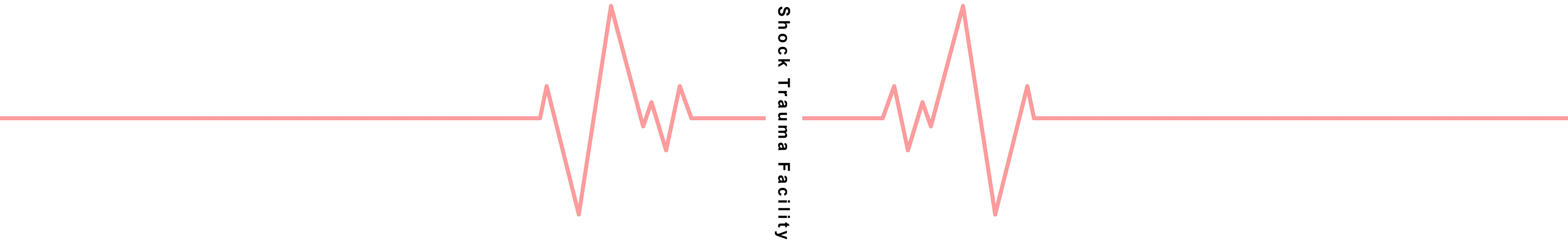
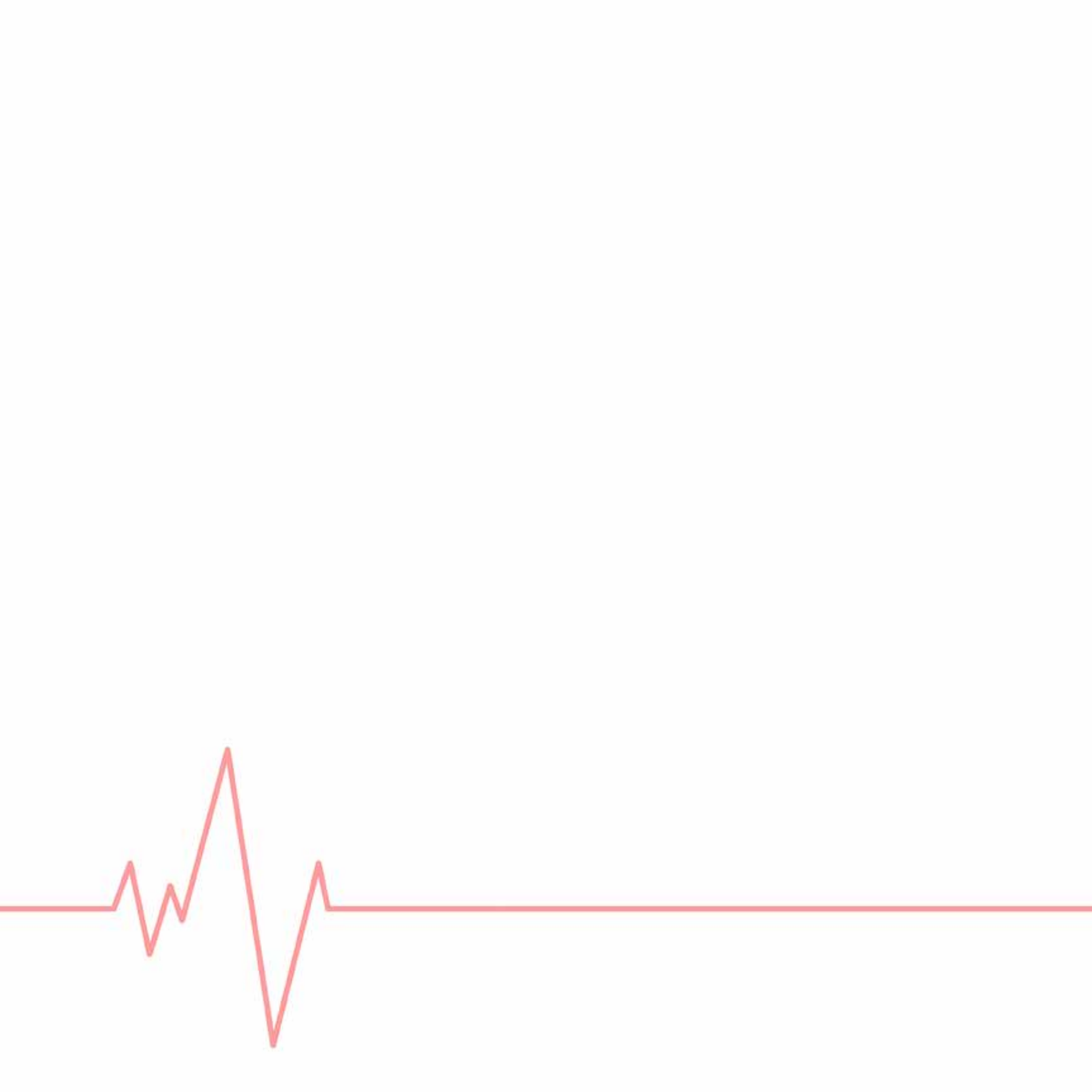


2021

Surilkumar Gajera

Shock Trauma Facility







This final study was only possible with the invaluable help of the final study committee chair Dr. D. Kirk Hamilton, committee members Dr. Xuemei Zhu and Dr. Farzan Sasangohar, studio professor Ar. Ray Holliday, design professionals Ar. Mark Vaughan and Ar Tushar Gupta, my dear colleagues and most importantly my family. Thank you for all the support and guidance to help me in this journey.

Committee Members

Ray Holliday
Studio Professor

D. Kirk Hamilton
Committee Chair

Xuemei Zhu
Committee Member

Farzan Sasangohar
Committee Member

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Introduction

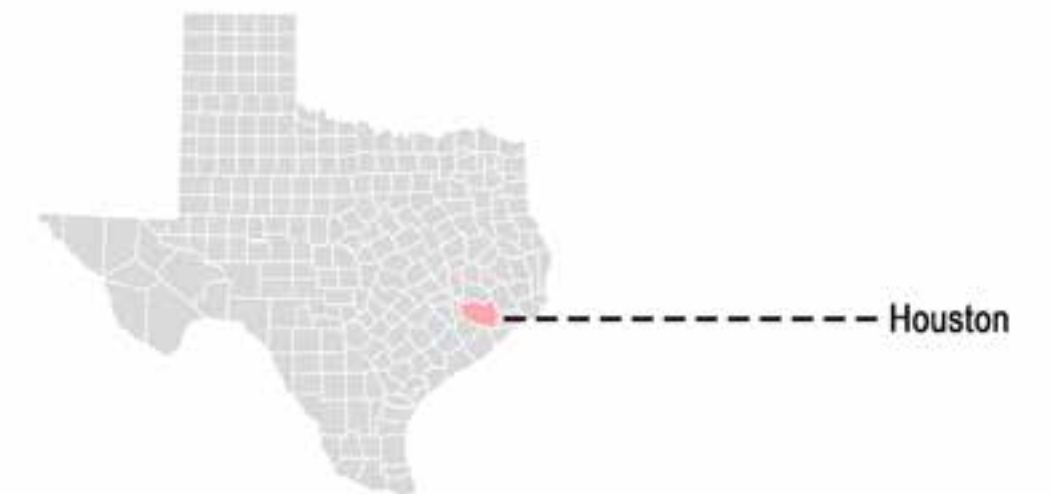
01
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INTRODUCTION

Centers for Disease Control and Prevention (CDC) stated in 2019 that every year U.S. receives 130 million patients in emergency department visits. Out of which 16.2 million patients visits results in hospital admission and 2.3 million resulting in critical care admission.

In Texas alone and in the year 2018, there were total of 11,193,621 hospital emergency department visits based on data received from Texas Department of State Health Services. The trend showed an increase in emergency department visit of 2.6 percent from the previous years.

Now if we look into the statistics of Houston alone, as of 2013 there were 40 documented emergency departments according to American Hospital Association. That number increased to 70 in the year of 2015. Total of 1,619,554 emergency department visits were made in the year 2015 in Houston, out of which 82.7% were made by the residents of the Harris County alone. 34.5% of the visitors were childrens aged under 17 years and 24.4% of visits were made by adults aged 65 years and older. Out of those 24.4% visits by adults of 65 years and over resulted in hospitalization. Looking into genders, 54.6% were by females and 45.4% were by males.



SITE & CONTEXT

Downtown Houston
4.4 miles from TMC,
150,000+ employees.
100,000+ daily commuters.

University of Houston
3.9 miles from TMC,
46,000+ students.

Rice University
0.8 miles from TMC,
4,700 students.

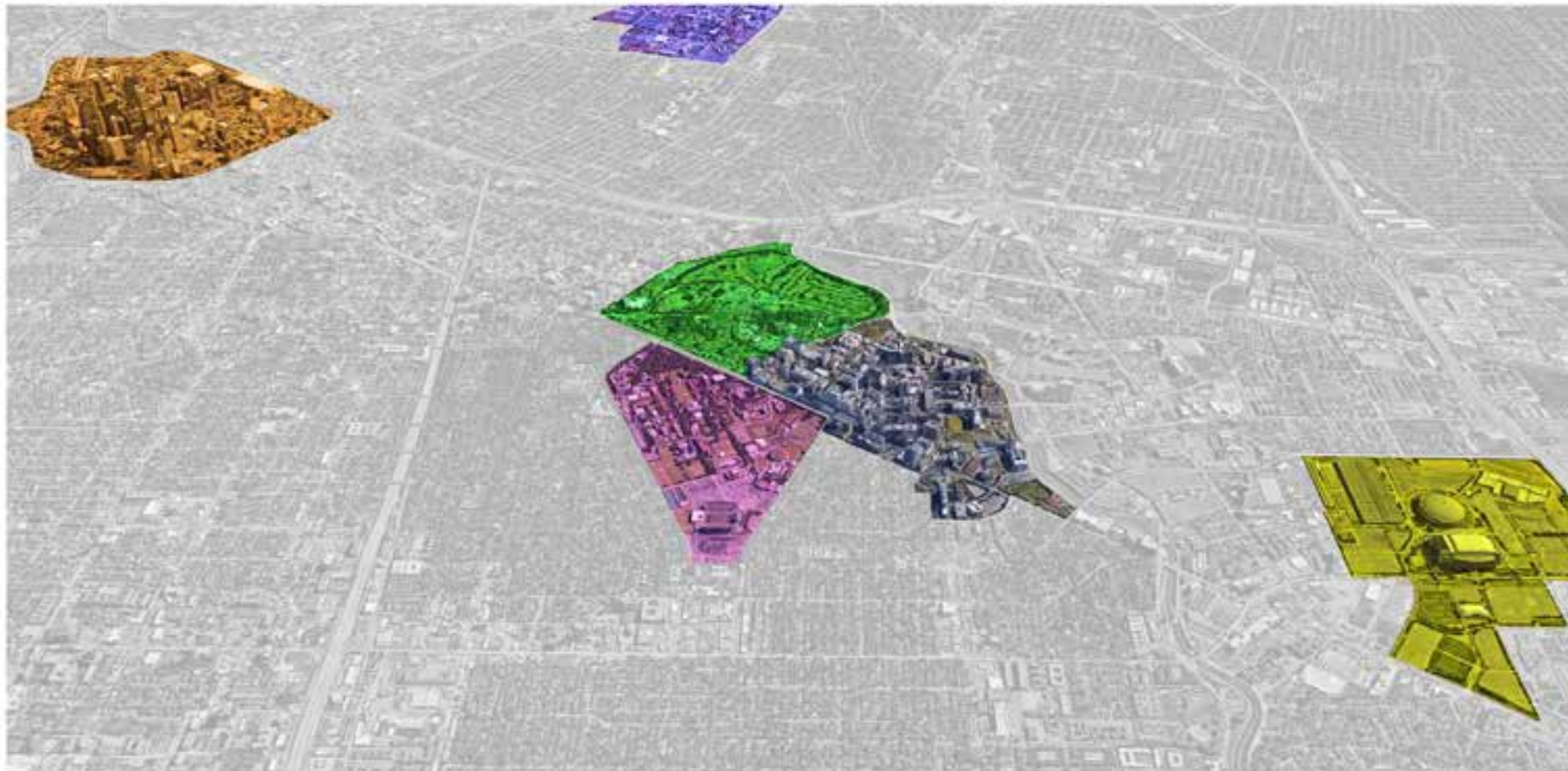
Houston Zoo
0.5 miles from TMC.
Hosts 6 million visitors per year.

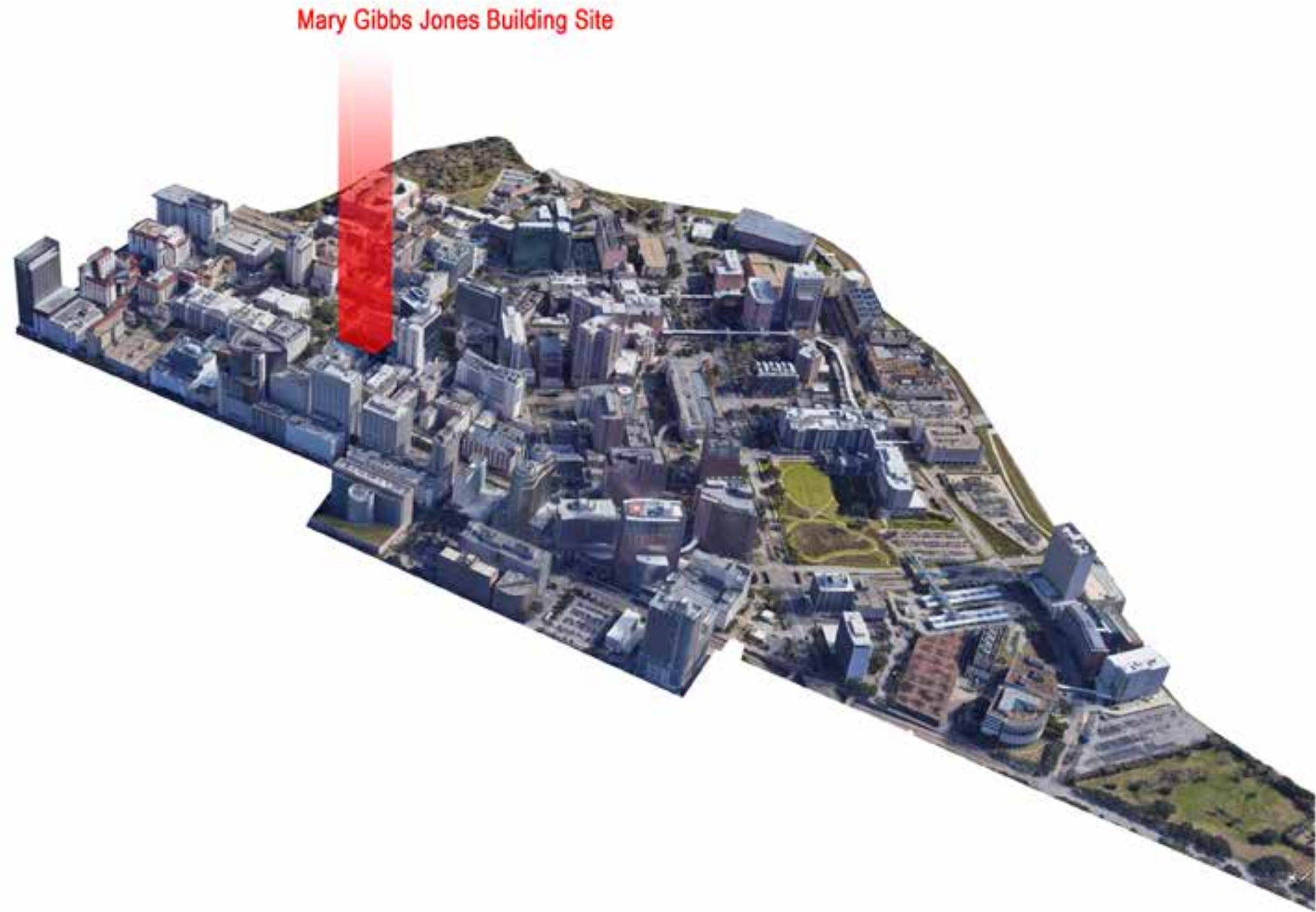
NGR Stadium & Astrodome
3 miles from TMC.
Total capacity of 94,000+.

Ideal site was the place where all the people in need of the emergency care can be transported efficiently and also having all the necessary services required to provide the care to the patients, in closer proximity to the site.

Texas Medical Center (TMC) which is considered the largest medical city in the world is situated in the heart of the Houston. There are 54 medical institutions serving patients with different age groups and diseases.

Connection to the TMC from different parts of the Houston is well established. **Main Street** connects NGR Stadium from South and Downtown Houston from North to the TMC. **Interstate Highway 69** connects Western as well as North-Eastern part of the Houston to the central, and through Main Street to TMC. **Highway 288** connects Southern part of the Houston to central and then through Main Street it connects TMC. Lastly **Beltway 610** circles around the whole central Houston and connects with TMC through Main Street.





T EXAS MEDICAL CENTER

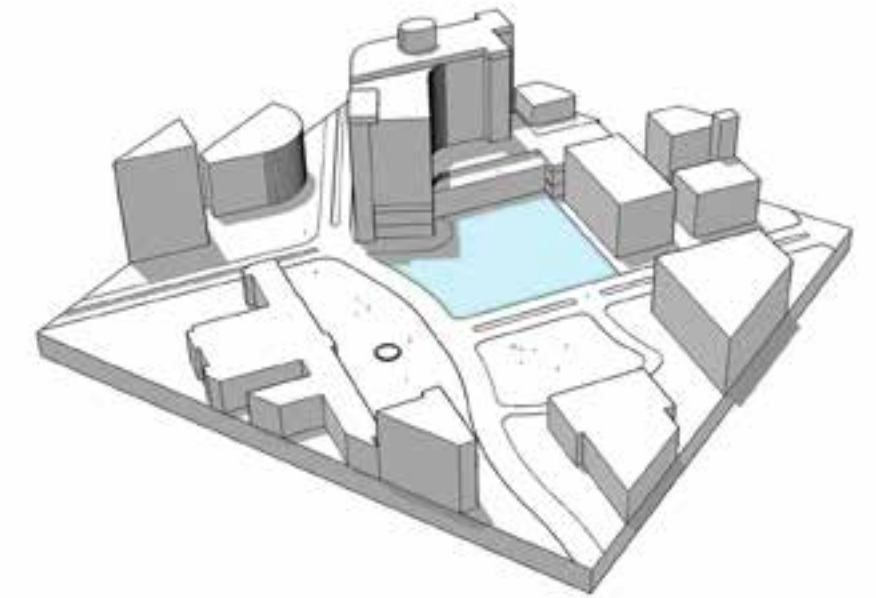
Texas Medical Center is said to be the largest medical city in the world, homes the brightest minds in medicine with cross institutional collaboration within 60+ different medical Institutes. TMC is spreaded across 1300+ acres in the south-central Houston. Below given are some facts and figures of TMC in 2020,

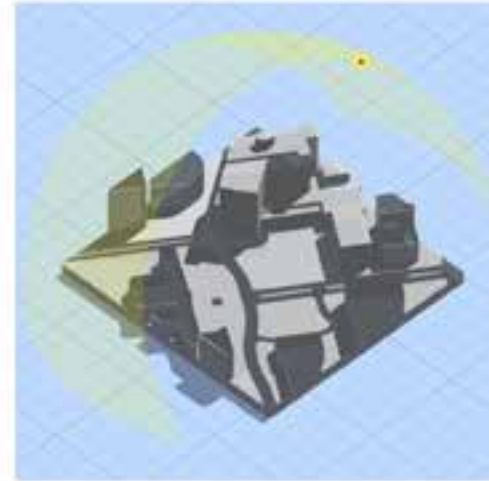
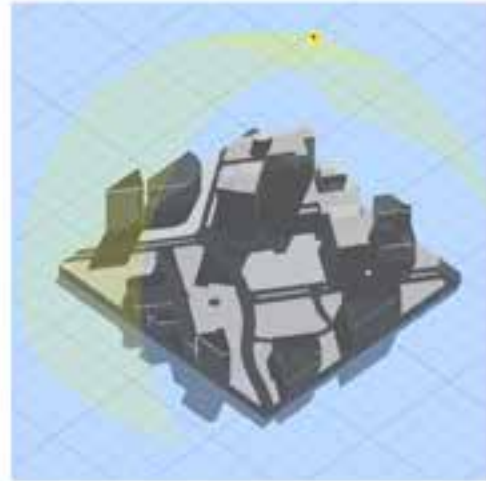
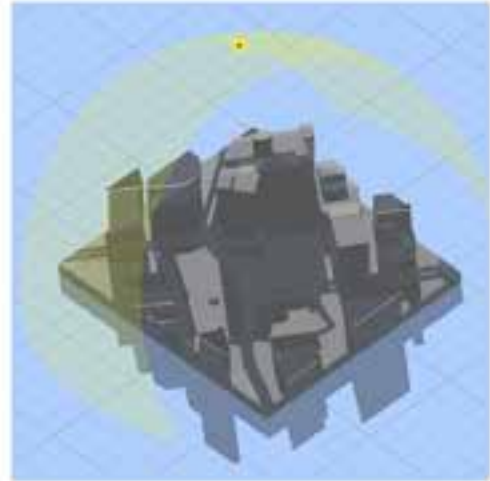
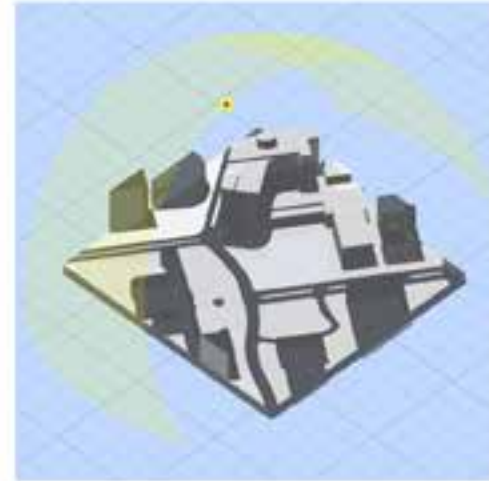
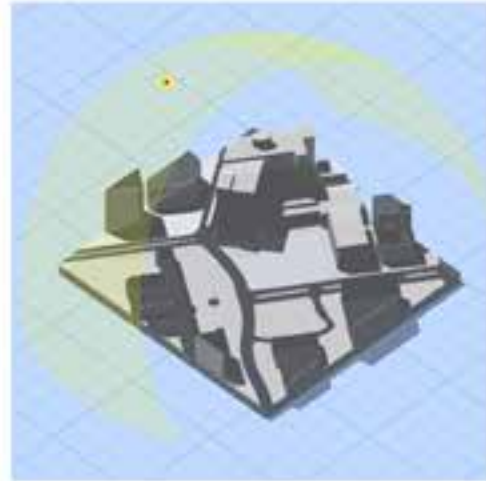
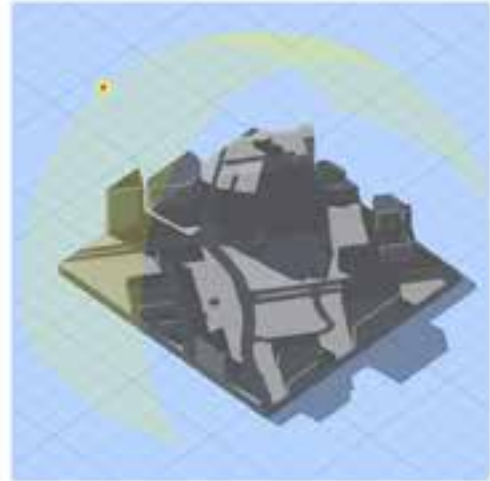
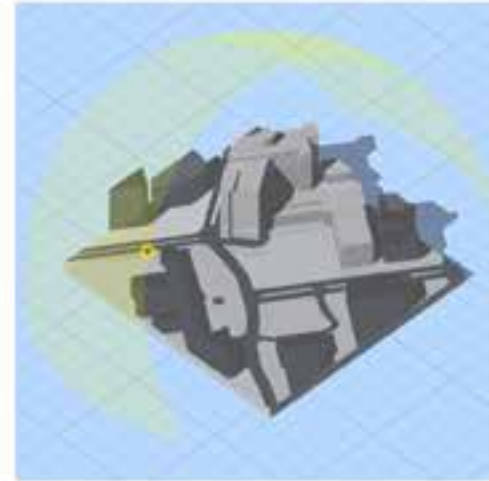
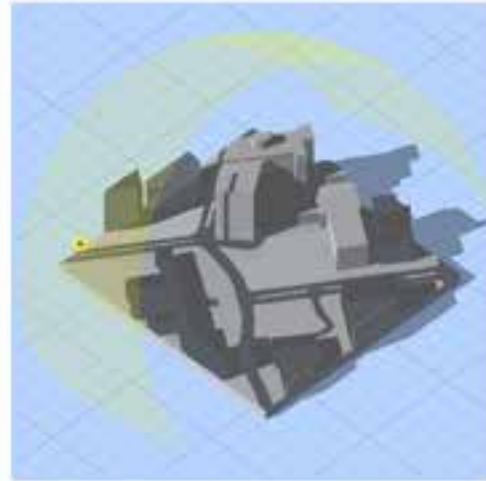
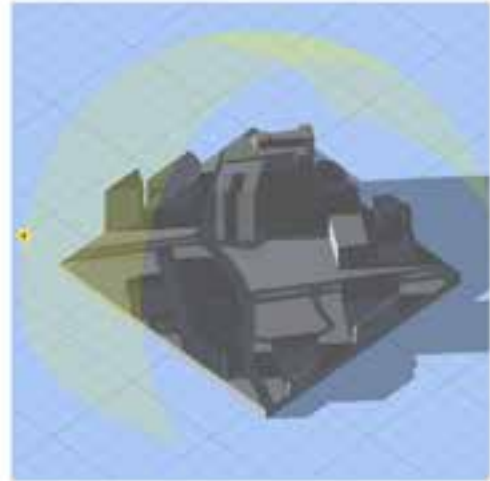
10 million	patient encounters per year
180,000+	annual surgeries
750,000	ER visits per year
9,200	total patient beds
50 million	developed square feet
13,600+	total heart surgeries
\$3 billion	in construction projects underway
106,000+	total employees
8th largest	business district in the U.S.



MARY GIBBS JONES BUILDING

Mary Gibbs Jones building is an integral part of the Methodist Campus in TMC, situated just adjacent to Paula and Rusty Walter Tower. The site of this building is considered to be ideal, which gives the necessary connections to the surrounding context, which will help in providing care to patients and families. The site (highlighted in blue) is of 98,600 square feet in size, touching to parking lot building on North side and having two access ways for vehicles on East and Southern side.



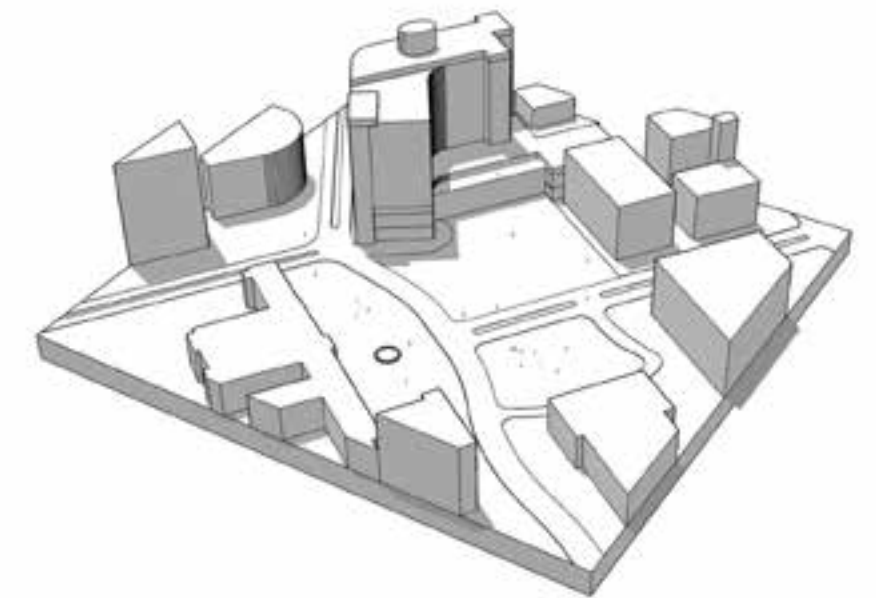


SITE ANALYSIS

Mary Gibbs Jones building's site is a corner lot site adjacent to 22 storied Walter Tower and 12 Storied parking lot. As the 22 storied Walter Tower was standing and covering almost Southern and South-Western side, it was assumed to create a issue of dark spot on the site touching Walter Towers site.

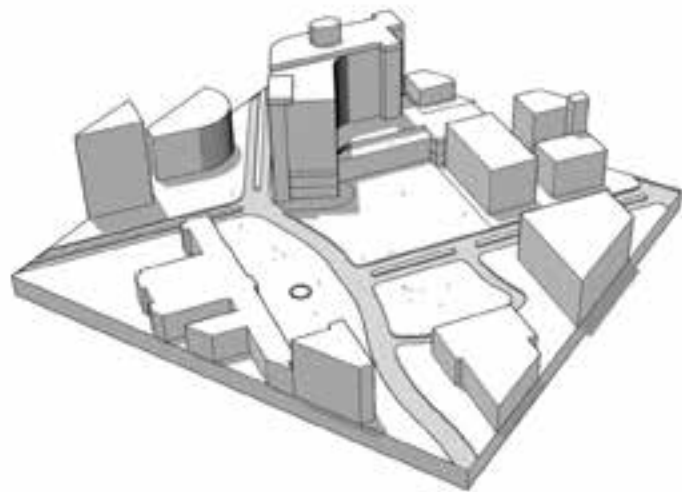
The sun path studies were performed on the site as shown in adjacent page. From top row left most image showing 9am in January, top row middle image showing 9am in April and top row right most image showing 9am in July. Then middle row left most with 12pm in January, center one in 12pm april and right most in 12pm July and Bottom row with left most at 3pm in January, middle one in 3pm in April and right most in July.

Based on the sun path study it was deter-
minde that there was a dark spot created on the
site during the winters as shown in left most
column which shows different times in the month
of January.

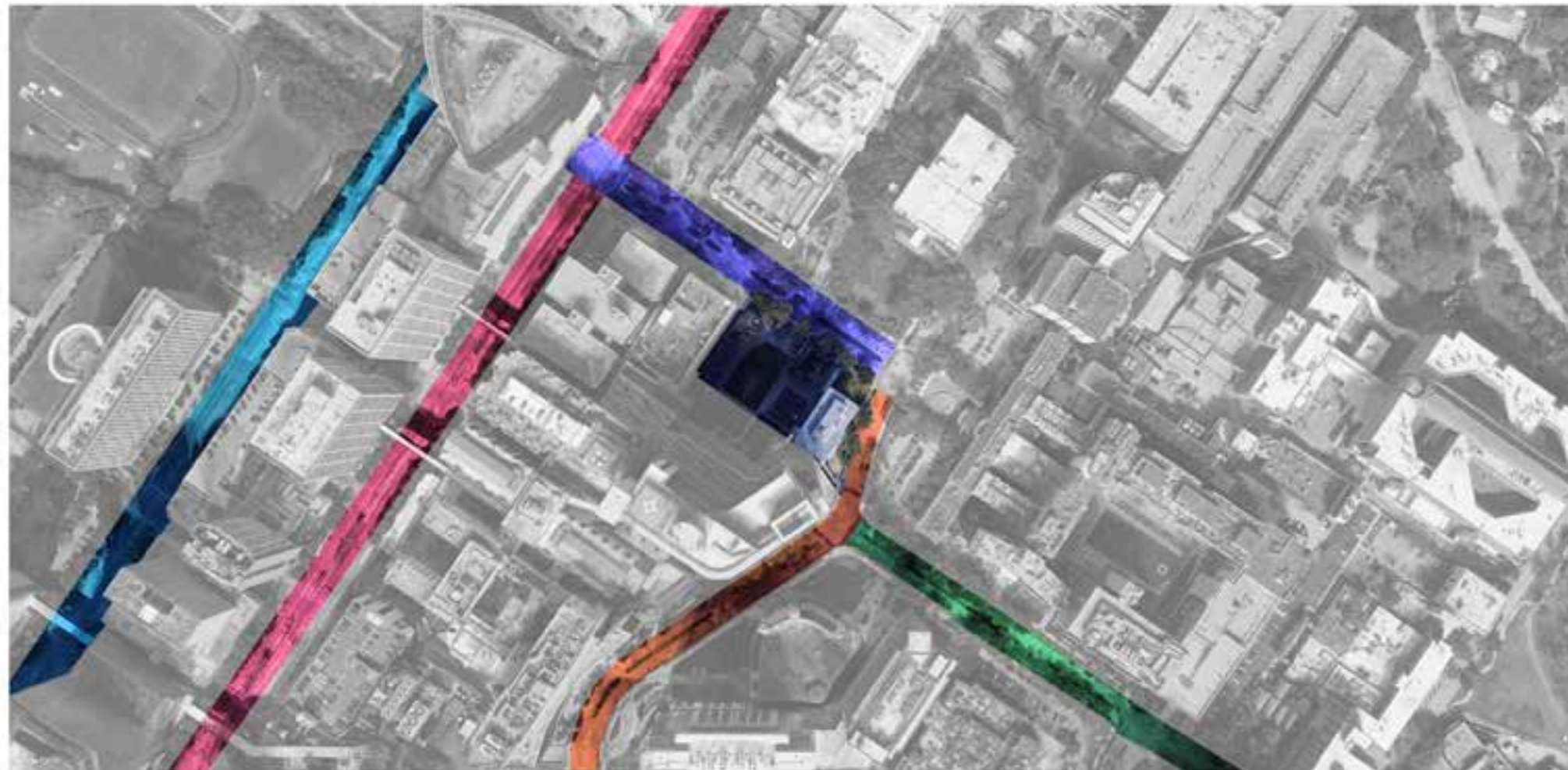


SITE ANALYSIS

Major Streets



Green Space

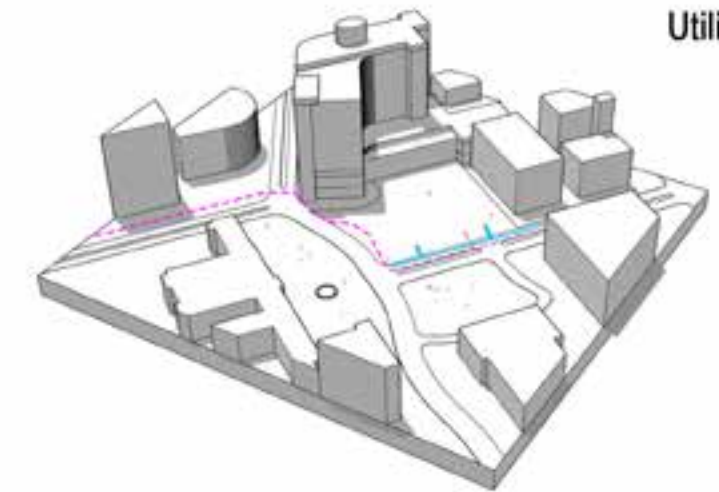


As site is a corner lot, there are two street connecting the site to the rest of the TMC. **John Freeman BLVD.** touches the site on the North-Eastern side and connects Main Street to the **Bertner Ave.** which in turn connects Northern and Southern part of the TMC with the Central. **Moursund Street** connects Southern part of Houston through Highway 288. **Fannin Street** connects North and South Houston through Metro Rail. **Main Street** connects Downtown Houston to NGR Stadium with TMC. Analysis to determine which street will be most used during emergency was performed through google map. The route to access the site most efficiently was through John Freeman BLVD. 83% of the time.

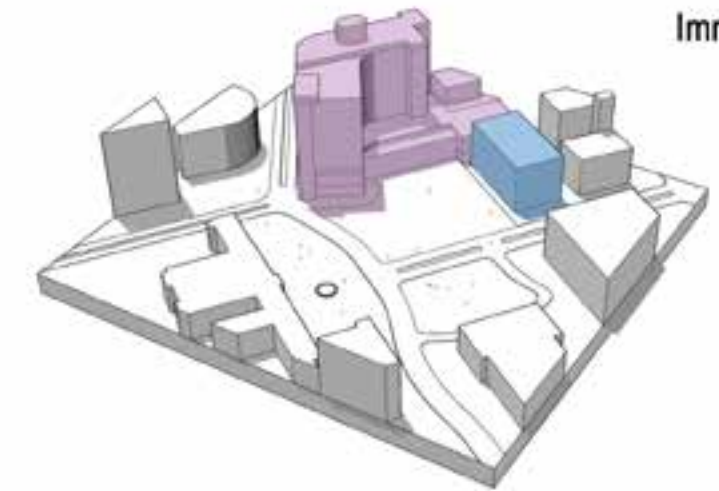
There are no easement encroachment on the site. As shown in top image on the right there is water line and drainage line connecting to the site through John Freeman BLVD., and the drainage line is encroaching the site from the Bertner Ave. which creates a set back.

The site has a strong contextual entities, one of them is 22 storied Walter Tower and 12 storied parking lot, shown in bottom image on right. The site is located on the methodist campus and Walter Tower is an integral part of the campus.

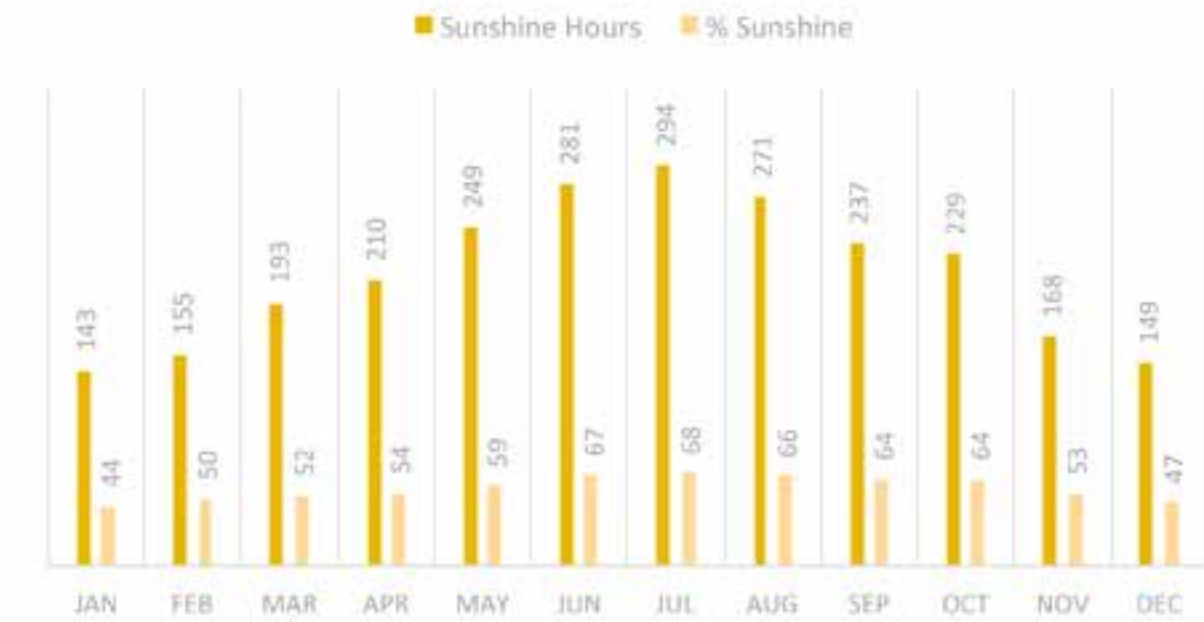
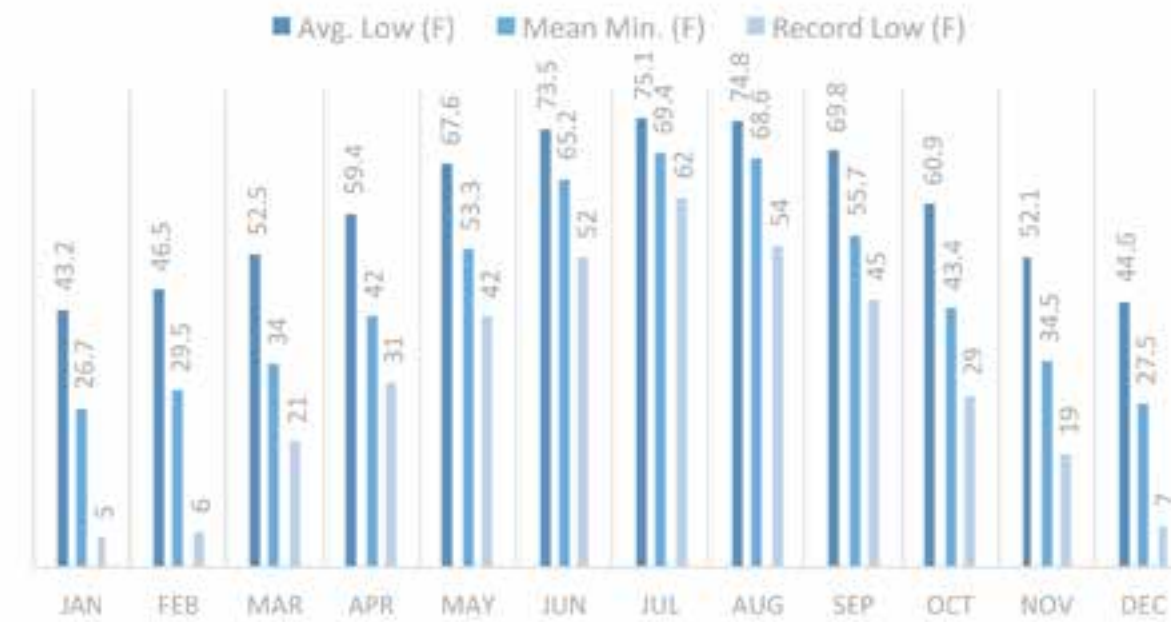
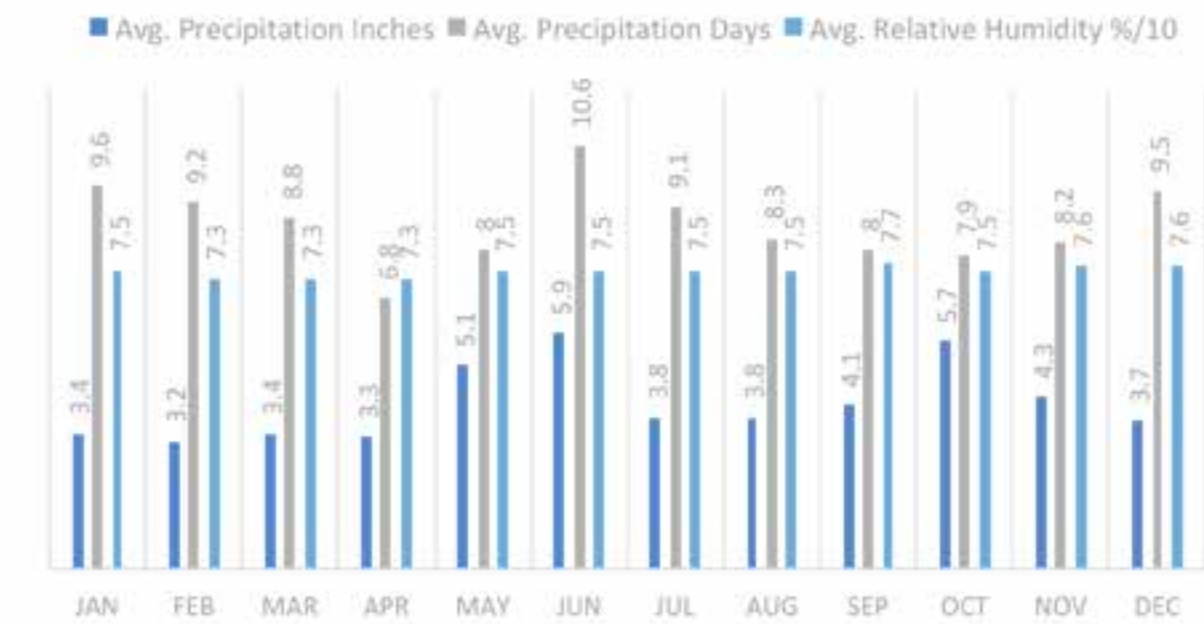
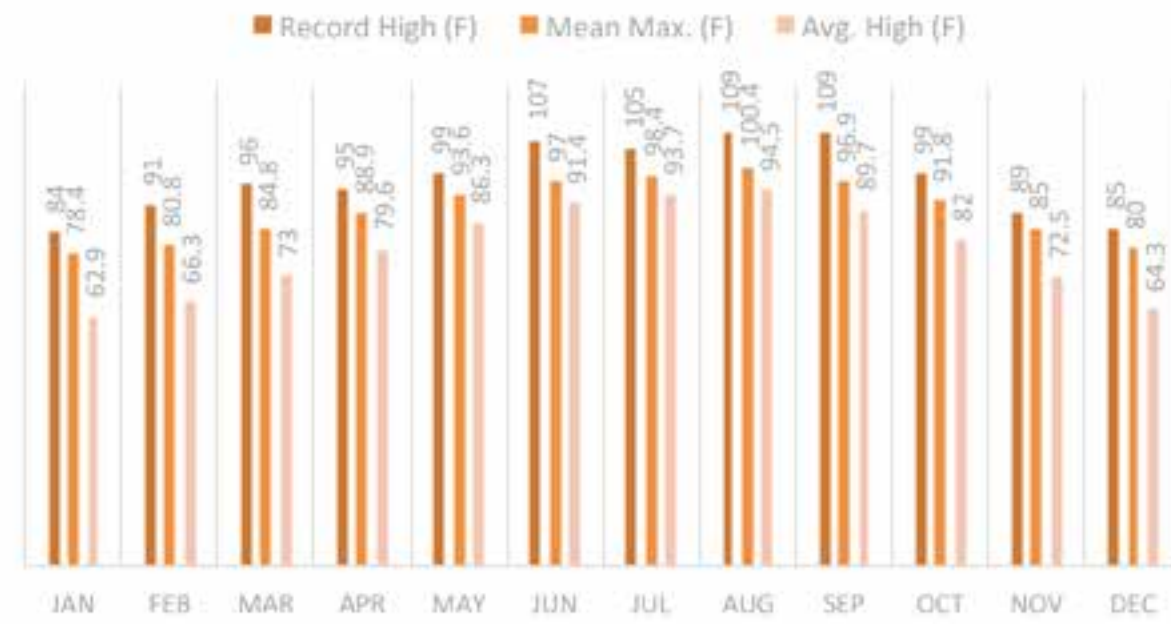
Utilities Connection



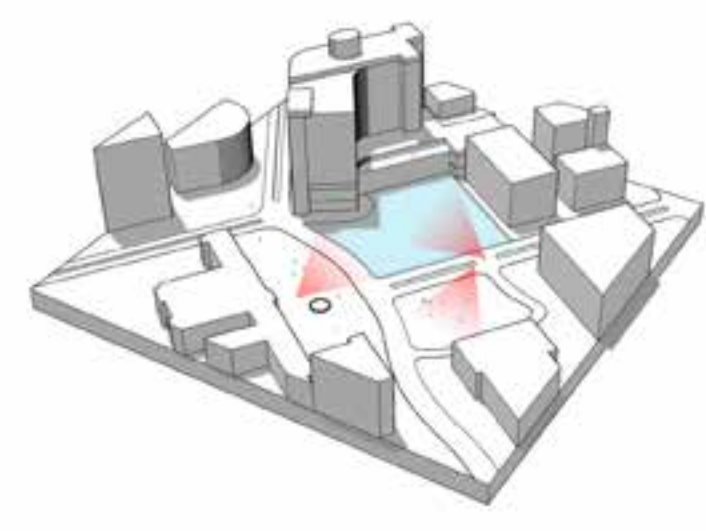
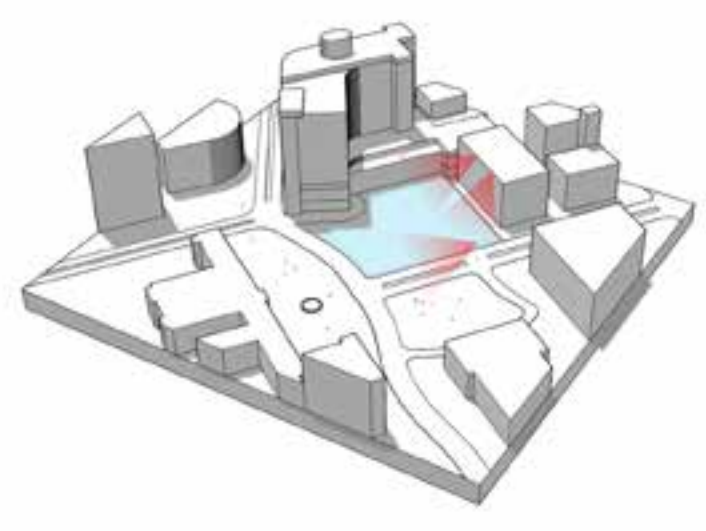
Immediate Context



SITE ANALYSIS



SITE VISIT

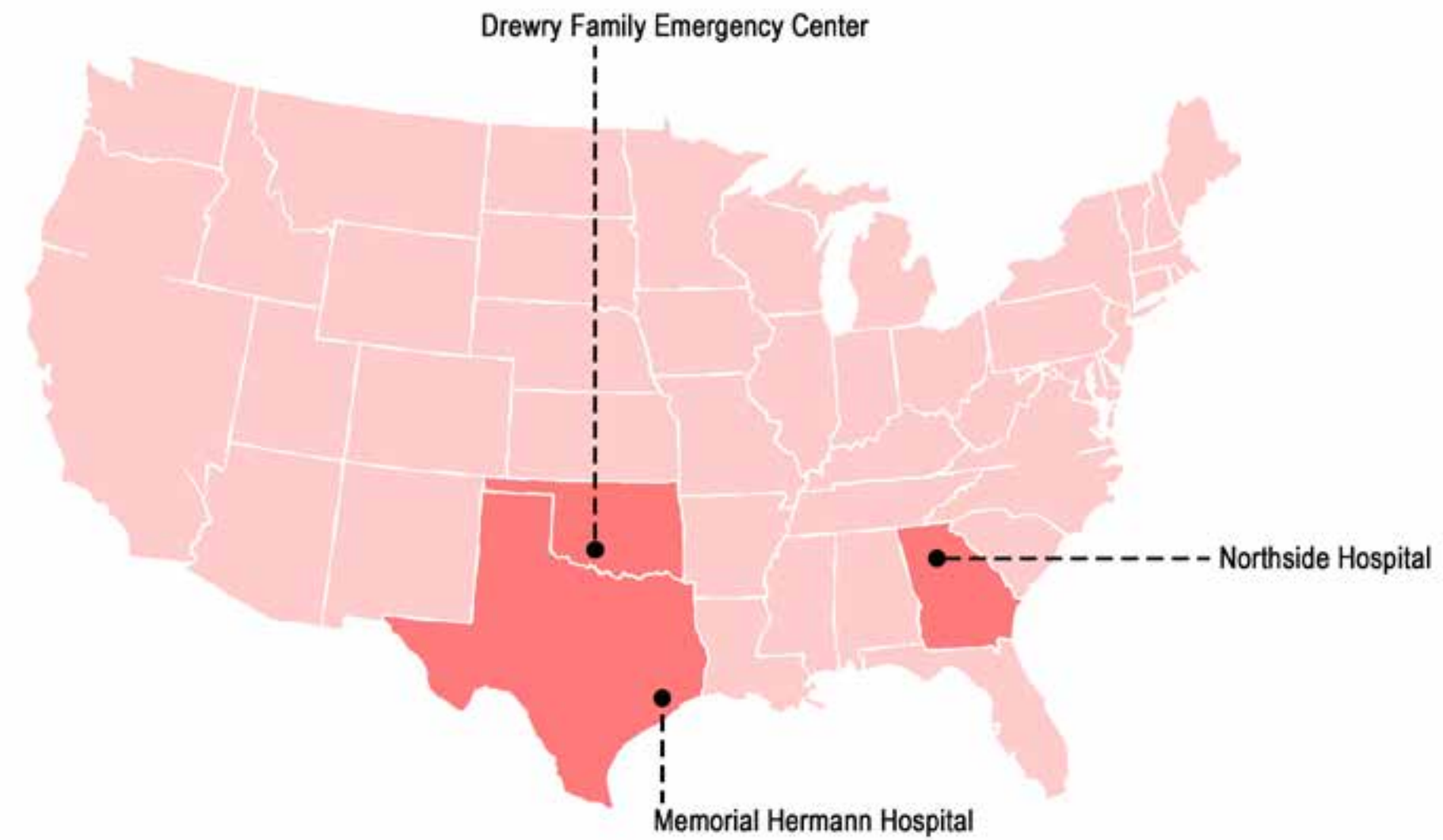




Case Studies

02
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CASE STUDIES



Case Study - 1
Drewry Family Emergency Center.
Lawton, Oklahoma.
by EYP Inc.



Case Study - 2
Memorial Hermann Hospital.
Katy, Texas.
by WHR Architects.



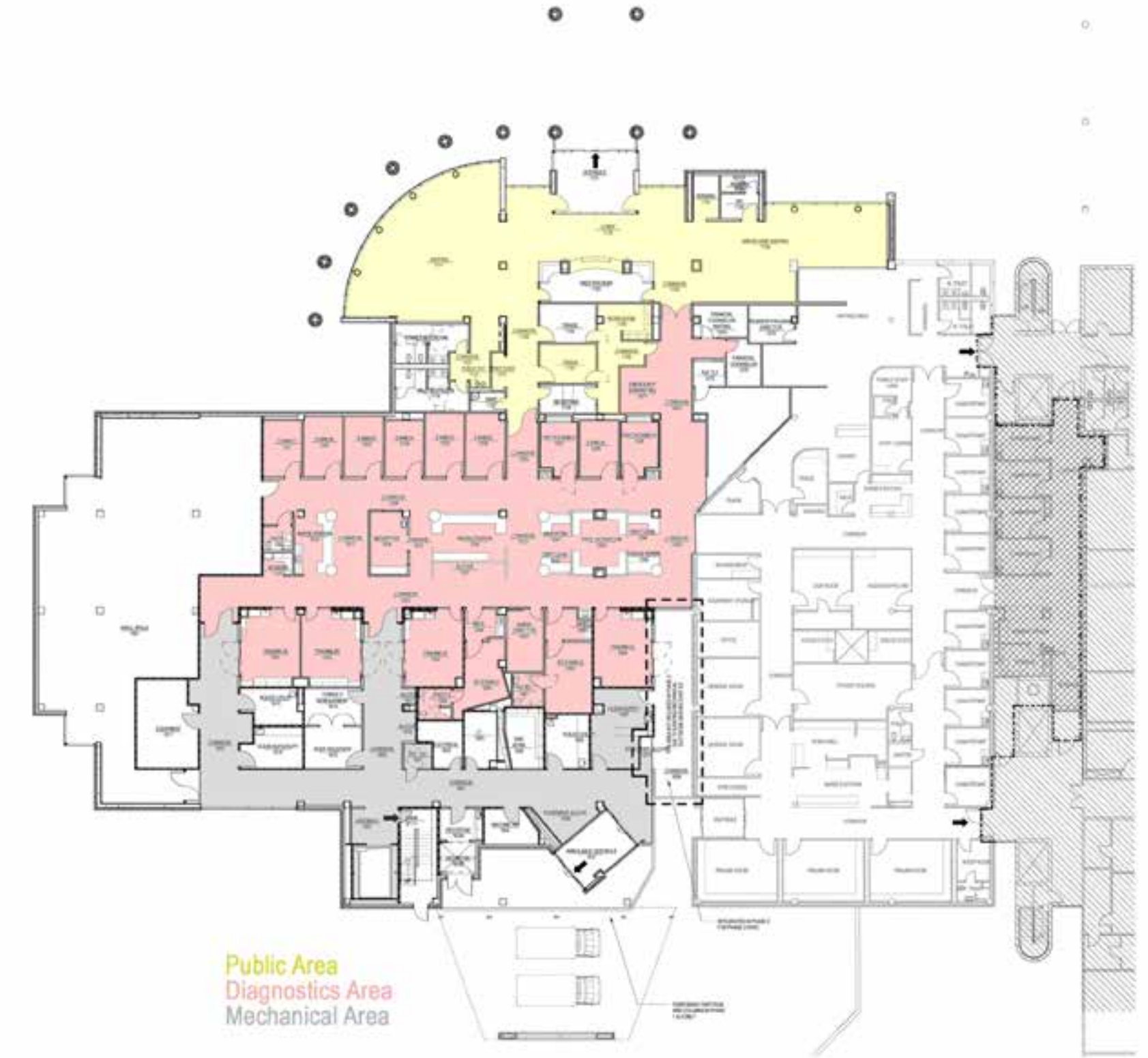
Case Study - 3
Northside Hospital.
Canton, Georgia.
by HDR Inc.



CASE STUDY - 1



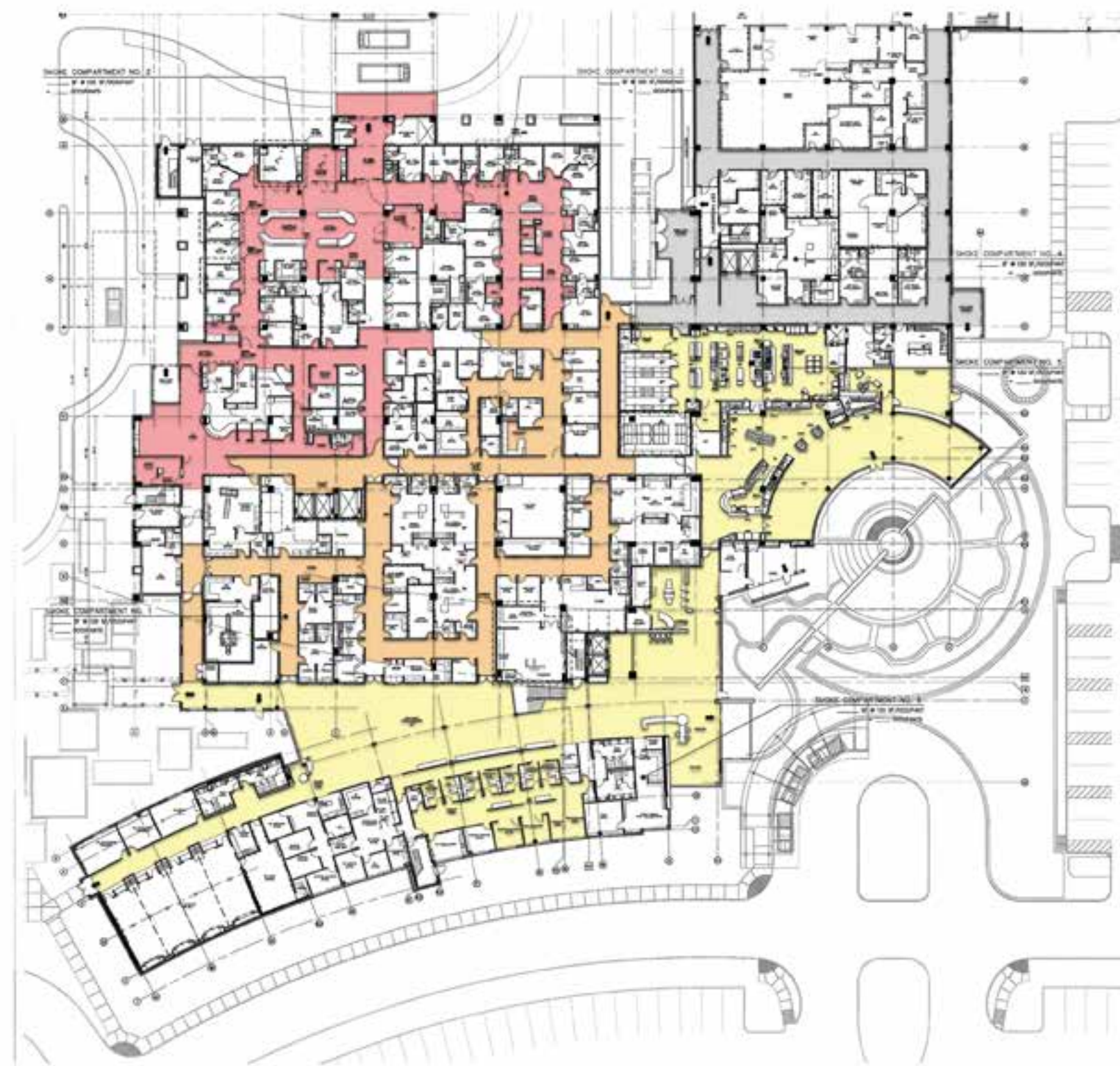
Existing Buildings
 Emergency Department
 Out-patient Department
 Intensive Care Units
 Laboratory
 Imaging Department
 Surgery Department



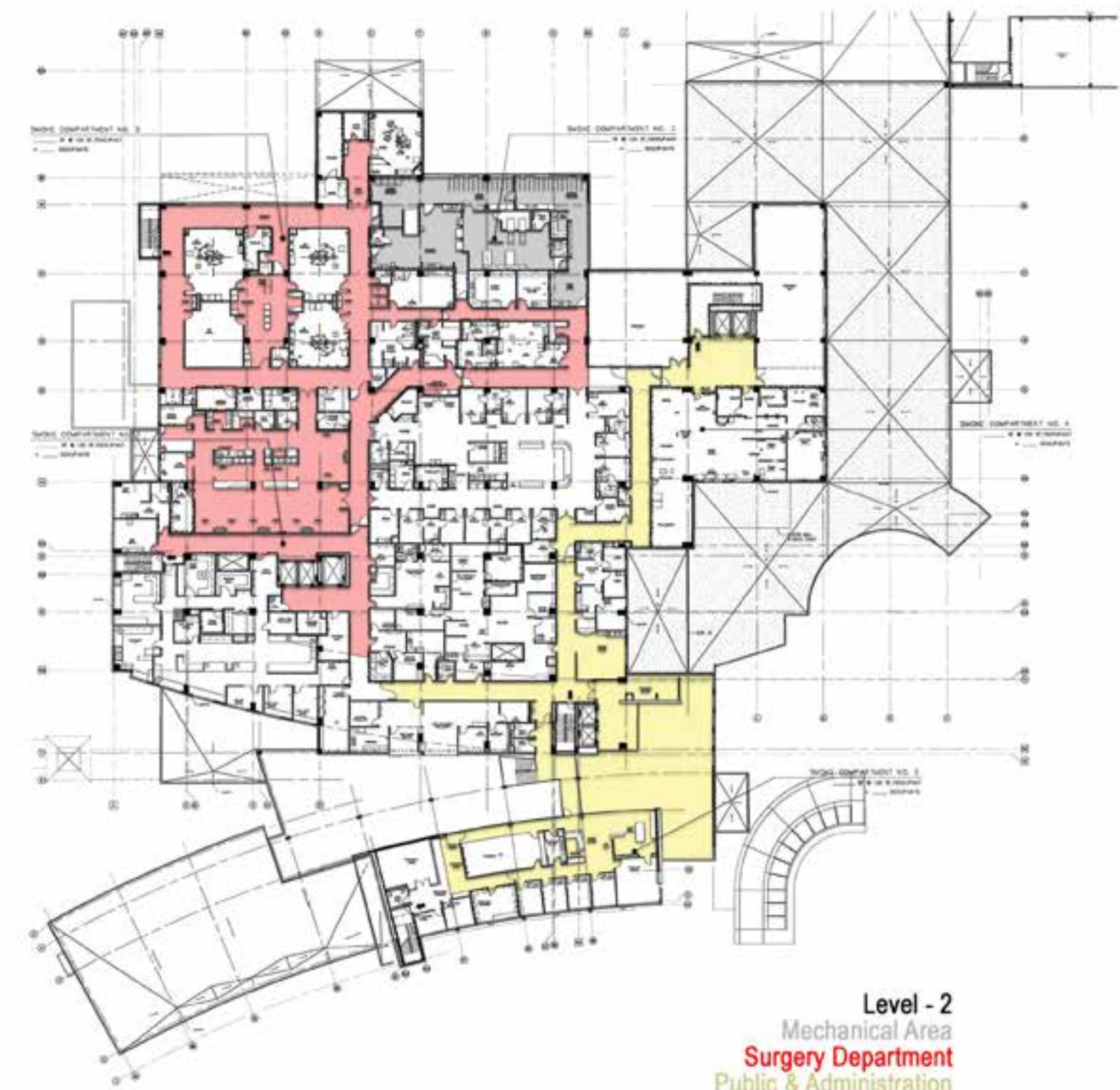
Public Area
 Diagnostics Area
 Mechanical Area



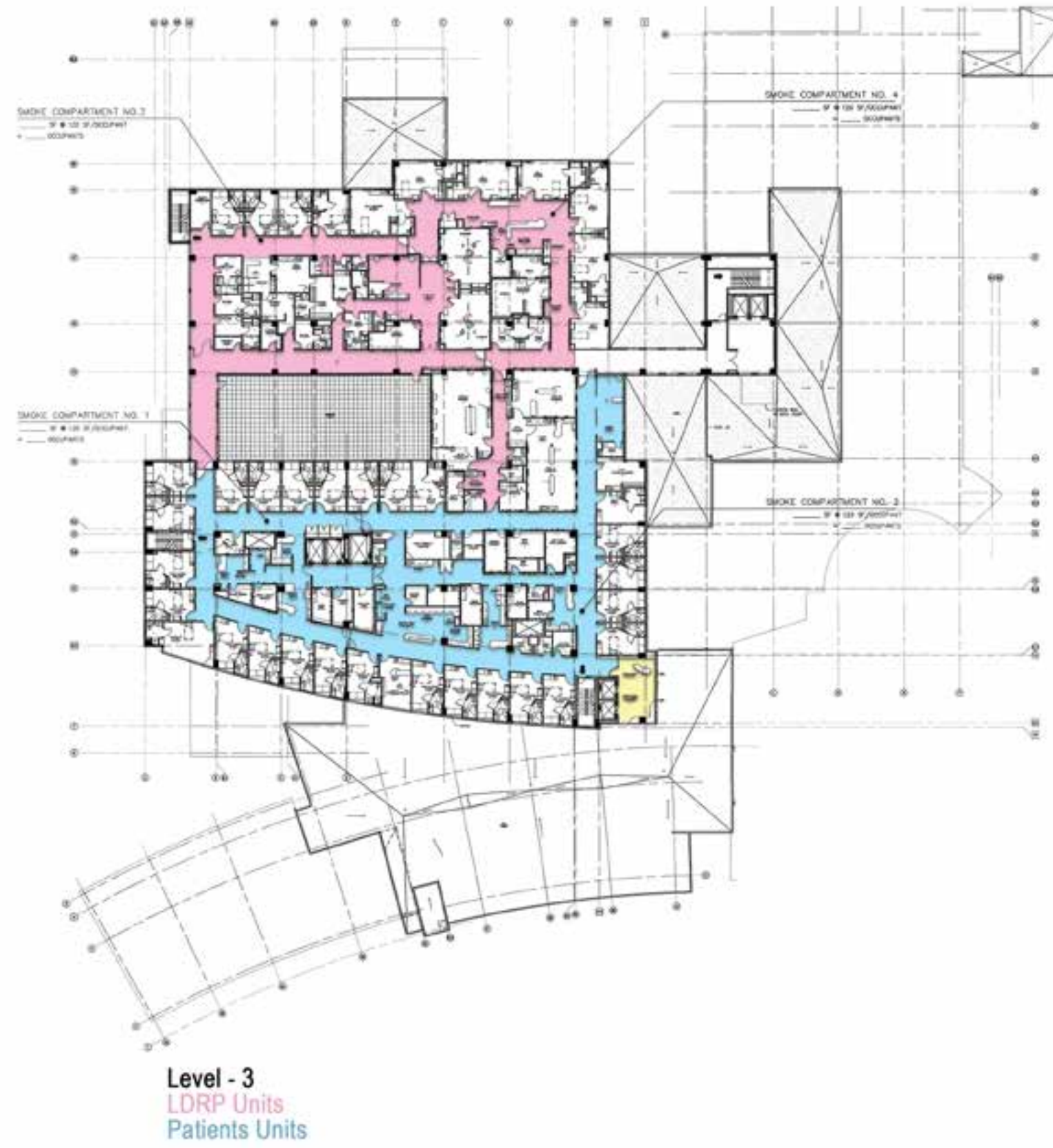
CASE STUDY - 2



Level - 1
Emergency Department
Imaging Department
Public and Administration



Level - 2
Mechanical Area
Surgery Department
Public & Administration





Level - 1
 Imaging Department
 Emergency Department
 Women and Children

CASE STUDY - 3



Enlarged Emergency Department
 Diagnostic Area
 Logistics and Support
 Mechanical Area
 Public and Administration



Level - 2
Surgery Department
Imaging Department



Level - 3
Patients Unit
Intensive Care Units



Level - 4 and 6
Patient Units





Care Team Station



Exam Room



LDRP Room



Operation Room



Patient Unit



Intensive Care Unit

CASE STUDY - SUMMARY

Stacking Diagrams

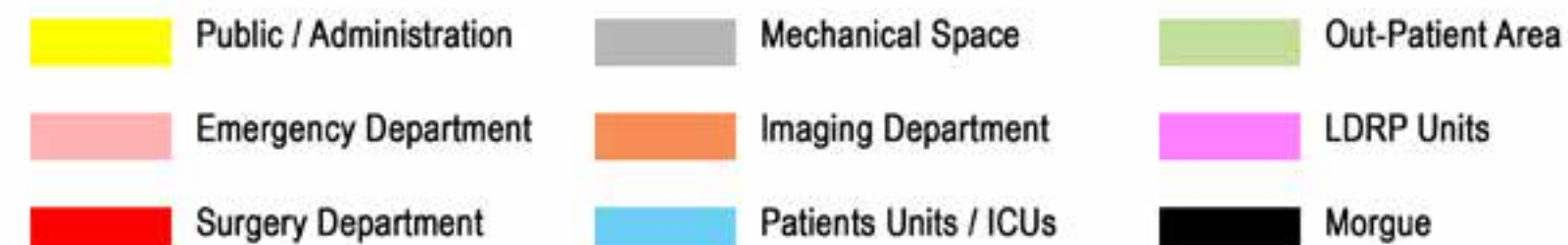
Drewry Family Emergency Center



Memorial Hermann Hospital



Northside Hospital



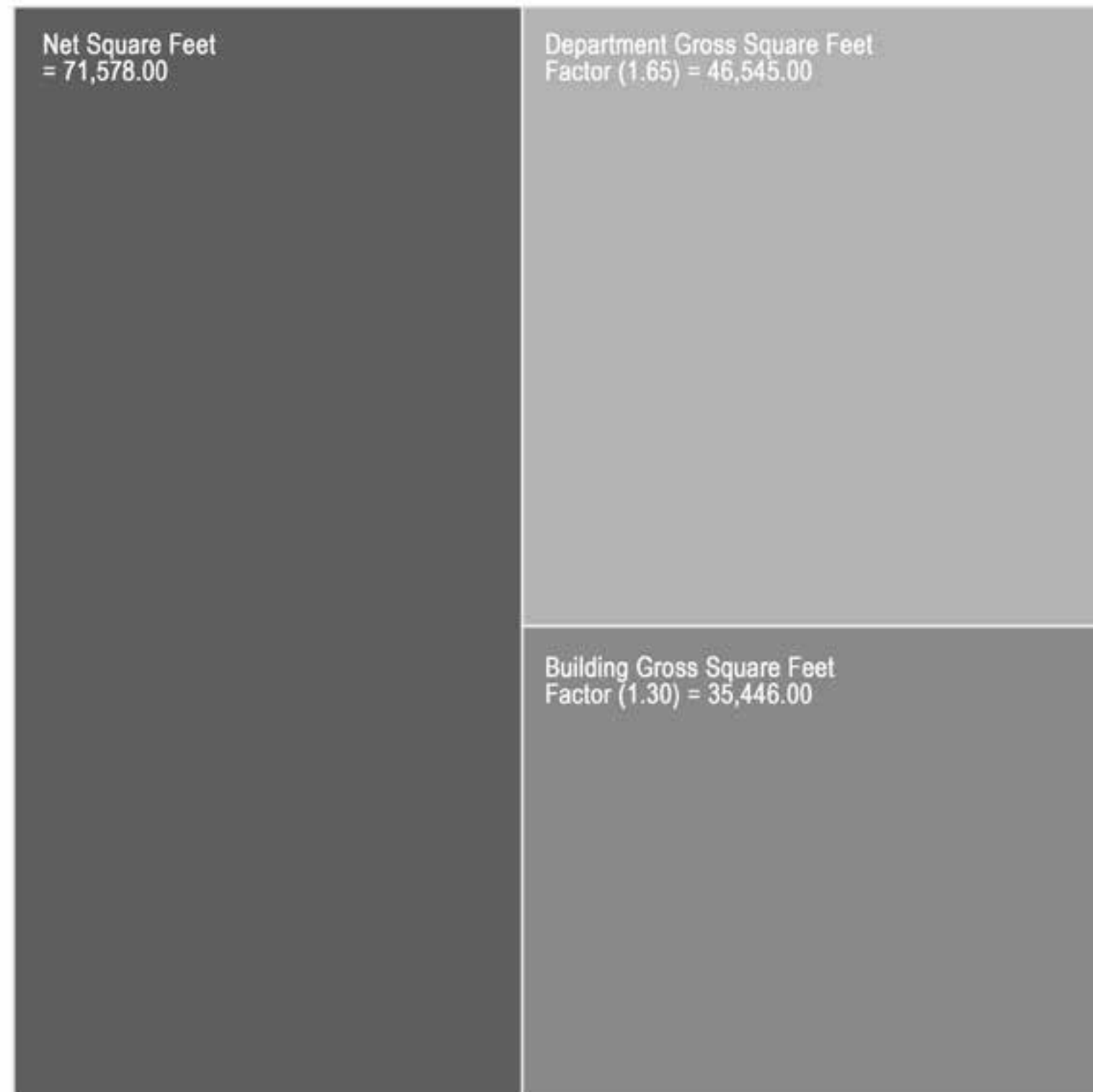
Case studies were selected based on the healthcare setting having the emergency department as a integral part of the facility.

In the case study 1, Drewry Family Emergency Center the Emergency Department (ED) was added later to support the needs of the people and provide necessary medical care. The new addition of this facility was located and connected as to function with the existing ED and also other existing departments on the campus. The existing corridor was strategically entended to connect with the new facility.

In case study 2, Memorial Hermann Hospital, facility was complete new when designed. The ED was placed with access in the back of the facility to sepearate the access and distribute the incoming traffic. The Imaging Department (ID) was placed adjacent to the ED so that patients can be efficiently transported in need. Surgery Department (SD) was stacked on the ED & ID, and then level 3 to 7 was Patient Units tower and LDRP on Level 3 adjacent to Patients Units.

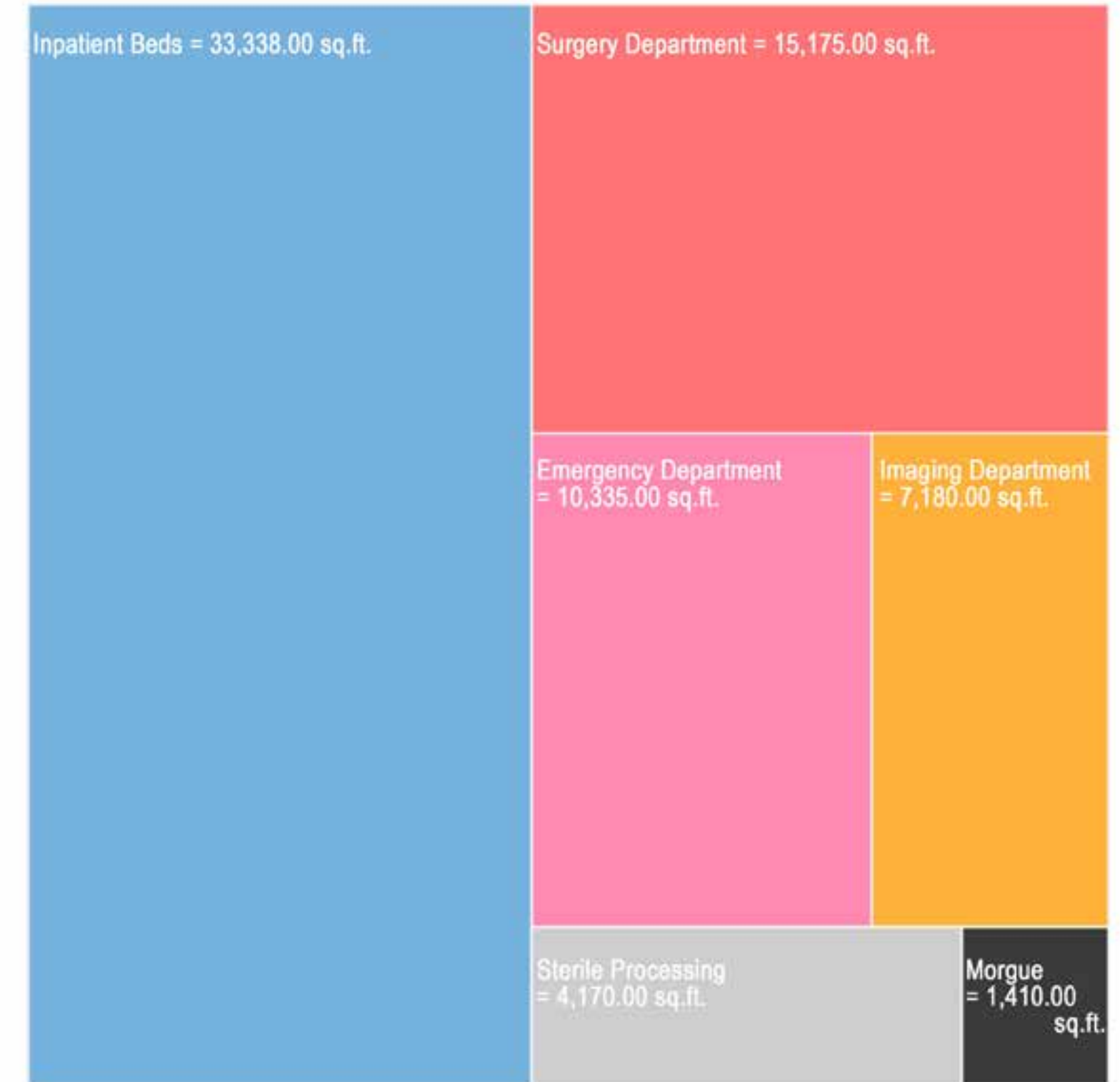
In case study 3, Northside Hospital, ED and SD are stacked on each other with ED on 1st level and SD on 2nd. ID is distributed across 1st and 2nd floor with Radiology on 1st and Cardiology 2nd floor. Intensive Care Units (ICU) are stacked above the SD on 3rd floor. Patients Units are stacked above Cardiology on the 3rd, 4th and 6th floors.





Building Gross Square Feet of Building = 153,534.00

P ROGRAM



No.	Area	Quan.	NSF	Total NSF	Comments.
1	Surgery Department			15145 NSF	
1.01	Operating Rm.	2	750	1500	
1.02	Hybrid OR	2	900	1800	
	Control Rm.	2	120	240	
	Imaging Equip. Rm.	2	150	300	
1.03	OR Storage	1	400	400	100/OR
1.04	Equip. Storage	1	400	400	100/OR
1.05	Sterile Storage	1	250	250	50/OR
1.06	Soiled Hold	1	200	200	50/OR
1.07	Decontamination Rm.	1	150	150	
1.08	OR Workroom	1	200	200	
1.09	Surgery Central Control Station	1	120	120	
	Equip. Alcove	4	15	60	
	Stretcher/Scrub Alcove	4	40	160	20/stretcher, 18/scrub
	Portable X-Ray Alcove	1	15	15	
1.10	Prep	4	150	600	
	Prep Toilet	1	65	65	
	ISO Prep	2	175	350	
	ISO Prep Toilet	1	65	65	
	Care Team Station	1	300	300	
	Medication	1	150	150	
	Nourishment	1	200	200	
	Clean Supply	1	200	200	
	Storage	1	150	150	
	Prep Workroom	1	150	150	
1.11	ISO PACU	7	175	1225	
	ISO PACU Toilet	7	65	455	
	Care Team Station	1	300	300	
	Med. / Nourishment	1	200	200	
	Clean Supply	1	160	160	
	Soiled Utility	1	160	160	
	PACU Workroom	1	150	150	
	PACU/Prep Housekeeping Rm.	1	100	100	
1.12	Blood Bank	1	120	120	
1.13	Anesthesia Workroom	1	150	150	
	Anesthesia Offices	1	100	100	
1.14	AP Lab or Frozen Section	1	120	120	
1.15	Phy. Lounge	1	400	400	
	Phy. Office	2	120	240	
	Phy. Locker	30	2	60	2.5/OR
	Phy. Toilet	1	65	65	
	On Call Phy. Rm.	2	120	240	
	On Call Toilet/Shower	2	80	160	
	Administrative Offices	2	100	200	
1.16	Family Consultation Rm.	1	150	150	
1.17	Staff Toilet	3	65	195	
1.18	Satellite Pharmacy	1	250	250	50/OR
1.19	Family Waiting	30	18	540	2.5/Prep X 18sf/seat
	Toilet	2	65	130	
1.20	Electrical	1	150	150	

1.21	IDF	1	150	150	
1.22	Housekeeping Rm.	1	150	150	
1.23	Clean Core	4	200	800	200/OR
2	Emergency Department			10335 NSF	
2.01	Shock Trauma Rm.	4	400	1600	
2.02	Exam Rm.	7	140	980	
	Exam Rm. (ISO)	3	140	420	
	Exam Rm. (ISO) Toilet	3	65	195	
2.03	Minor Care Exam Rm. (ISO)	3	140	420	
2.04	Forensic (FNE) Exam Rm.	1	230	230	Incl. work area and toilet
2.05	Care Team Station	2	400	800	1/9 exam rm.
2.06	Clean Supply	2	150	300	1/9 exam rm.
2.07	Storage	2	120	240	1/9 exam rm.
2.08	Soiled Hold	2	120	240	1/9 exam rm.
2.09	Nourishment	2	100	200	1/9 exam rm.
2.10	Medication	2	120	240	1/9 exam rm.
2.11	Patient Toilet	2	65	130	1/9 exam rm.
2.12	Sub Wait for Exam Rm. Pod	2	100	200	1/9 exam rm.
2.13	Dictation	2	90	180	1/9 exam rm.
	WC / Stretcher Alcove	2	20	40	1/9 exam rm. Near Resus.
	Emergency Cart Alcove	2	15	30	1/9 exam rm. Near Resus.
2.14	ED Blood Storage	1	240	240	
2.15	Ambulance Vestibule	1	200	200	
2.16	Public Vestibule	1	200	200	
2.17	Conference Rm.	1	300	300	
2.18	Triage	3	80	240	
	EKG Triage	1	120	120	
	Triage Waiting	1	150	150	
	Triage Patient Toilet	1	65	65	
	Triage Work Rm.	1	120	120	
2.19	Reception	1	75	75	
2.20	Waiting	1	600	600	
2.21	Consultation Rm.	2	120	240	
	WC / Stretcher, Storage / Alcove	3	20	60	
	Public Toilet	2	65	130	
2.22	Decontamination Storage	1	150	150	
2.23	Decontamination Rm.	1	180	180	
2.24	Security Rm.	1	120	120	
2.25	IDF	1	150	150	
2.26	EMS	1	250	250	
2.27	Electrical	1	150	150	
	Housekeeping Rm.	1	150	150	
3	Inpatient Beds			33338 NSF	
3.01	Acute Care Units(Incl. 6 ISO)	24	300	7200	
	Family Area in Unit	24	65	1560	
	Toilet in Unit	24	65	1560	
	ISO Cart Alcove	24	5	120	
	Nurse Surver	24	10	240	
	Documentation Station	12	36	432	
	Care Team Station	1	300	300	
	PACS and Physician Dictation	2	80	160	

3.02	Nourishment	1	200	200	
	Medication	1	120	120	
	Clean Supply	1	180	180	
	Soiled Hold	1	200	200	
	Satellite Pharmacy	1	120	120	
	Stat Lab	1	120	120	
	Equip. Storage	24	20	480	20/bed
	Workroom / Storage, Resp Therapy	1	240	240	
	IDF	1	150	150	
	Electrical	1	150	150	
	Housekeeping Rm.	1	150	150	
	Alcove Emergency Cart	4	15	60	1/4bed
	Alcove Stretcher / WC	4	20	80	1/4bed
	Office Medical Director	1	120	120	
	Offcie Nurse Manager	1	100	100	
	On Call Physician Rm.	1	100	100	
	On Call Physician Toilet/Shower	1	80	80	
	Conference Rm.	1	240	240	For Phys. And Nurses.
	Staff Lounge	1	150	150	
	Staff Kitchen	1	100	100	
	Staff Meditation / Relaxtation	1	80	80	
	Staff Lockers	48	4	192	
	Staff Toilet	3	65	195	
	Family Waiting	1	720	720	
	Greeting / Volunteer	1	50	50	
	Family Kitchen and Vending	1	150	150	
	Peace Rm.	1	120	120	
	Multipurpose / Bereavement Rm.	1	120	120	
	Public Toilet	2	65	130	
	Consultation Rm.	2	100	200	
	Surgical Trauma ICU(Incl. 5 ISO)	23	300	6900	
	Cardiothoracic ICU (ISO)	1	300	300	
	Nurse Surver	24	10	240	
	Family Area in Unit	24	65	1560	
	Toilet in Unit	24	65	1560	
	ISO Cart Alcove	24	5	120	
	Documentation Station	12	36	432	
	Care Team Station	1	300	300	
	PACS and Physician Dictation	2	80	160	
	Nourishment	1	200	200	
	Medication	1	120	120	
	Clean Supply	1	180	180	
	Soiled Hold	1	200	200	
	Satellite Pharmacy	1	120	120	
	Stat Lab	1	120	120	
	Equip. Storage	24	20	480	20/bed
	Workroom / Storage, Resp Therapy	1	240	240	
	IDF	1	150	150	
	Electrical	1	150	150	
	Housekeeping Rm.	1	150	150	
	Alcove Emergency Cart	4	15	60	1/4bed
	Alcove Stretcher / WC	4	20	80	1/4bed

	Office Medical Director	1	120	120	
	Offcie Nurse Manager	1	100	100	
	On Call Physician Rm.	1	100	100	
	On Call Physician Toilet/Shower	1	80	80	
	Conference Rm.	1	240	240	For Phys. And Nurses.
	Staff Lounge	1	150	150	
	Staff Kitchen	1	100	100	
	Staff Meditation / Relaxtation	1	80	80	
	Staff Lockers	48	4	192	
	Staff Toilet	3	65	195	
	Family Waiting	1	720	720	
	Greeting / Volunteer	1	50	50	
	Family Kitchen and Vending	1	150	150	
	Peace Rm.	1	120	120	
	Multipurpose / Bereavement Rm.	1	120	120	
	Public Toilet	2	65	130	
	Consultation Rm.	2	100	200	
4	Imaging Department				7180 NSF
4.01	MRI Scan	1	500	500	
	Control Rm.	1	160	160	
	MRI Equip. Rm.	1	160	160	
4.02	CT Scan	1	450	450	
	Control Rm.	1	160	160	
4.03	US Scan	1	250	250	
	US Scan - Toilet	1	65	65	
4.04	R/F Rm.	1	350	350	
	Control Rm.	1	70	70	
	R/F Toilet	1	70	70	
4.05	Interventional Radiology Procedure Rm.	1	700	700	
	Control Rm.	1	120	120	
	Interventional Rad. Equip. Rm.	1	150	150	
	Interventional Radiology Reading Rm.	1	120	120	
4.06	Prep / Recovery	4	150	600	
	Prep / Recovery Toilet	2	65	130	
	Dress Rm.	2	80	160	
	Consultation Rm.	1	100	100	
	Storage	1	150	150	
	Staff Lounge / Break Rm.	1	250	250	
	Office	2	100	200	
	Staff Locker	20	4	80	
	Staff Toilet	2	65	130	
4.07	Care Team Station	1	480	480	
	Medication Rm.	1	120	120	
	Tech Work Rm.	1	150	150	
	Clean Supply	1	120	120	
	Soiled Hold	1	150	150	
	Reception	1	70	70	
	Waitng	1	500	500	
	Coffee / Vending	1	100	100	
	Public Toilet	1	65	65	
	IDF	1	150	150	

	Electrical	1	150	150
5	Morgue			1410 NSF
	Autopsy Rm.	1	800	800
	Holding Rm.	1	300	300
	Morgue Workroom	1	100	100
	Mens Locker	10	4	40
	Mens Toilet	1	65	65
	Womens Locker	10	4	40
	Womens Toilet	1	65	65
6	Sterile Processing Dept.			4170 NSF
6.01	Soiled Utility Reception	1	700	700
6.02	Decontamination Rm.	1	150	150
6.03	Cart Wash Rm.	1	150	150
6.04	Preparation / Packing	1	1000	1000
6.05	Sterilization Chamber	1	120	120
6.06	Sterile Utility Store Rm.	1	800	800
6.07	Clean Cart Store Rm.	1	550	550
6.08	Work Rm.	1	150	150
6.09	Staff Break Rm.	1	200	200
	Mens Locker	15	4	60
	Mens Toilet	1	65	65
	Womens Locker	15	4	60
	Womens Toilet	1	65	65
	Office	1	100	100

TOTAL NET AREA (SQ.FT.) = 71,578.00

DEPARTMENT GROSS MULTIPLIER = 1.65

DEPARTMENT GROSS AREA (SQ.FT.) = 118,103.70

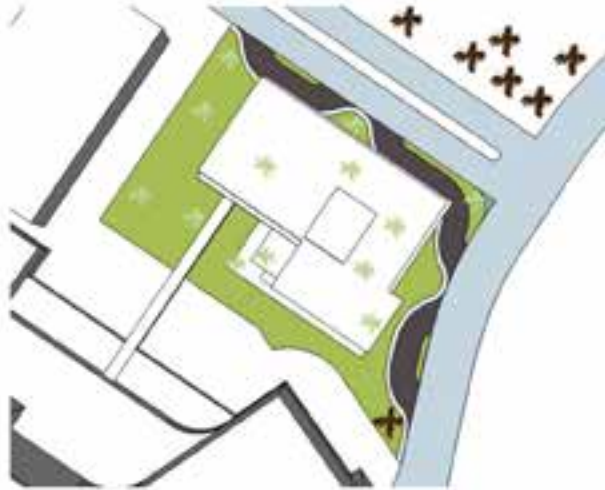
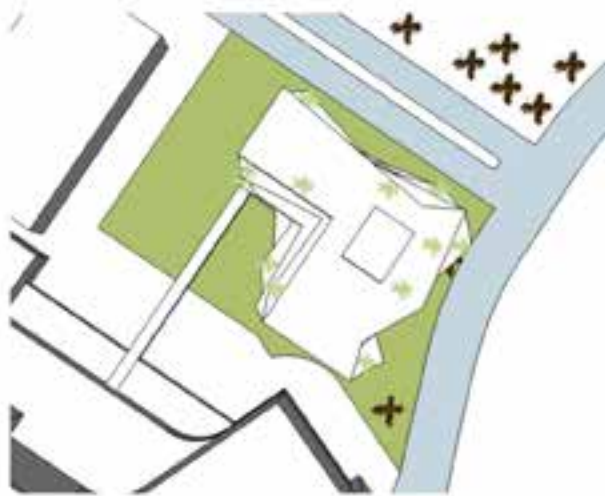
BUILDING GROSS MULTIPLIER = 1.3

BUILDING GROSS AREA (SQ.FT.) = 153,534.81



Concepts

04
51 - 64



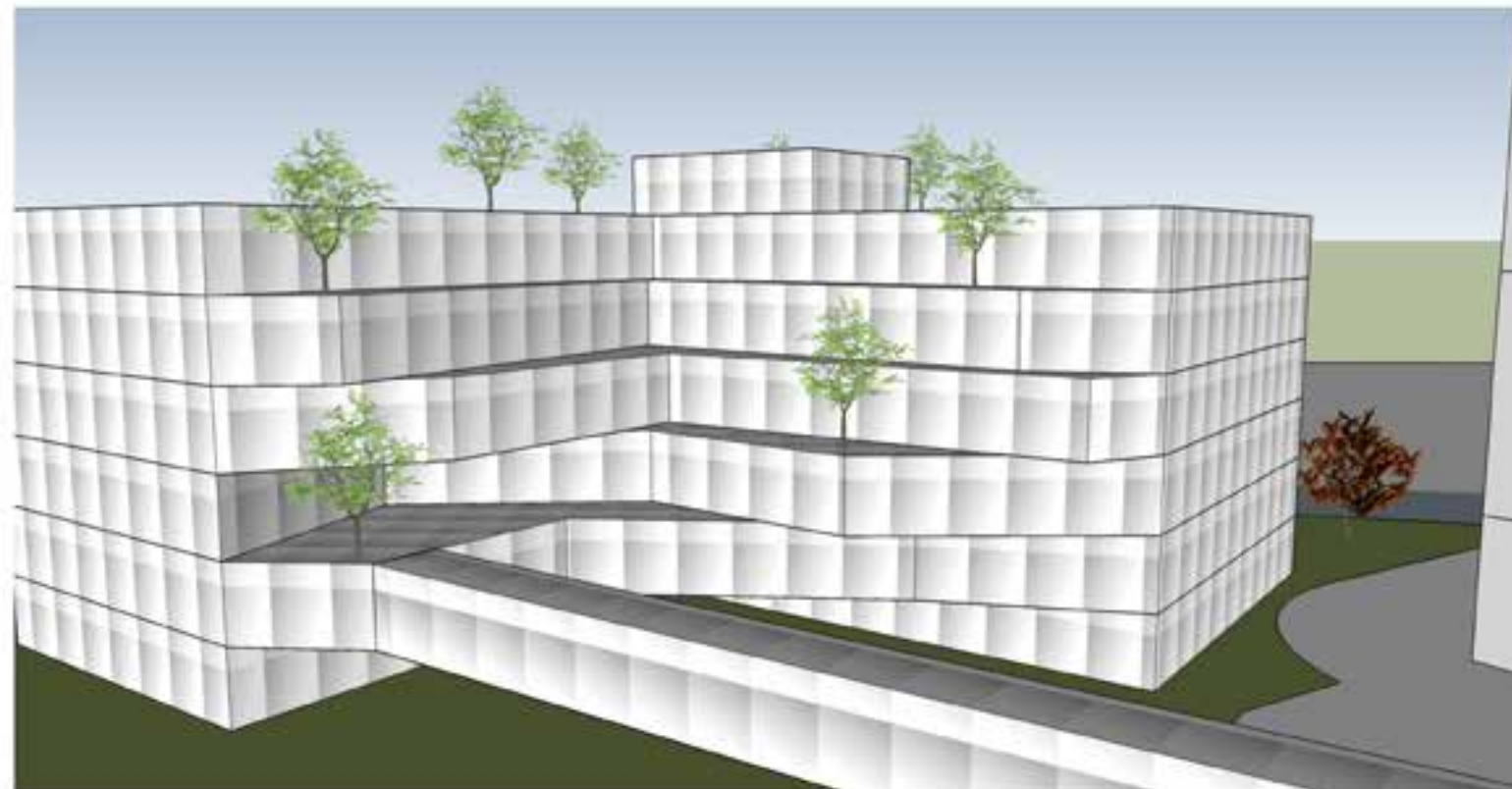
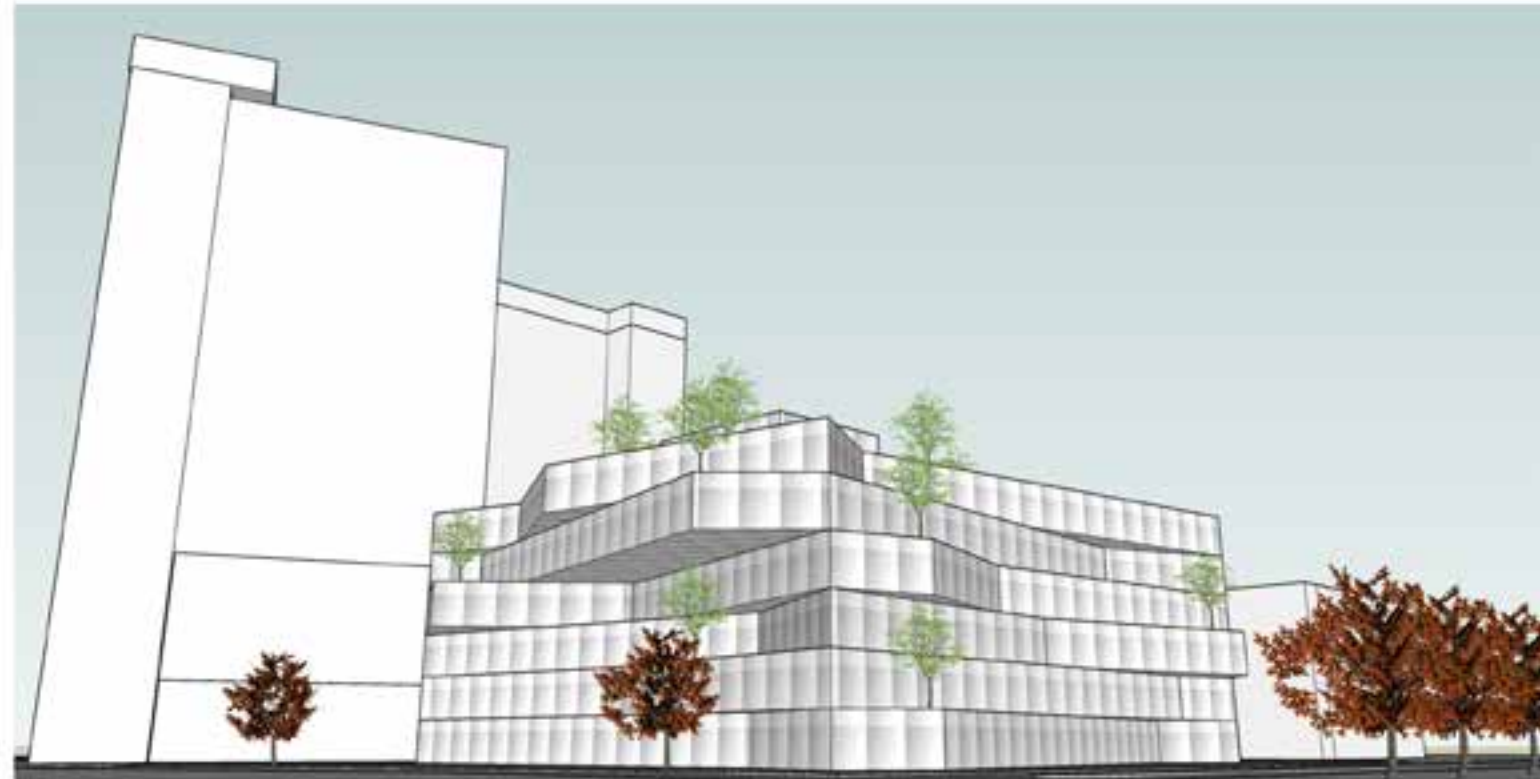
C ONCEPTS

I started to conceptualize my idea with three schemes, each one different and improved from the lessons learned from the previous scheme.

In first scheme, I chose to go with the L shaped form, with longer shape facing John Freeman Blvd. and shorter side facing Bertner Ave. and a connection established to the existing Walter tower to utilize logistics support. In second scheme, I performed the gaming exercise for the second scheme to also visualize the planning of the departments internally and also starting to get overall holistic relationship of each department. In the third scheme, I took the good qualities of previous schemes and tried to solve the issues faced previously. Also made changes to the gaming in-order to find better and efficient planning solutions for each departments within and overall holistically with other departments of facility.

Then I tried a fourth scheme which was amalgamation of good solutions of the previous schemes and with solved issues that were faced in the previous schemes.

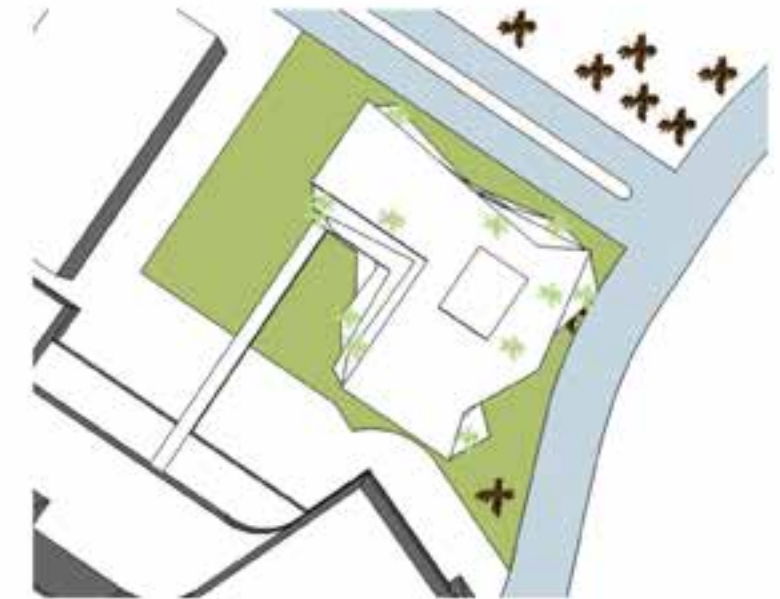
S_{CHEME - 1}



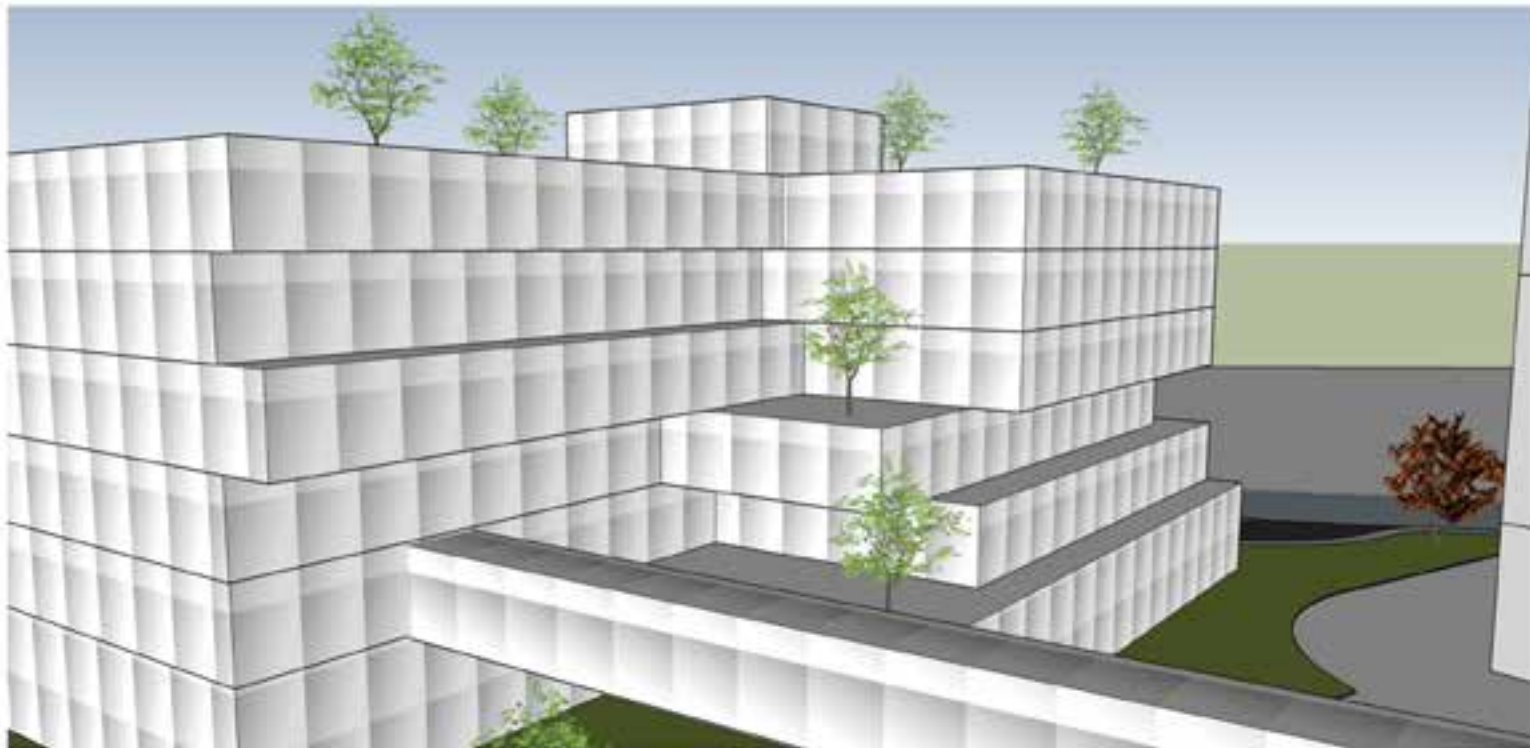
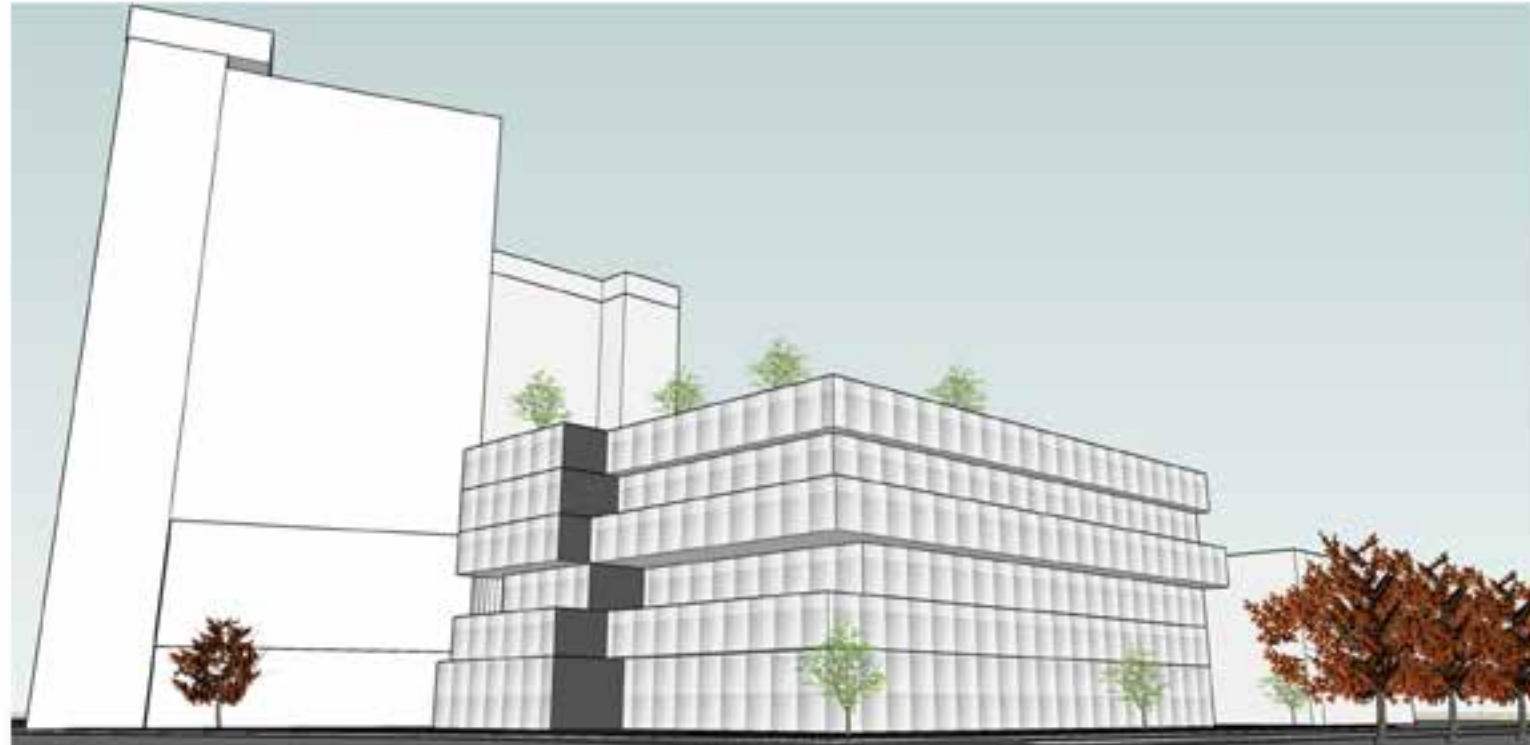
First scheme is L-shaped with wider side facing John Freeman Blvd. and shorter side facing Bertner Ave. and connection to the Walter tower was established through a corridor on 2nd floor.

Initial concept was to increase the view of the garden across the John Freeman Blvd. and Bertner Ave. and utilize the view in the interior planning to provide a positive distraction for the patients and visitors. Also the L-shape created a courtyard between the facility and Walter tower, which creates open space inbetween the mass of buildings for air circulation and to increase daylight penetration into building.

Floor plans are arranged in a stagger manner to creat an open space in between floor to provide exterior space on each floor. Having exterior space allows to have an private garden space for each floor to incorporate nature into built form.

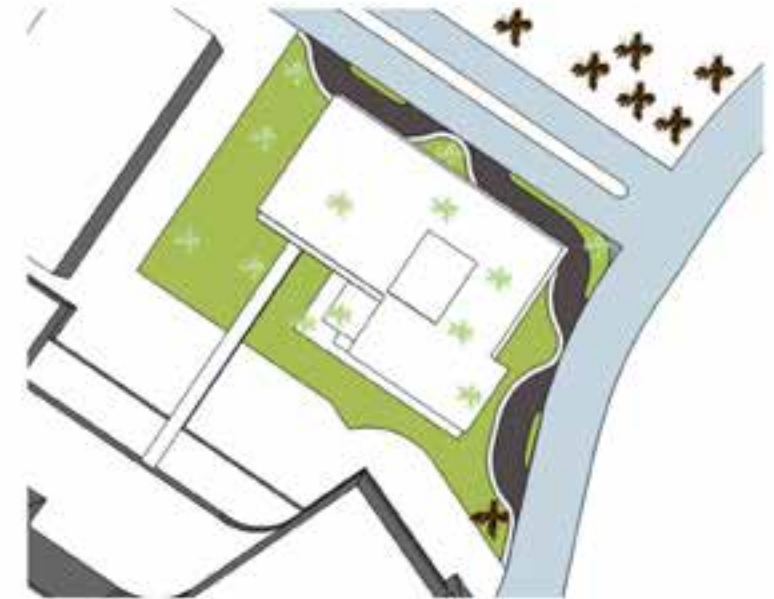


S_{CHEME} - 2



Second scheme is leaning towards rectangular form rather than L-shape of its predecessor. This rectangular form was the result of the gaming exercise.

This scheme has reduced the stagger of the floor plans for uniformity in its outer facade, and the exterior space for the garden still exists in this form as well into the space that is created in-between the facility and Walter tower as seen in bottom image on the left page. This gardens spreaded across the five floors of the facility creates a verticle garden for the people in the Walter tower and gives a focal point to the courtyard creating a positive distraction.





In gaming exercise, I started with separating all the incoming traffic as shown on the left page top image. Three routes allows the vehicular entrance for emergency walk-in, ambulance drop off and visitors entry.

First floor was distributed in front and back, front was for the emergency department and back for imaging department. Emergency department was arranged along the John Freeman Blvd, and entrance for emergency walk-in as well as ambulance dropoff was on the John Freeman Blvd. as to utilize the longer side and also as determined in the site analysis that most of the people visiting site will access it through John Freeman Blvd. Visitors entrance is place on Bertner Ave. closer to visitors entrance of Walter tower.

On second floor the operating room cluster and recovery cluster are place on the longer side as to utilize the view of the garden present across the John Freeman Blvd. and on third floor most of the ICUs are also place on the exterior side of building to take advantage of the gardens.

- Public / Administration
- Diagnostics and Treatment
- Mechanical Space
- Logistics and Support
- Patients Units / ICUs
- Out-Patient Area
- LDRP Units
- Morgue

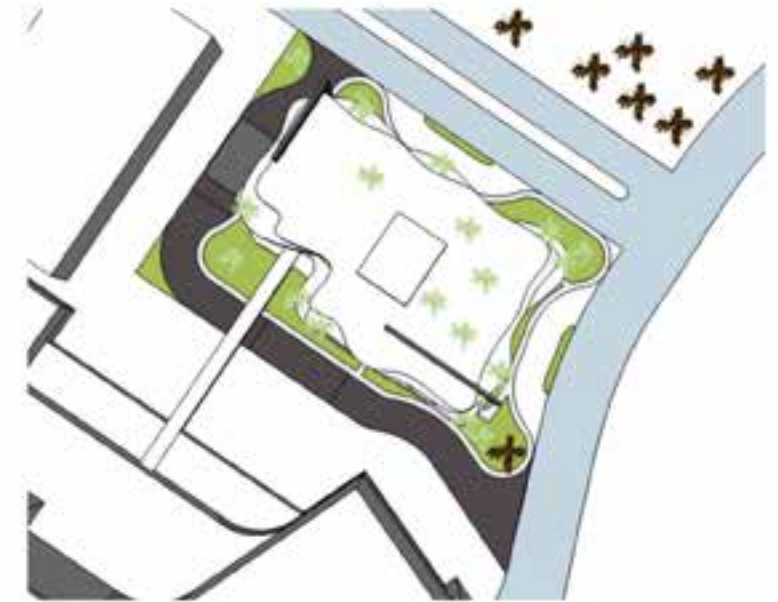




S_{CHEME} - 3

Third scheme is developed further from second one. Form of the third closely resembles the second but with the curved facade to break the monotony of the second.

This schemes curved nature of facade brings back the stagger from the first scheme into the play. The stagger curved form provides the exterior space on each floor to make it private green outdoor areas for each floor. Access for different traffic is seperated distinctively and distributed across all the sides as to see if this change gives the advantage over the previous ones.





In the gaming for third scheme, I shifted the ambulance dropoff towards the back of the facility to keep it hidden from the front stage activities. Emergency walkin entrance and visitors entrance still on John Freeman Blvd. and Bertner Ave.

On the first floor the emergency department is shifted towards the backstage and front stage is the imaging department and visitors entrance space. On the second floor all the public space are arranged towards the inner courtyard formed between Walter tower and facility. Preparation and recovery area are seperated by the operation rooms and placed towards parking lot building and Walter tower respectively. Also the space is provided on the second floor near physician lounge for the corridor to connect with Walter tower.

On the third floor, the gaming explored more of distributing the ICUs equally in two cluster unlike the previous scheme. This arrangement gives uniformity in layout of the ICUs, family waiting is placed same as the second towards inner courtyard and staff lounge towards Bertner Ave.

- Public / Administration
- Diagnostics and Treatment
- Mechanical Space
- Logistics and Support
- Patients Units / ICUs
- Out-Patient Area
- LDRP Units
- Morgue





Design

05
65 - 130

DESIGN - PARTI DIAGRAMS



Existing Site



Massing Placement



Connecting to Walter Tower

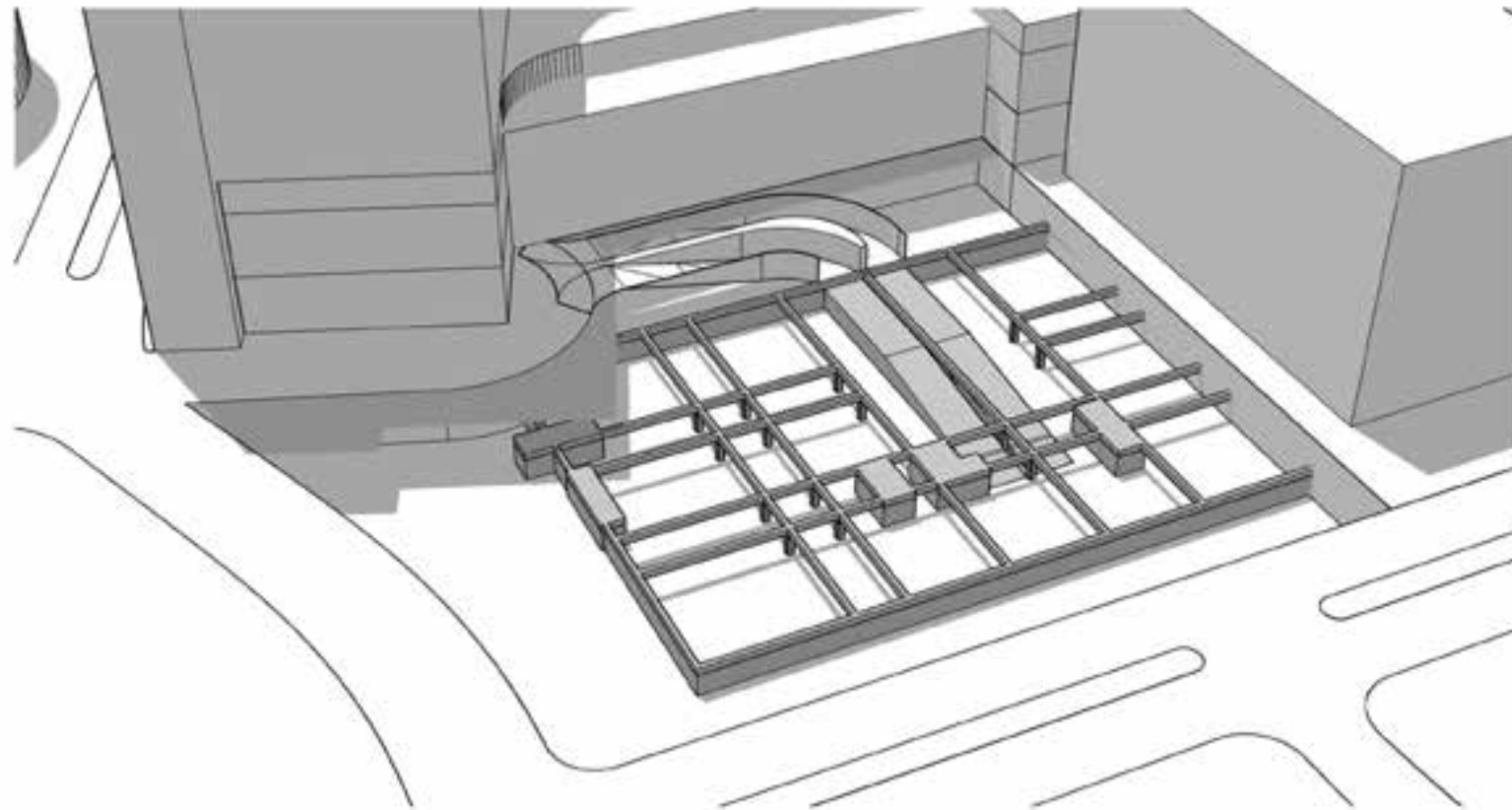


Curve shape to Maximize View

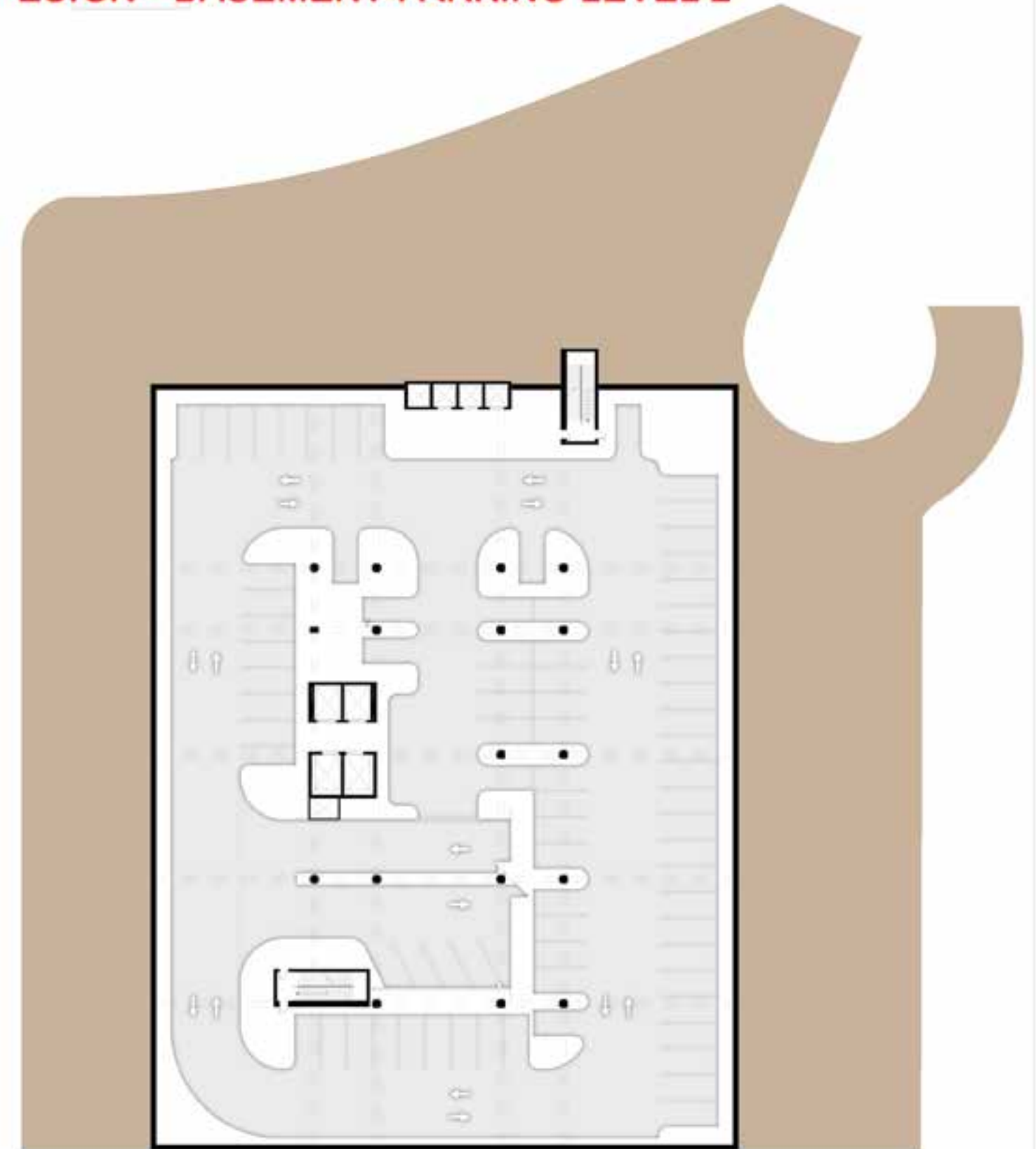


Utilizing Roof Top as Garden
and defining circulations

Reinforced Concrete Structure Layout



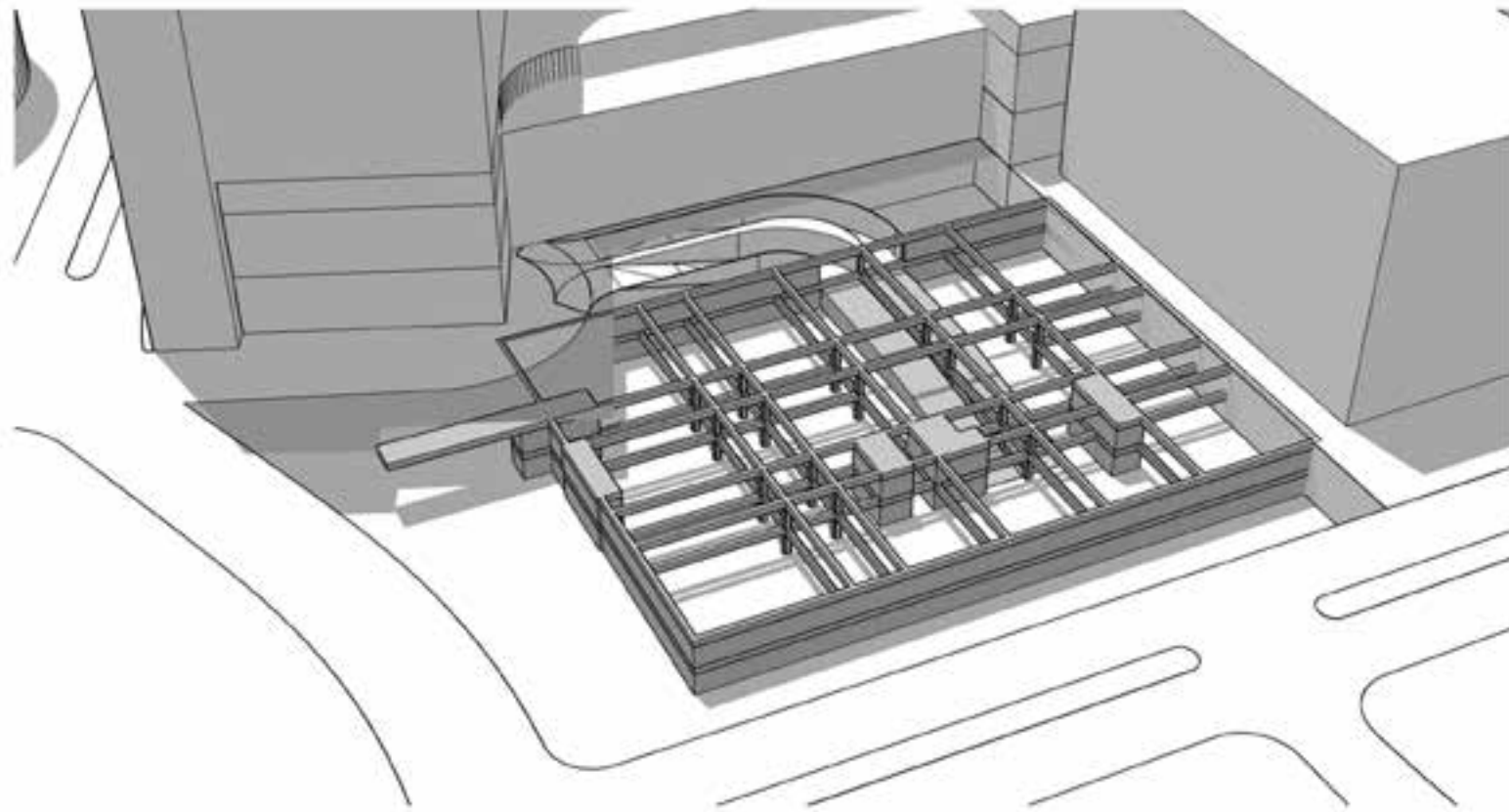
DESIGN - BASEMENT PARKING LEVEL 2



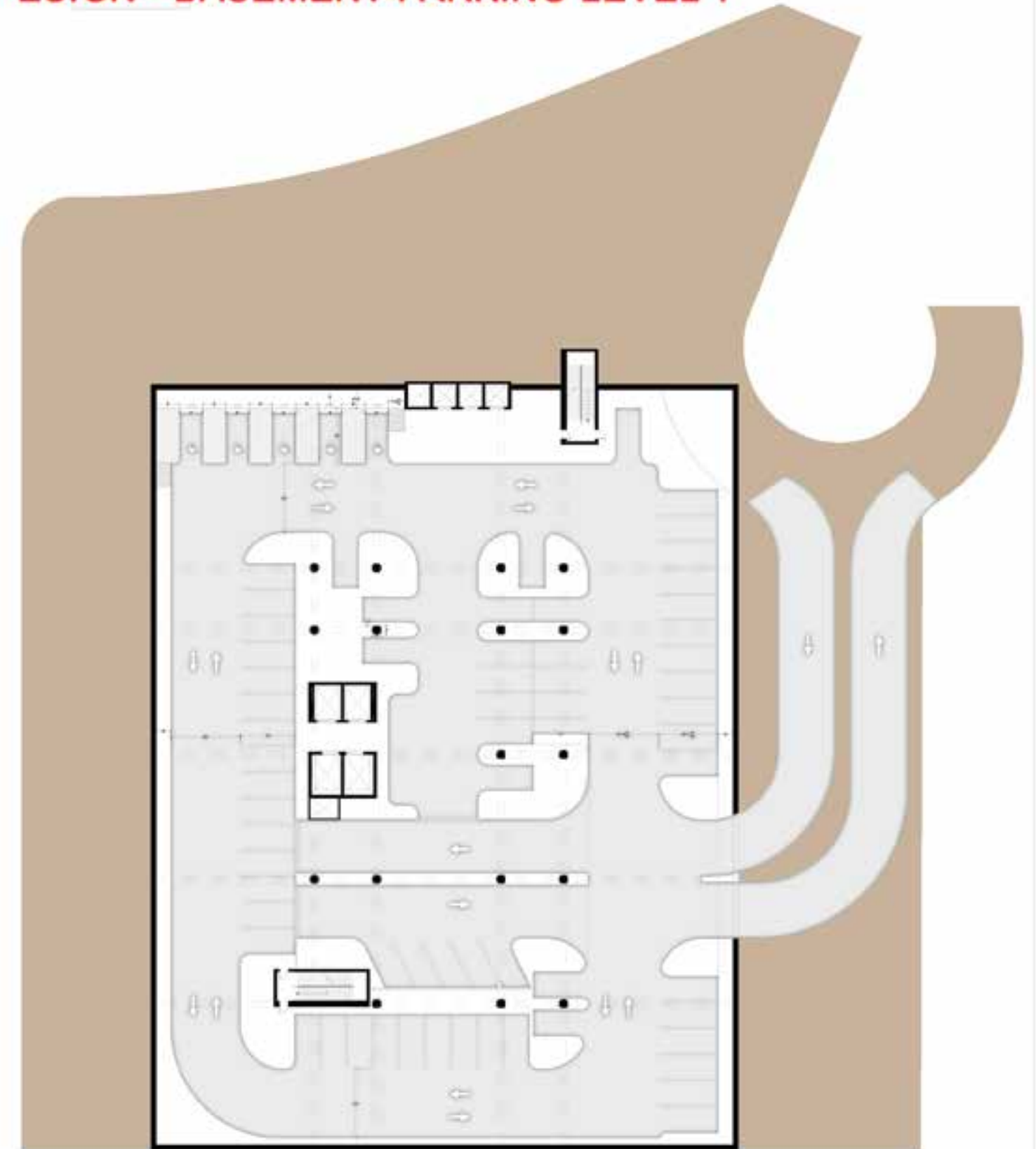
0 10 30 70

75 TOTAL PARKING SPACES

Reinforced Concrete Structure Layout



DESIGN - BASEMENT PARKING LEVEL 1

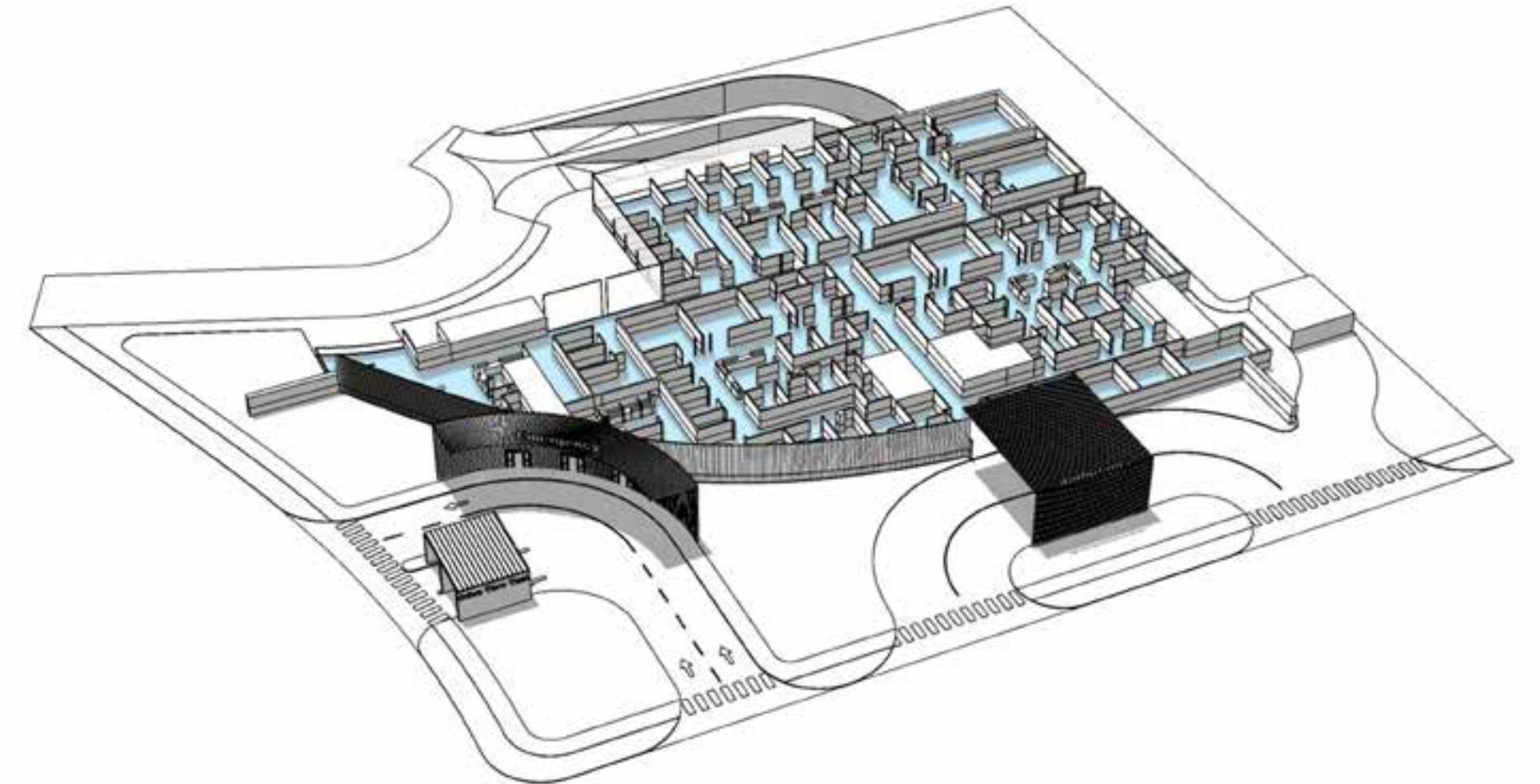
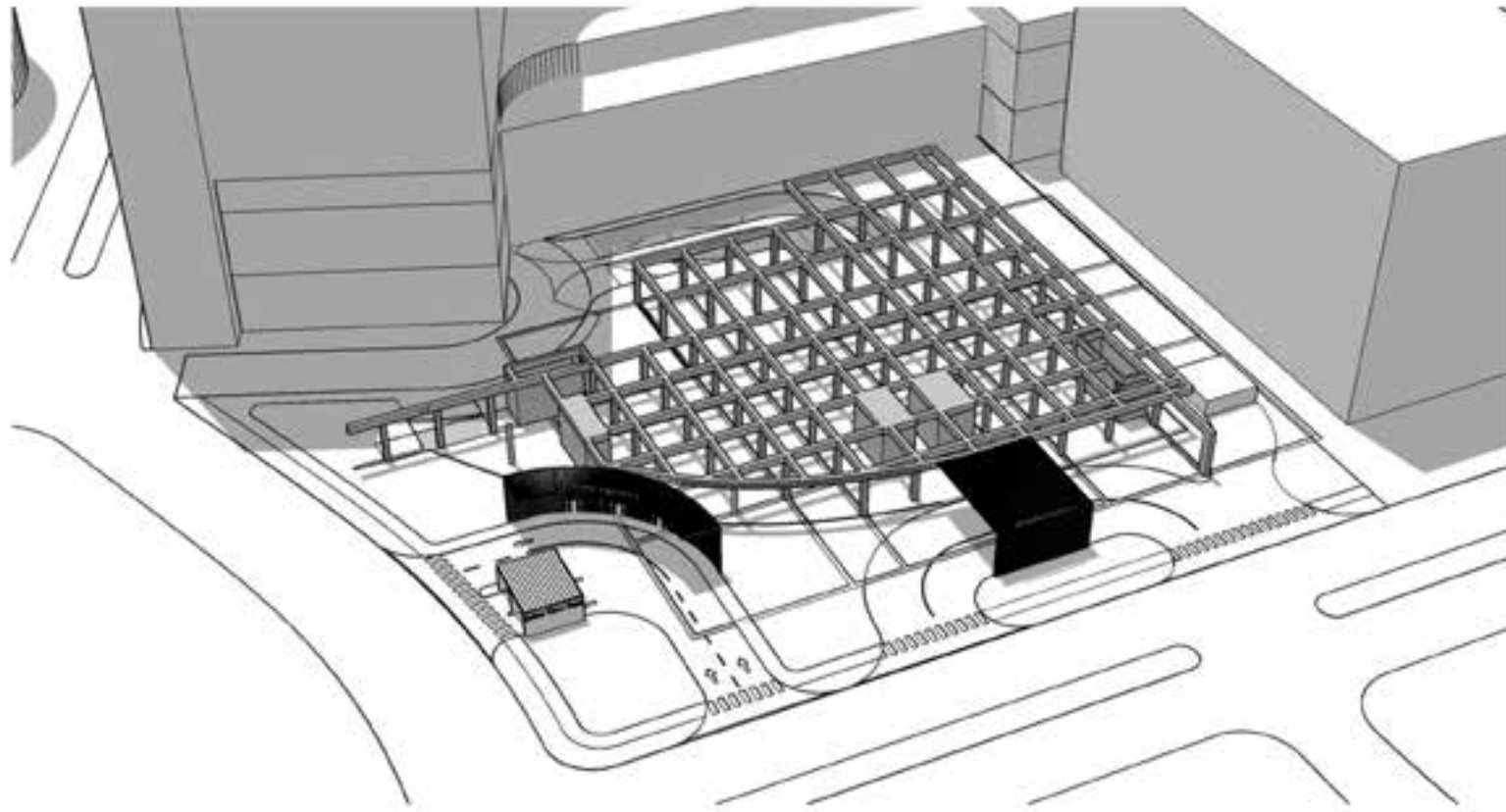


0 10 30 70

75 TOTAL PARKING SPACES
5 ACCESSIBLE + 70 REGULAR

DESIGN - LEVEL 1

Reinforced Concrete Structure Layout

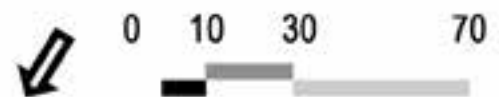
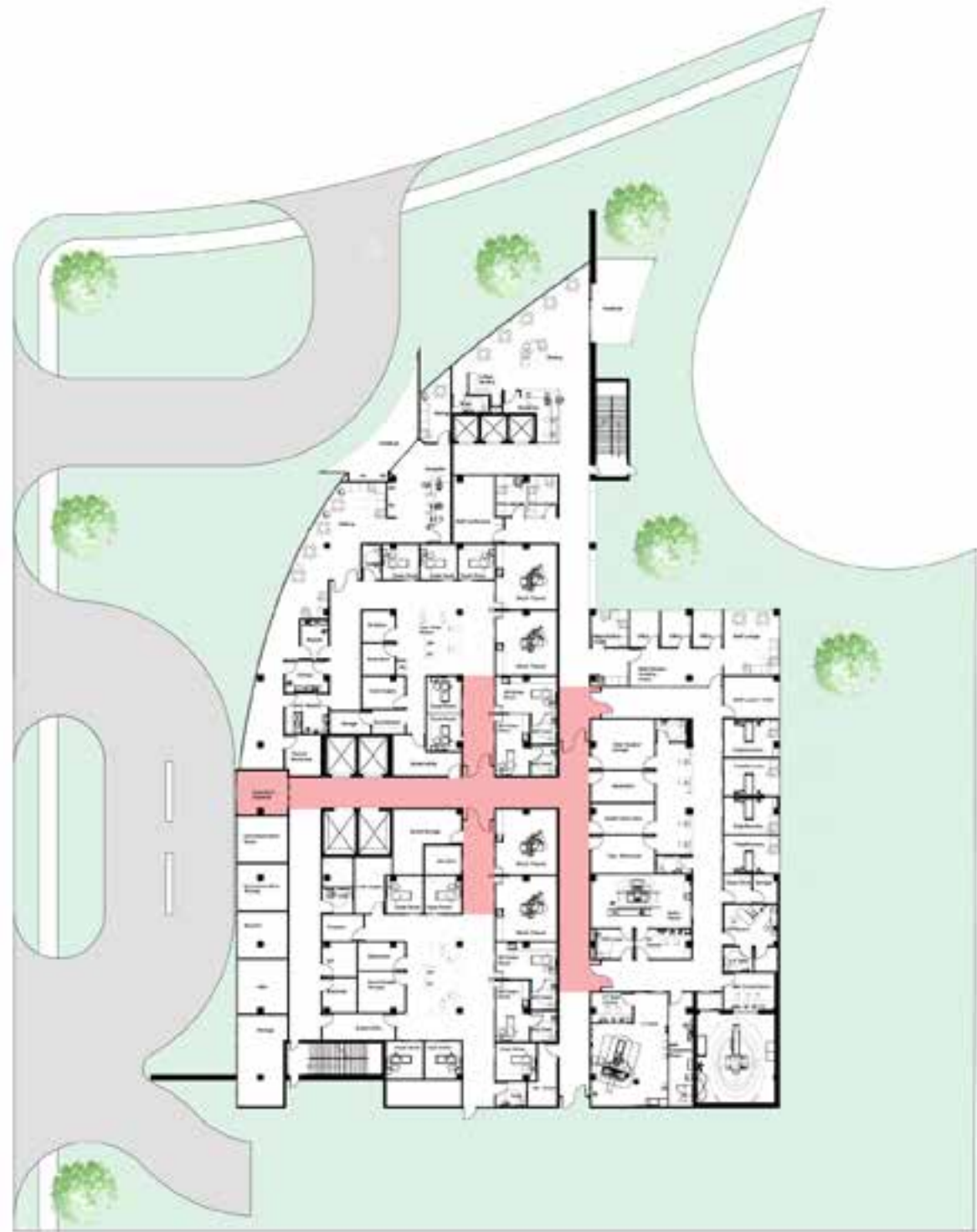




1. Vestibule
2. Visitor Entrance
3. Waiting Area
4. Elevator Lobby
5. Conference Room
6. Consultation Room



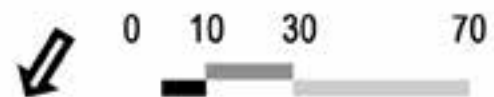
1. Emergency Walk-In Entrance
2. Reception
3. Waiting
4. Triage



Ambulance Dropoff Corridor



1. Ambulance Dropoff Vestibule
2. Decontamination Room
3. Security
4. Emergency Medical Service
5. Patients Elevator Lobby



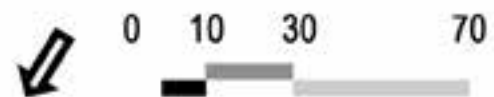
Exam Room Cluster



1. Exam Room Cluster
2. Care Team Station
3. Dictation Room
4. Medication Room
5. Clean Storage
6. Soiled Storage
7. Blood Storage
8. Nourishment



- Public / Administration
- Diagnostics and Treatment (Exam Rooms)



Imaging Department

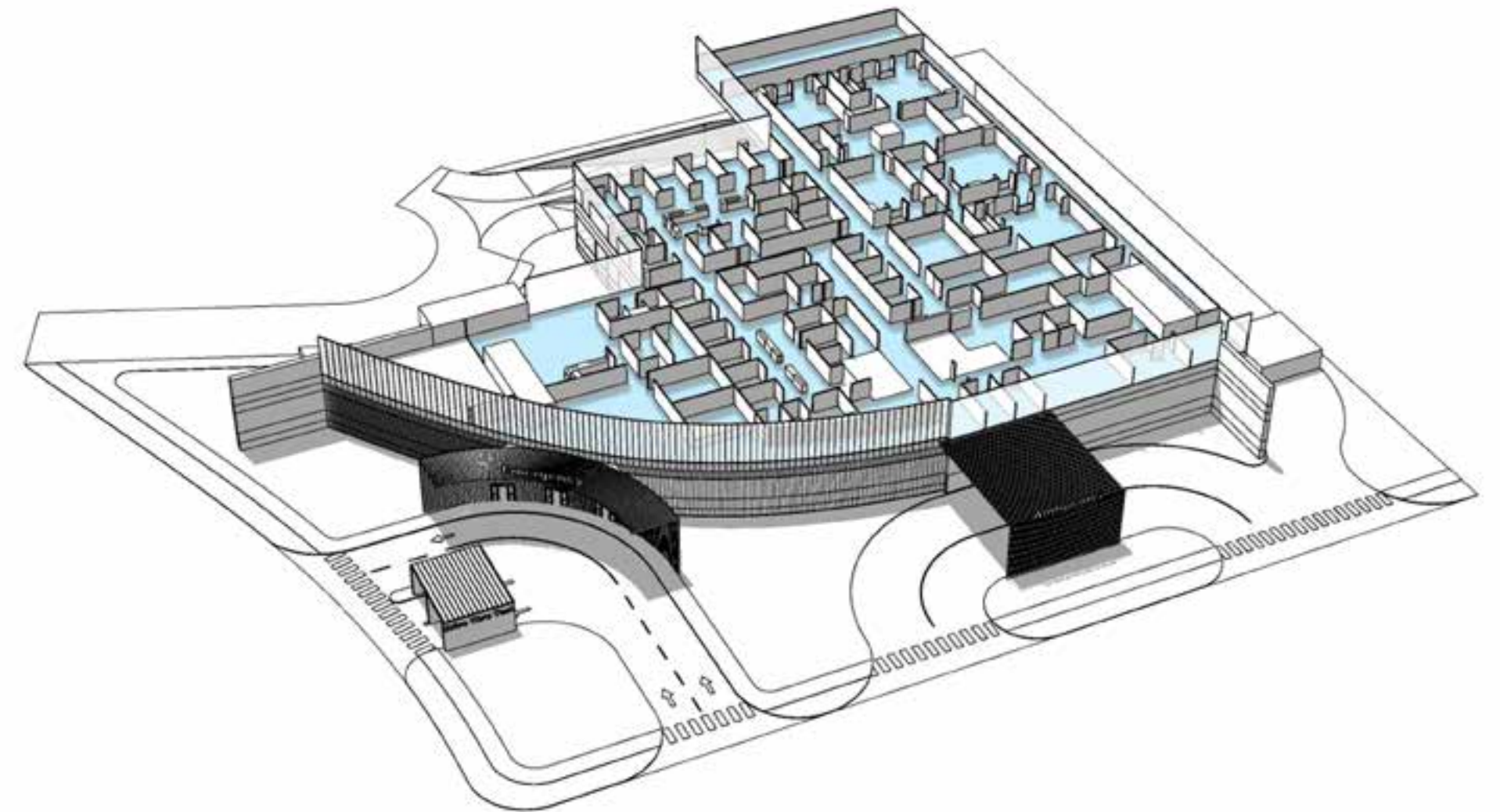
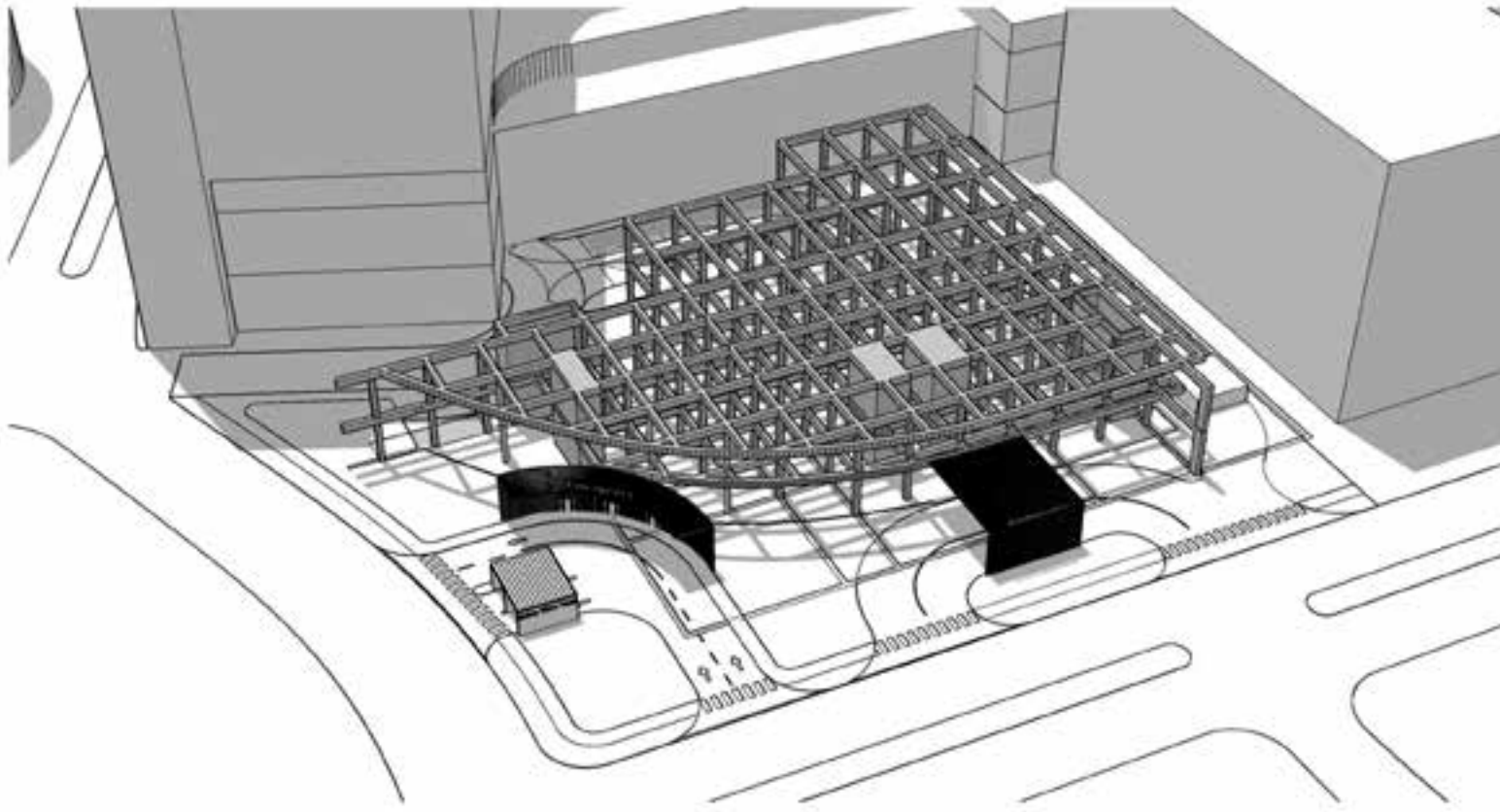


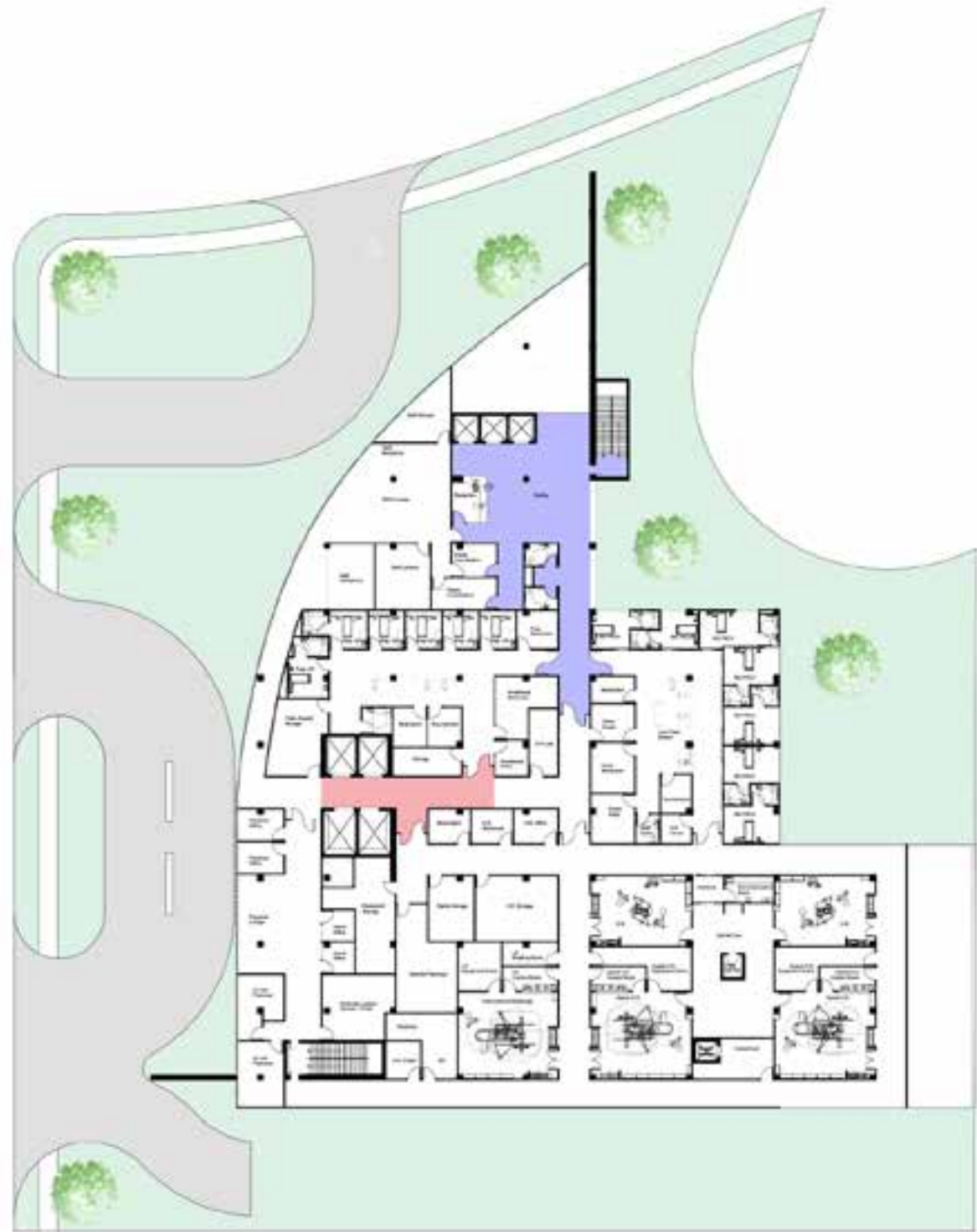
1. Staff Kitchen
2. Staff Offices Lobby
3. Staff Lounge
4. Staff Locker
5. Care Team Station
6. Prep / Recovery Room
7. Clean Supply
8. Medication
9. Soiled Utility
10. Tech. Workroom
11. Radio/Fluoro Room
12. Ultrasound Room
13. MRI Room
14. CT Scan Room

- Public / Administration
- Diagnostics and Treatment
- Patients Units / ICUs

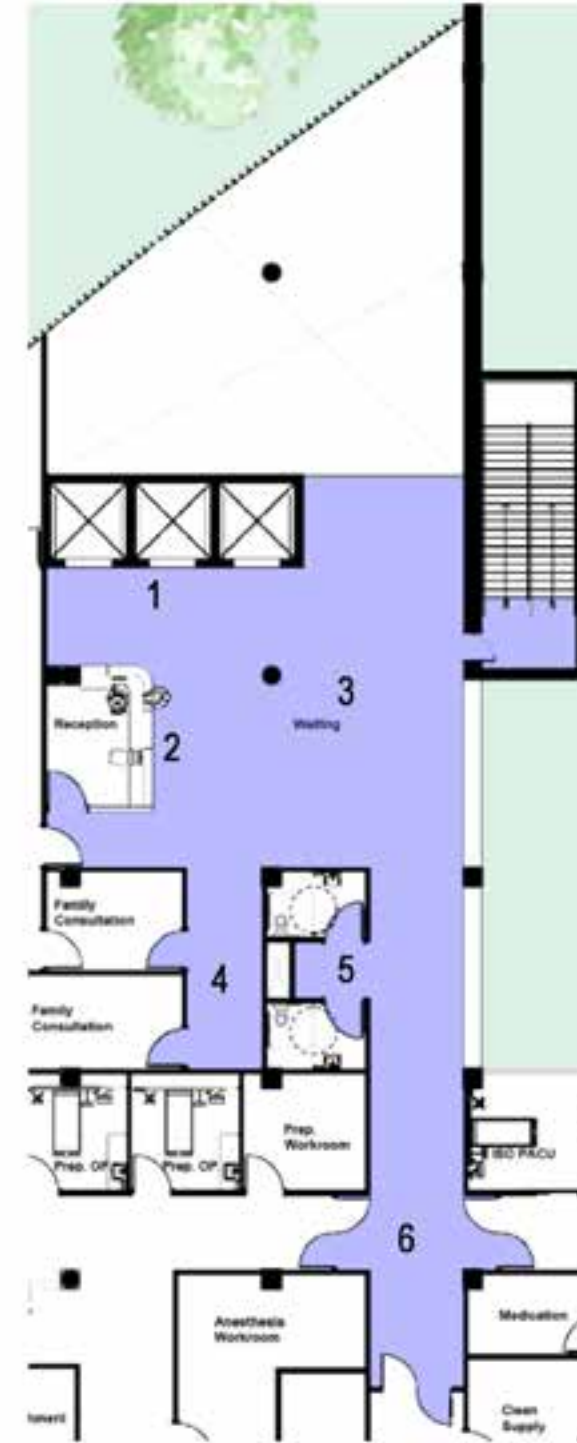
DESIGN - LEVEL 2

Reinforced Concrete Structure Layout

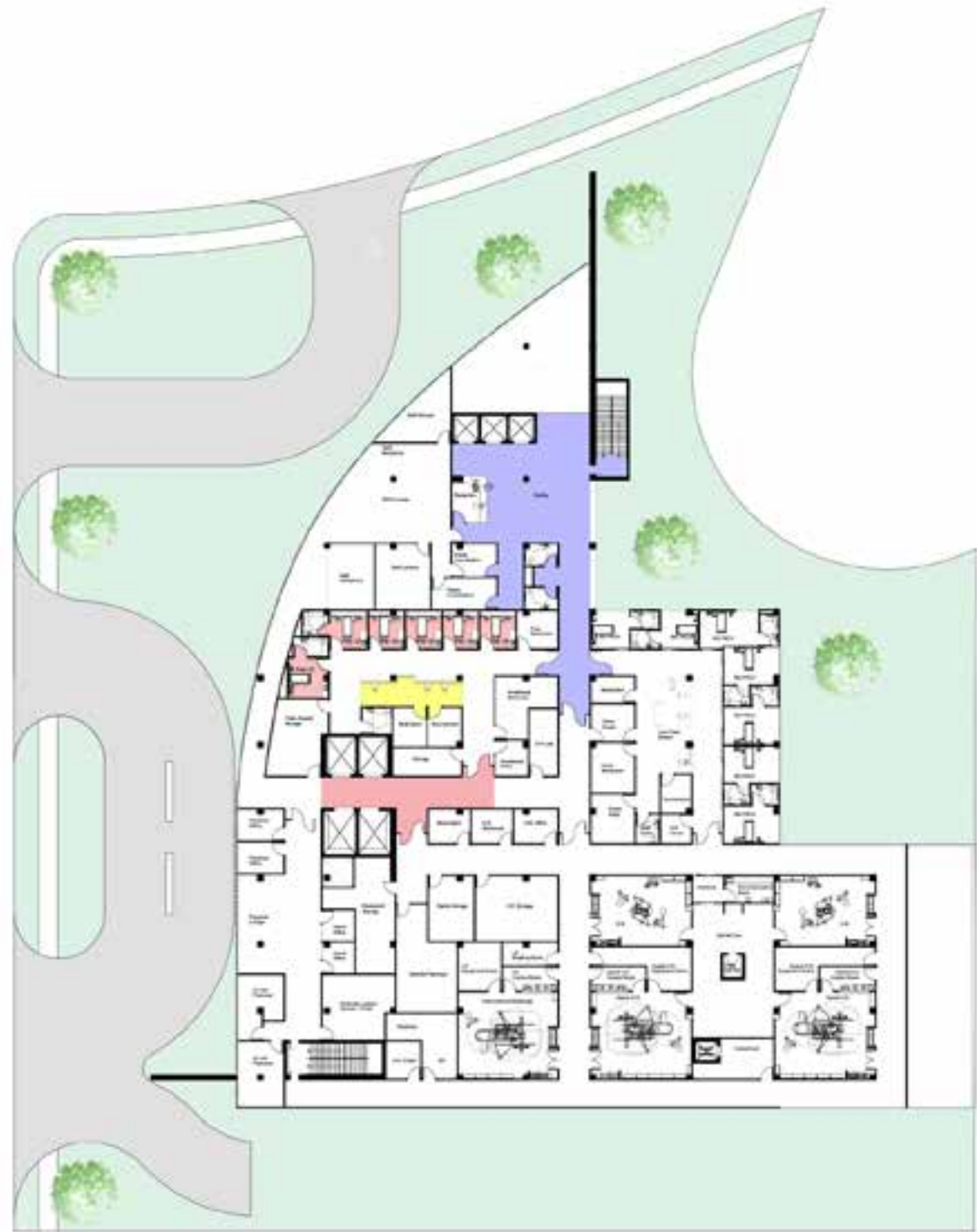




Surgery Department



1. Visitors Elevator Lobby
2. Reception
3. Waiting Area
4. Consultation Rooms Lobby
5. Visitors Washroom Access
6. Access to Prep / Recovery

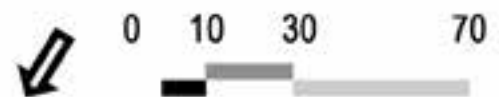


Surgery Department



1. Patients Elevator Lobby
2. Care Team Station
3. Anesthesia Workroom
4. Anesthesia Office
5. Storage
6. Medication
7. Nourishment
8. Clean Supply
9. Prep Workroom
10. Blood Bank

- Public / Administration
- Diagnostics and Treatment (Prep Rooms)



Surgery Department



- Public / Administration
- Diagnostics and Treatment (Operation Rooms)



Surgery Department

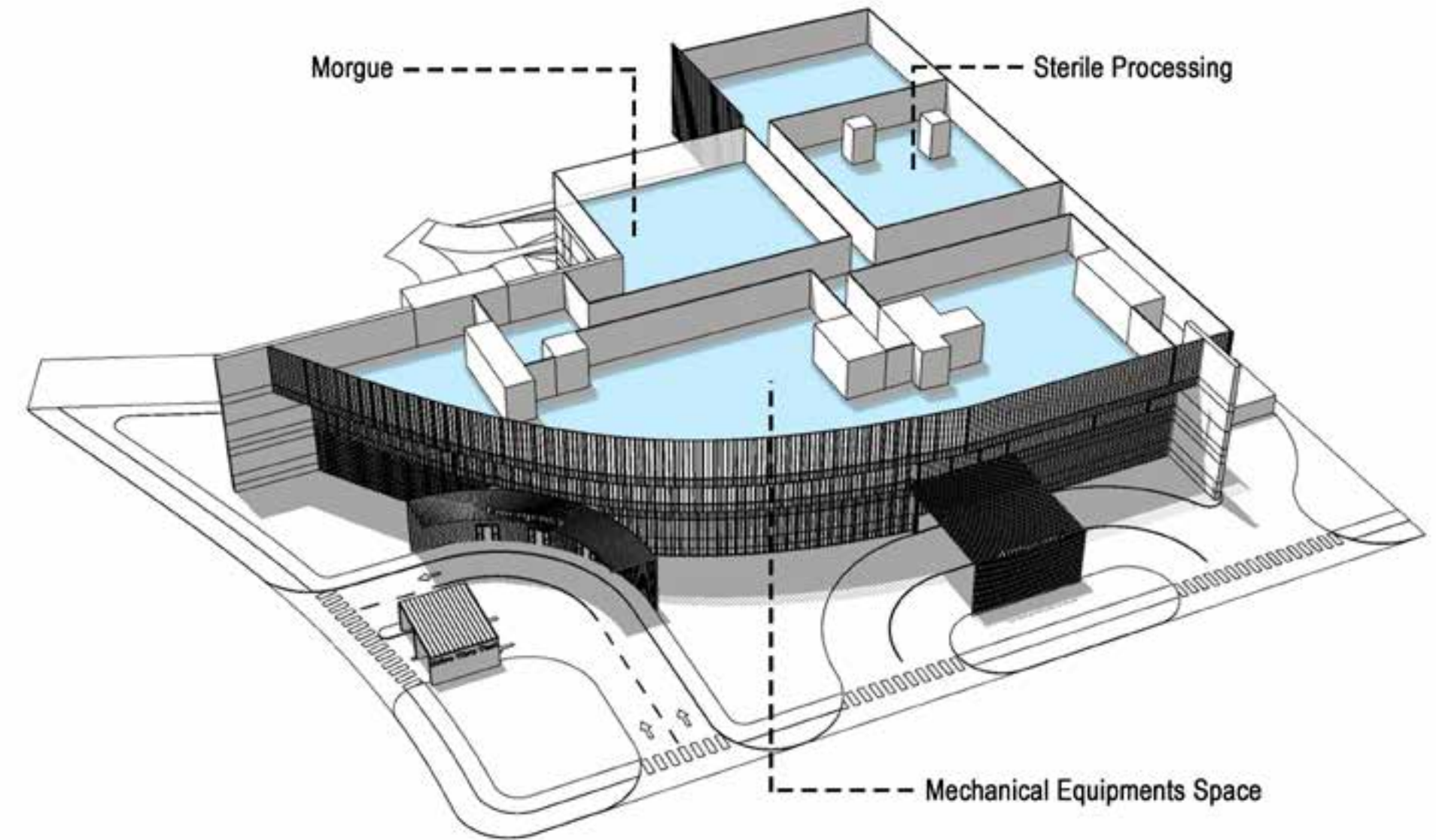
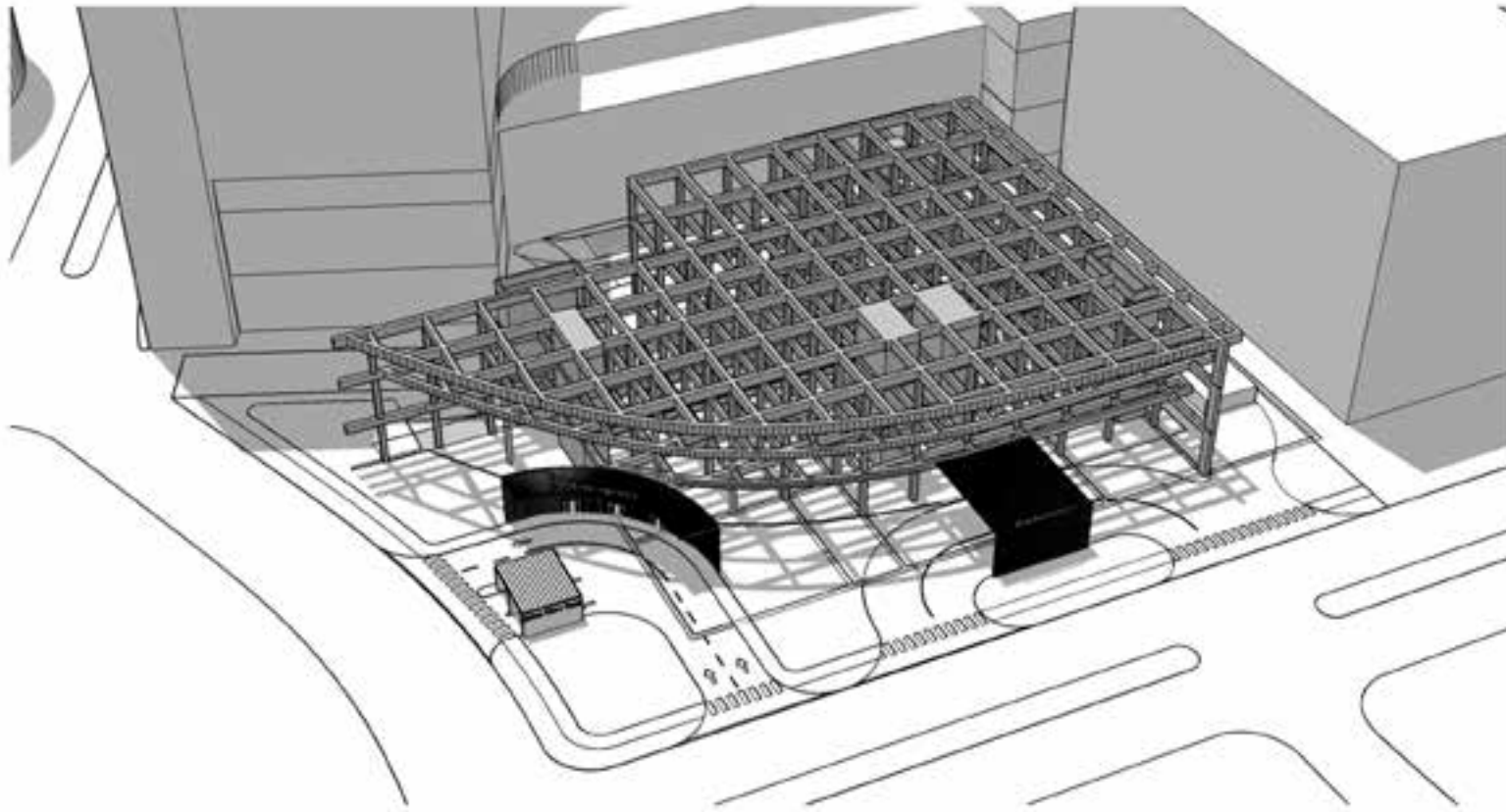


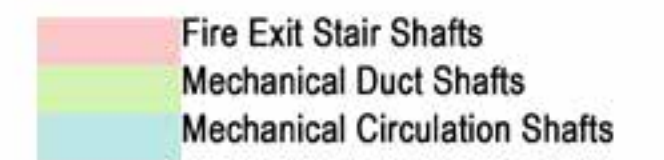
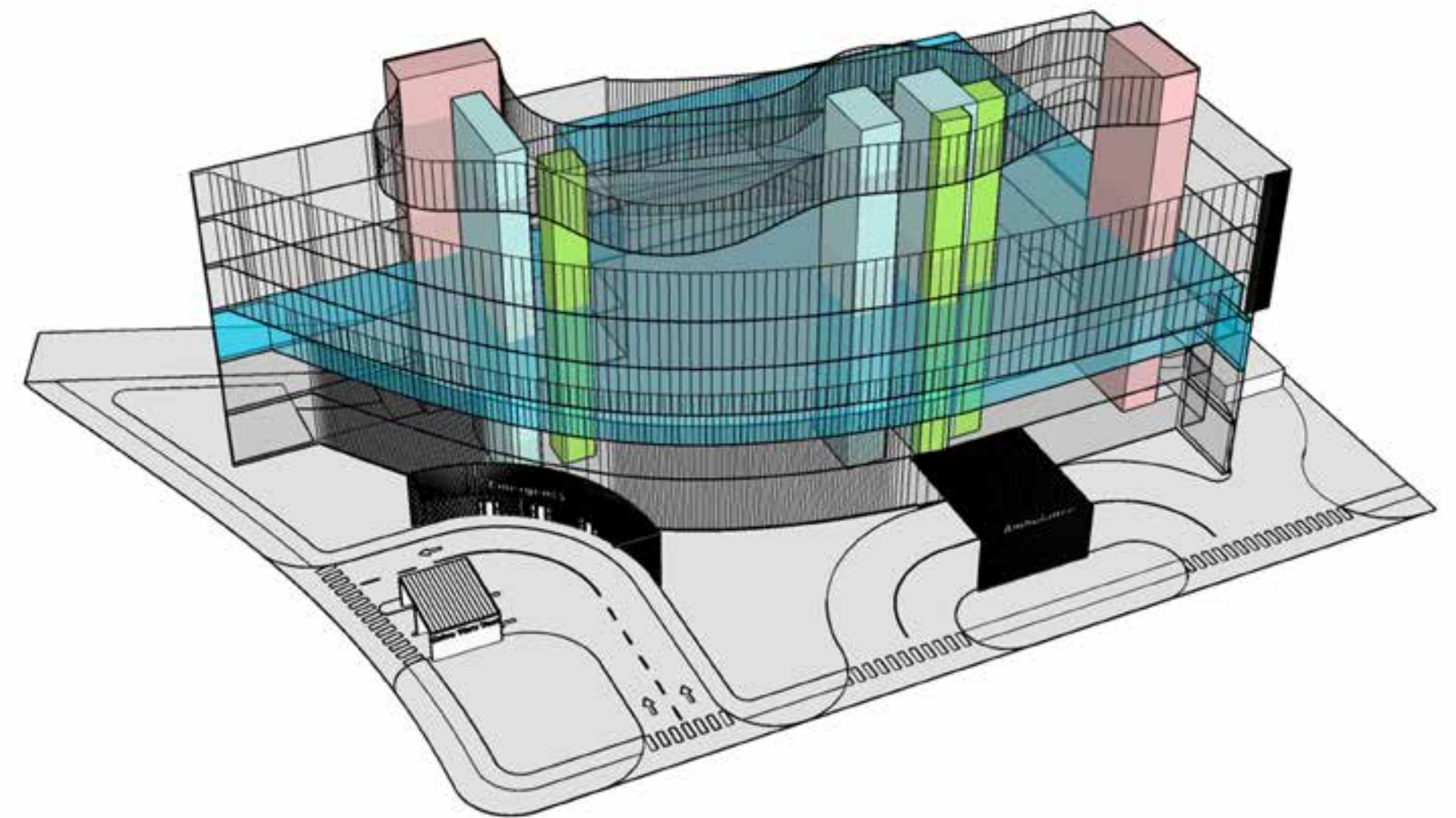
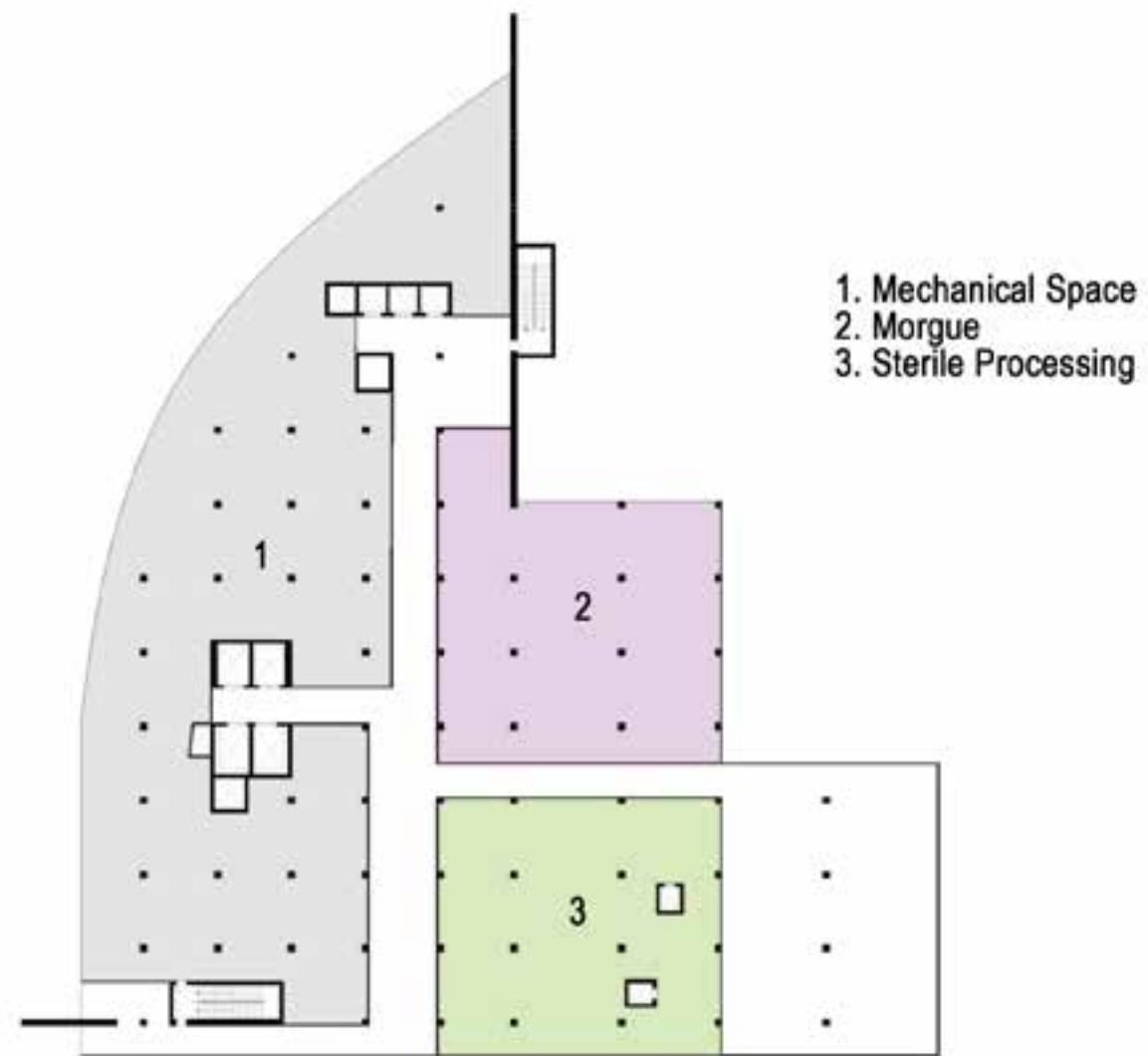
1. Care Team Station
2. Medication
3. Clean Supply
4. PACU Workroom
5. Soiled Utility
6. Nourishment

- Public / Administration
- Diagnostics and Treatment
- Patients Units / Recovery Units

DESIGN - LEVEL 3

Reinforced Concrete Structure Layout

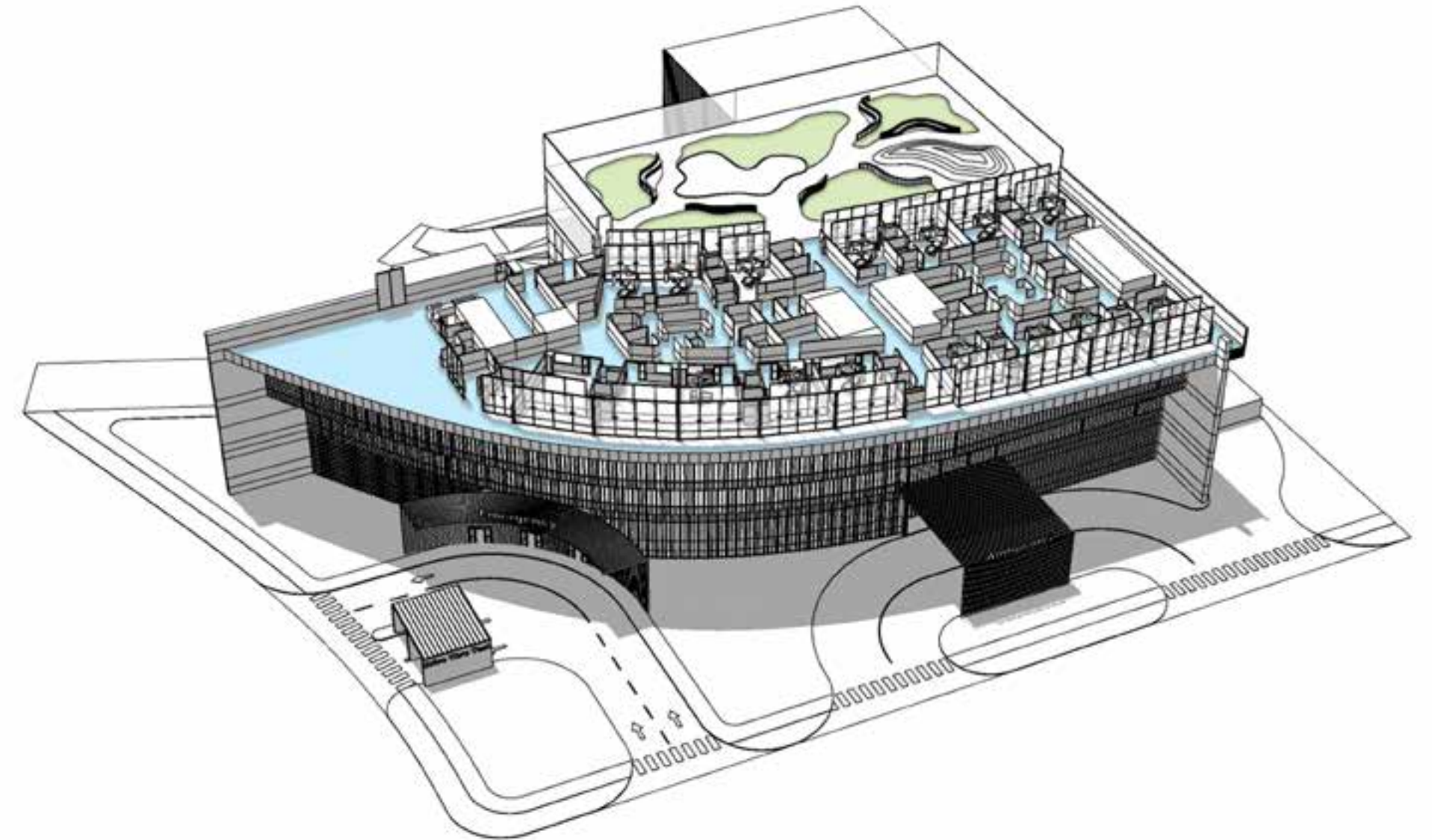
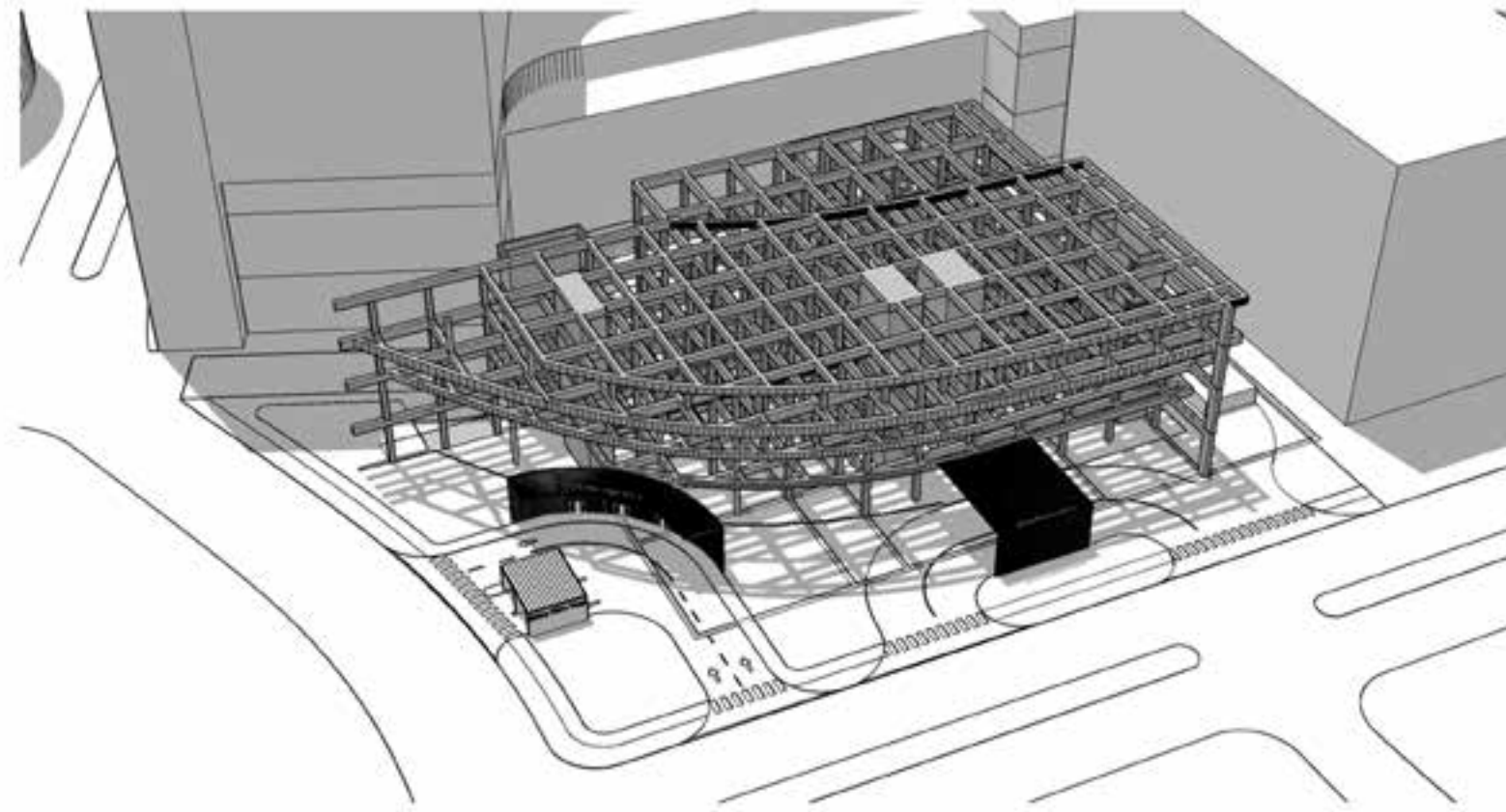






DESIGN - LEVEL 4

Reinforced Concrete Structure Layout





0 10 30 70 Level - 4

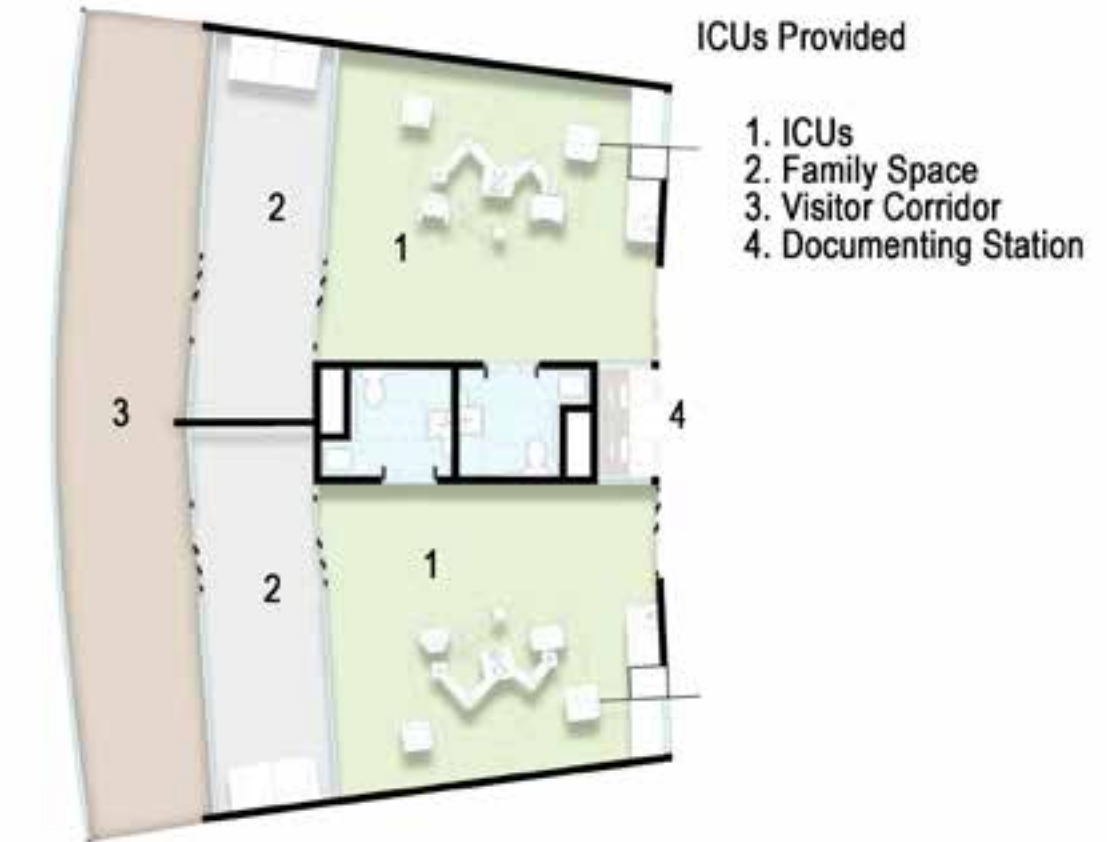
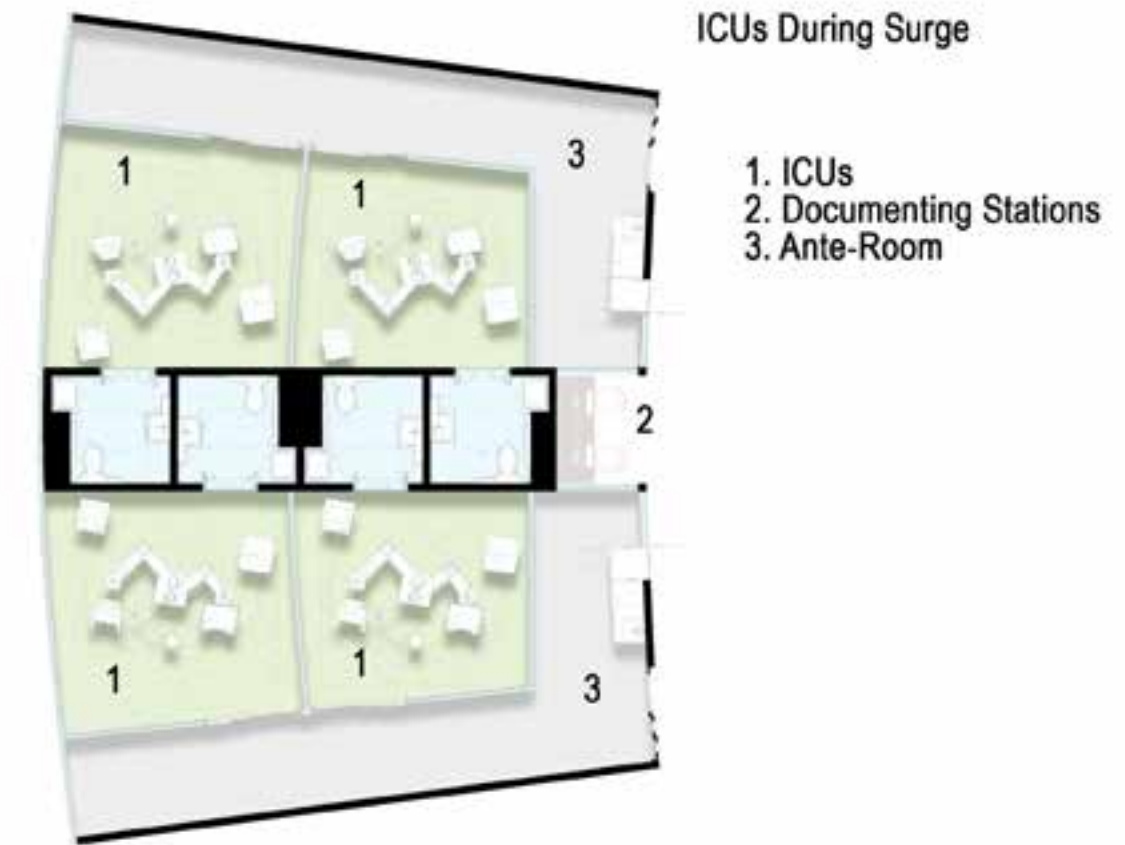


0 10 30 70 Level - 4



- Public / Administration
- Visitors Access Corridor / Space
- Patients Units / Recovery Units

0 10 30 70
Level - 4



Visitors Garden



Visitors Waiting and Corridor



ICU and Family Space

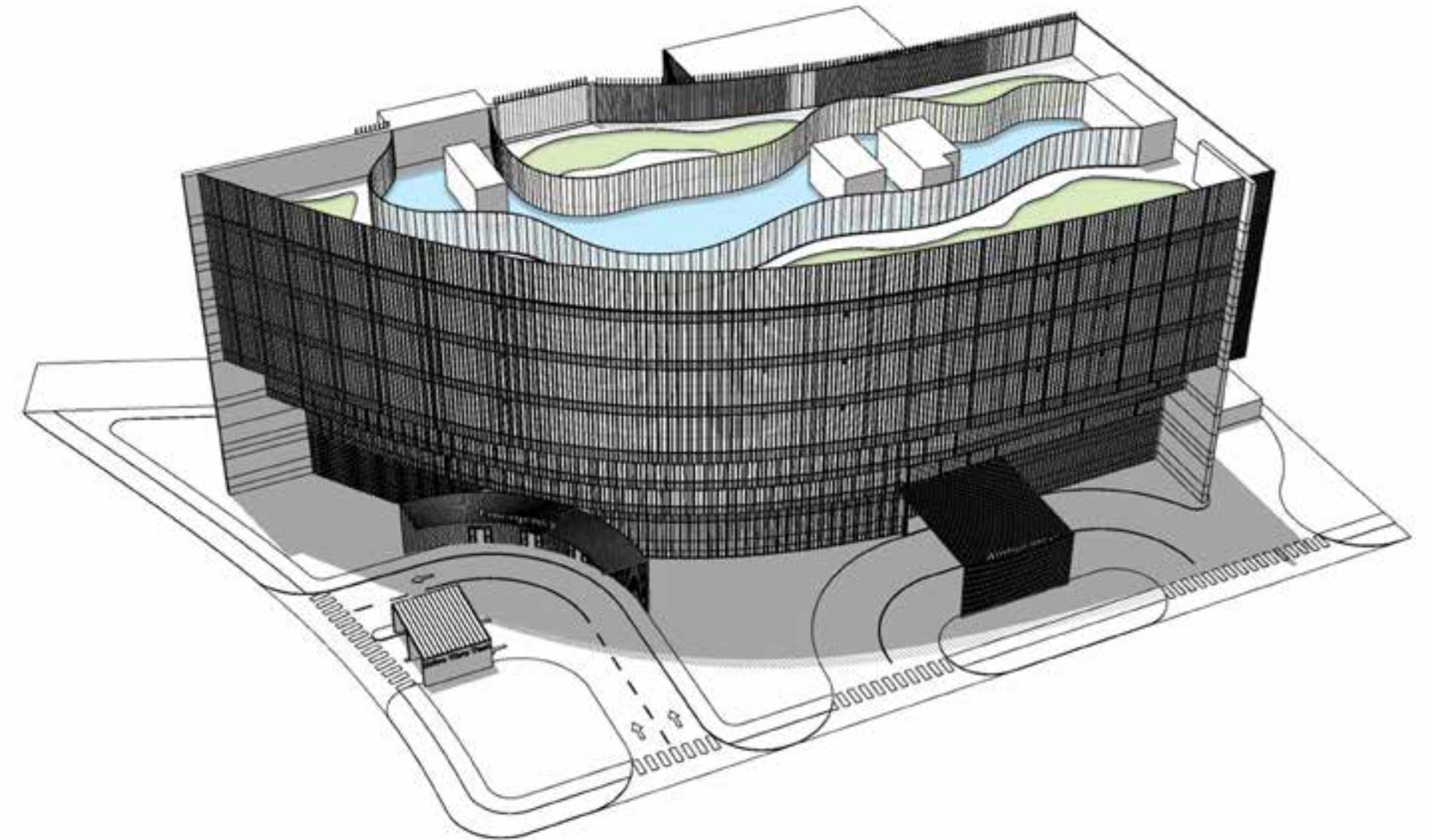
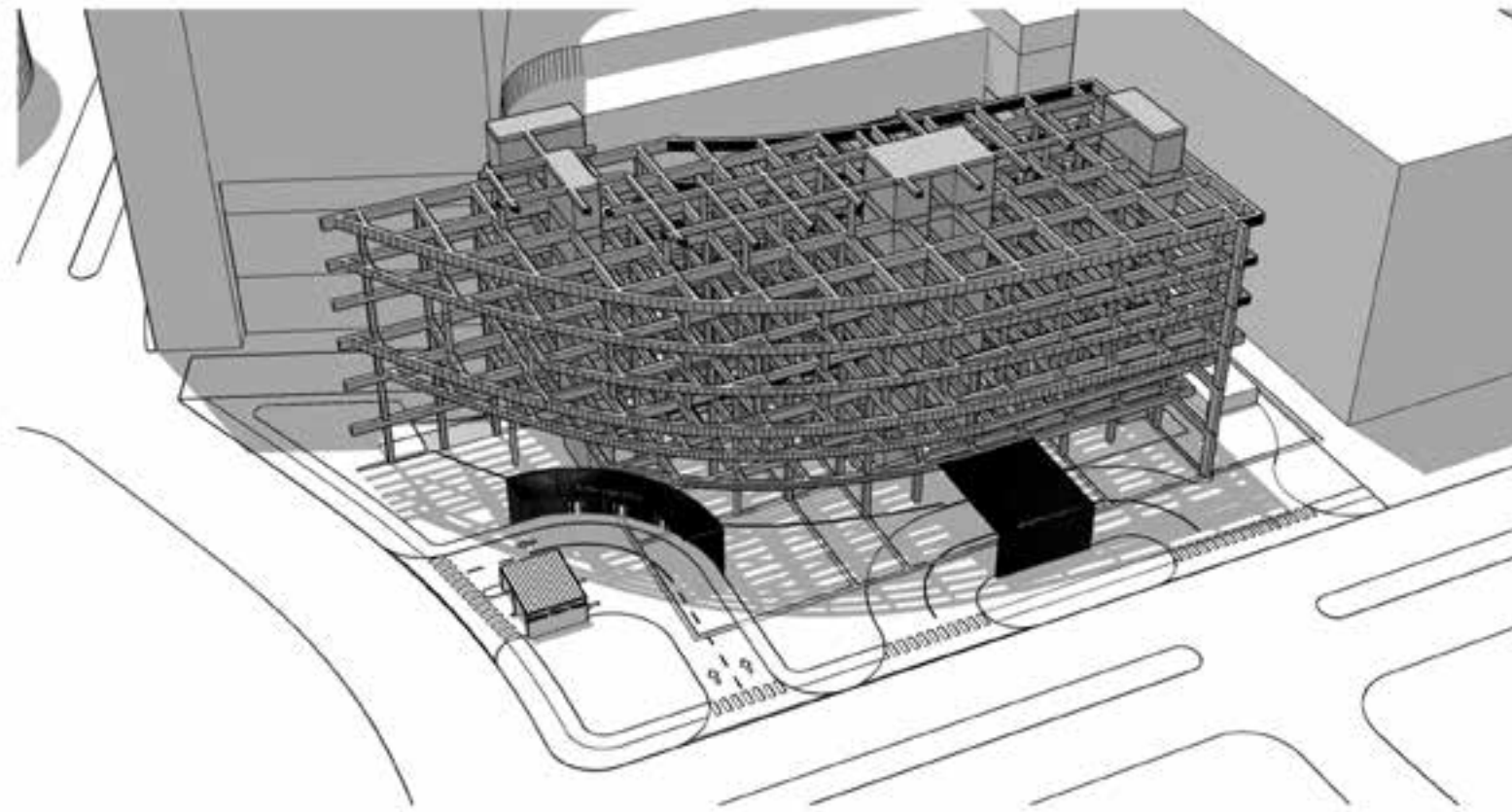


Staff Corridor and Visitors Corridor next to Garden



DESIGN - LEVEL 7

Reinforced Concrete Structure Layout





0 10 30 70

Level - 5 Roof Top Garden



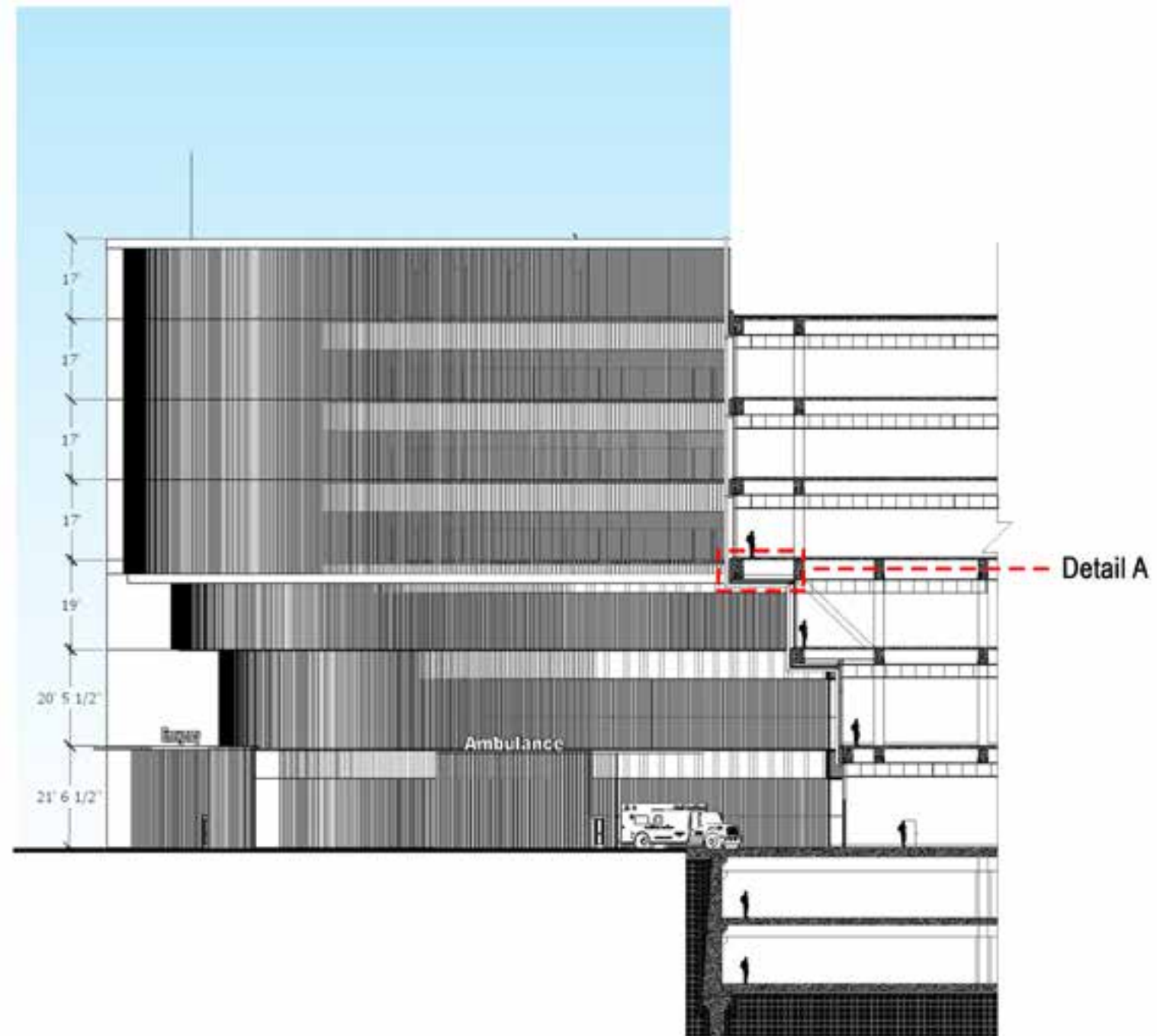
Building Section



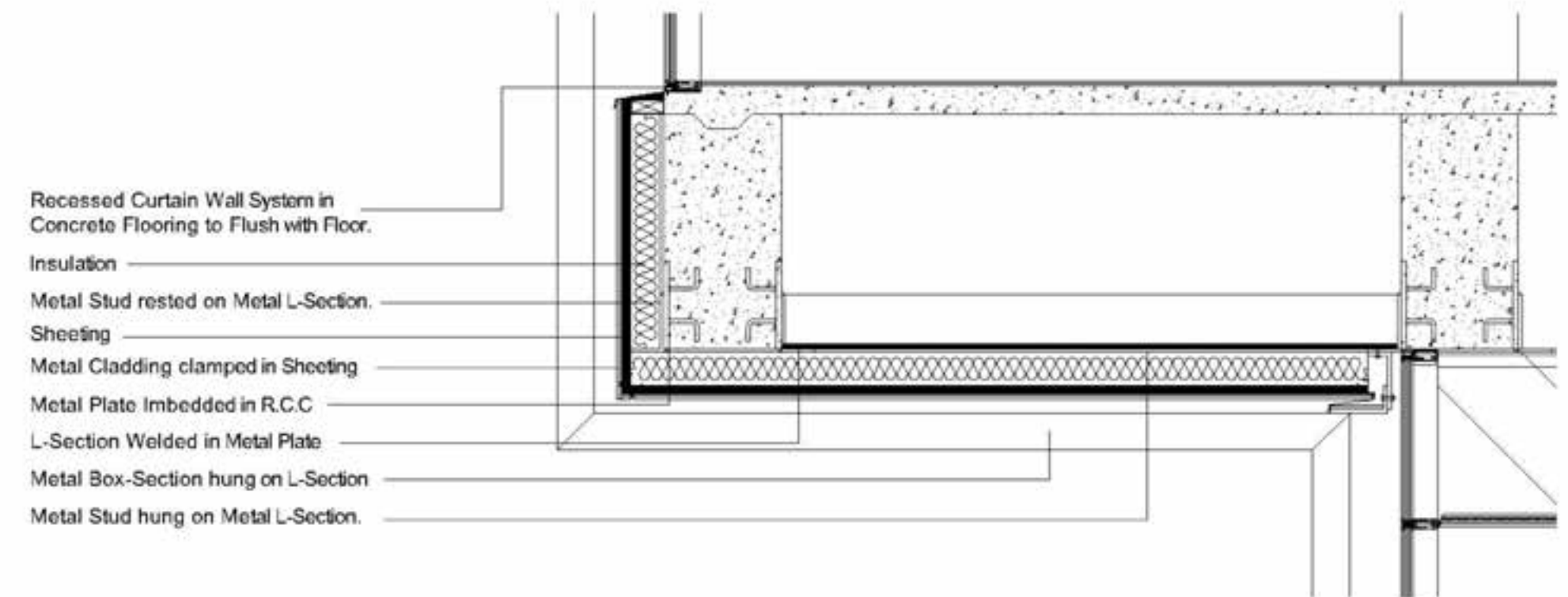
Roof Top Garden



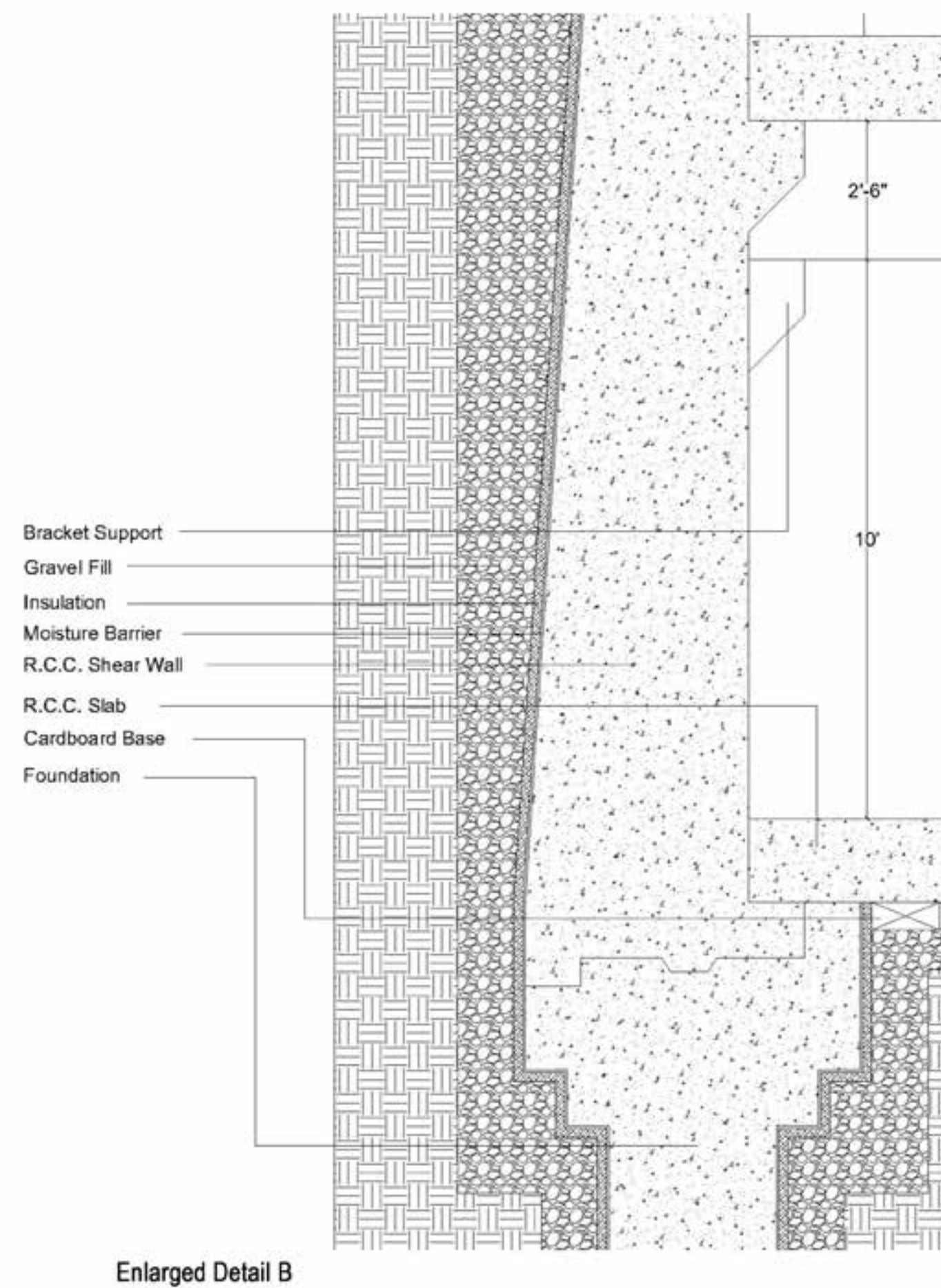
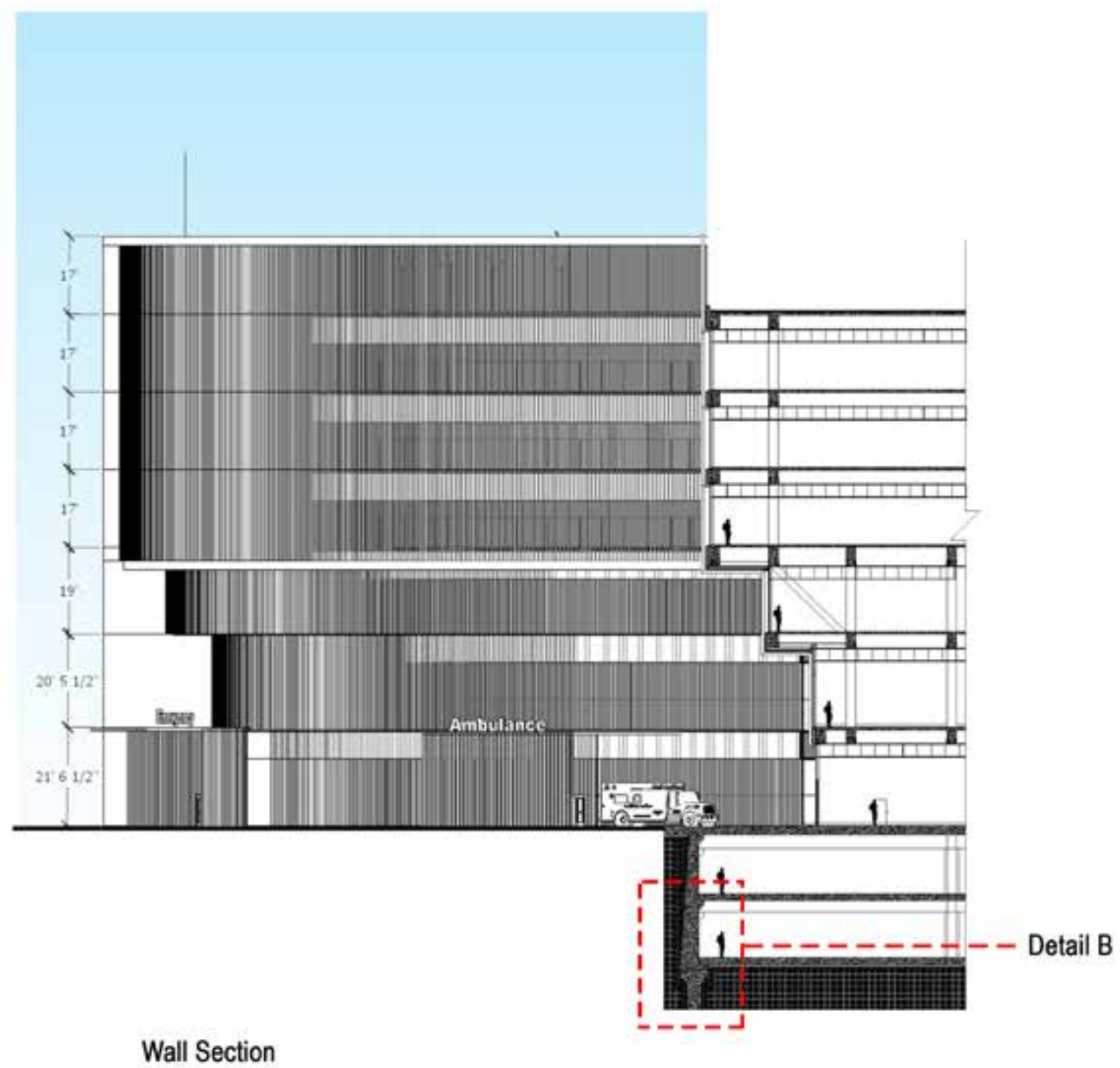


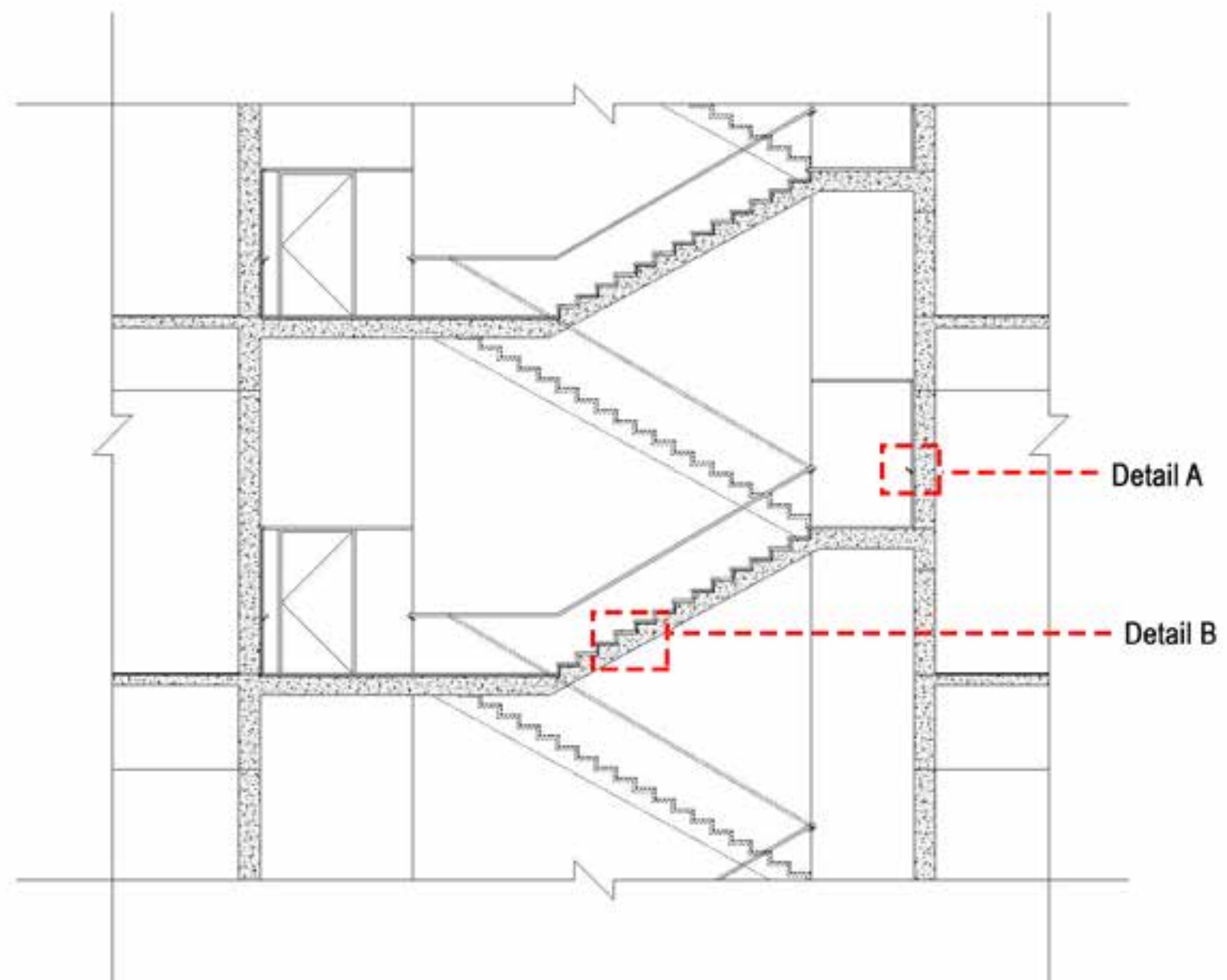


Wall Section

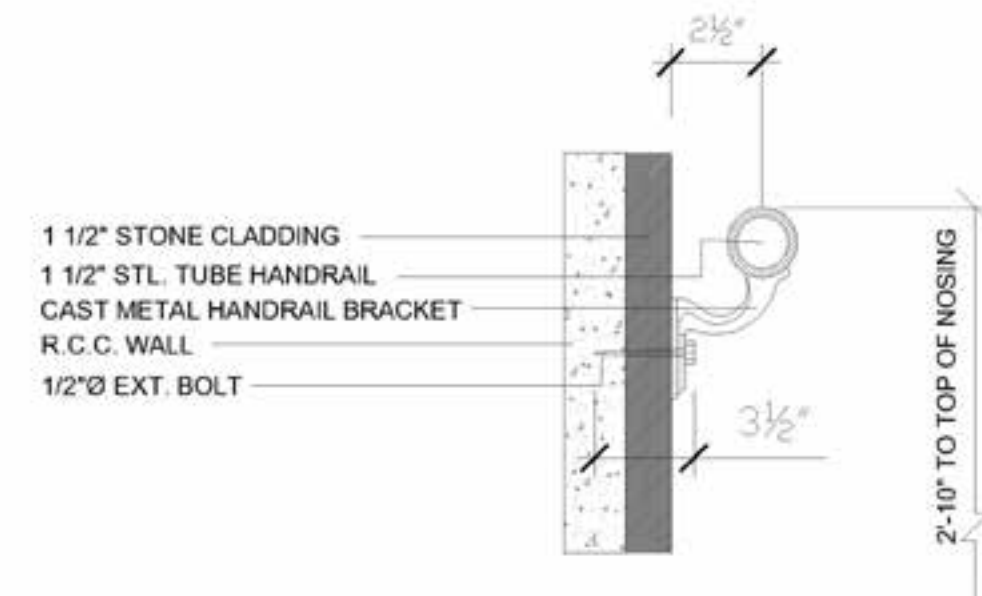


Enlarged Detail A

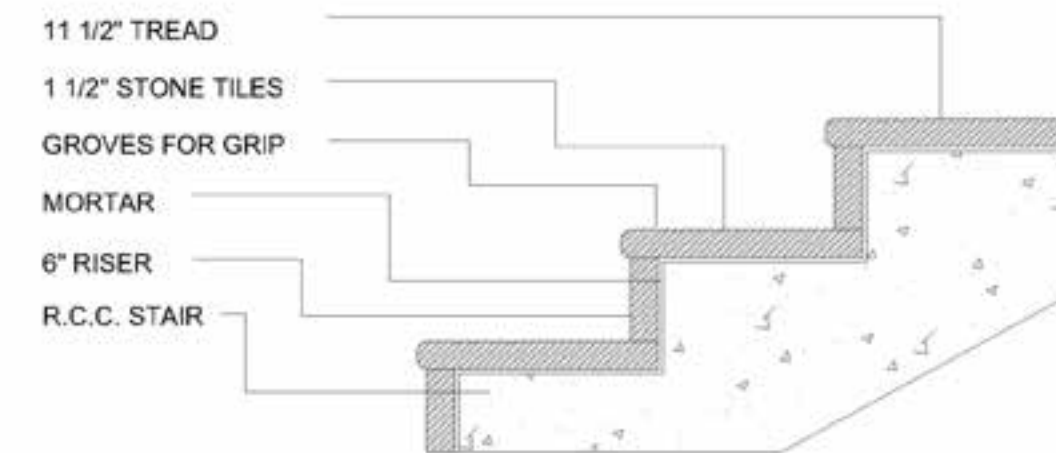




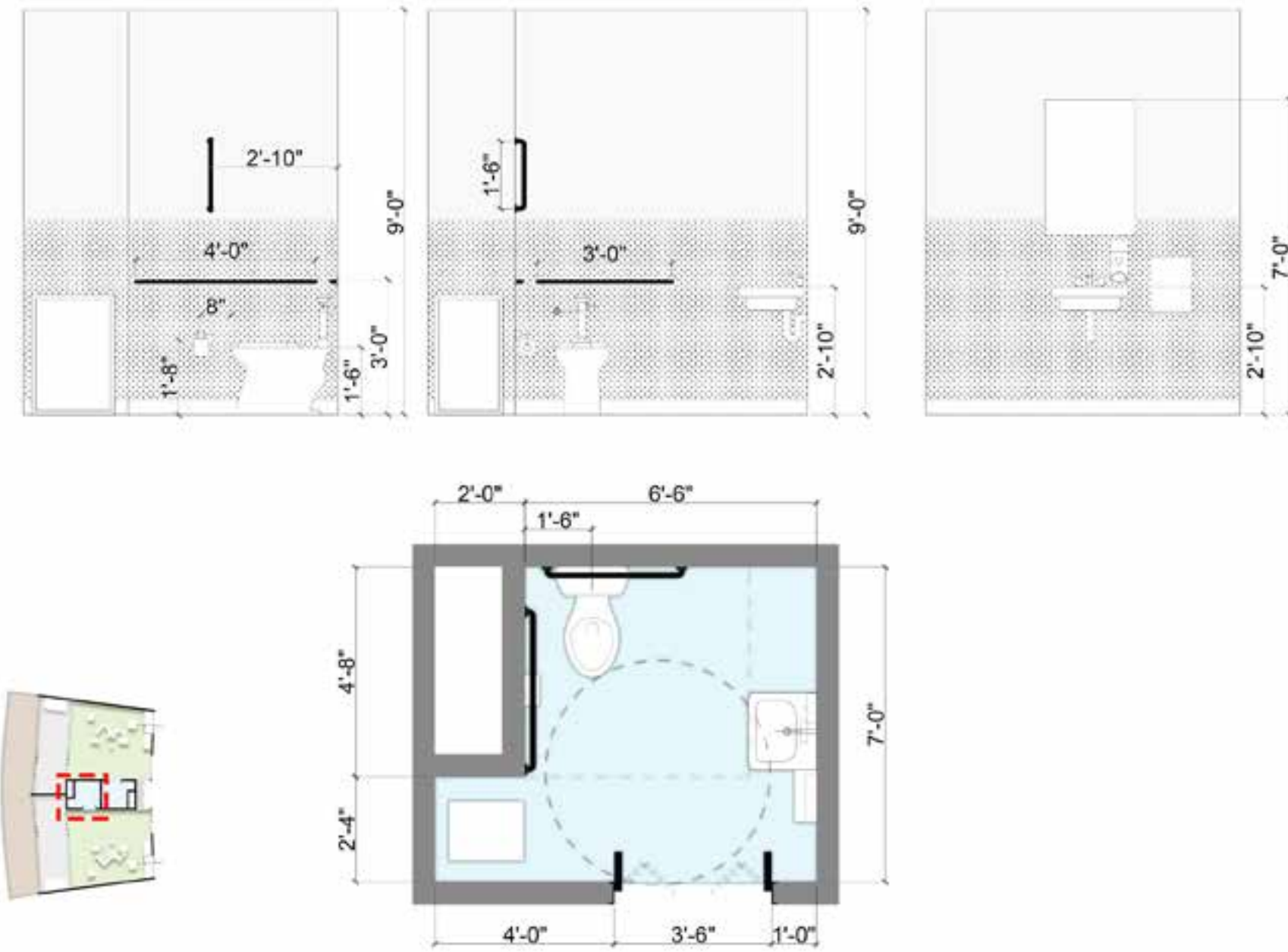
Stair Section



Detail A



Detail B



ADA Toilet Detail



REFERENCES

Augustine, James J. "Latest Data Reveal the ED's Role as Hospital Admission Gatekeeper." ACEP Now, www.acepnow.com/article/latest-data-reveal-the-eds-role-as-hospital-admission-gatekeeper/.

"FastStats - Emergency Department Visits." Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, 9 Apr. 2021, www.cdc.gov/nchs/fastats/emergency-department.htm.

"How Many Emergency Rooms Are in Houston?: BellaireER: BellaireER." Bellaire ER, 29 June 2018, bellaireer.com/how-many-emergency-rooms-are-in-houston/.

Sun path software by Dr. Andrew Marsh, online access link in andrewmarsh.com.

Google Earth Images for Site.

Climate Consultant Software for Climatic data of site.

Case Study 1 – All the drawings and photographs provided by EYP Inc.

Case Study 2 – All the drawings and photographs provided by WHR Architects.

Case Study 3 – All the drawings and photographs provided by HDR Inc.

Program was generated with the help of Ar. Mark Vaughan, Managing Principal at EYP Inc, Dallas office.

All the Shock Trauma Facility drawings, graphics and renderings generated by author.

