self-reliant. The aesthetic expression of hospitals also began to follow the notion of “form follows function” and over time healthcare facilities adopted a distinct minimal aesthetic since these buildings were seen as purely functional. Hospitals can relate to the city in a functional capacity but a functional aesthetic does not promote a good environment for patients especially terminally ill patients.

Hospitals are often planned and designed as large object buildings that are not integrated very well into communities and this type of planning creates a high degree of residual spaces that disrupts the urban fabric. This problem can be seen with the old DC General Hospital where the facility was planned as a series of large object buildings that were highly detached from the surrounding community. This separation is inherently negative because the hospital became a strong edge to the community. Colin Rowe and Fred Koetter discuss the problems of object buildings and spatial separation quite extensively in their book *Collage City*. Rowe and Koetter question the validity of object buildings by saying:

“Certainly, in considering the modern city from the point of view of perceptual performance, by *Gestalt* criteria it can only be condemned. For, if the appreciation or perception of object or figure is assumed to require the presence of some sort of ground or field, if the recognition of some sort of however closed field is a prerequisite of all perceptual experience and, if consciousness of field precedes consciousness of figure, then, when figure is unsupported by a recognizable frame of reference, it can only become enfeebled and self destructive.”²

Hospitals are constantly expanding and whatever pure space was originally designed can easily become unsupported in its field. Because of this problem hospitals should be

designed to reinforce their surrounding context rather than being isolated objects within a field.

Hospitals are significant buildings because they represent a distinct symbolic human achievement. These buildings make a strong reference to the advancement and evolution of humans over time and it could be argued that this significance should be celebrated. Object buildings tend to celebrate hospitals in a very strong light but this type of celebrated building may not be the best solution to promote the health and welfare of people and their communities. Lewis Mumford explains the implications of the object building or the “machine” by saying:

“Fortunately for primitive man, he was not, like us intimidated by the cold perfection of the machine, nor did the universe seem to him like a machine.”³

Hospitals as object buildings are important because of their symbolic qualities but should these buildings be intended to represent symbolism or should they be buildings that promote the health and welfare of the people that they serve? Hospitals are necessary in any community because the people of those communities rely upon them. These buildings are also significant because they display the crowning achievements of science and the technological evolutions of humans. Both of these ideas are important to the development of hospitals but are often at opposing ends because a hospital that serves people should be welcoming and intimate while a symbolic hospital may display the cold precisions of the machine and may be very impersonal. A hospital should be designed to foster the needs of people and can simultaneously respond to symbolic qualities but true harmony can only be achieved if the hospital is designed to be contextual and non-oppressive as well as relate to the human scale and provide an intimate setting for humans to heal and recover.

Chapter II: The Site

Site Description

The site is 67 acres and is located in southeast Washington DC at the end of Massachusetts Avenue. The site is bordered by 19th Street, Independence Avenue and the Anacostia River (Figure 1). The surrounding community has a diverse series of buildings that range from the large RFK Stadium to the smaller row houses on Massachusetts Avenue. The site contains a number of large buildings from the DC General Hospital (Figure 2). Since the hospital is now closed many of these buildings are vacant. The site also contains a correctional facility that has a number of large buildings as well (Figure 3). One of the important aspects of this site is the existing metro rail station.

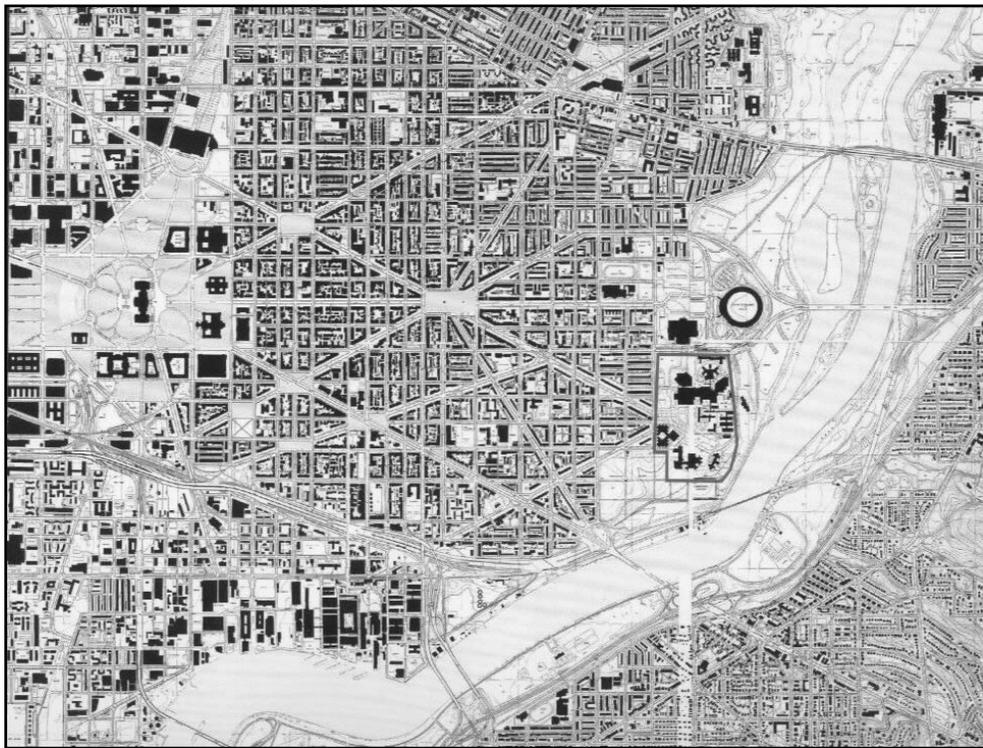


Figure 1: DC General Site



Figure 2: DC General Hospital



Figure 3: Correctional Facility

Site History

Since the mid 19th century this site has historically been occupied by a variety of healthcare facilities. In 1848 the 30th Congress authorized a public reservation of land, reservation 13, which became hospital square. The first of these facilities was the Washington Infirmary, which was the first public hospital. The Infirmary was established in 1806 and was relocated to this site from Judiciary Square in 1846. After the relocation, the hospital was renamed the Washington Asylum and it also began to serve as a workhouse for people convicted of minor crimes. Over time the facility evolved to accommodate many more roles such as a smallpox hospital, quarantine station, disinfection plant, and a crematory. The facility became the Gallinger Municipal Hospital in 1922 (Figure 4) after the construction of a new building. The hospital officially became the District of Columbia General Hospital in 1953 and it has been the only public hospital in the city since then.



Figure 4: Gallinger Municipal Hospital (NIH)

Site Selection

This site was selected because of its relationship to the larger healthcare network of the city and because the DC General Hospital was once located here (Figure 5). The site plays an important functional role in this network because it is located in southeast Washington DC where the city currently does not have a hospital (Figure 6). While southeast Washington DC does not have a hospital the northeastern portion of the city has multiple facilities with overlapping coverage (Figure 7). The overlap in coverage allows each facility to assist neighboring facilities in emergency situations but southeast Washington DC does not possess this kind of redundant overlap and the DC General site becomes very important to the healthcare network of the city because of the burden that is placed on this single facility and zone (Figure 8).

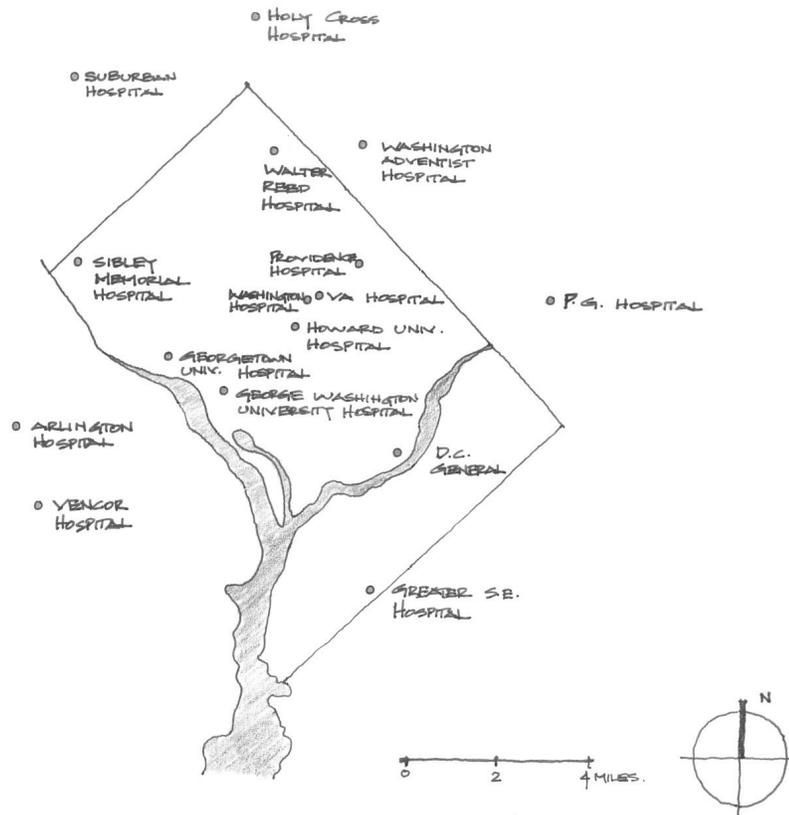


Figure 5: Washington DC Hospital Locations

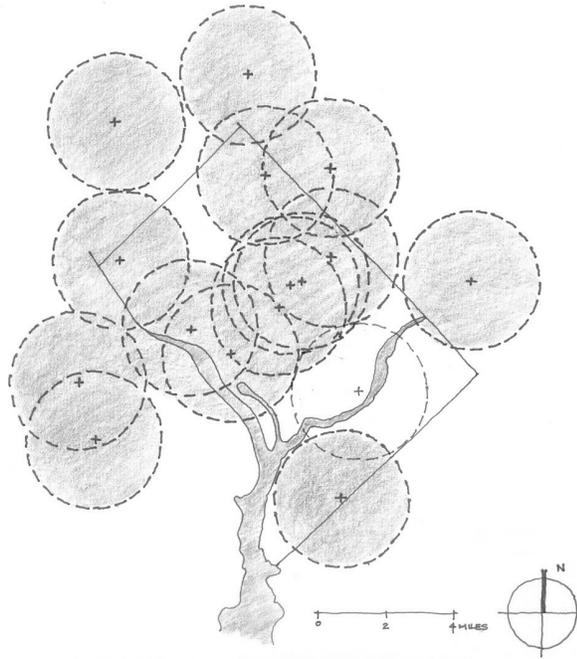


Figure 6: Current Washington DC Hospital Coverage without DC General

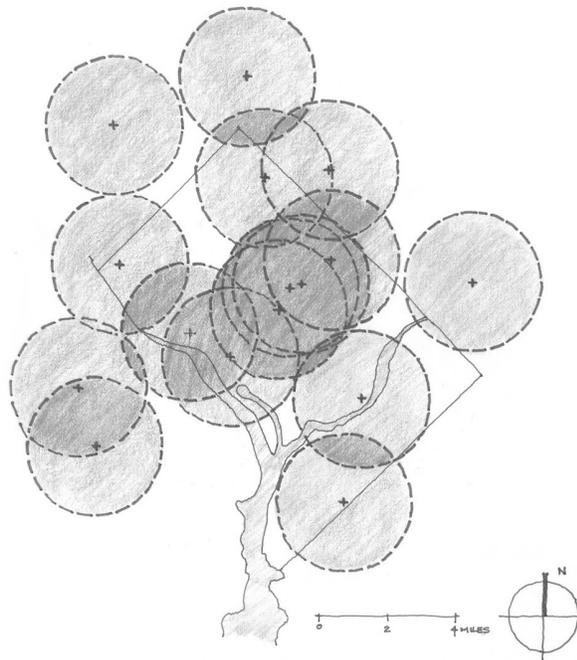


Figure 7: Washington DC Hospital Overlap with DC General

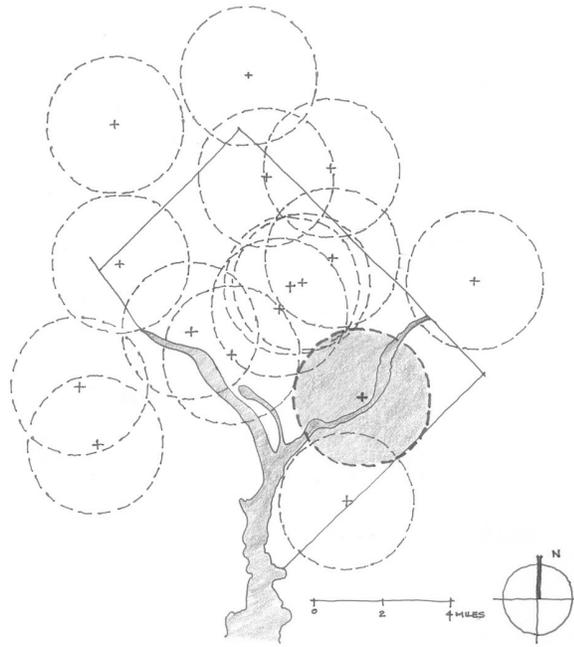


Figure 8: Site Influence on Washington DC Hospital System

Site Analysis

Site Boundaries

The site boundaries consist of 2 primary streets in Washington DC (Figure 9). Independence Avenue, which is a major east west artery of the city, terminates the site on the northern edge. 19th Street, which is an important north south artery of the city, terminates the site on the western edge. The Anacostia River waterfront defines the eastern boundary of the site and the Congressional Cemetery defines the southern boundary.



Figure 9: Site Boundary

Natural Boundaries

The Anacostia River defines the eastern edge of the site and the river is part of a larger park system that is currently under redevelopment (Figure 10). The Anacostia River and waterfront are important to the site because it provides a natural park system for the hospital and it is also significant because of the landscaped views.

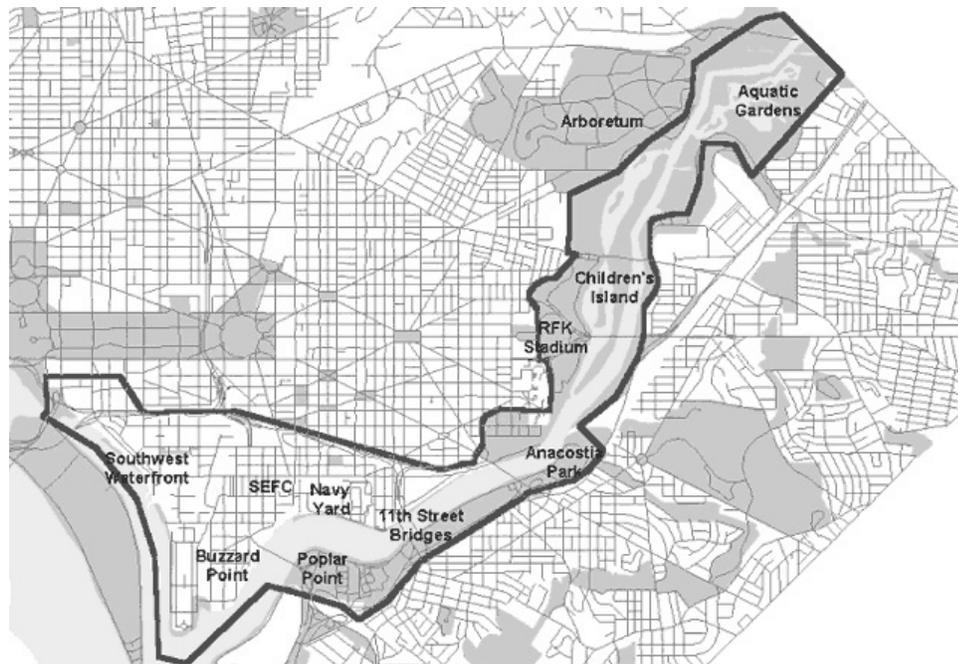


Figure 10: Anacostia Waterfront

Street Network

The site is easily accessible in Washington DC because the existing street network of the city has a number of arteries that directly connect to the site (Figure 11).

Accessibility is a critical issue for a hospital since this type of program caters to the needs of individuals throughout the city. Because of the number of streets that connect to the site emergency accessibility is also convenient and efficient.

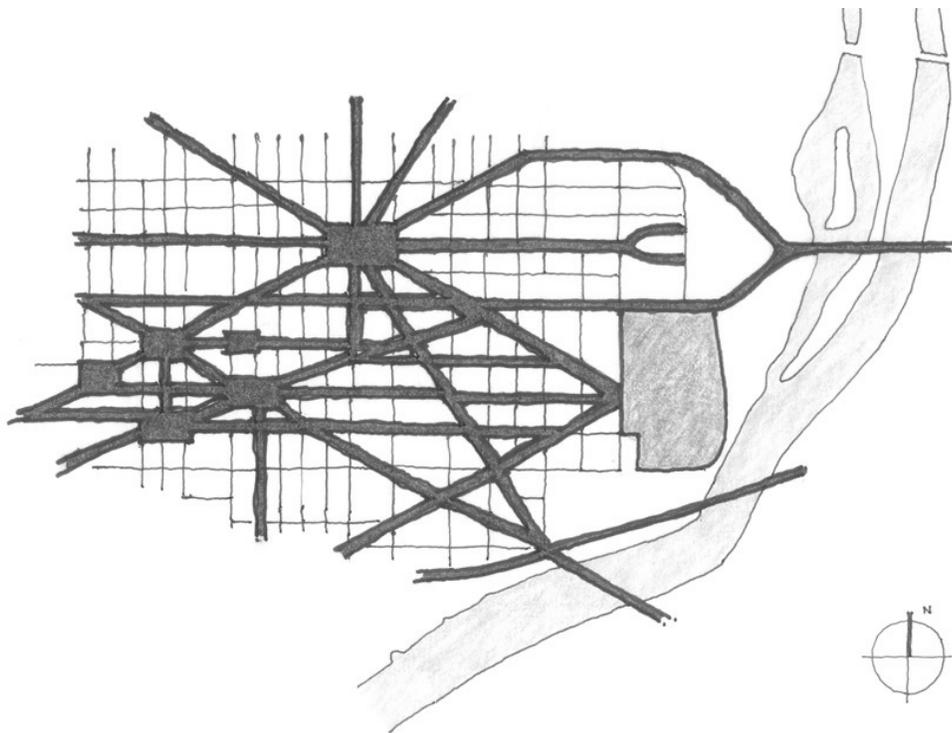


Figure 11: Street Network and Site Access

Site Access

The site is easily accessible from 3 main streets Massachusetts Avenue, D Street and Potomac Avenue (Figure 12). All of these streets terminate into the site and they are the primary access points from the city. These streets are also important because they approach the site at different angles, which allows them to connect the site to different parts of the city. Connection to various parts of the city is critical for a hospital because it allows for efficient access to the site in emergency situations.

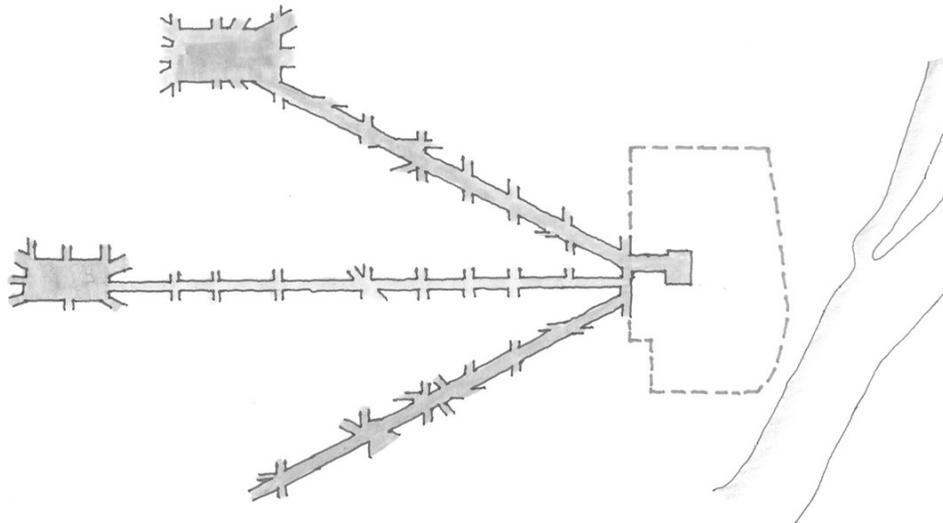


Figure 12: Site Access Diagram

Street Sections

The main streets leading to the site are distinctly different in character and scale. Massachusetts Avenue and Potomac Avenue are both 150' wide and are lined with row houses that have front yards (Figure 13) while D Street is much narrower and has a width of 80' (Figure 14).

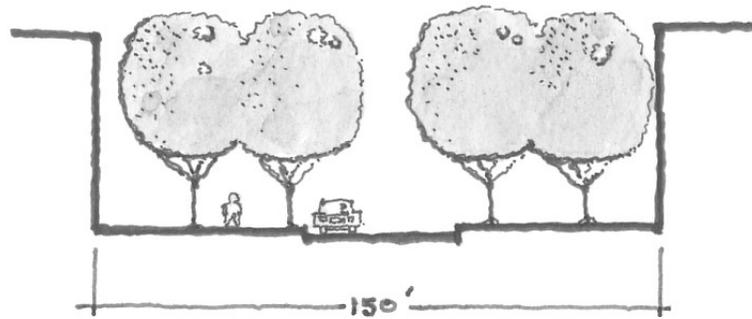


Figure 13: Massachusetts Avenue and Potomac Avenue Section

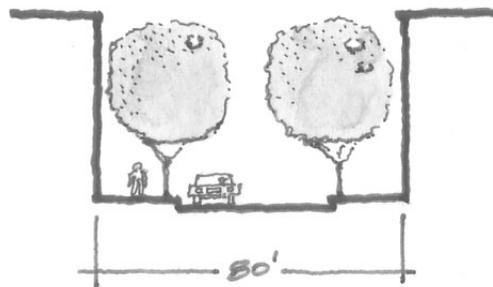


Figure 14: D Street Section

Figure Ground Analysis

The figure ground analysis shows the different scales and spatial adjacencies of the existing site as it relates to the context (Figure 15). The buildings in the city are much smaller and more integrated into the city fabric while the DC General site contains much larger building footprints that are extremely detached from the fabric of the city. The discontinuity of the urban fabric is due to the scale of the object buildings on the DC General site. The object buildings create large open areas that do not provide urban definition.



Figure 15: Figure Ground of Existing Site

Existing Block Layout

One of the problems of the existing site is that the block layout is significantly larger and more irregular than the rest of the city (Figure 16). The problems that arise with the large block sizes at the DC General site are the lack of accessibility to the waterfront. These large amorphous blocks also contain a tremendous amount of surface parking which further increases the separation with the adjacent community.

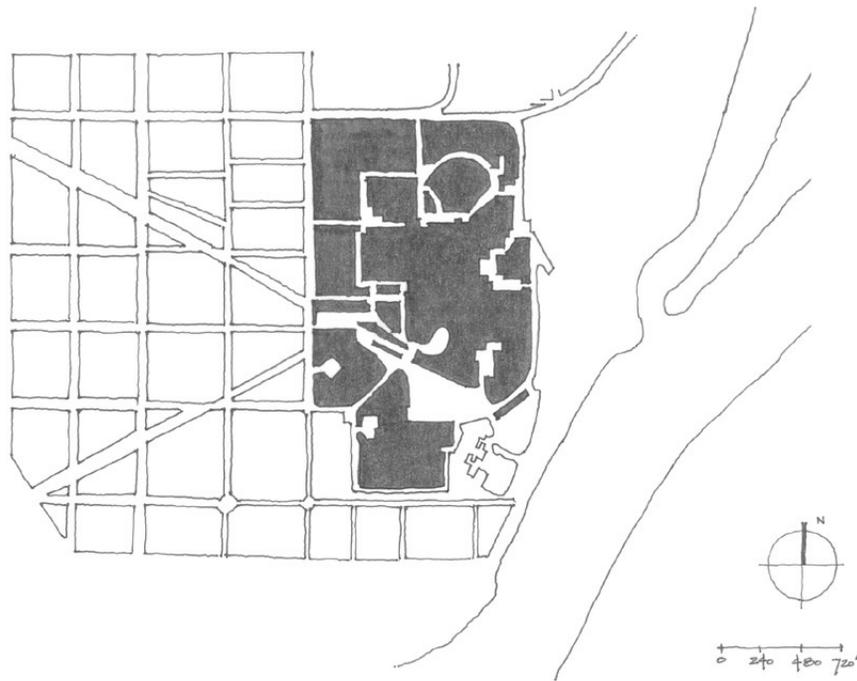


Figure 16: Existing Block Structure

Public Transportation

Public transportation is an important element for a hospital because it allows people from all areas of the city to access the site. The Washington Metropolitan Area Transit Authority (WMATA) has an extensive rail system that provides access to most of the Washington DC area and this system has an existing metro stop at the edge of the site on 19th Street (Figure 17). The metro station at the site is the Stadium Armory Station.



Figure 17: Washington DC Metro System Map (WMATA)

Walking Distance from Metro Station

Public transportation systems are important for hospitals and an important feature of this site is the accessibility from the metro station. Most of the site is within a 5-minute walking radius from the Stadium Armory Station (Figure 18). This is extremely important for people who do not drive in the city but need access to the hospital.



Figure 18: 5-Minute Walking Radius

Impervious Surfaces

The existing DC General facility contains a vast amount of surface parking that creates a variety of residual spaces that becomes a barrier between the city and the waterfront (Figure 19). The views to these parking lots are also a negative image for the patients who require a more tranquil and natural environment to promote their well being and recovery. The extensive amount of paved surface on the site is also a negative aspect for the natural environment because it prevents rainwater from going back into the ground and it also increases pollution in the environment. These problems are especially important to solve since the Anacostia waterfront is one of the boundaries of the site.

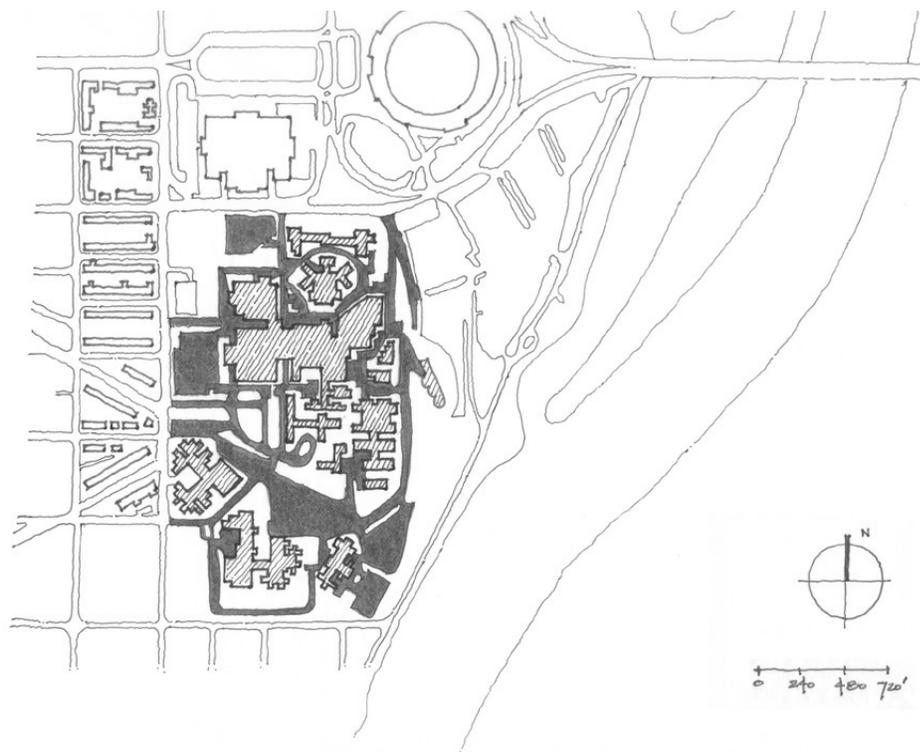


Figure 19: Impervious Surface

Land Use: Institutional

The institutional land use on the site consists of a number of buildings from the DC General Hospital and the Correctional Facility on the site (Figure 20). These buildings are large object buildings that do not define the street edge or continue the grid from the city. These large buildings also create vast undefined spaces that become a barrier to the waterfront.



Figure 20: Institutional Land Use Diagram

Land Use: Commercial

The commercial aspect of the site consists of a series of office buildings that are primarily medical offices (Figure 21). When compared to the institutional buildings on the site these office buildings are significantly smaller footprints. Like the institutional buildings the commercial buildings do not promote the street grid of the city and are planned as object buildings.



Figure 21: Commercial Land Use Diagram

Land Use: Residential

The residential land use is primarily located on the perimeter of the site (Figure 22). These buildings are row houses that help to define the street edge since they abide by the street grid of the city.



Figure 22: Residential Land Use Diagram

Topography

Because the site is located next to the Anacostia River there is a significant topographic change. The site slopes down 45' from 19th Street to the Anacostia River.

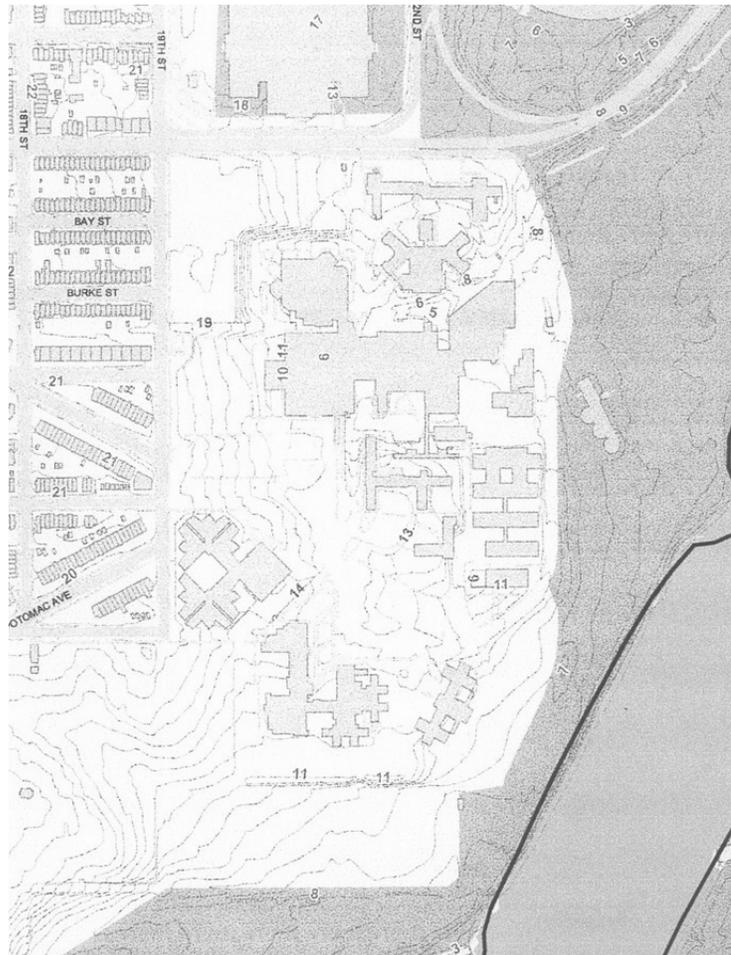


Figure 23: Site Topography (DC Office of Planning)

Site Master Plan Analysis

Ehrenkrantz, Eckstut and Kuhn (EEK) did a master plan for this site in 2002 (Figure 24). The intention of the master plan was to redevelop the DC General site with a variety of building types and uses. The land was subdivided into a series of smaller blocks that allowed for much greater site density and coverage. The site is intended to be a mixed-use site, where as the existing site is primarily used only by the hospital. Because of the large amount of buildings in the master plan, EEK developed a phasing plan. This plan allows the gradual development of the site over time.



Figure 24: Site Master Plan (EEK)

Site Master Plan

Organization

Because the existing site contained a large amount of surface parking, the connection of the surrounding neighborhoods to the waterfront was interrupted. To solve this problem of connection EEK introduced a number of streets to link the community to the waterfront, with Massachusetts Avenue being the primary connector to the river (Figure 25).

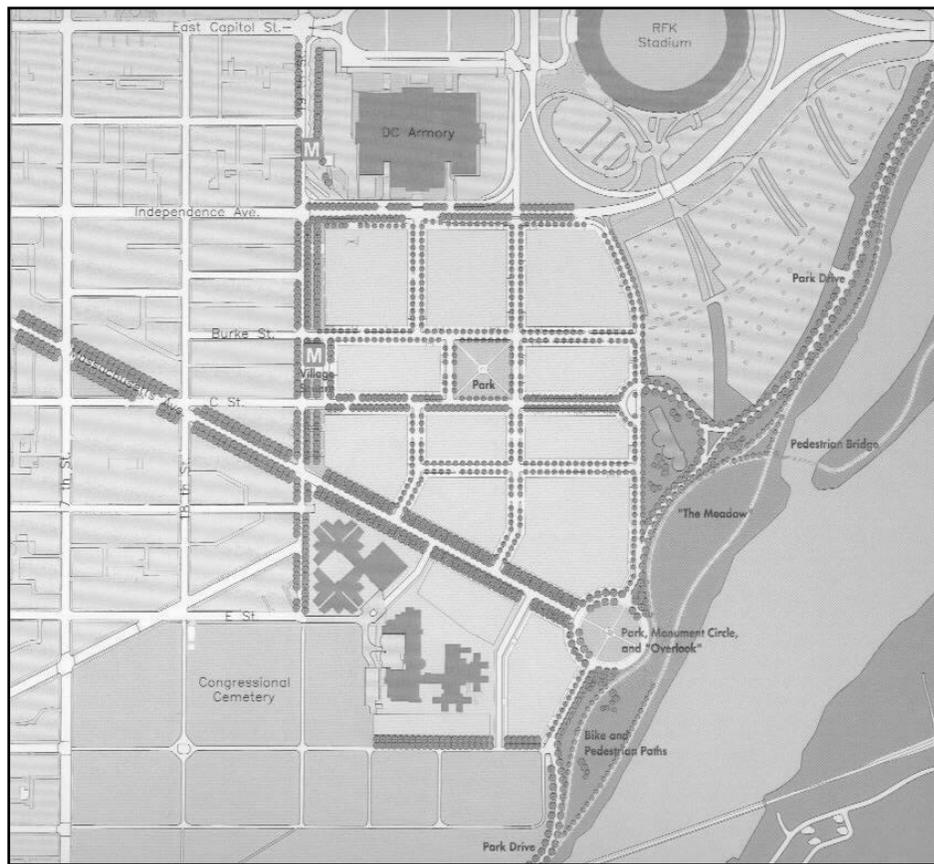


Figure 25: Master Plan Organization (EEK)

Site Master Plan

Phasing

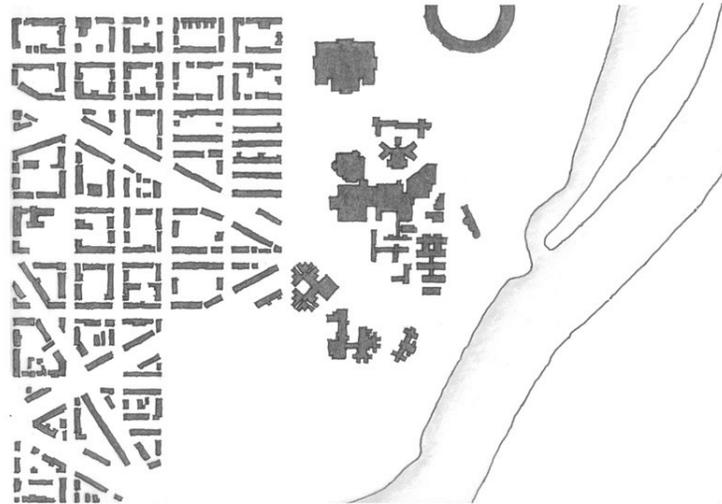
The EEK master plan is organized in two phases. The first phase of the master plan focuses on developing the Massachusetts Avenue area (Figure 26). This area allows for a defined connection to the river and also allows the site to be screened from the correctional facilities.



Figure 26: Master Plan Phasing (EEK)

Site Master Plan

Figure Ground Comparison



Existing Site



Proposed Master plan

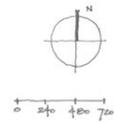
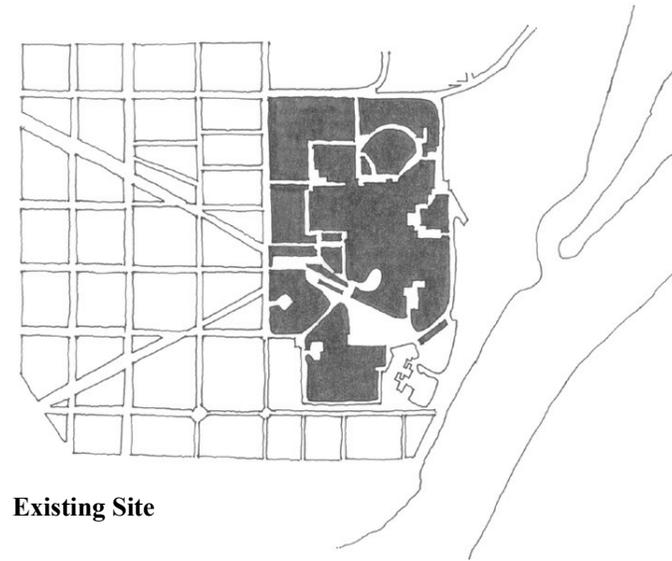


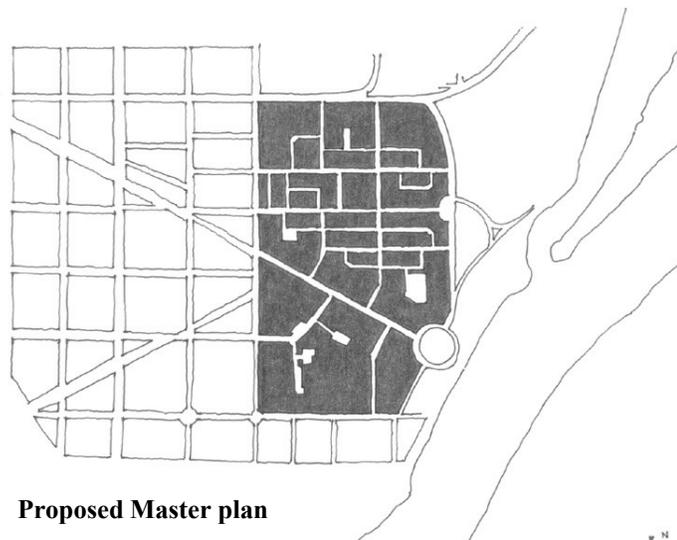
Figure 27: Figure Ground Comparison

Site Master Plan

Block Comparison



Existing Site



Proposed Master plan

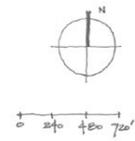


Figure 28: Block Comparison

Chapter III: Typology

Facility Typology

Because of the lack of healthcare services in southeast Washington DC a new facility is required but the scope of the services provided does not necessarily have to be as diverse as the DC General Hospital and this idea allows for the introduction of a wide variety of facility types. The main types of facilities that can be introduced in this area are a General Hospital, Community Hospital or a Community Clinic. Each type of facility possesses its distinct advantages and disadvantages.

General Hospital

A General Hospital is a very critical part of a city because it caters to emergency and critical care needs. Because of the support systems that go into the operation of a General Hospital a large facility is needed (Figure 29). The problems of having this type of hospital are the coverage area of the site and it often becomes a major urban problem because these hospitals are often difficult to integrate into a community.

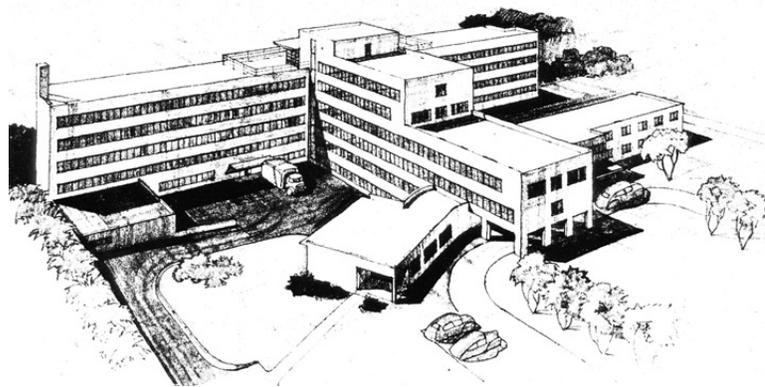


Figure 29: General Hospital (Wareham)

Community Hospital

Community hospitals are another popular type of healthcare facility. They are smaller than a General Hospital and provide a wide range of medical services (Figure 30). However, they do not cater to the levels of emergency in the same way that a General Hospital does. Community hospitals can also be difficult to integrate into the community fabric because they are still rather large facilities.

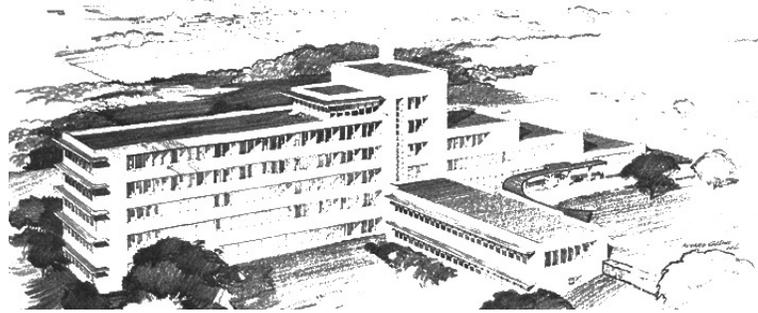


Figure 30: Community Hospital (Collins)

Community Clinic

Community clinics are the most integrated with the community because of their small size and intimacy (Figure 31). Even though these clinics provide a general amount of healthcare services they are often too small to accommodate larger medical needs.

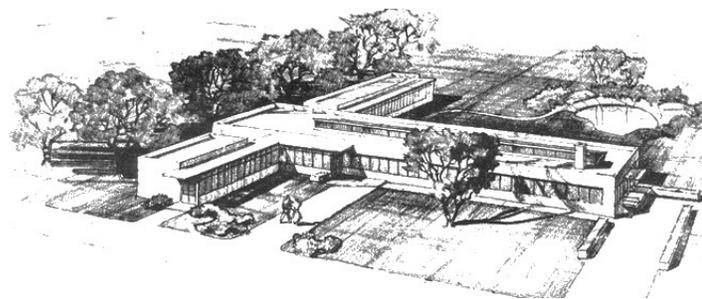


Figure 31: Community Clinic (Wareham)

Chapter IV: Precedent Analysis

Venice Hospital

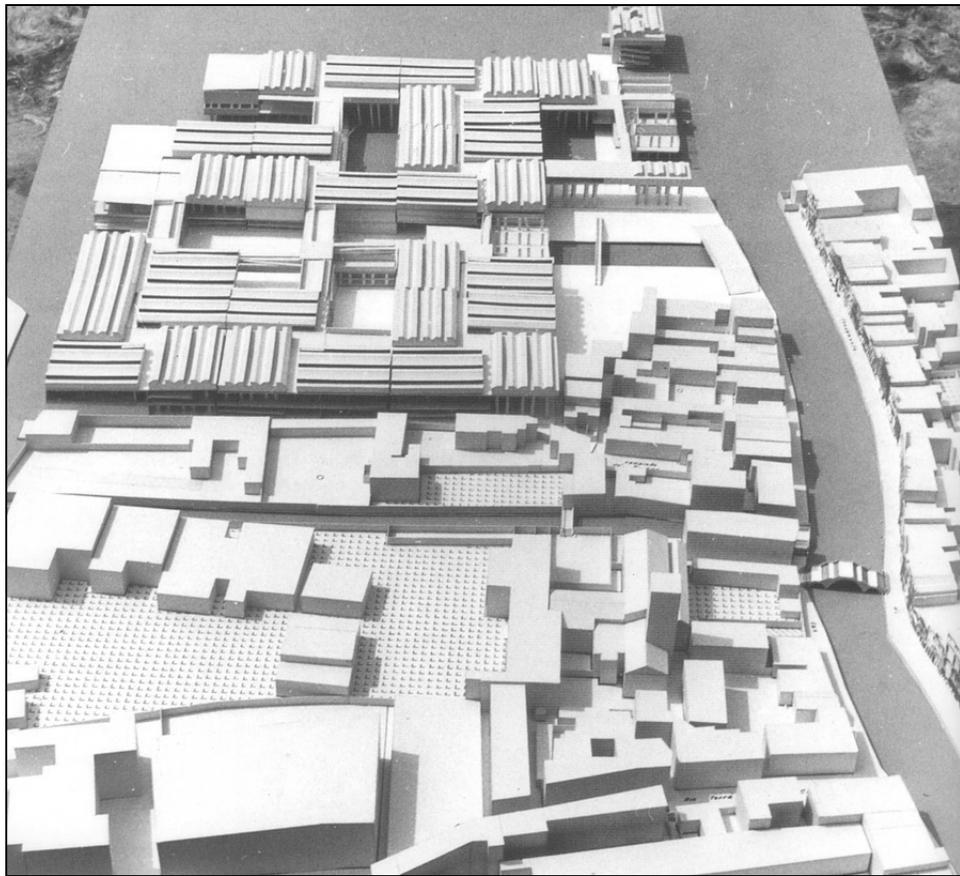


Figure 32: Venice Hospital

Venice Hospital: Site Strategy

Because of the limited availability of land in Venice Le Corbusier designed the Venice Hospital as a building that extends into the water (Figure 33). Since the city of Venice is a very historic city the impact of the hospital had to be at a minimum. Le Corbusier dealt with this issue by making the building a long horizontal building in order to maintain the historic skyline of the city.

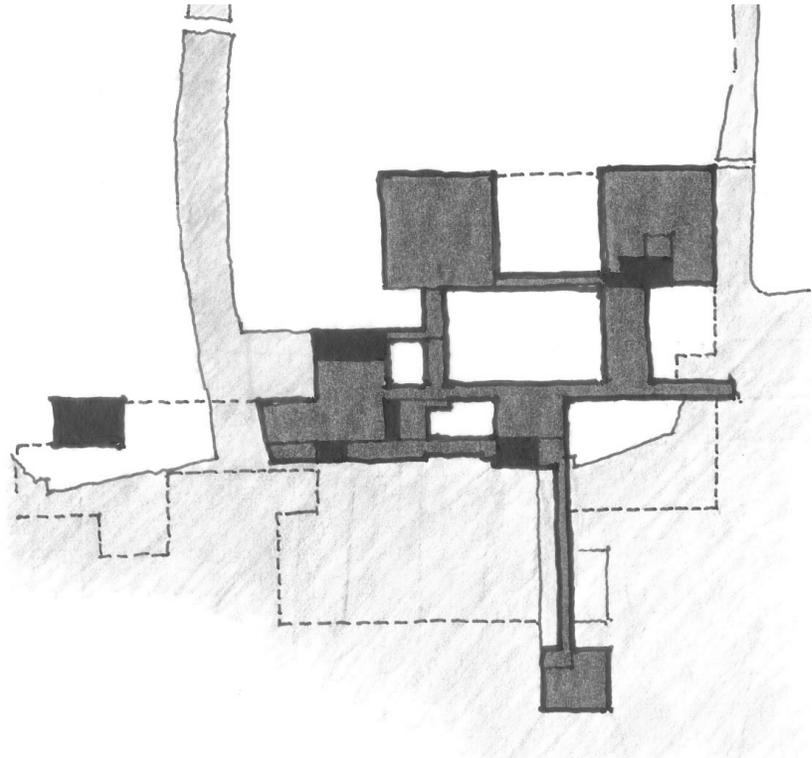


Figure 33: Venice Hospital Site Strategy Diagram

Venice Hospital: Open Space

Because of the limited availability of land Le Corbusier developed a series of open spaces within the building (Figure 34). These open spaces allowed for natural light to enter into certain parts of the hospital. The open spaces also allowed for small private landscaped courtyards.

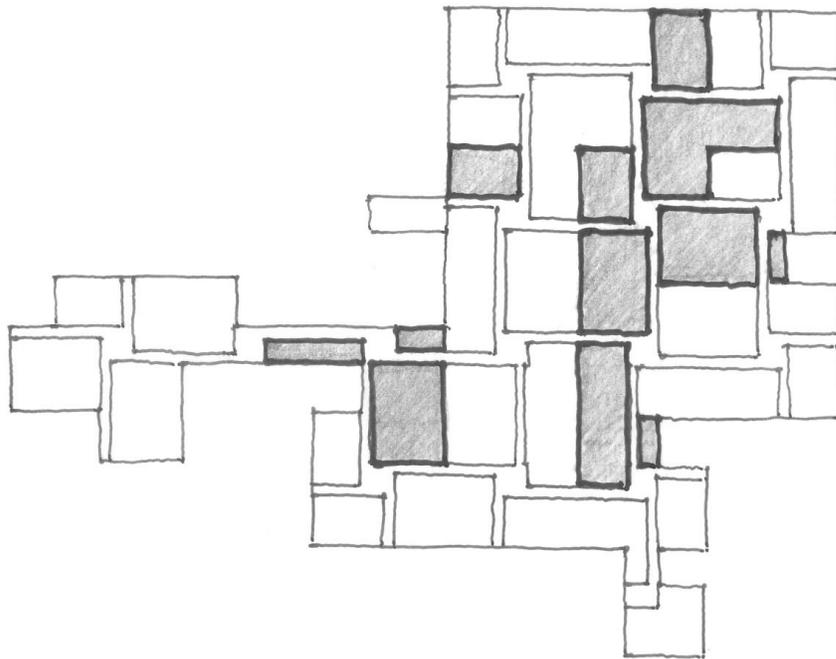


Figure 34: Venice Hospital Open Space Diagram

Venice Hospital: Circulation

The circulation system of the Venice Hospital is developed as a network of corridors that allow for easy access to all parts of the hospital (Figure 35). The circulation system also reflects the modular layout of the hospital and is capable of being extended in the event of any hospital expansion.



Figure 35: Venice Hospital Circulation Diagram

Venice Hospital: Efficiency

The Venice Hospital Project by was intended to work as a very efficient system (Figure 36). This was accomplished by utilizing a series of centers or nodes that was repeated throughout the hospital. These nodes would house various support staff and equipment that would allow the hospital to function as a very efficient system.

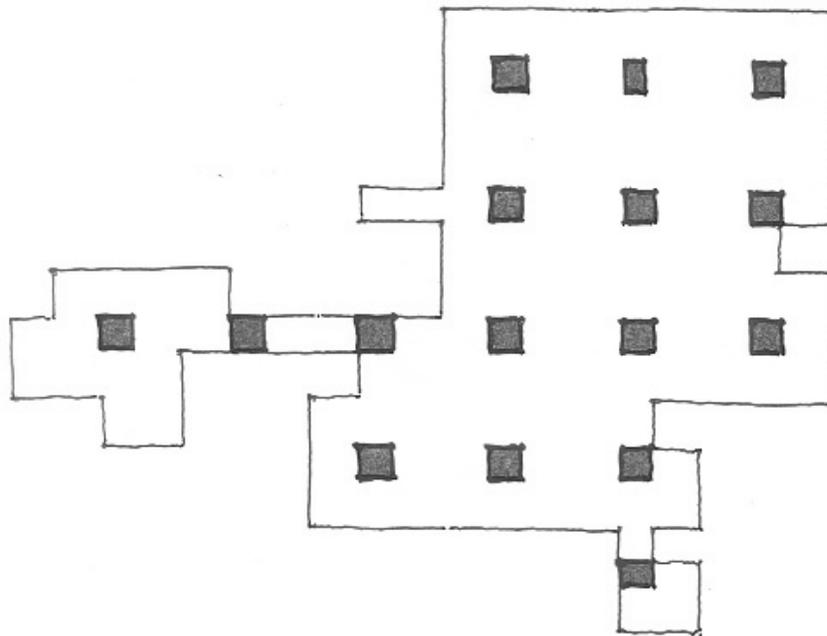


Figure 36: Venice Hospital Modular Layout

Venice Hospital: Lighting

In Le Corbusier's Venice Hospital natural lighting is dealt with as indirect lighting (Figure 37). Le Corbusier used indirect lighting because the Venice Hospital was intended to serve as a critical care facility and direct lighting would have been distracting to the patients.

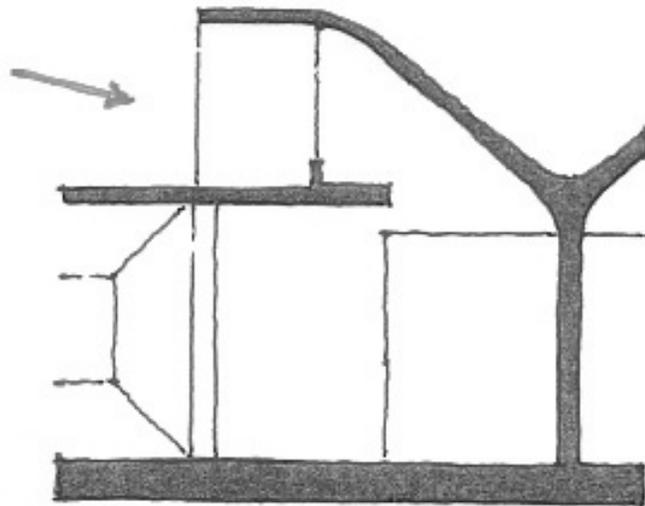


Figure 37: Venice Hospital Lighting Diagram

Paimio Sanatorium



Figure 38: Paimio Sanatorium

Paimio Sanatorium: Circulation

Alvar Aalto's Paimio Sanatorium consists of a series of circulation networks that vary throughout the facility (Figure 39). The patient zone is a single loaded corridor that maximizes usable space for the patients. In other areas of the facility the circulation shifts to a double loaded corridor to accommodate the needs of the program requirements.

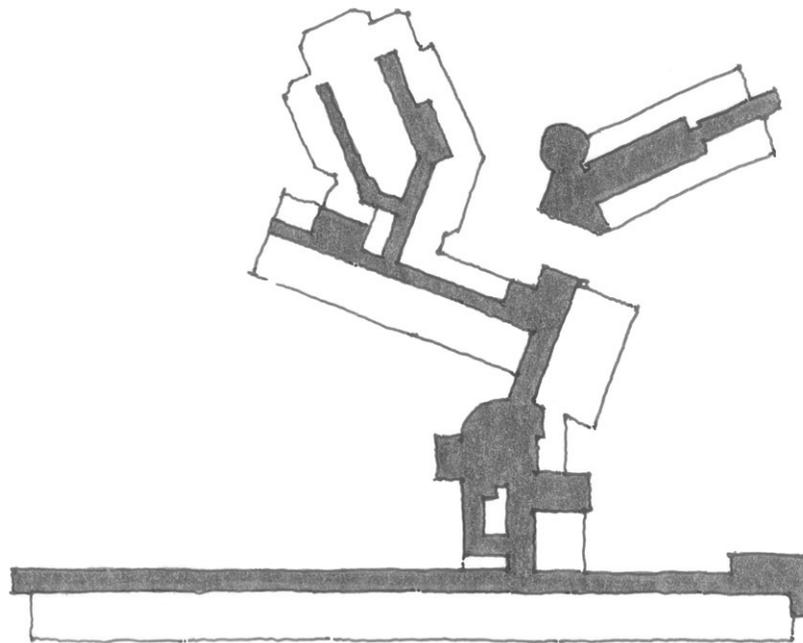


Figure 39: Paimio Sanatorium Circulation Diagram

Paimio Sanatorium: Views

The Paimio Sanatorium is designed to allow views out into the landscape from all the different zones of the building (Figure 40). The patients' ward allow for views on both sides of the tower while the common areas only allow for views on one side of the building. The patient ward maximizes views into the landscape and this idea is a critical part to the recovery and health of patients in healthcare facilities.

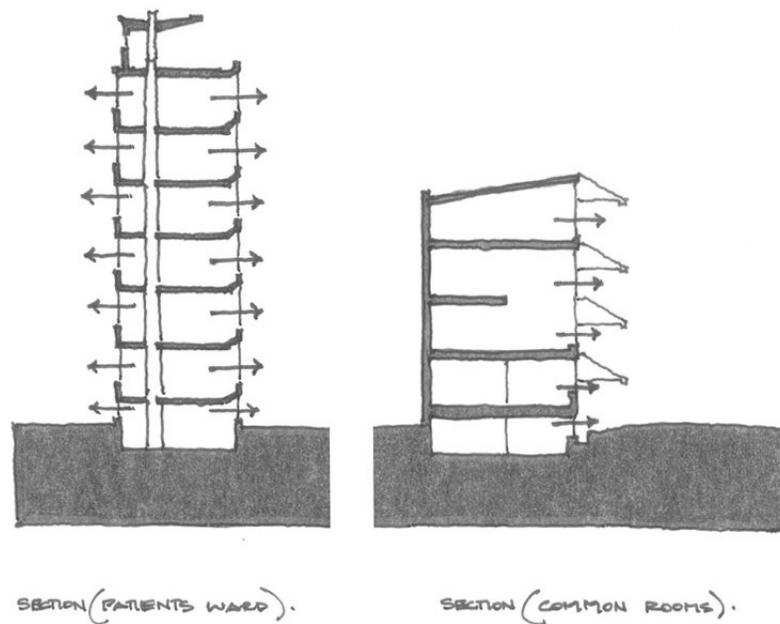


Figure 40: Paimio Sanatorium Views

Paimio Sanatorium: Private Zones

The Paimio Sanatorium's private patient zone is confined to a specific wing of the building (Figure 41). This layout is due to a number of reasons, which range from the site views to the discreet functional zoning of the facility.

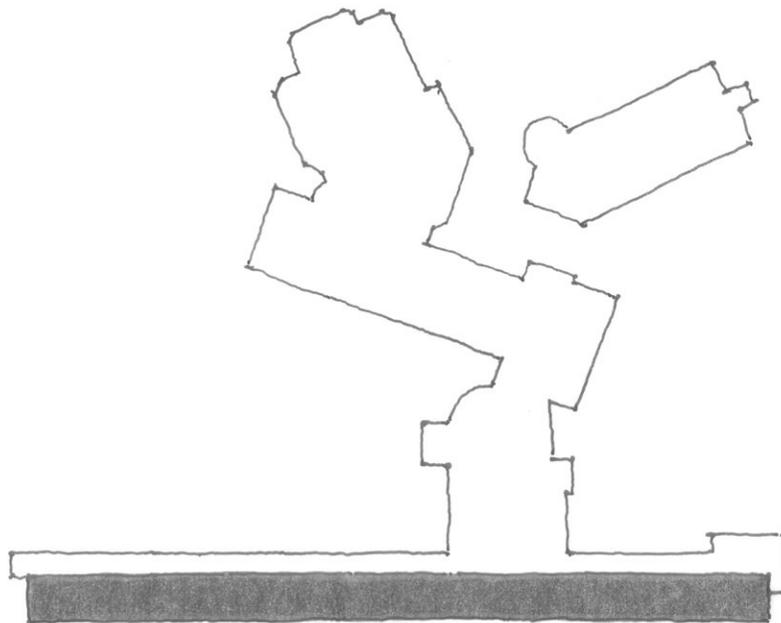


Figure 41: Paimio Sanatorium Patient Zone

Typical Hospital Patient Room Layout

Hospital patient rooms typically consist of 4 zones (Figure 42). These zones are the nurse's station, toilet and shower zones, patient zone and visitor's zones. The nurse's zone and toilet/shower zones are usually located towards the main corridor since they do not have any natural lighting requirements but the patient zone and visitor's zone are usually located next to the window for day lighting purposes.

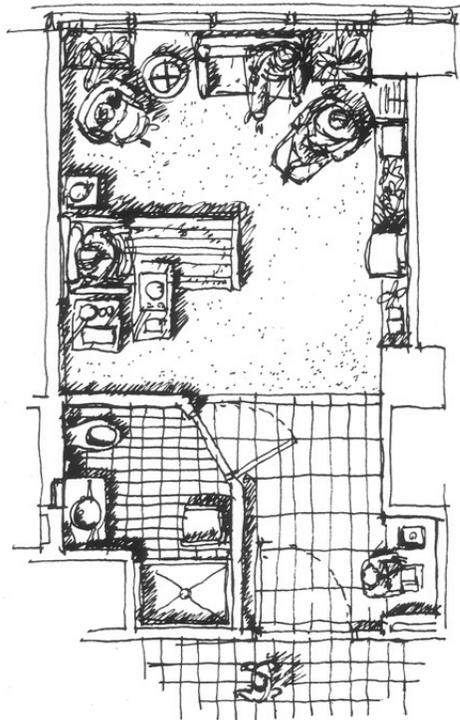


Figure 42: Typical Patient Room Layout

Expansion

Expansion has always been a major issue in the design of hospitals. This issue is especially important in the design of mechanical systems for hospitals because of the level of difficulty that is involved in changing mechanical systems. During the late 1960s a system that was developed to solve this problem consisted of an intermediate layer between the hospital floors that was large enough to accommodate service personnel to re-route the mechanical system so that it could adjust to the needs of the floor below (Figure 43). This system was called the Interstitial System because it is similar to the interstitial spaces in the human skin.

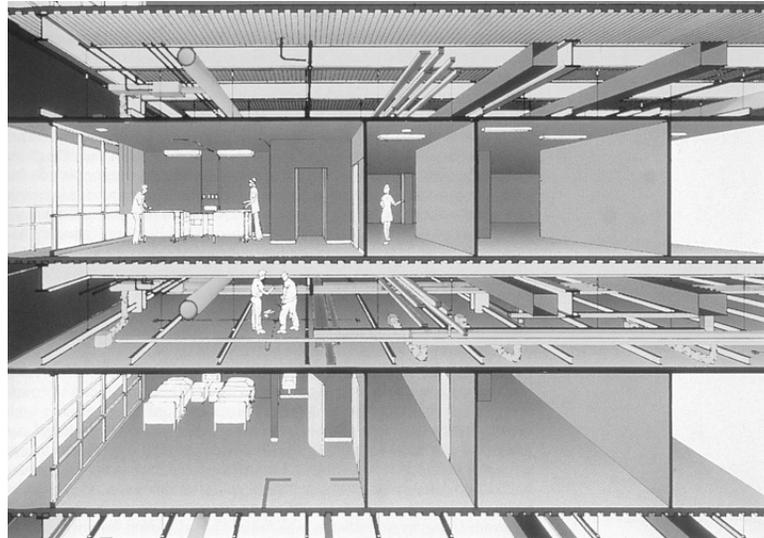


Figure 43: Interstitial Space Study (Smith Group)

Chapter V: Program

Program Description

Main Lobby

The main lobby should be easily accessible from the metro station and should provide adequate seating for waiting patients and guests.

Emergency Department

The emergency department is the core of a general hospital and must be located adjacent to the imaging department. Because this department directly serves the general public it must be easily accessible from the street and easily accommodate patients arriving in an ambulance. The emergency department should also have a reception area and an adequate sitting area for patients to wait.

Imaging Department

The imaging department supports the emergency department and must be located adjacent to it. Because this department also serves the general public it must be readily accessible from the street.

Surgery Department

The surgery department accommodates patients from the emergency department and must be conveniently located to it. Because of the urgent need of this department efficient travel time from the emergency department is of utmost importance. The surgery department should also have a reception area and an adequate sitting area for patients to wait.

Recovery Department

The recovery department supports the surgery department and must be located adjacent to it. The recovery department must also be readily accessible to the patient rooms.

Pharmacy

The pharmacy has several components. The first component serves the general public and the second serves the patients in the hospital. The pharmacy must also have an adequate amount on site storage.

Medical Offices

The medical offices should be easily accessible to the general public and must not interfere with the core departments of the hospital.

Community Services

The community services should be easily accessible to the general public and must not interfere with the core departments of the hospital. The community services should include classrooms, workspaces, a gymnasium and cafeteria (with a kitchen).

Retail Stores

The retail stores should be easily accessible from the street and must not interfere with the core departments of the hospital. The retail stores should have a street façade or store front.

Meditation Space

A meditation space should be provided that is easily accessed by the general public. This space should also accommodate a view into the landscape.

Private Patient Rooms

The private patient rooms should be accessible from the corridor and must have a direct view outside. These rooms should have 143 sq. ft. of clear unobstructed space.

Patient Shower and Toilet

The patient shower and toilet should be accessible from inside the patient room.

Family Lounges

Family lounges should be provided next to the patient rooms and should have a view into the landscape.

Nurse Stations

The nurse stations should be centrally located and easily accessible to the patient rooms.

Mechanical Room

The main mechanical room should be accessible from the loading dock. Additional mechanical rooms should be located

Laboratories

The laboratories should be in a secure location away from the general public. The laboratories should be easily accessible to the loading dock.

Parking

Parking should be easily accessible and conveniently located to the various areas of the hospital.

Morgue

The morgue should be located in a discreet location and should be easily accessible from the emergency department. The morgue should also be located in relative proximity to the loading dock.

Loading Dock

The loading dock should be located in a discreet location and should not interfere with the various departments of the hospital. The loading dock should be accessible to the main mechanical room as well as the various laboratories.

Storage Space

The loading dock should be located in a discreet location and should not interfere with the various departments of the hospital. The loading dock should be accessible to the main mechanical room as well as the various laboratories.

Program Summary

Main Lobby

| | |
|----------------------|-------|
| Total area (sq. ft.) | 4,000 |
|----------------------|-------|

Emergency Department

| | |
|----------------------------|--------|
| Total Emergency Department | 22,000 |
| Ambulance entry | 4,000 |
| Reception area | 1,200 |
| Waiting area | 1,200 |
| Subtotal (sq. ft.) | 28,400 |

Imaging Department

| | |
|------------------------------------|--------|
| Total Imaging Department (sq. ft.) | 10,000 |
|------------------------------------|--------|

Surgery Department

| | |
|------------------------------------|--------|
| Total Surgery Department (sq. ft.) | 24,000 |
| Reception area | 1,200 |
| Waiting area | 1,200 |
| Subtotal (sq. ft.) | 26,600 |

Recovery Department

| | |
|-------------------------------------|--------|
| Total Recovery Department (sq. ft.) | 14,000 |
|-------------------------------------|--------|

Pharmacy

| | |
|------------------------|-------|
| Public access pharmacy | 2,500 |
| Storage | 6,500 |
| Subtotal (sq. ft.) | 9,000 |

Medical Offices

| | |
|---|--------|
| 6 - Medical offices (@ 1,500 sq. ft. each) | 9,000 |
| 10 - Medical offices (@ 2,500 sq. ft. each) | 25,000 |
| 2 - Medical offices (@ 5,000 sq. ft. each) | 10,000 |
| Subtotal (sq. ft.) | 44,000 |

Community Services

| | |
|--|--------|
| 8 - Community service rooms(@ 900 sq. ft. each) | 7,200 |
| 3 - Community service rooms (@ 1,200 sq. ft. each) | 3,600 |
| 2 - Community service classrooms (@ 600 sq. ft each) | 1,200 |
| Cafeteria | 4,000 |
| Kitchen | 6,500 |
| Gymnasium | 4,000 |
| Subtotal (sq. ft.) | 26,500 |

Retail Stores

| | |
|--|-------|
| 3 - Retail Stores (@ 1,000 sq. ft. each) | 3,000 |
|--|-------|

Meditation Space

| | |
|----------------------------------|-----|
| Total Meditation Space (sq. ft.) | 900 |
|----------------------------------|-----|

Private Patient Rooms

| | |
|--|--------|
| 240 - Private Rooms (@ 250 sq. ft. each) | 60,000 |
|--|--------|

Patient Shower and Toilet

| | |
|---|--------|
| 240 - Patient showers and toilets (@ 75 sq. ft. each) | 18,000 |
|---|--------|

Family Lounges

| | |
|-----------------------------------|-------|
| 24 - Family Rooms (@ 400 sq. ft.) | 9,600 |
|-----------------------------------|-------|

Nurse Stations

| | |
|--|--------|
| 30 - Nurse stations (@ 500 sq. ft. each) | 15,000 |
| Support spaces | 60,000 |
| Subtotal (sq. ft.) | 75,000 |

Laboratories

| | |
|----------------------------------|--------|
| Total Laboratory space (sq. ft.) | 20,000 |
| Lobby/Communal space (sq. ft.) | 1,500 |
| Subtotal (sq. ft.) | 21,500 |

Parking

| | |
|--|---------|
| 550 Parking spaces (@ 350 sq. ft. per space) | 192,500 |
|--|---------|

Morgue

Total Morgue size (sq. ft.) 2,000

Loading Dock

Total Loading dock size (sq. ft.) 15,000

Storage Space

Total Storage area (sq. ft.) 16,000

Building Sub Total (sq. ft.) 575,800

Mechanical and Circulation

Mechanical, Circulation, etc. is approximated at 1.5 ratio 287,900

Building Total (sq. ft.) 863,700

Chapter VI: Design Strategies

Design Objective

Executing a project on this site would fulfill the functional needs of a hospital in the city because it would eliminate the healthcare void in southeast Washington DC but the greater problem is in the integration of the hospital into the urban fabric. The design approach must maintain the grid of the city as well as define street edges. These are critical issues in order to prevent the hospital from becoming an object building which would promote undefined open spaces and can become a barrier to the city as opposed to integrate within it.

Since a hospital is intended to be an instrument of healing the building must respond to the human scale in all aspects and must promote a healthy environment in both spatial and lighting requirements. The building should be well integrated into the community in regards to making meaningful space to reduce the institutional qualities of a large object hospital but it must simultaneously address the smaller more intimate scale of the occupants and patients of the building.

EEK's master plan proposes a variety of uses for the land and since this thesis topic is primarily focused on the institutional aspect of the site the EEK master plan will be adopted and critiqued. The master plan will be critiqued in regards to the land uses as well as the programmatic layouts.

Parti Study 1

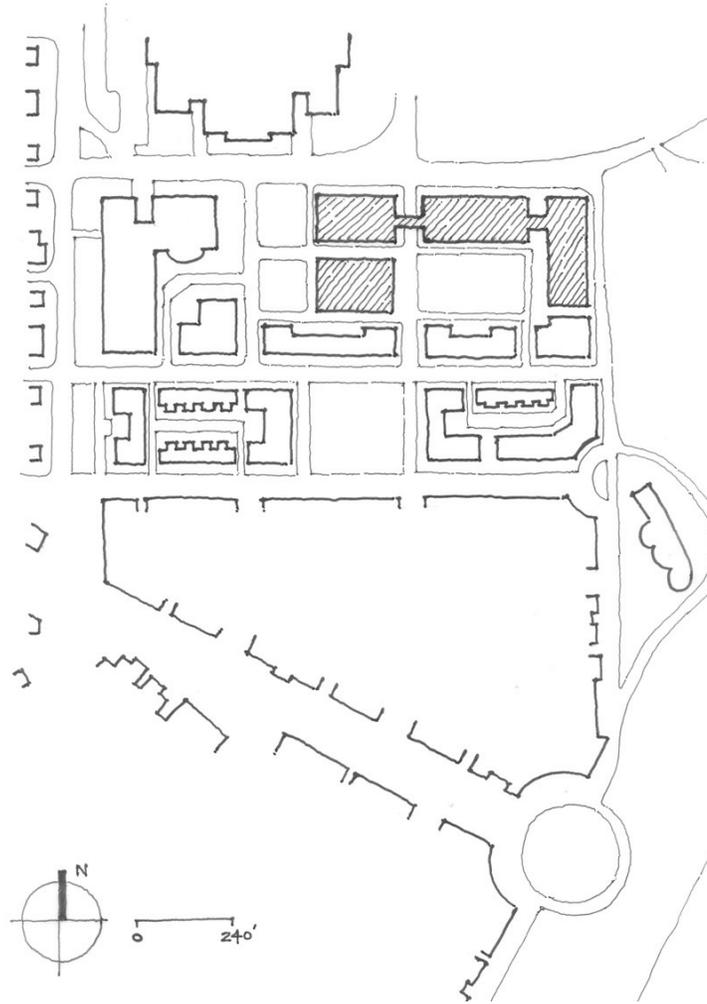


Figure 44: Parti Study 1 – Plan

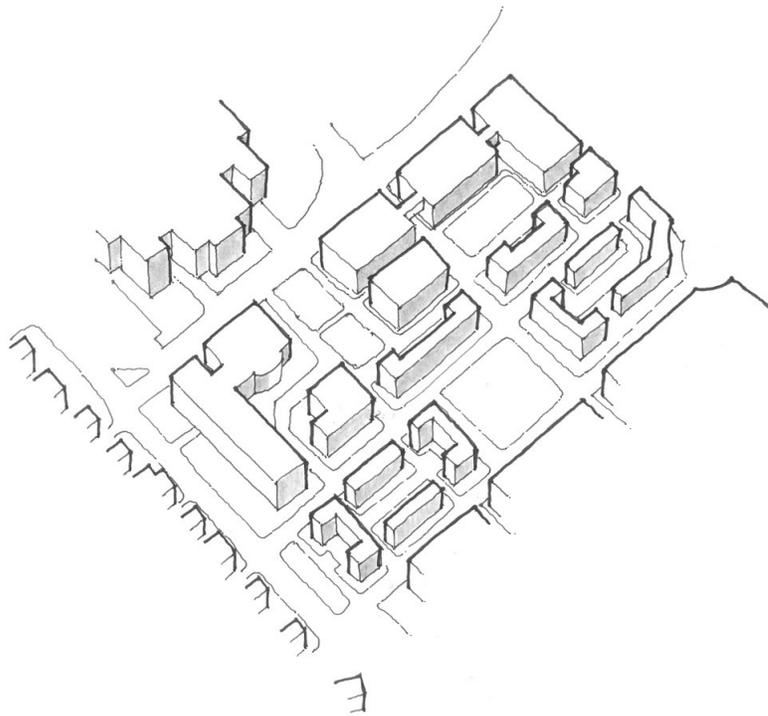


Figure 45: Parti Study 1 - Axonometric

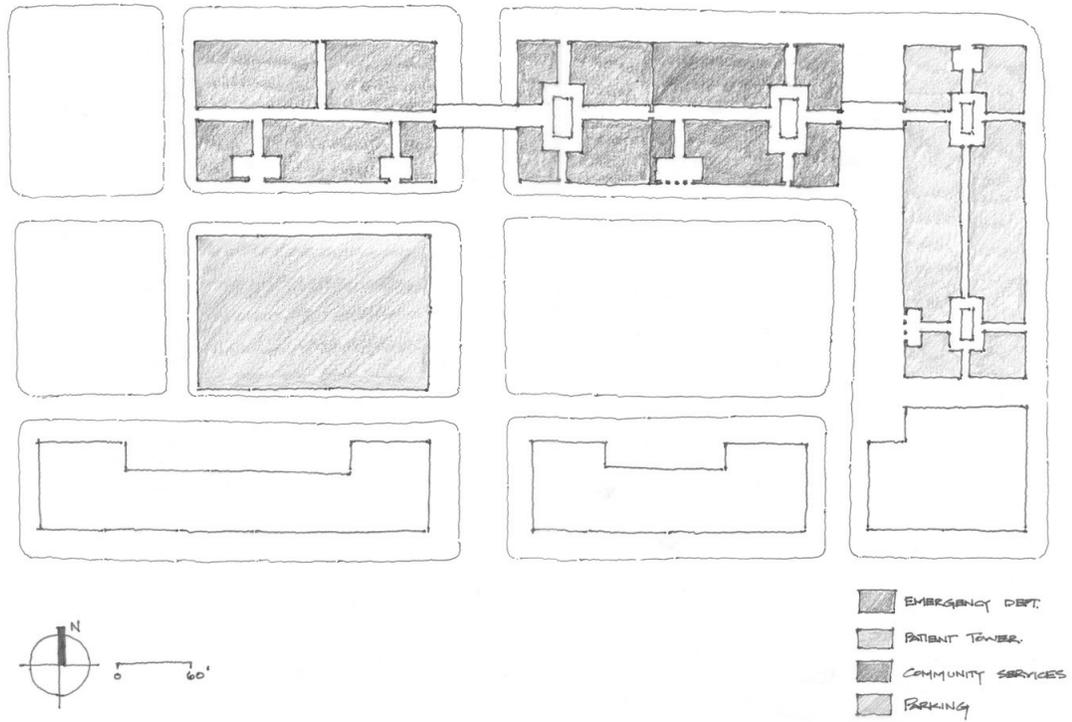


Figure 46: Parti Study 1 – Program Layout

Parti Study 2

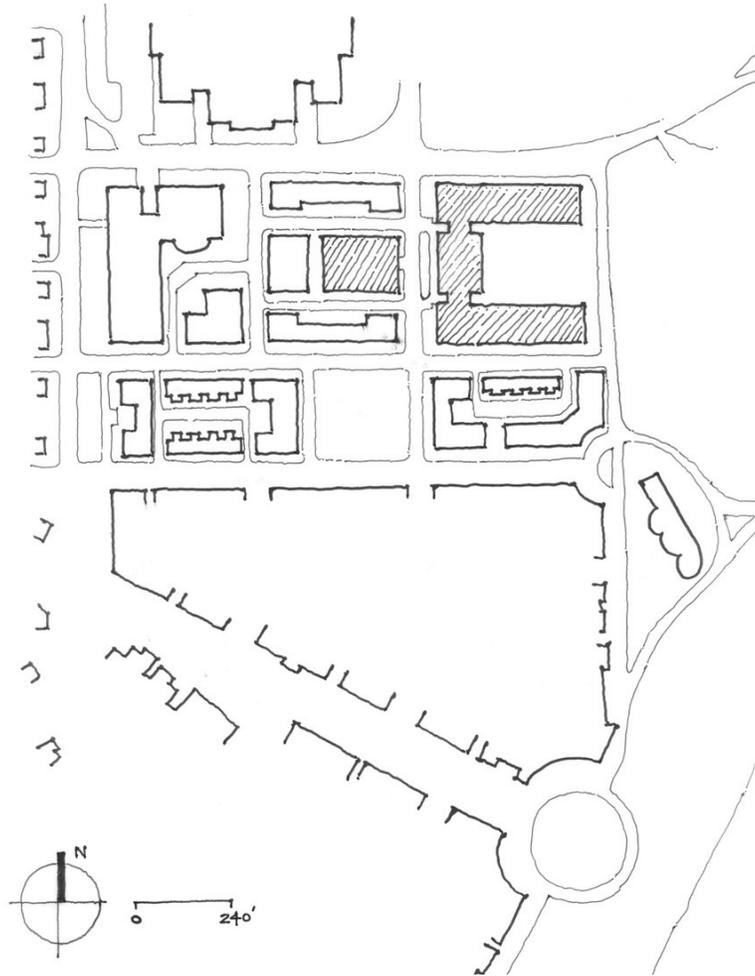


Figure 47: Parti Study 2 – Plan

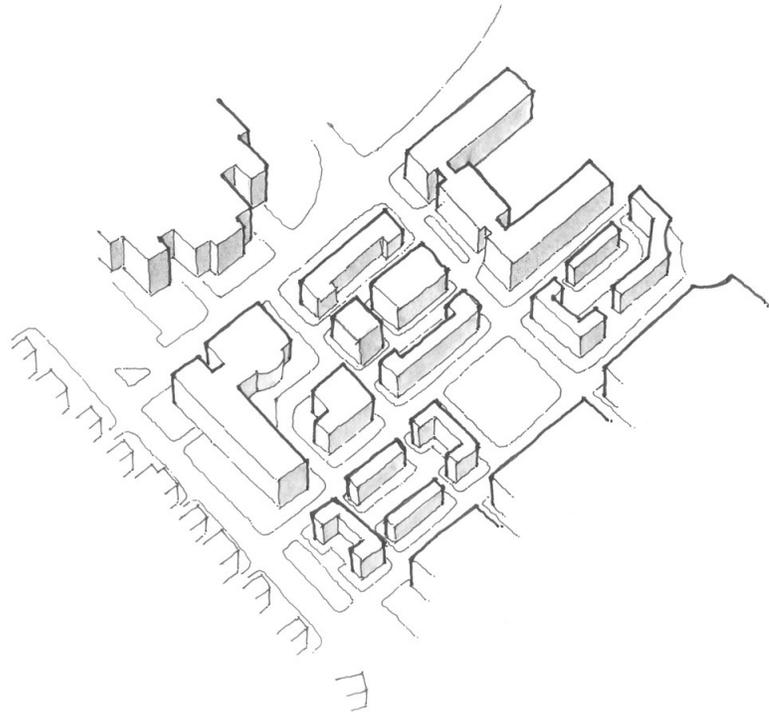


Figure 48: Parti Study 2 - Axonometric

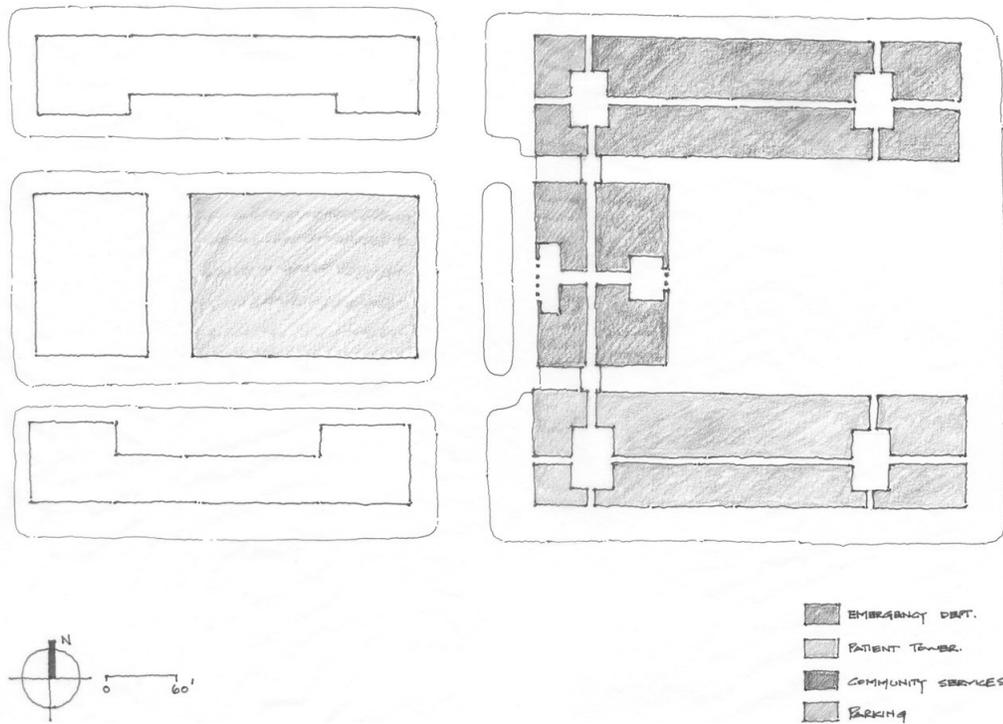


Figure 49: Parti Study 2 – Program Layout

Parti Study 3

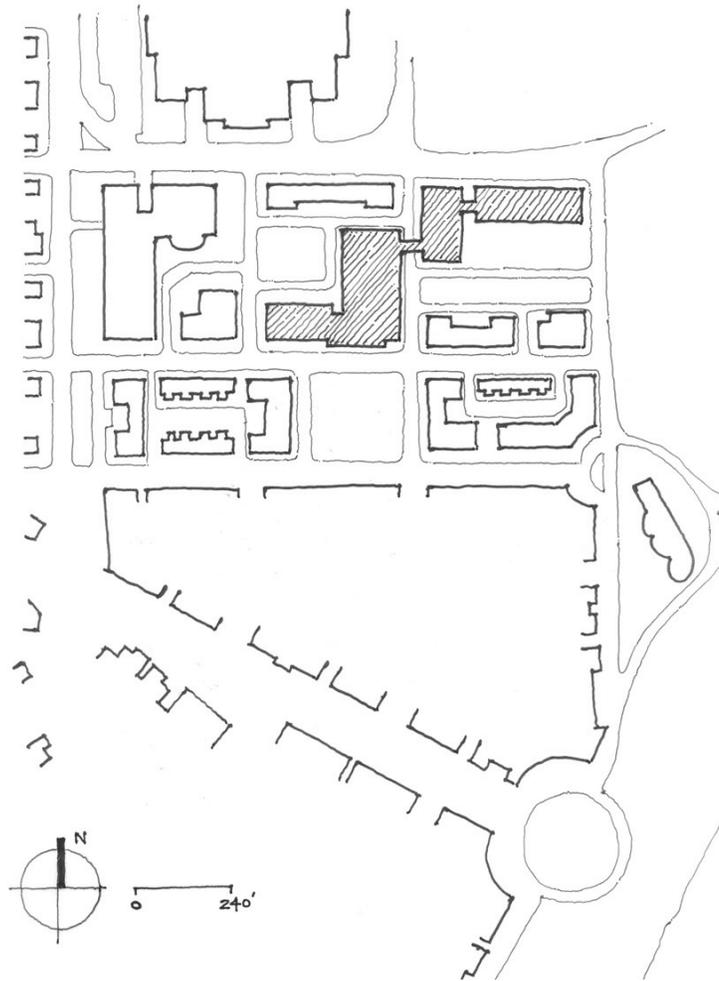


Figure 50: Parti Study 3 – Plan

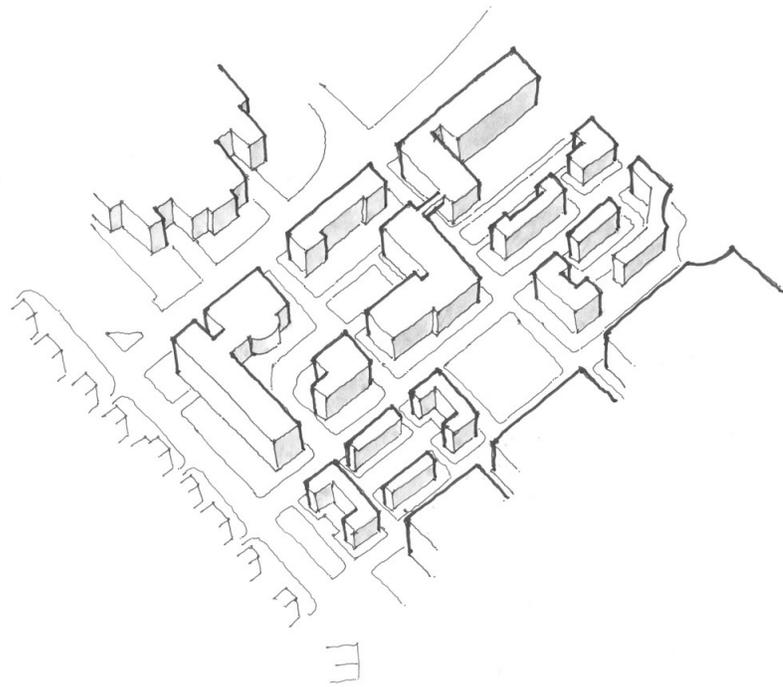


Figure 51: Parti Study 3 - Axonometric

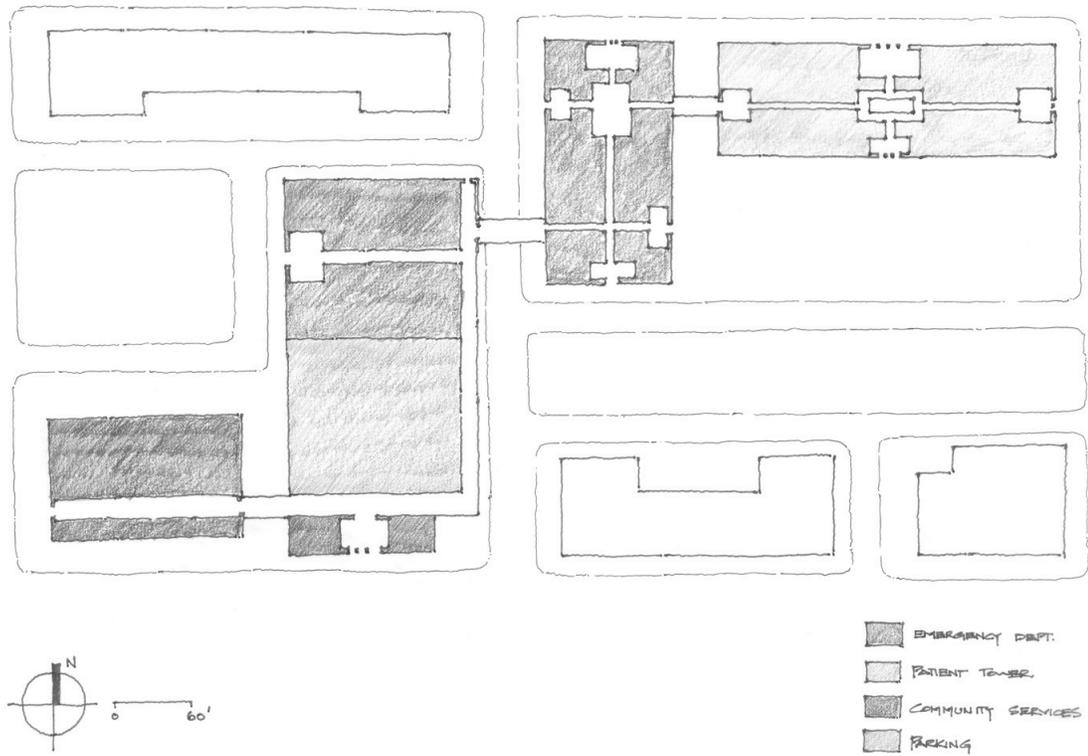


Figure 52: Parti Study 3 – Program Layout

Design Summary

Design Conclusion

In order to develop a hospital that is not completely internally driven a number of urban strategies had to be addressed. The hospital was located next to the metro stop to provide a plaza for the metro station and the adjacent community. By placing the hospital on this site also allowed for a second plaza or courtyard that is more privatized and is more community driven. The school can also share this second courtyard across the street. Since people from the entire Washington DC will rely on this hospital it was important for this facility to be as close to the metro as possible. The block that was chosen has the least topographic change and this is important for a large hospital since these facilities cannot accommodate changes in the floor plate very easily.

To address the problems of a large institutional building meant that the scale of the facades and building mass had to be broken down. The solution to this problem was to allow the facades and massing to relate to the urban space as opposed to reflect the internal program of the building. By making this distinction of inside and outside allowed the building to be completely responsive to the exterior and not be dependent on the interior.

The aesthetic expression of the hospital was intended to bridge the gap between functionalism and that of historical urban facades. The facades were seen as being tripartite with a base, middle and top. This expression allowed for the reduction of scale and at the same time provided variety in a façade that is typically too standardized.

The interior circulation of the building is the core of the design strategy. The circulation is organized around the courtyard in such a manner that people in the hospital

can easily orient themselves in relation to the courtyard. Thus, the circulation system is used as a device for way finding.

The overall layout of the program is intended to serve as a functionally efficient facility with the main departments located adjacent to each other to minimize travel and response time.

In conclusion, this project was designed as a building that defines space as opposed to a building that is an object within space. The hospital was conceived as a building that responds to the exterior as well as the interior in such a way that both realms exist in harmony.

Design Documentation

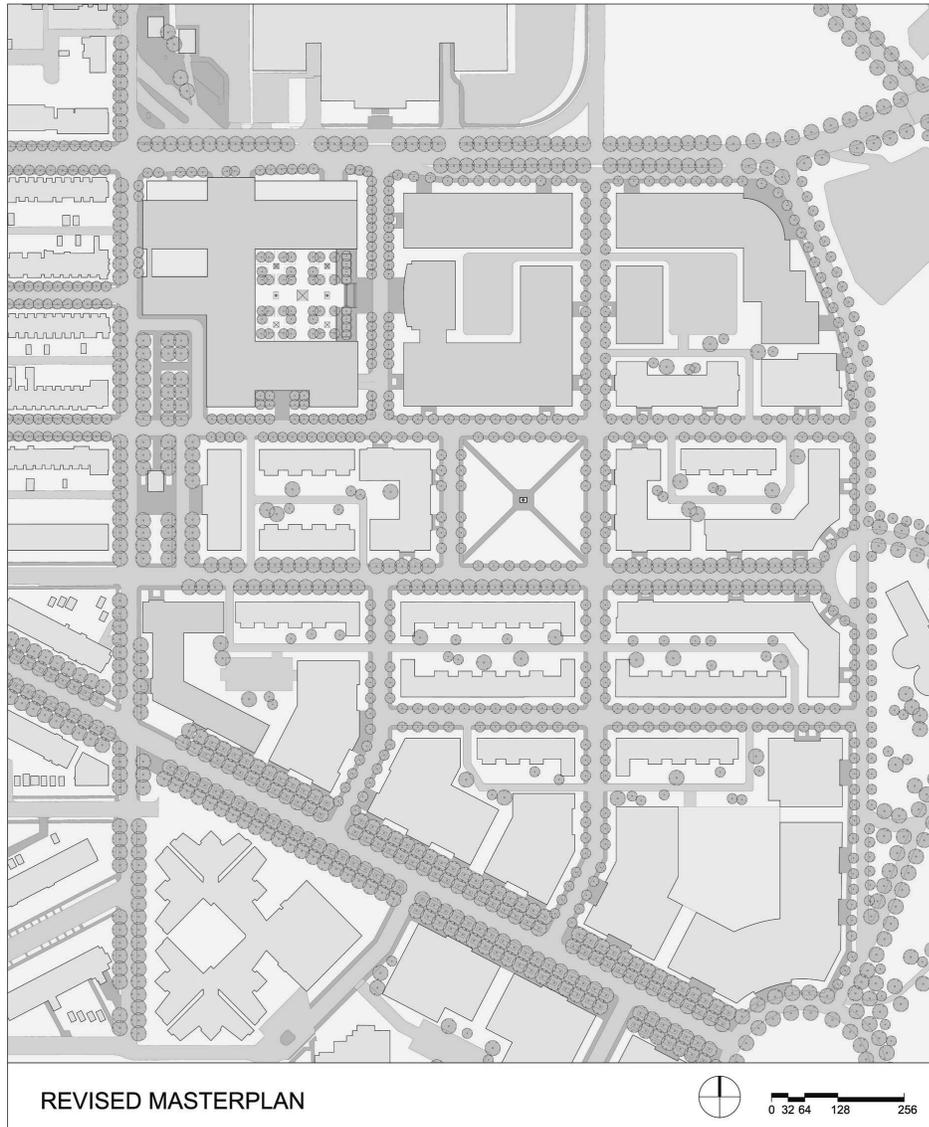
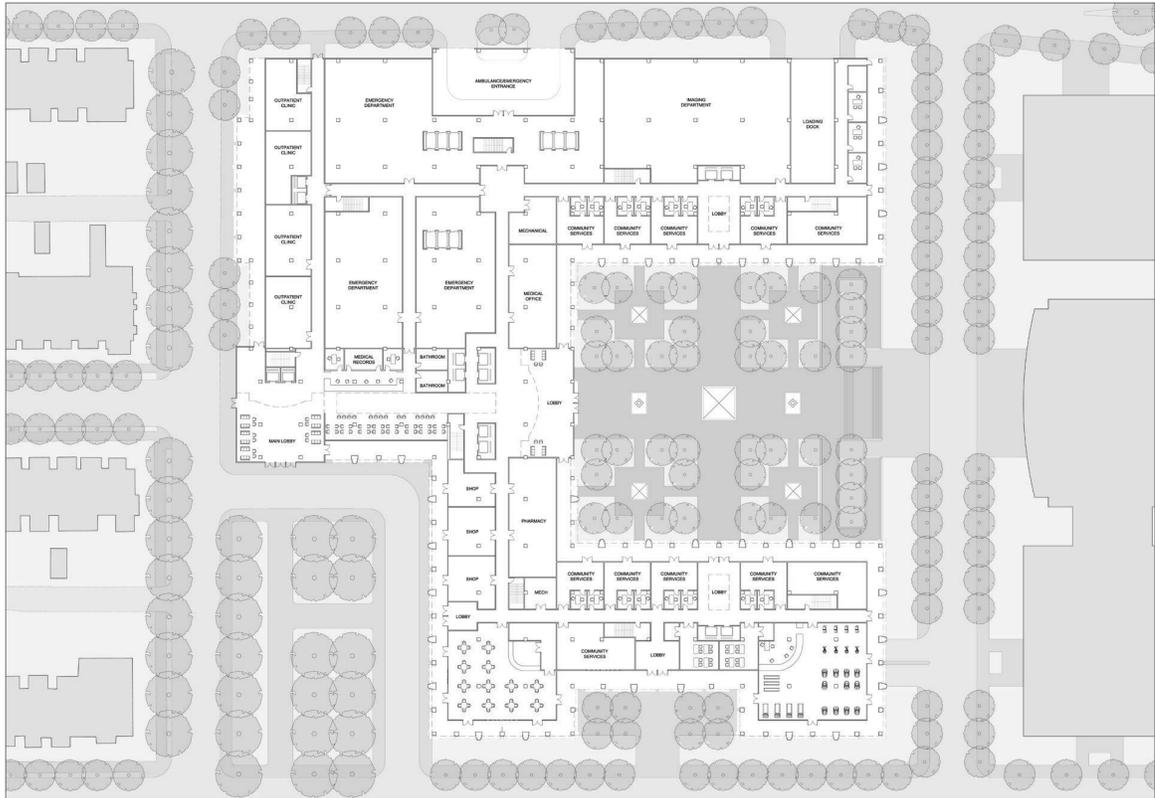


Figure 53: Revised Master Plan



FIRST FLOOR PLAN

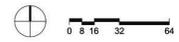


Figure 54: First Floor Plan

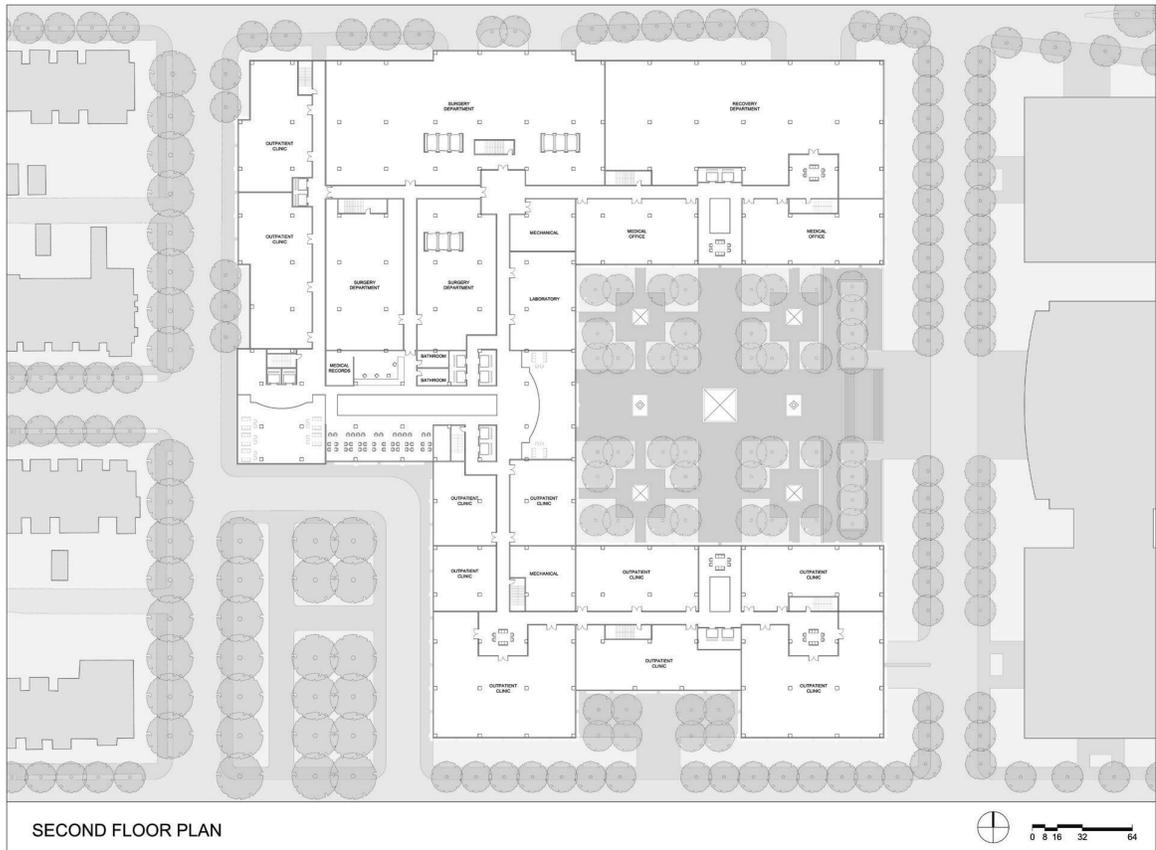


Figure 55: Second Floor Plan

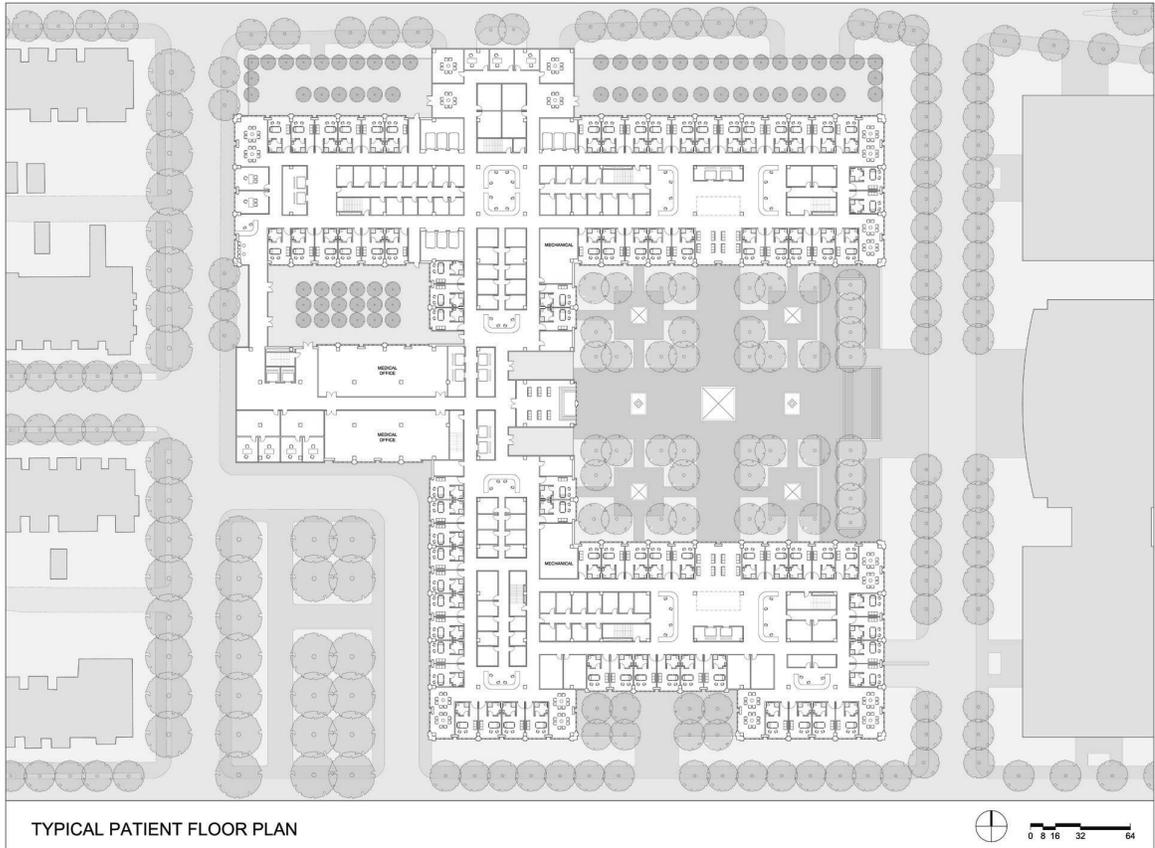


Figure 56: Typical Floor Plan

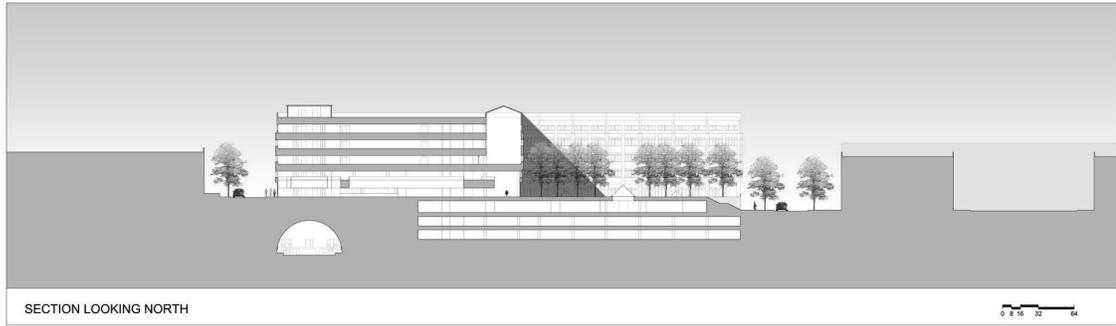


Figure 57: Section Looking North

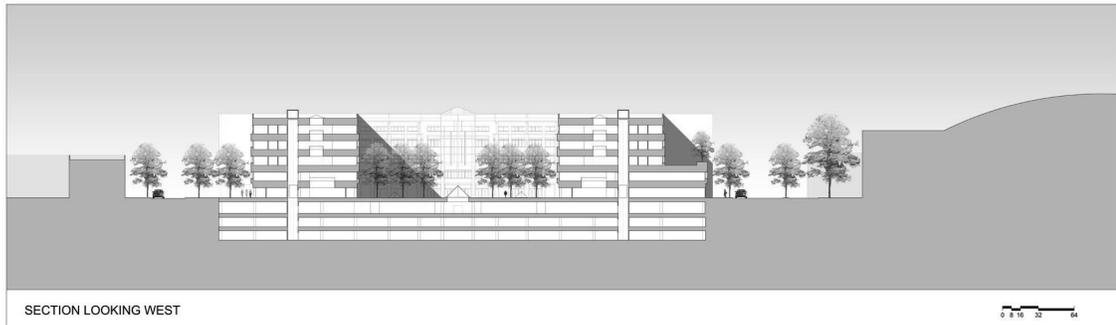


Figure 58: Section Looking West



Figure 59: West Elevation

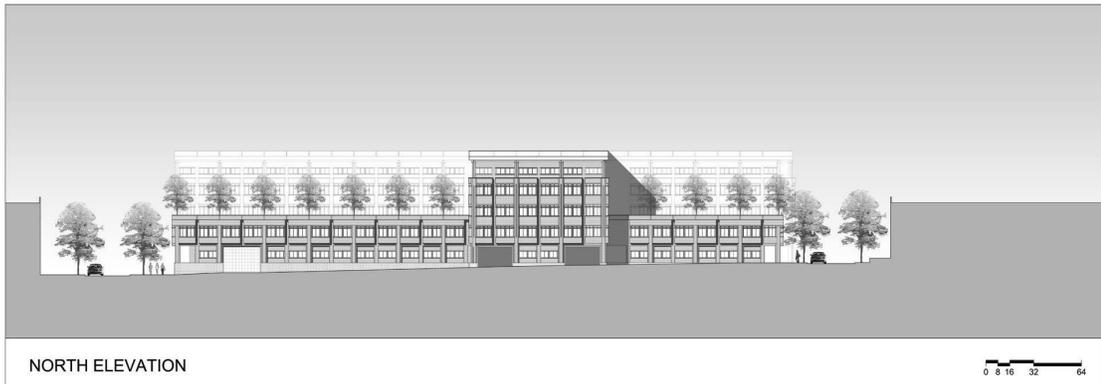


Figure 60: North Elevation

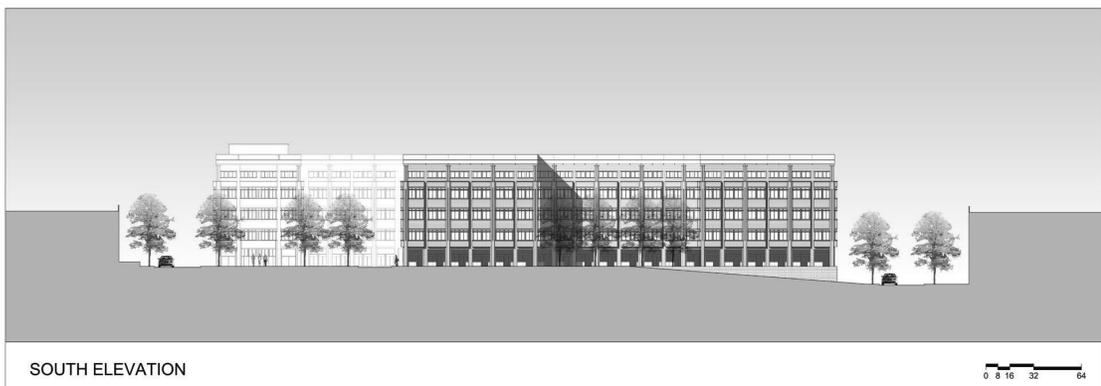


Figure 61: South Elevation



Figure 62: Elevation / Wall Detail

Endnotes

1. Sert, Jose, Can Our Cities Survive? An abc of urban problems, their analysis their solutions. Page 54
2. Rowe, Collin and Koetter, Fred. Collage City. Page 64,
3. Mumford, Lewis. The Transformations of Man. Page

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