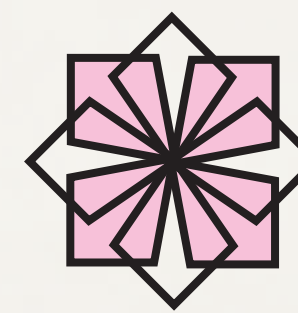


THE THINKING ASSEMBLY



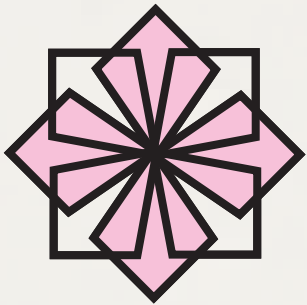
DESIGN PROJECT IN ARCHITECTURAL STUDY



PDAS Year 2

Kong Wai Lun

10587806



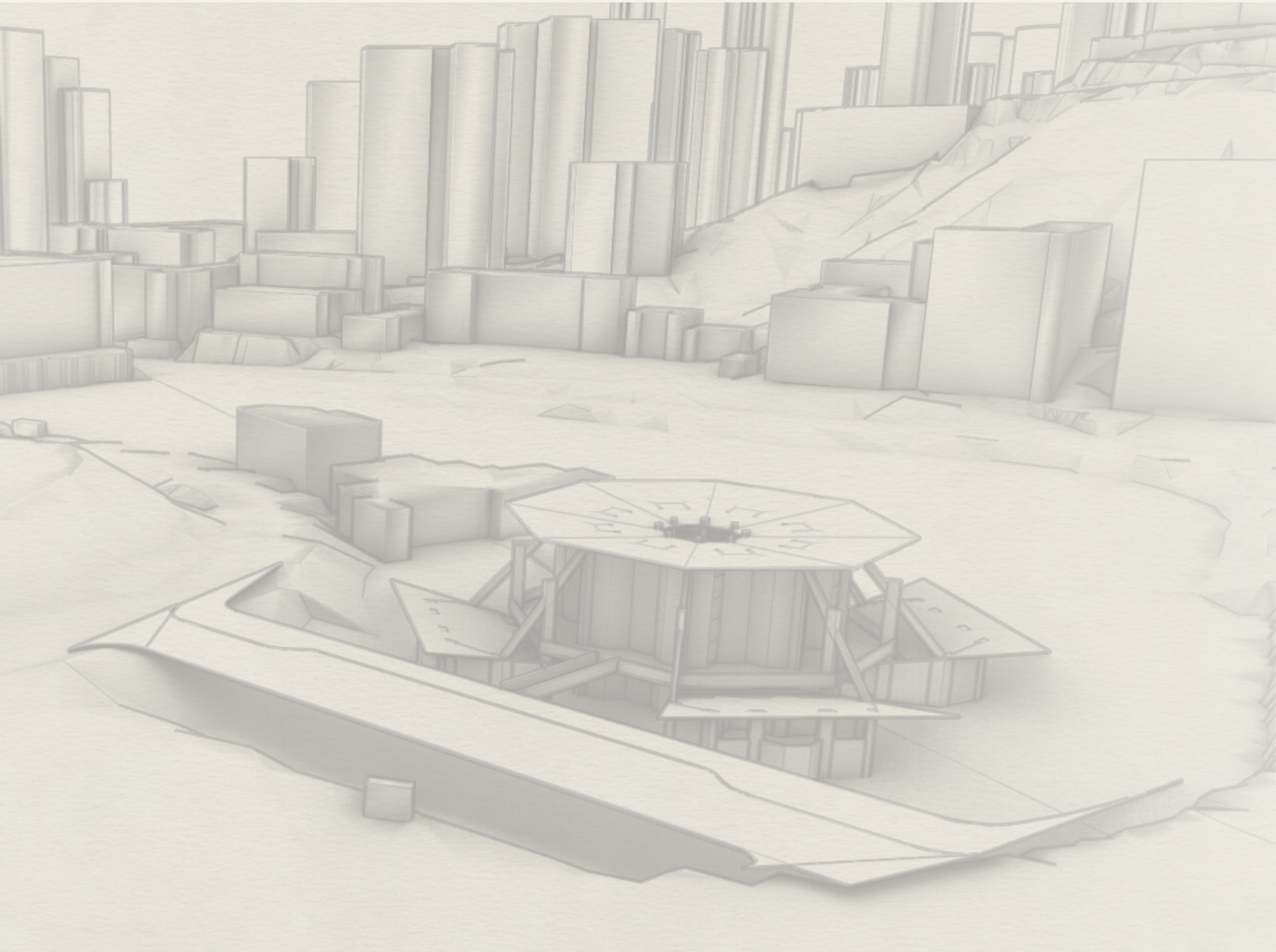
ABSTRACT

student in 10-12-year-old, they actually don't need a space for learning, they are able to learn themselves by internet technology. this doesn't mean they don't need to learn from the teacher, but they need someone answering their question. In a typical school, all knowledge had preserved for the student, whatever their interest, hobby, talent, they have the same schedules for their learning, the same timetable for a different kind of genius students.

How can the genius pianist show talent with no piano? However, students in hong kong, they need to make their decision for their future, they have to pick their destiny by electing the subject they don't ever understand. In fact, they don't even have their choice, which belongs to their parents with also no idea, and a piece of sheet with some unfair code.

Thinker assessbly is student leading learning center, there is no teacher or time table, but there are exhibitions and specialist ready for students to ask and learn. Every single day, students are able to find their interesting subject to explore, they don't need to waste their time to wait for other students, they don't need time for learning something they already understand, they have a whole day to enjoy to the ocean of knowledge, and pass all the challenges at the end of the day, when they feel puzzled, the specialists are ready for any question.

After each single school days, specialists are collected all the data of the student, who interested with which subject, who have a talent for the subject, which subject has most interest or not, which question has most asked. the specialists have their responsibility to invite students to enjoy their subject and make it interest. and prepare the next exhibition by the data for the next day.



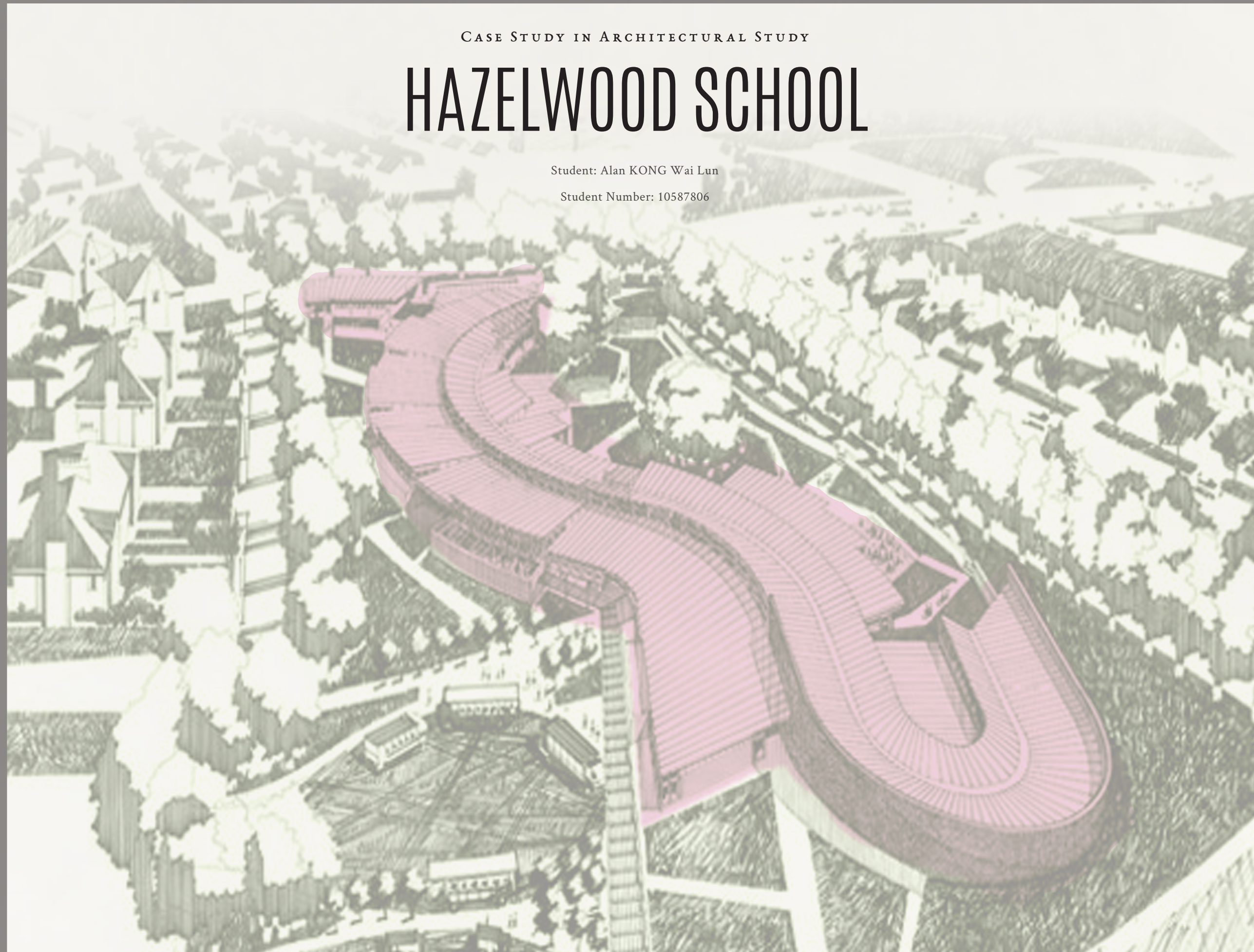
*Story begin
from the research..*

CASE STUDY IN ARCHITECTURAL STUDY

HAZELWOOD SCHOOL

Student: Alan KONG Wai Lun

Student Number: 10587806



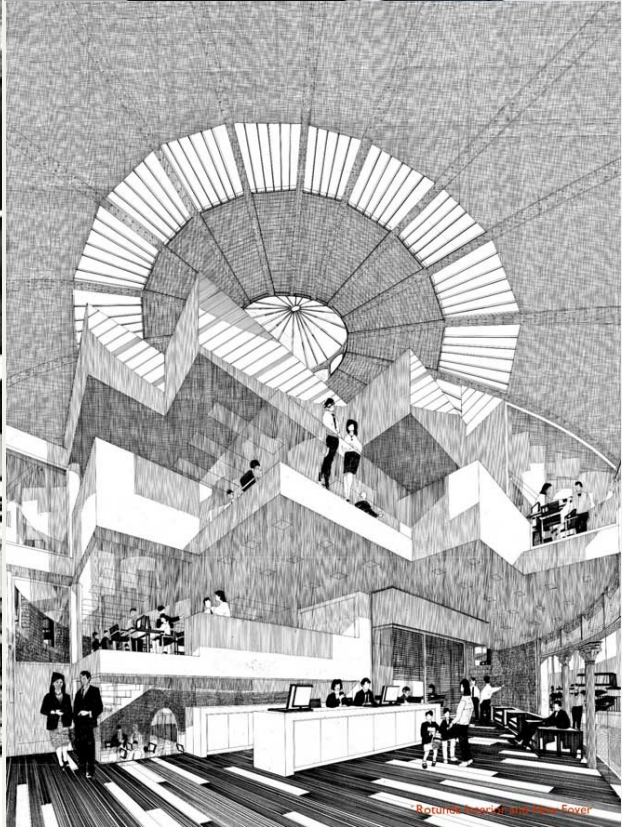


ABSTRACT

Hazelwood sits on land owned by Glasgow City Council at the edge of Bellahouston Park. Major roads closely border the site. The site is shared with the Dumbreck conservation area as well as residential villas and a residential tower and was required to reflect neighbouring buildings in scale and height. The client also required that existing trees on the site be retained and that the building's roofline remain below the first floor level of nearby homes that looked onto the site. The new school was to replace two existing schools serving children with disabilities, one with children who were had primarily vision impairments, some with co-occurring hearing limitations, and the other with a wide range of functional limitations, many children with multiple disabilities including learning disabilities and some with autism. Hazelwood had to merge schools that started with quite different student populations, very different teaching methodologies and both of which had previously been residential schools. In order to meet this unusual set of needs as well as the constraints of the site, Hazelwood's designers needed to go far beyond the requirements of accessible school design and invent innovative solutions in partnership with the teachers, students and parents. The school snakes through the site, curving around existing trees. Its form creates a series of small garden spaces suitable to small class sizes and maximizes the opportunity for more intimate outdoor teaching and learning experiences. Internally, the curved form of the building reduces the visual scale of the main circulation spaces (the 'street') and helps remove the institutional feel that a single long corridor might create. Installation of tactile aids, contrasting colour and materials, and creation of uncluttered, readable interior and exterior spaces factored significantly in the design. Specific devices, such as the "Trail Rail" were designed to enable children to safely and independently navigate everywhere in the building.

ARCHITECT

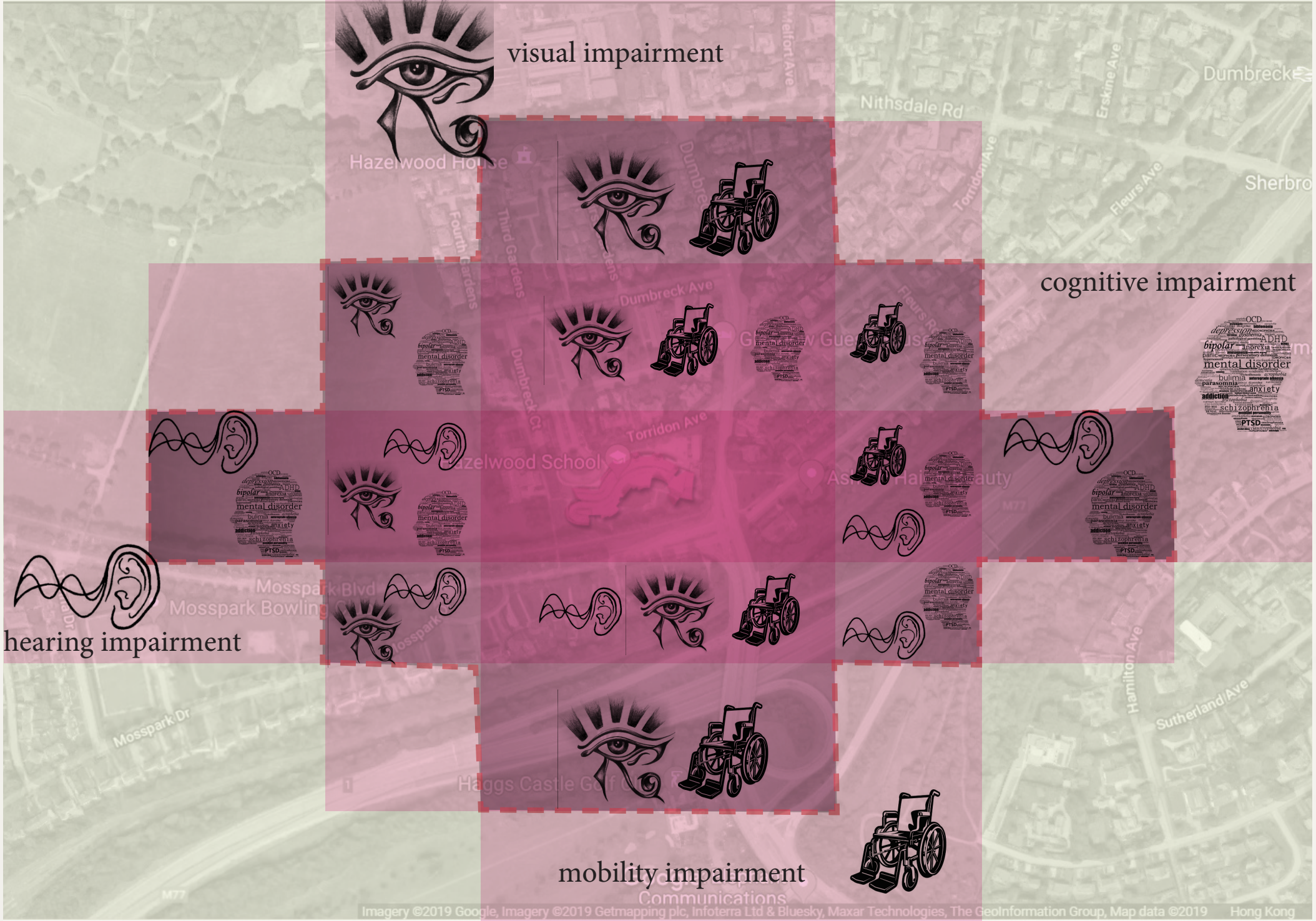
Alan Dunlop is a fellow of the Royal Incorporation of Architects in Scotland (RIAS) and an alumnus of the Glasgow School of Art. He recently served as the distinguished Victor L Regnier visiting chair in architecture at Kansas State University and as chair of contemporary architectural practice at the University of Liverpool. He is now a visiting professor at Robert Gordon University, Scott Sutherland School of Architecture, and the University of Liverpool. He was the external examiner at XJTLU School of Architecture in Suzhou, helping it become the first school of architecture on mainland China to receive accreditation from the RIBA. He has written extensively on architecture and urban design. Two books on his work, Challenging Contextualism and Curious Rationalism, have been published.



ABSTRACT

Background to building

Hazelwood School caters for 60 students with multiple disabilities, aged from 2 to 19. Each student has a combination of two or more of the following impairments: visual impairment, hearing impairment, mobility or cognitive impairment. The design focused on creating a safe, stimulating environment for both pupils and staff. The design is aimed at eliminating any institutional aspects and avoiding conventional or standard details, creating a bespoke design that incorporates visual, sound and tactile clues. The school is set within a landscaped green adjacent to Bellahouston Park in Glasgow, which is surrounded by mature lime trees with three beech trees in the centre. The building snakes through the site, curving around the existing trees, creating a series of small garden spaces, and maximising the potential for more intimate external teaching environments.

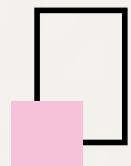


STUDY FOCUS

PROTECTION · INTERACTION · ADAPTATION



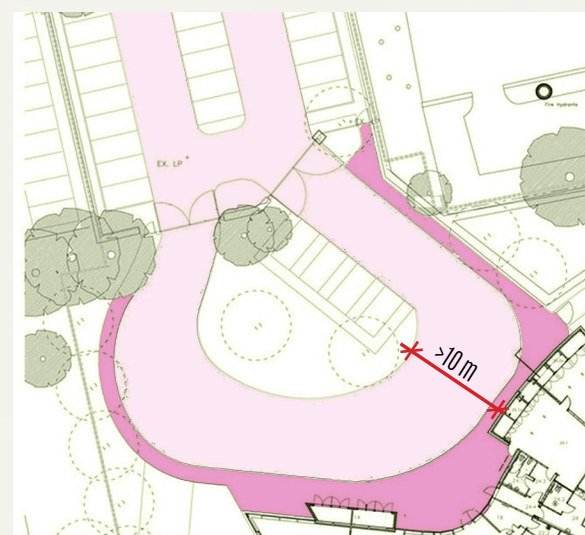
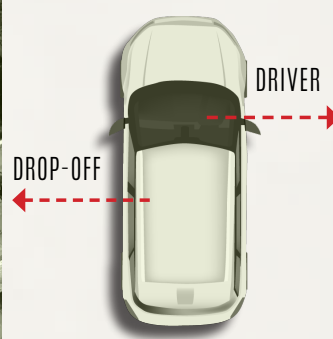
MORE THAN VISION



THE STUDY OF THE TRAFFIC SYSTEM AND ENTRANCE



ROUNDABOUT



CONCLUSION

Considered with there are so many disabled students, the larger roundabout creates more space for drop-off, the clock-wise direction avoids student cross the road to protect them away form risk.

The difference in the material used for driveway and pavement, which is a find-a-way system for students with visual imperment identify their way to avoid the accident.



INTERACTION WITH PASSIVE AND ACTIVE SPACE

The cured design created a wild-angel view from the interior to exterior. The teachers can watch the student from inside to outside, provide robust protection and interaction.

TREE AS THE GUARDIAN

The tree as well as the hug with mother, which separate the driveway and children, to avoid the risk and protect the children with cognitive impairment away from lost.

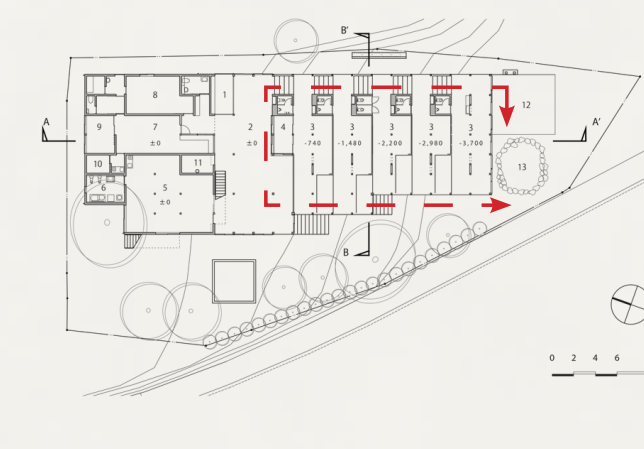


CIRCULATION SYSTEM FOR SCHOOL

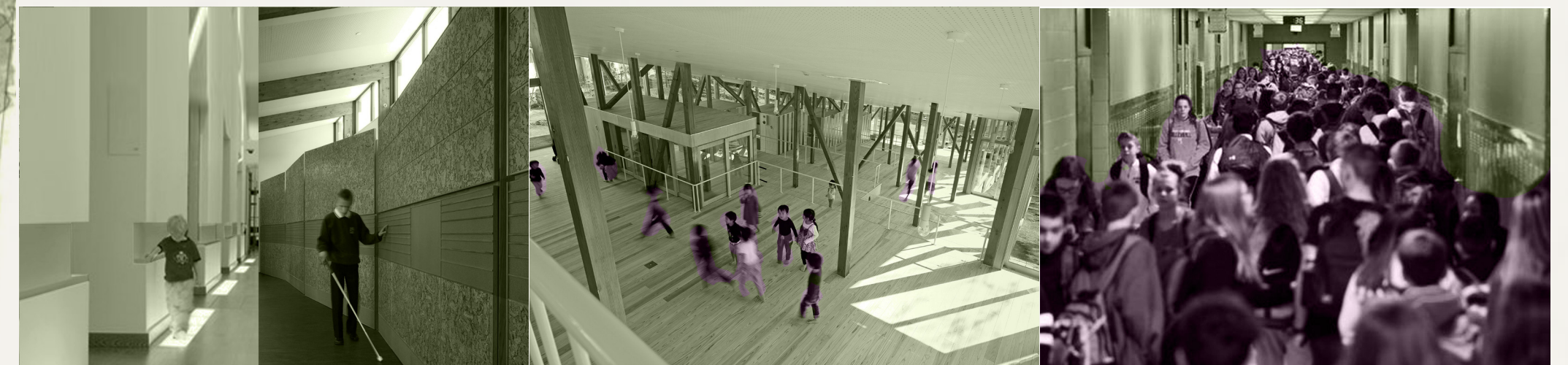
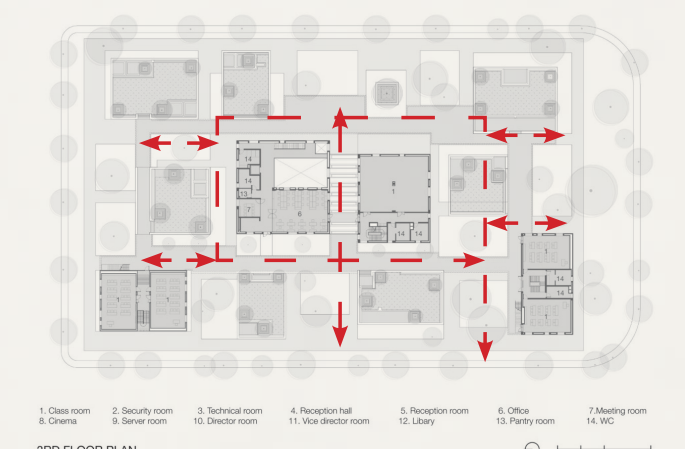
ONE DIRECTION



CIRCLE - DIRECTION



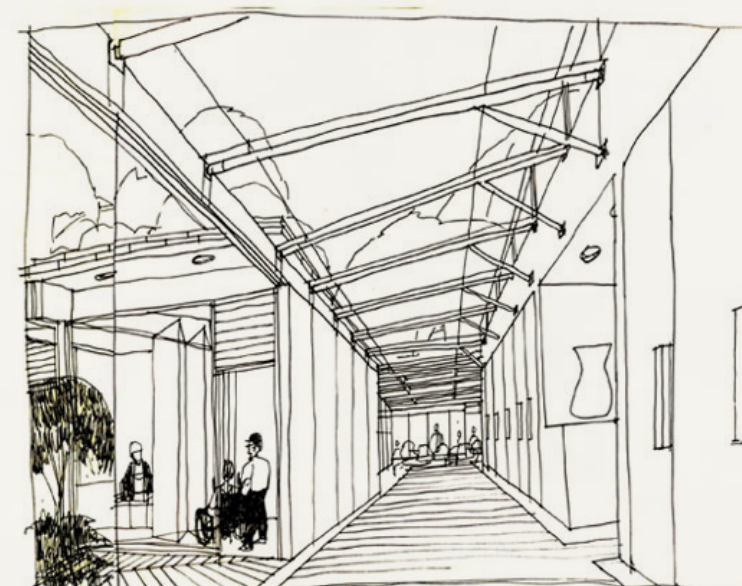
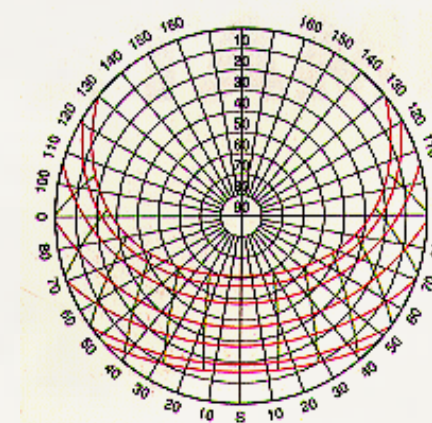
MULTI - DIRECTION



Single direction circulation creates a safety circulation for students with impairment to avoid the bump.

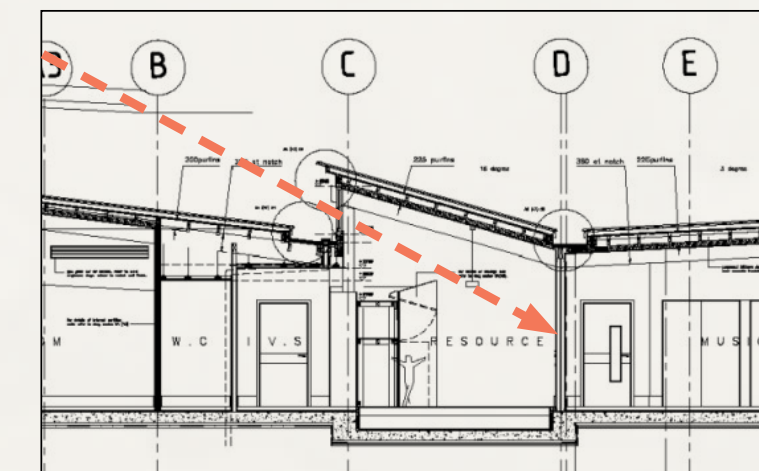
SPATIAL STUDY OF CORRIDOR

SUN CHARTS AND VETILATION STUDY

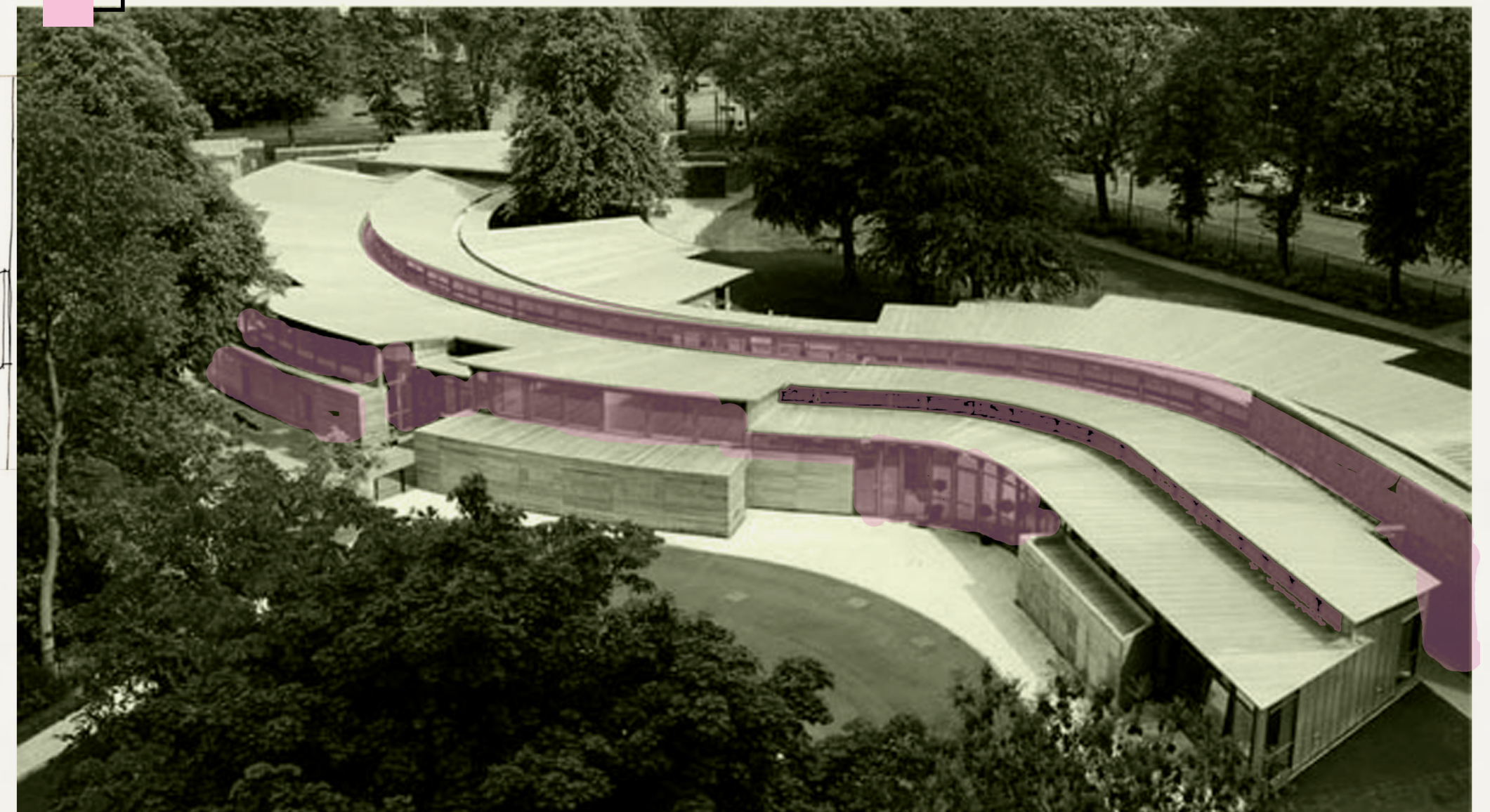


HIGH HEADROOM AND WINDOWS

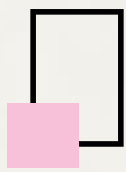
The High headroom design of the corridor able to invite the natural lighting to the interior, students are able to feel the sun-shine and the temperature of the wall to find their ways.



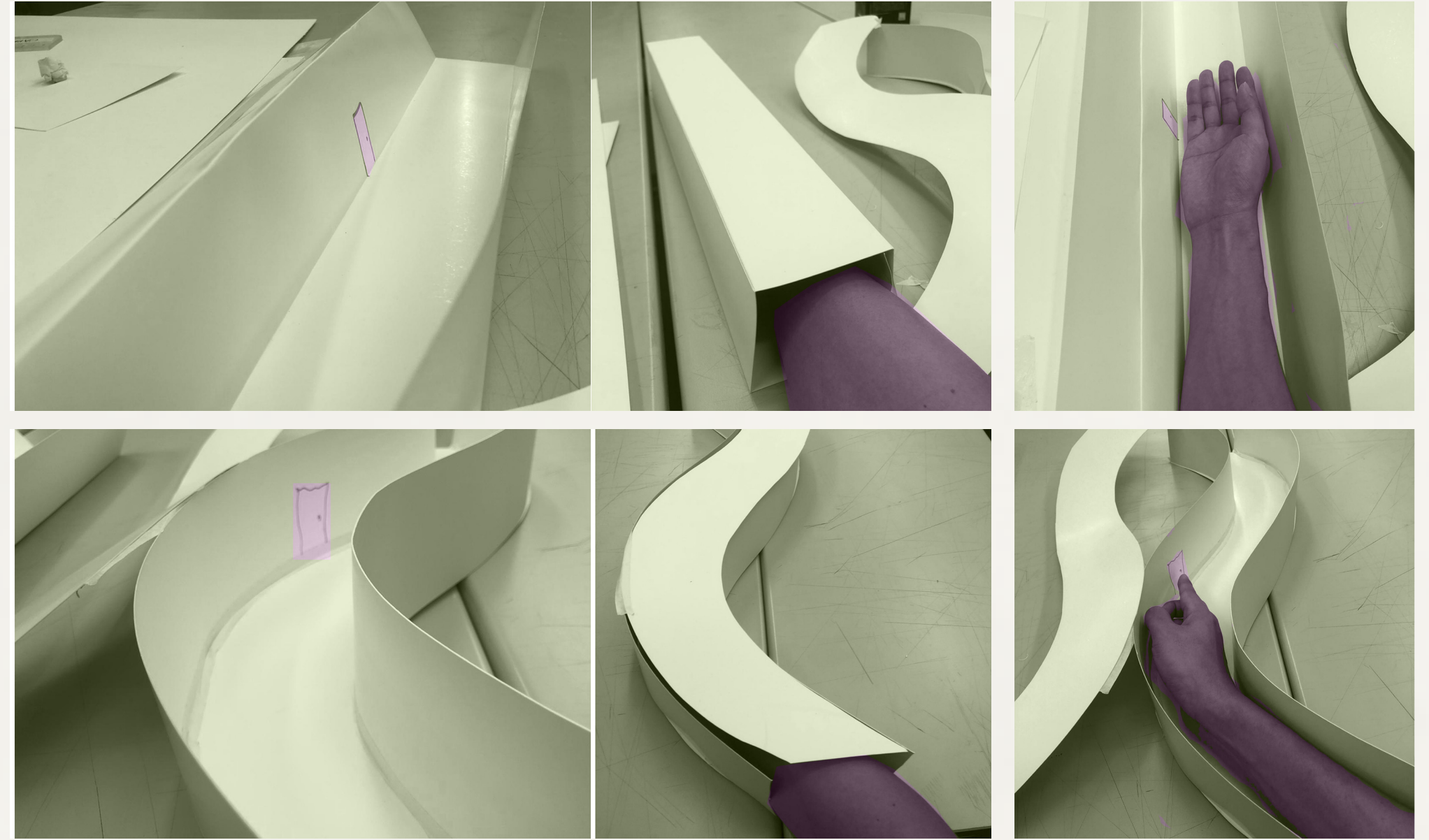
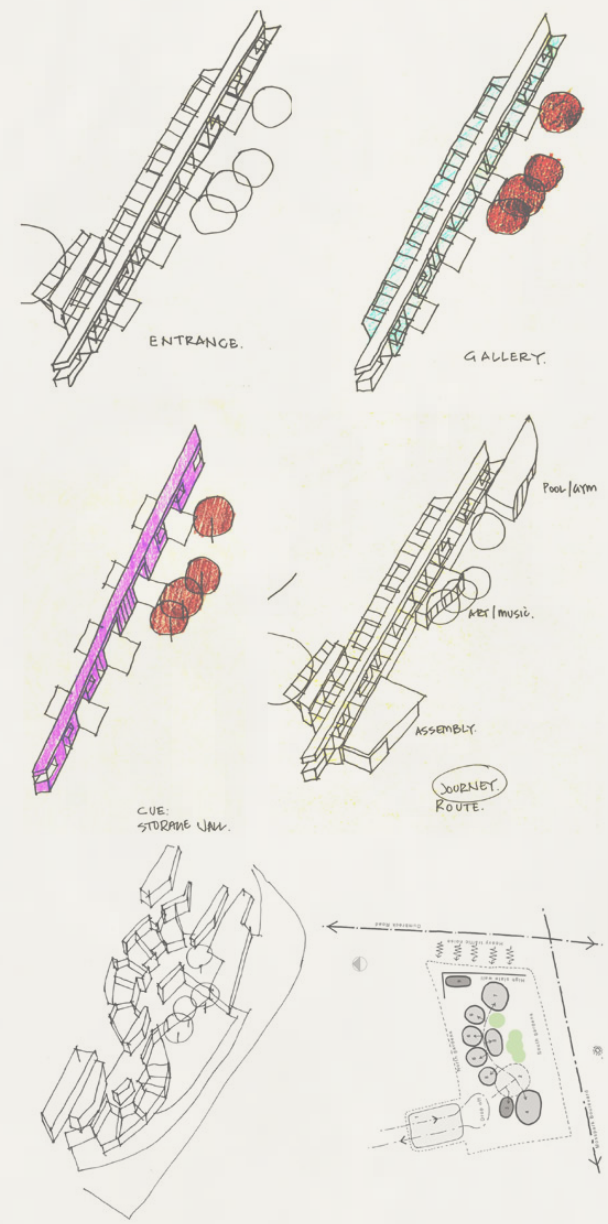
INTERACTON WITH THE LANDSCAPE



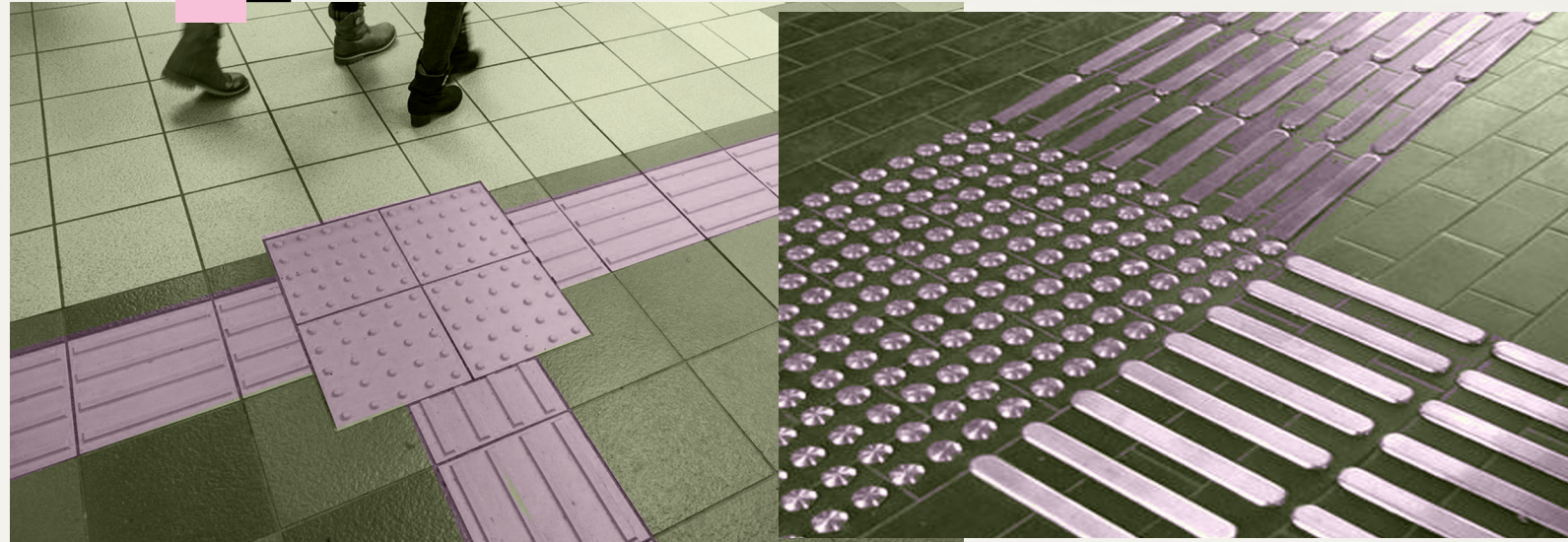
The curved shape design like a snake, which correctly links with the landscape.



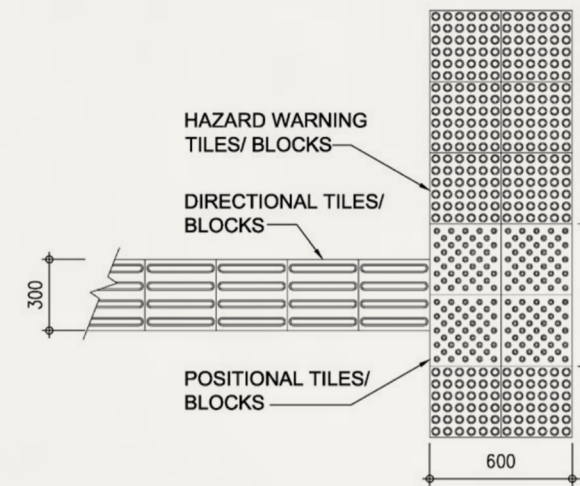
DESIGN EXPERIMENT : CURVED CIRCULATION BENEFIT WAYFINDING



ACCESSIBLE CULTURE BETWEEN HONG KONG AND HAZELWOOD



Hong Kong Typical Tactile



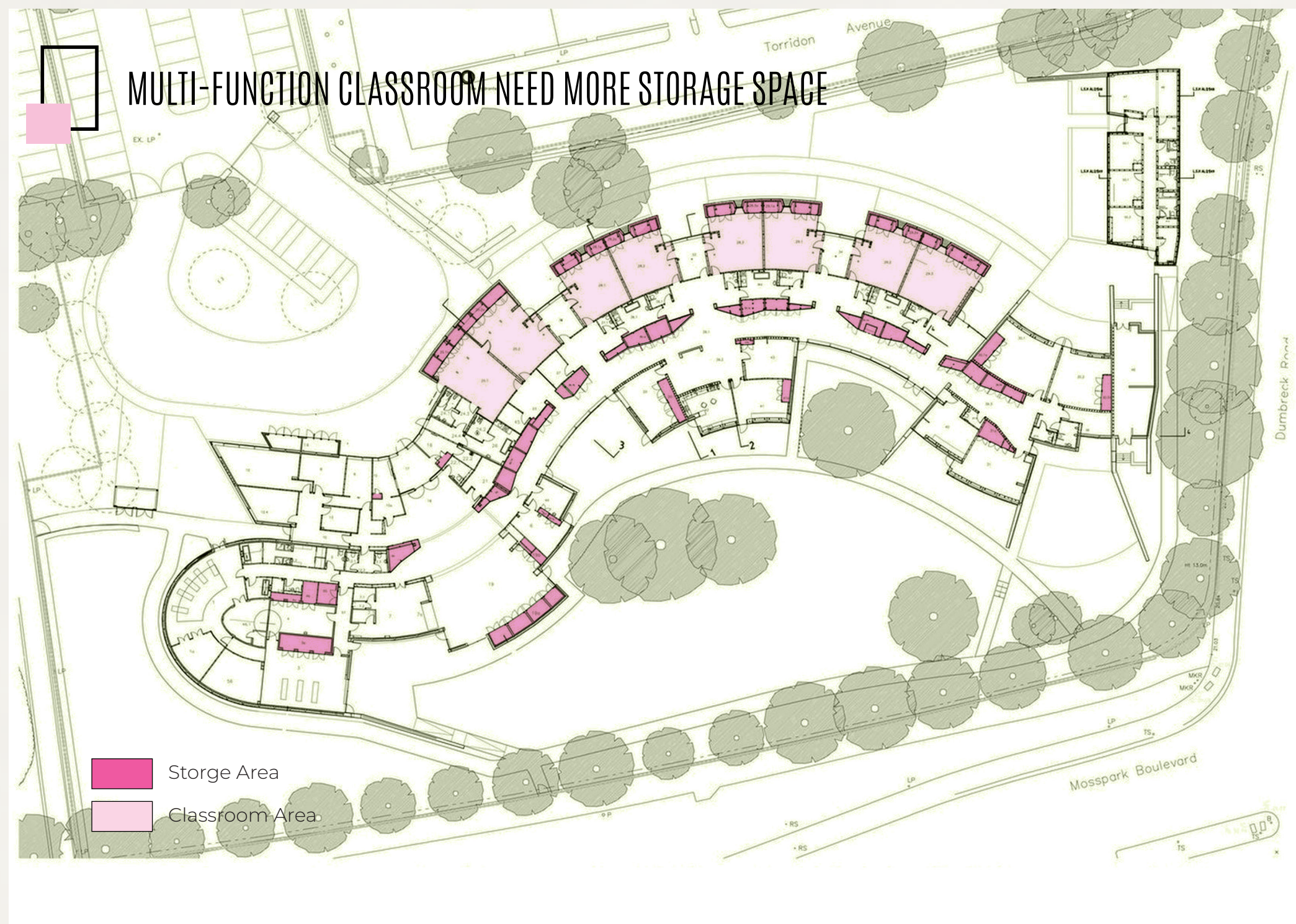
Hazelwood school



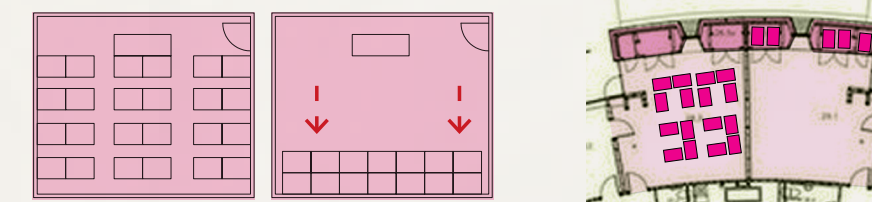
HIGH HEADROOM AND WINDOWS

The difference texture used to the wall, create the wayfinding system for visual impairment, and there are directional flooring is much effective and user-friendly than the typical tactile system in Hong Kong.

The school users are able to find their way with touching difference materials, smell, hear or temperature, it makes an interesting interaction between people and the architecture.



COMPARE WITH HONG KONG TYPICAL CLASSROOM



When the classroom without extra storage space, we usually put all the table to the back of classroom to create a larger space. However, these move is not able to use the whole classroom.



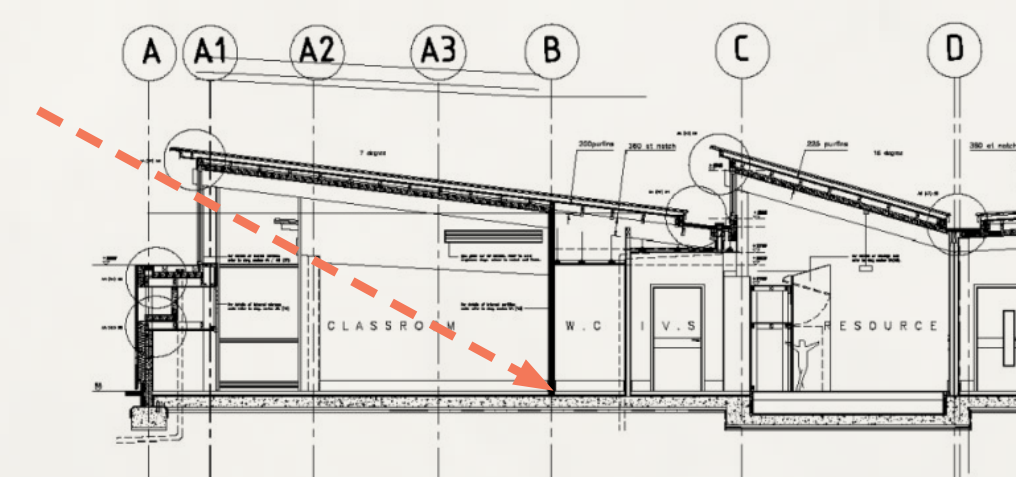
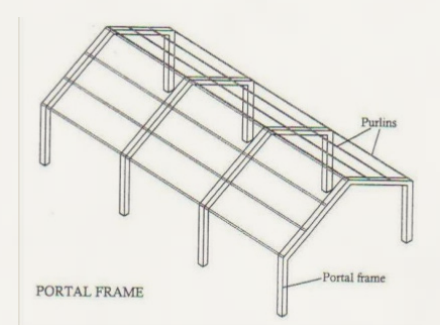
SPATIAL STUDY - MULTI-FUNCTION CLASSROOM



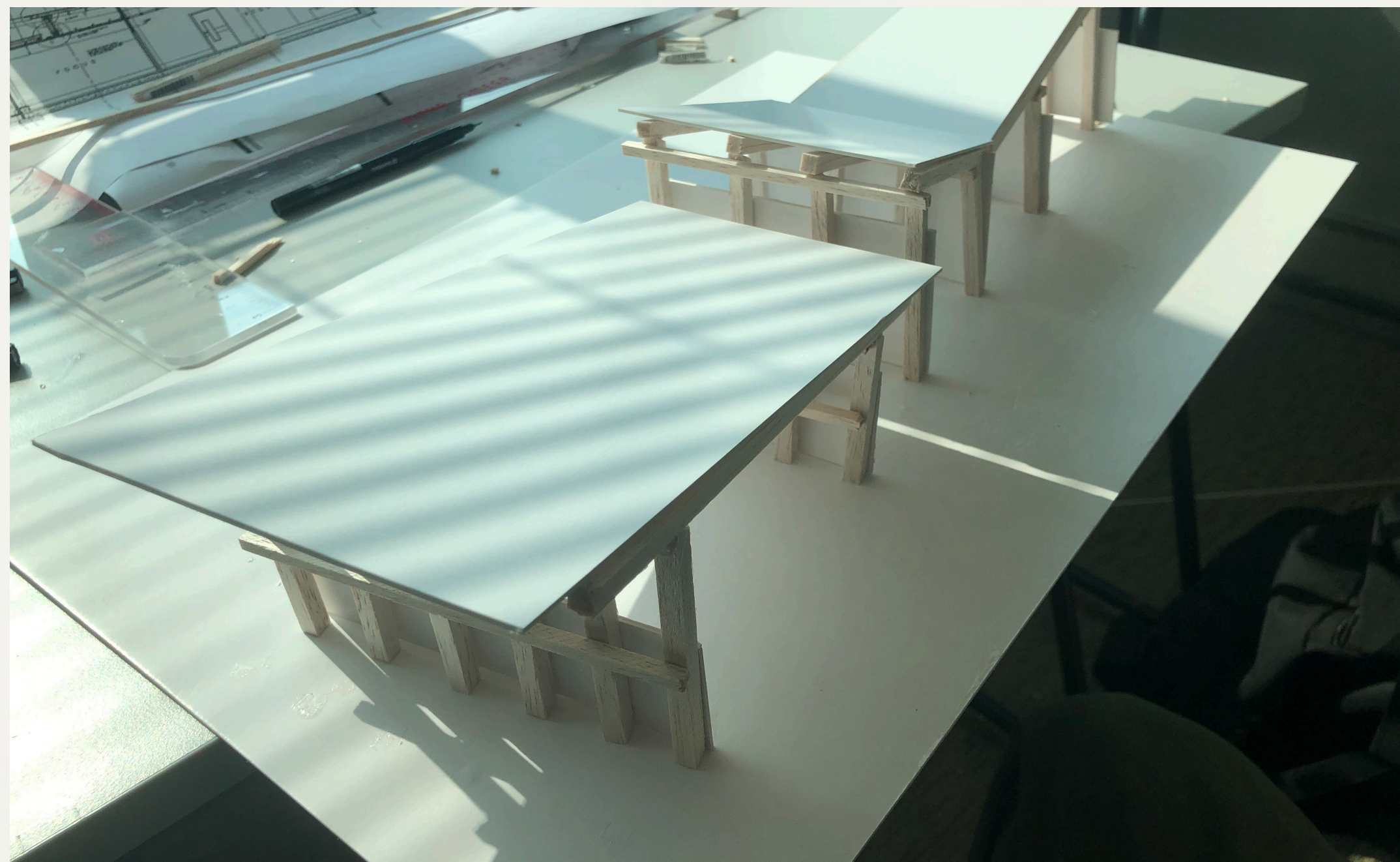
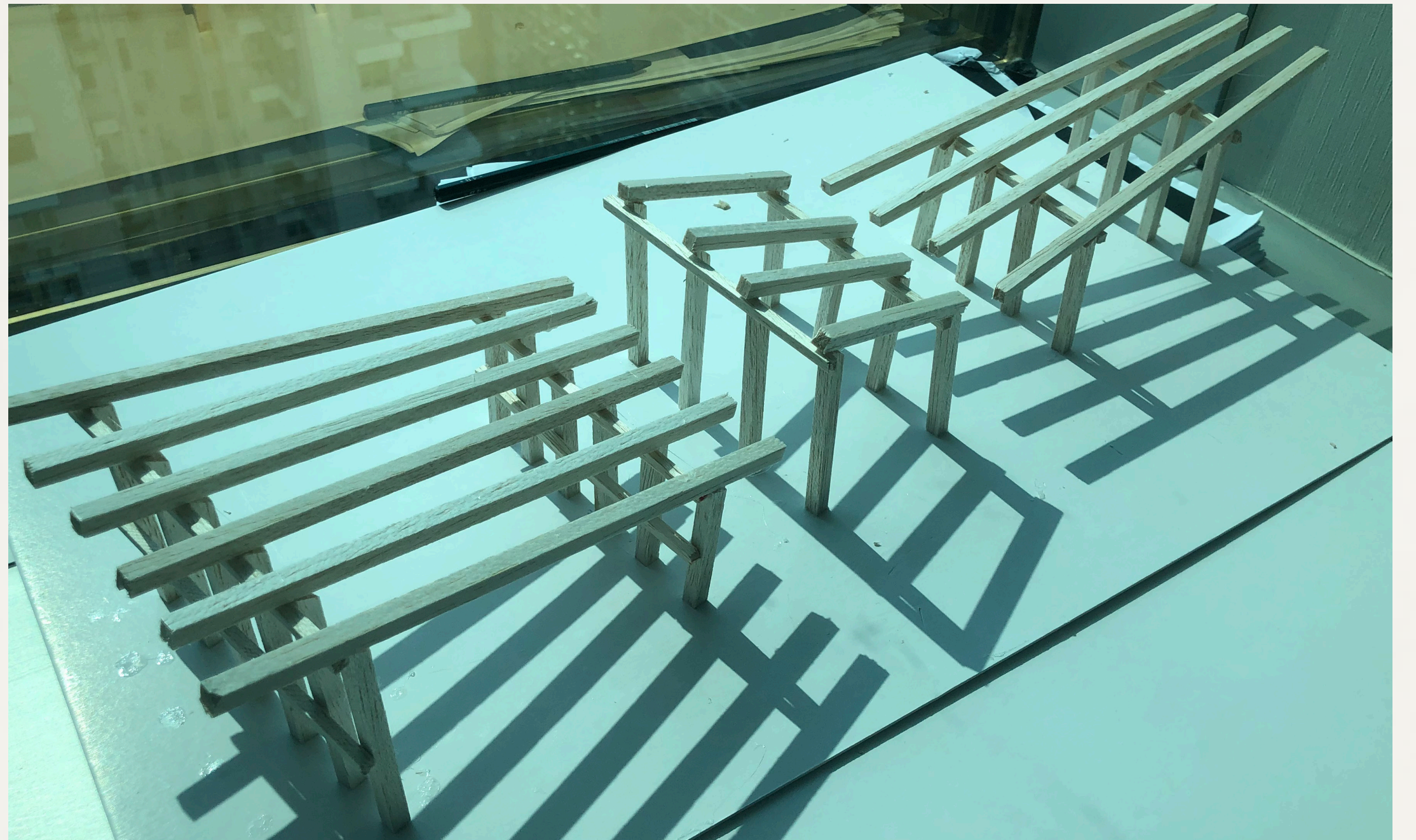
FRAME STRUCTURE AND COLUMN-LESS SPACE

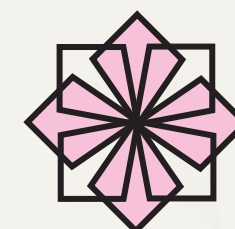


The Classrooms of hazelwood school are multi-function, the furniture often relocate for difference events, and the spaces need no column to make more transformable, the frame structure helped to create a columnless space for classroom and multi-function room.



High-level windows are used as some of the students with visual impairments can be easily distracted by (movements/activities occurring outside.)





No timetable but time able

No attendance but attending

No talks, but tells

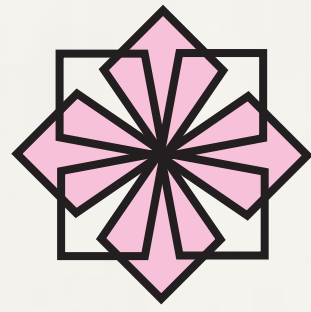
No question but ask

No answer but answering

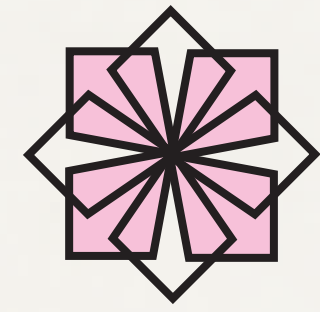
No watching but observe

No direction but directing

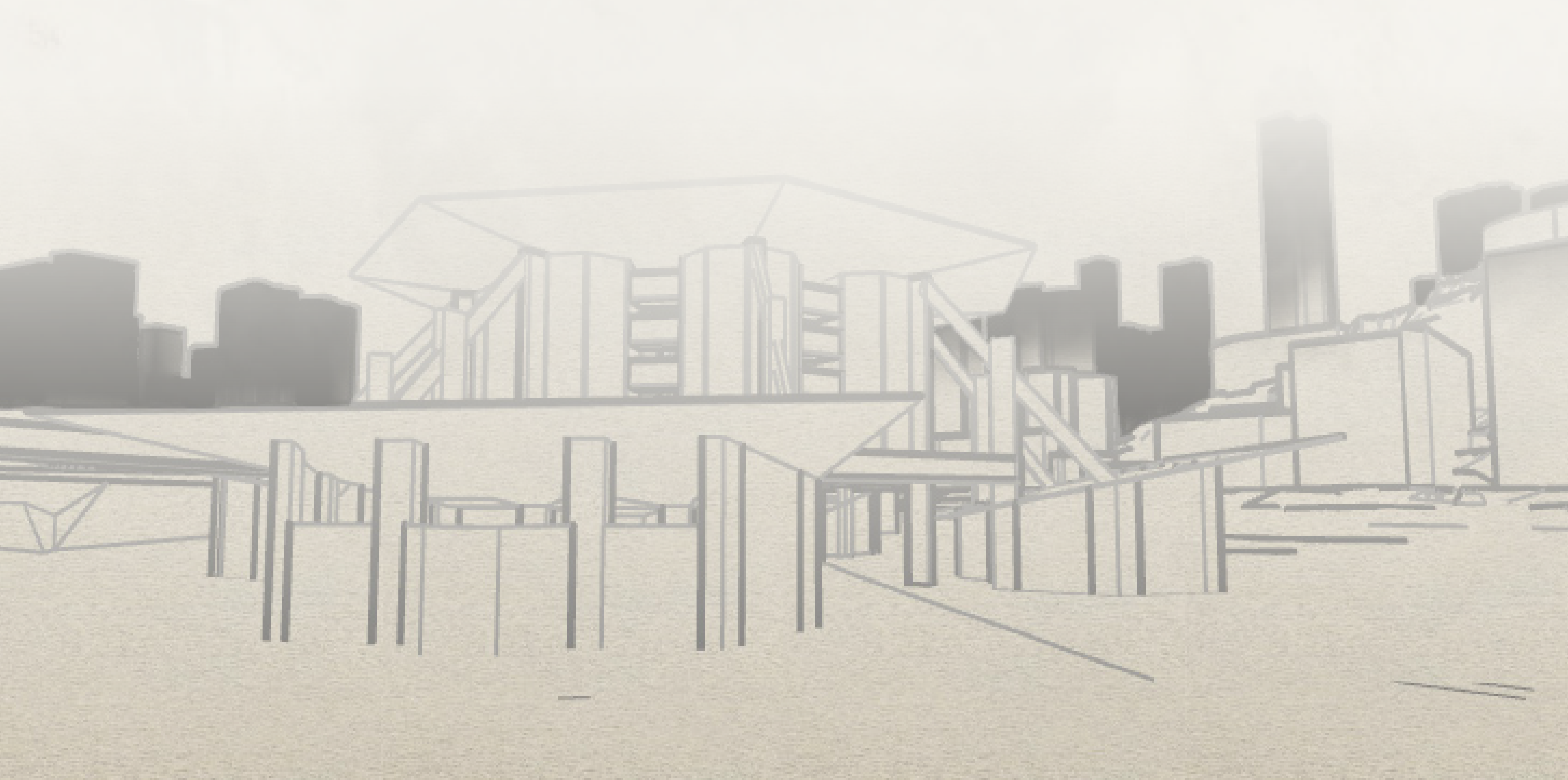
No internet but interact

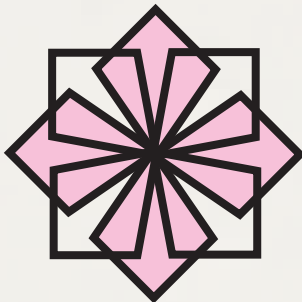


THE DESIGN CONCEPT



RELATIONSHIP BETWEEN OPEN SPACE , SEMI OPEN SPACE AND ENCLOSED SPACE





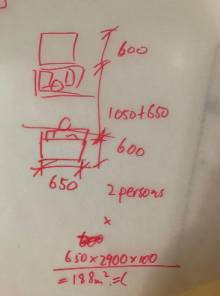
RELATIONSHIP DIAGRAM AND SPACTIAL DIAGRAM



SPACTIAL DIAGRAM

Entrance Lobby and lockers

- 200 students
> 2500mm door,
Capacity = 0.95
= 188.500m2



Exhibition Hall

- 200 student and 7 staff
Capacity = 2.25
= 465.750m2

Dinning Area

- 200 student and 15 staff
Capacity = 1
= 207.000m2

Communication Area(indoor)

- 67 students
Capacity = 2.25
= 150.000m2

Workshop

- 67 students
Capacity = 4
= 268.000m2

Staff Area

- 15 staffs
Capacity = 2.25
= 33.750m2

Storage Area

- 15
Capacity = 1
= 15.000m2

Lavatory (Public)

= 30.000m2

Lavatory (Staff)

- 15 staffs
Capacity = 2.25
= 3.450m2

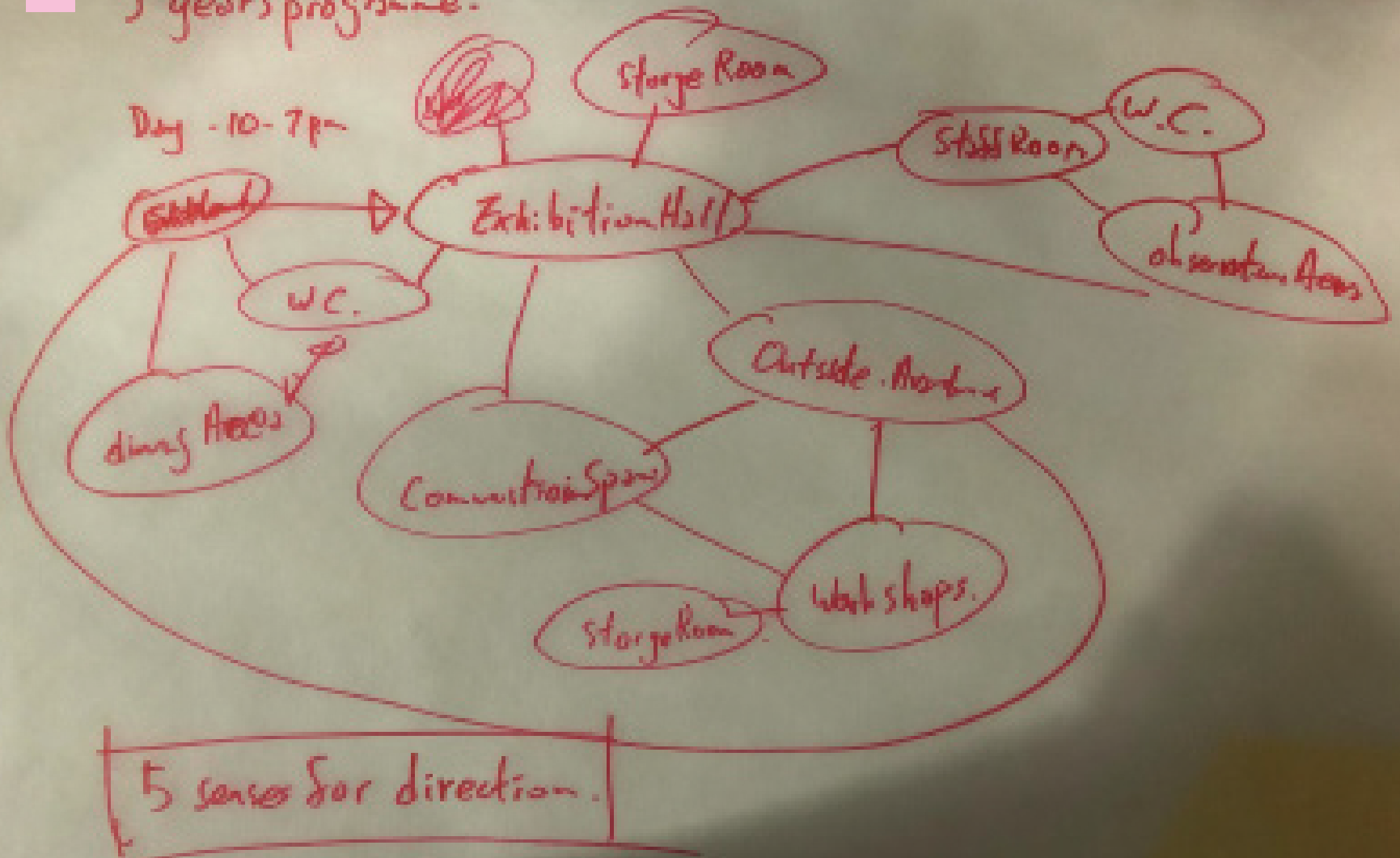
188.500 + 465.750 + 207.000 + 150.000 + 268.000 + 33.750 + 15.000 + 30.000 + 3.450
= 1361.450 m2



RELATIONSHIP DIAGRAM

3 years programme.

Day - 10-7p



5 senses for direction.



LEARNING SPACE

student in 10-12-year-old, they actually don't need a space for learning, they are able to learn themselves by internet technology. this doesn't mean they don't need to learn from the teacher, but they need someone answering their question. In a typical school, all knowledge had preserved for the student, whatever their interest, hobby, talent, they have the same schedules for their learning, the same timetable for a different kind of genius students.

Entrance Lobby and lockers

= 188.500m2
private locker per each student ready to shool and allow communication with each other, the high head-room is able to help the sound dissemination. the single and specific directions walkway allow students to go to the campus with no interrupt and make a good start of their days.

Exhibition Hall

= 465.750m2
The main area of the campus, the equilateral shaped exhibition hall allow multiple lectures process at the same time with same and fair spaces, student able the walk around to learn all the lectures, high headroom, and natural lighting are provided. the campus should be connecting other areas included external and internal spaces.

Dinning Area

= 207.000m2
spaces for student dining, the direction should avoid students bumping, natural ventilation helps the fresh air. Space allows student communication with no oppression.

Communication Area(indoor)

= 150.000m2
private communication area allows student interaction with private, small space to let the student talk quietly and the circulation design to not interrupt the communicate.

Interaction Workshop

= 268.000m2
Interaction workshop is the place for student test their own knowledge, but the design is not for student work alone but work with helps. student are able to wtching each other to ready for helps.

Staff Area

= 33.750m2
staff area should nearby the exhibition hall and Storage area, for the lecturer ready their presentation.

Storage Area

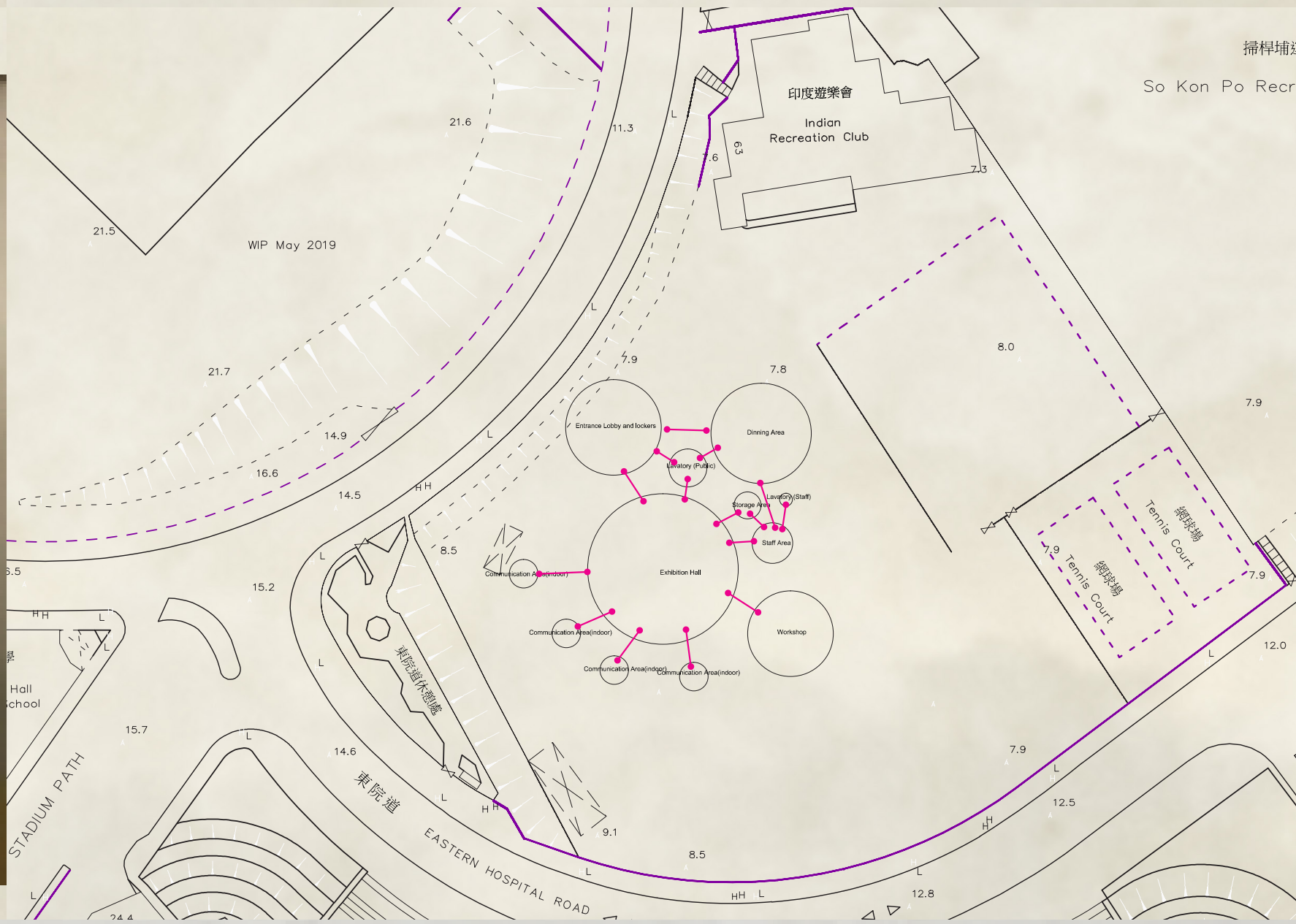
= 15.000m2
The area for the lecturer prepares their works.

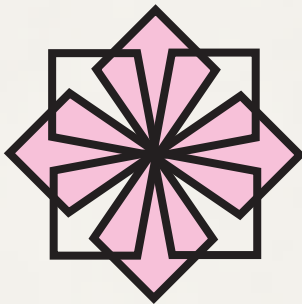
Lavatory (Public)

= 30.000m2

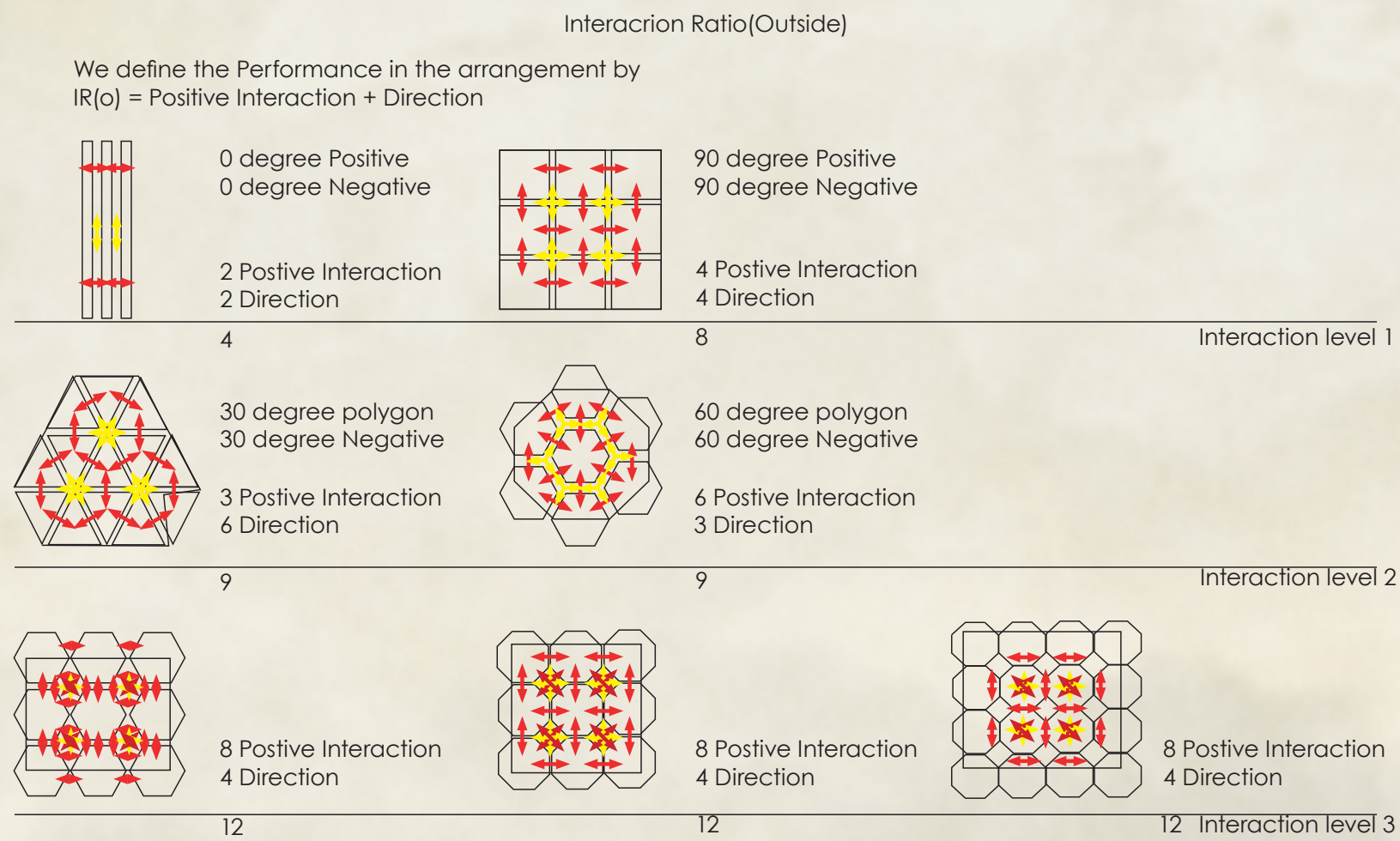
Lavatory (Staff)

= 3.450m2



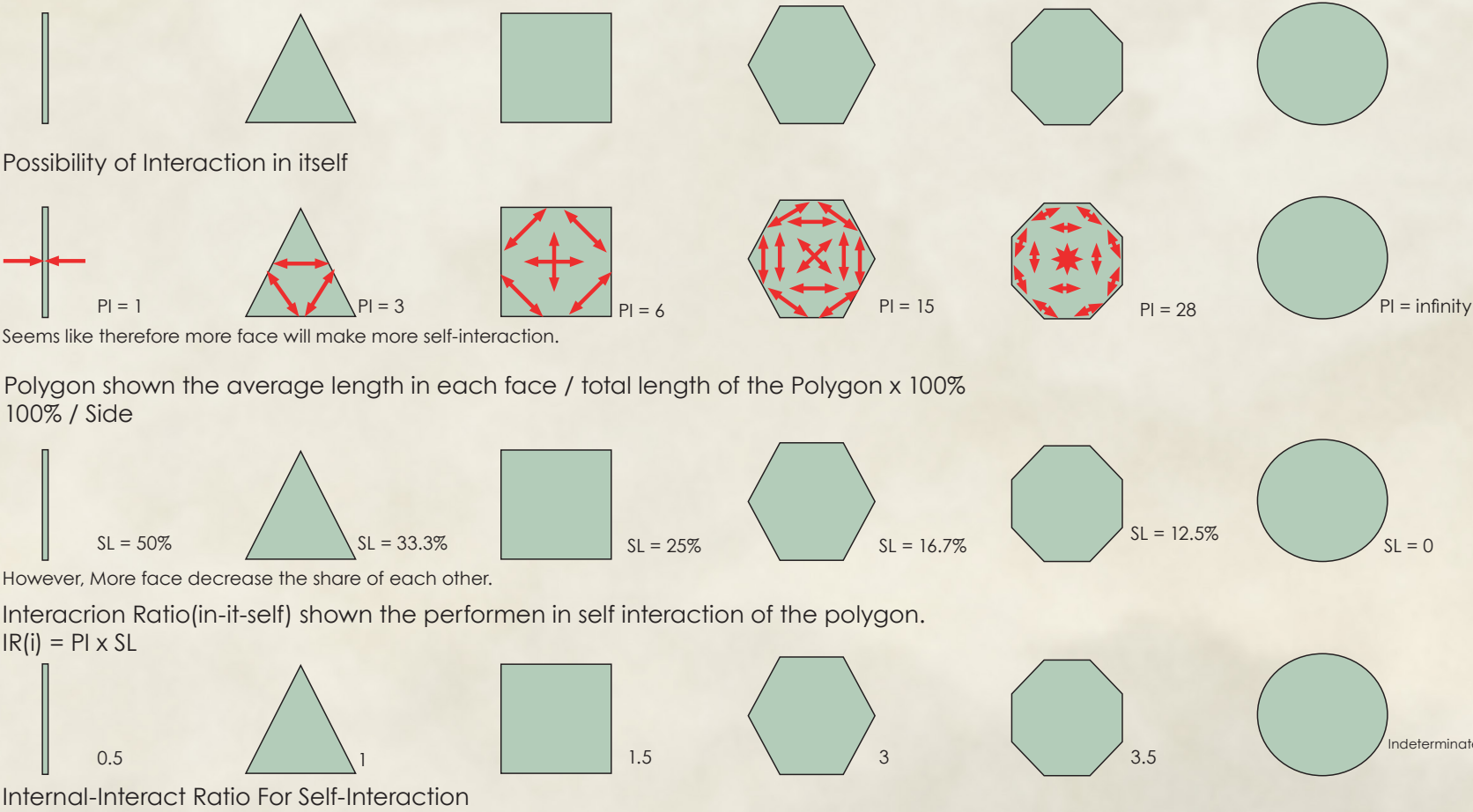


INTERACRION GEOMETIC STUDY

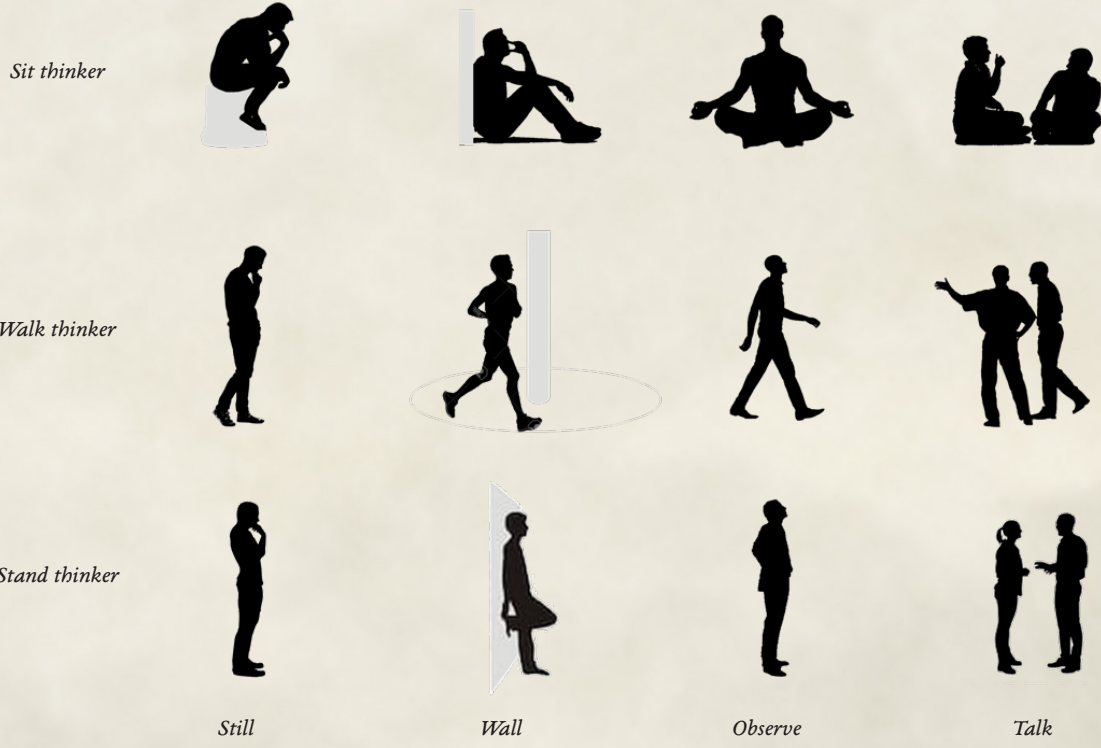


Geometry

This Diagram is to study about how the geometry affect the interaction

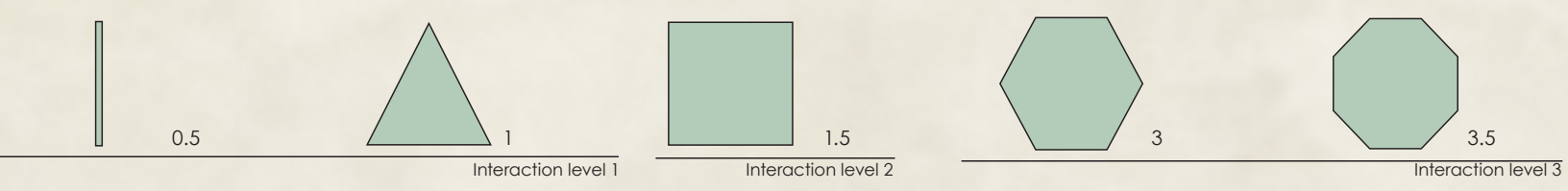


THINK OUT OF THE BOX

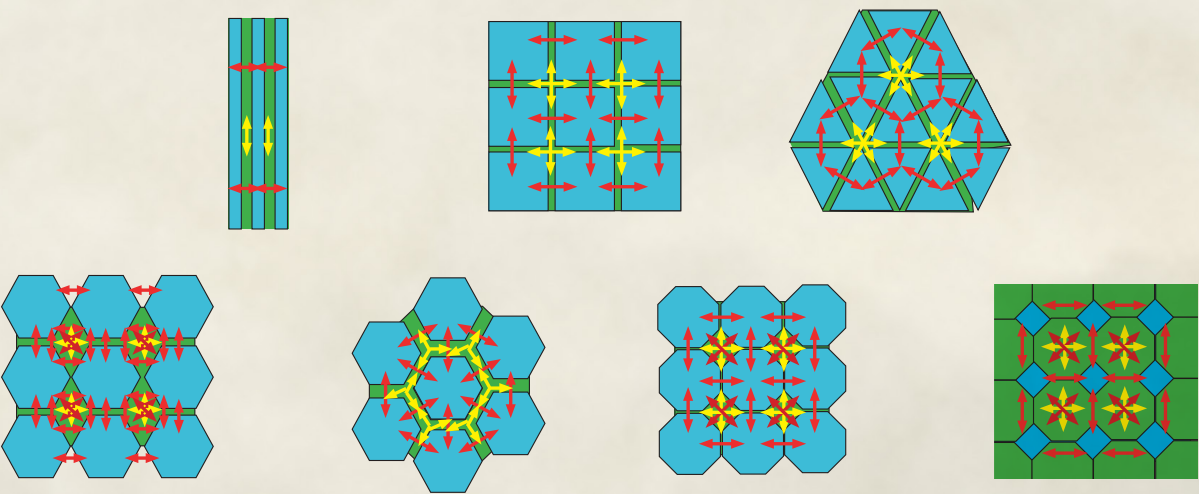


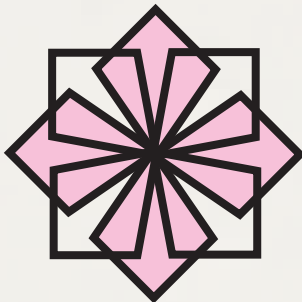
Interacrion Ratio(in-it-self)

We define the Perfomence in each polygon in 3 level by $IR(i)$



Geometries arrangement is also important for interaction, if we arrange rectangles uniformly, the negative space (Green Area) will be become a straight form (Picture 1&2), this not efficient to make an interaction. However, if we make 45 degrees angle change for the rectangle(Picture 4), this become much better form for interact with each other, or we can play with swift between positive space and negative, to make an Octagon and ractangle mixed form, it able to make the positive space with better interaction, and make more destruction for the negative space(Picture 7).





MATERIAL BROAD AND SPACE DESIGN CONCEPT

MOOD BROAD



Entrance Lobby and lockers
= 188.500m2

private locker per each student ready to shool and allow communication with each other, the high head-room is able to help the sound dissemination. the single and specific directions walkway allow students to go to the campus with no interrupt and make a good start of their days.



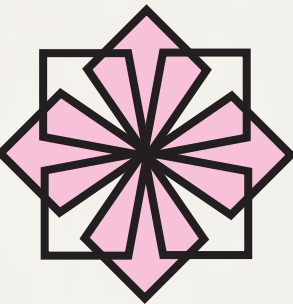
Exhibition Hall
= 465.750m2

The main area of the campus, the equilateral shaped exhibition hall allow multiple lectures process at the same time with same and fair spaces, student able the walk around to learn all the lectures, high headroom, and natural lighting are provided. the campus should be connecting other areas included external and internal spaces.

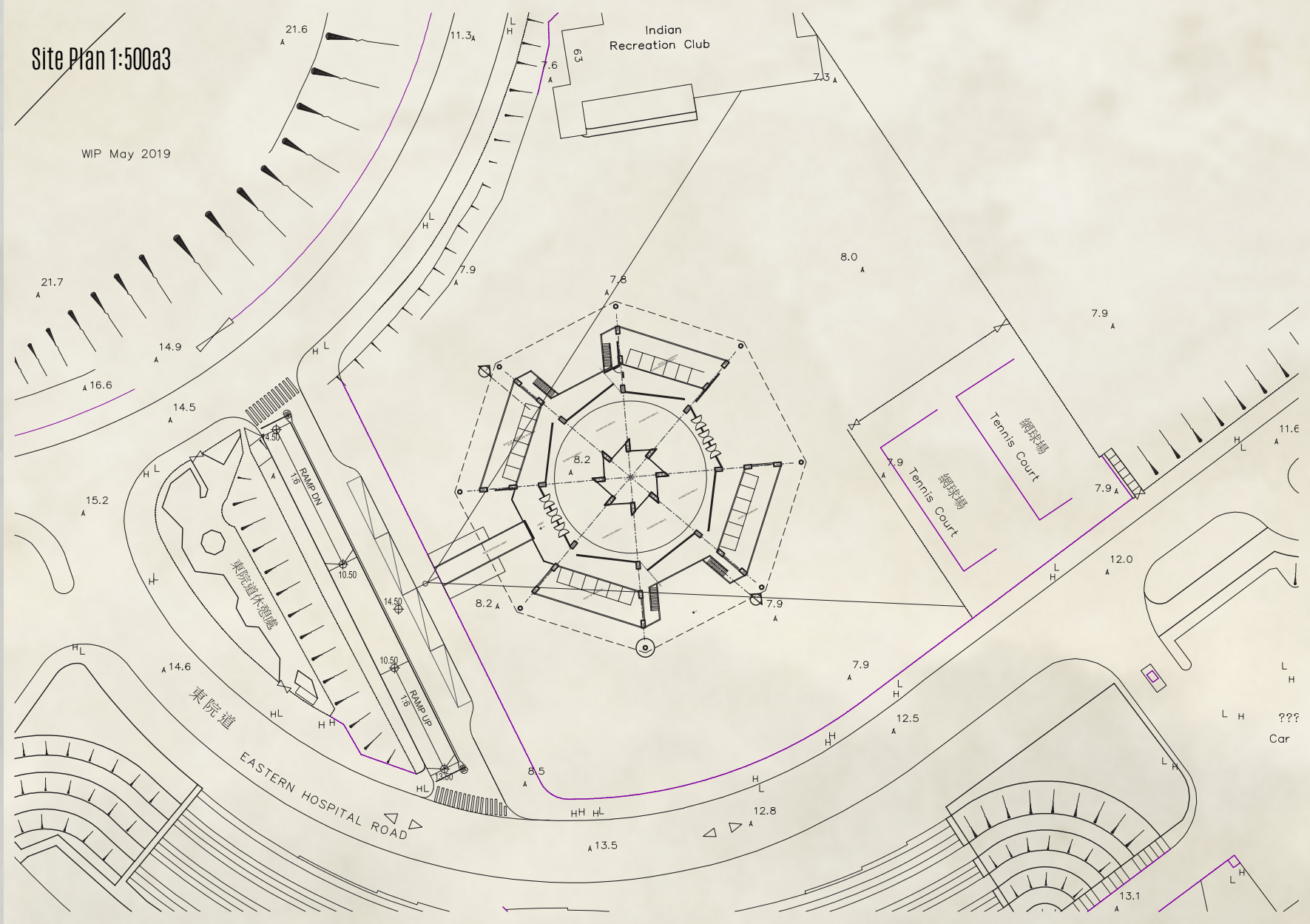
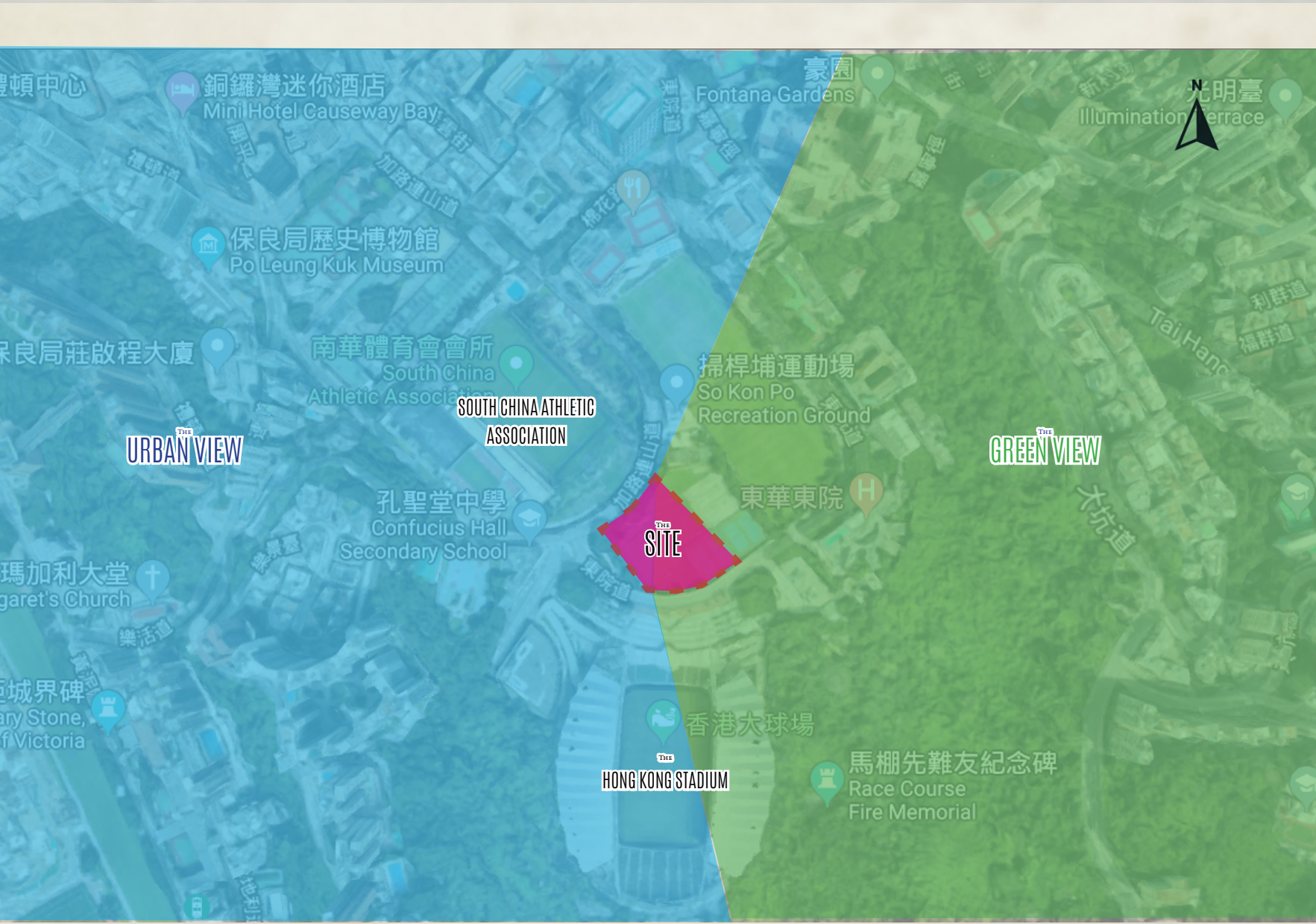
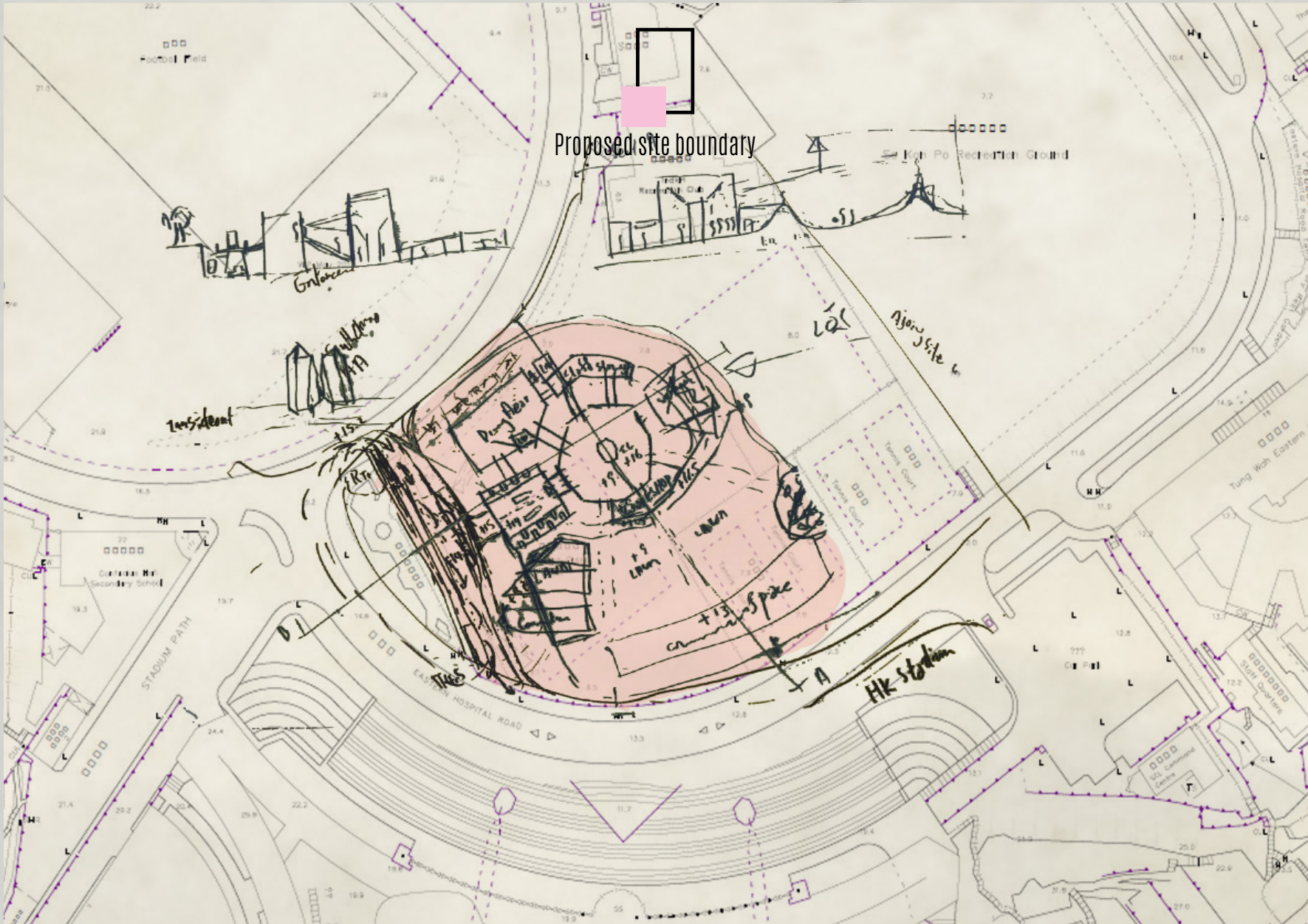


Communtcation space





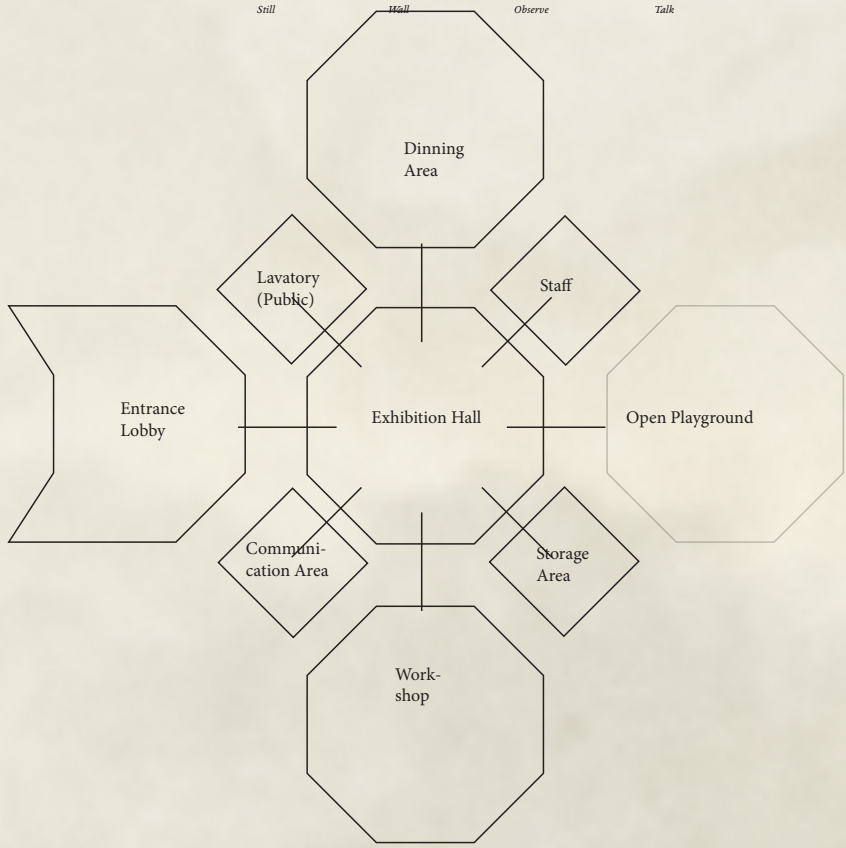
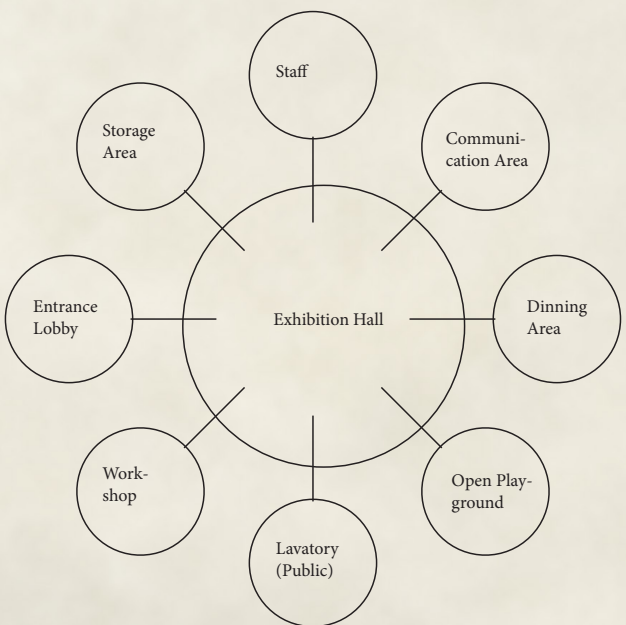
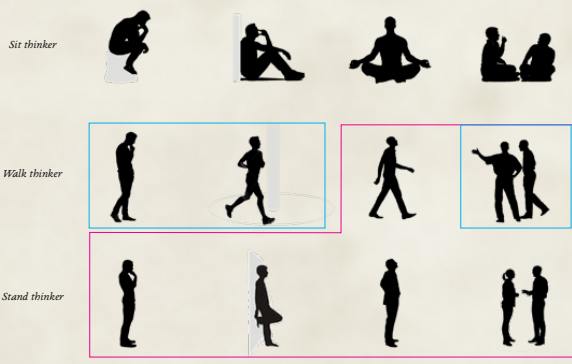
SITE STRATEGY



Main Building - Exhibition Hall

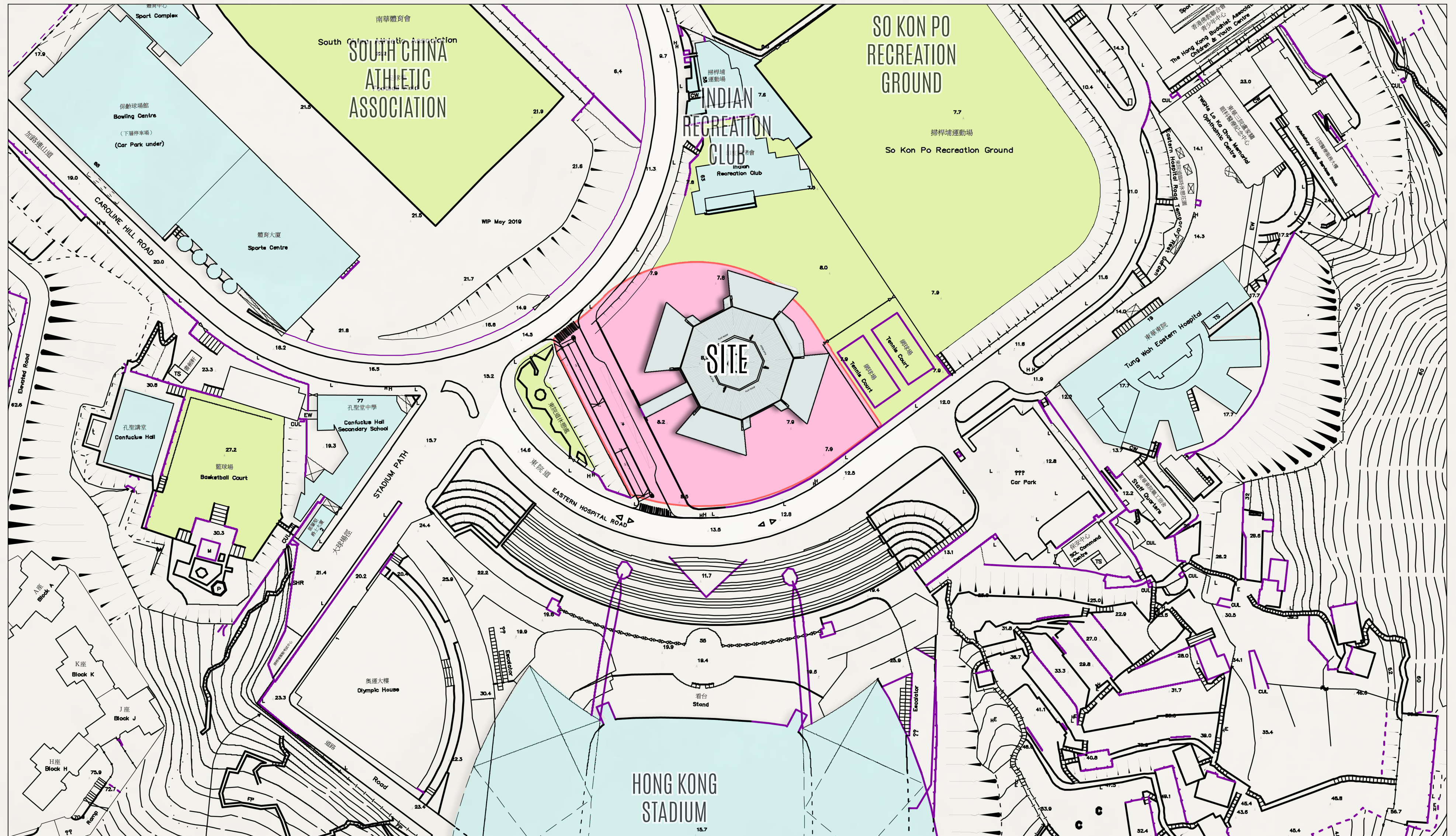
The main area of the campus, the equilateral shaped exhibition hall allow multiple lectures process at the same time with same and fair spaces, student able the walk around to learn all the lectures, high headroom, and natural lighting are provided. the campus should be connecting other areas included external and internal spaces.

- interact with other spaces
- Equilateral shape o provide fair exhibition space for each professor
- High ceiling design for observe and sound control
- Provide enclose space and semi-open space for walk-thinker and interaction

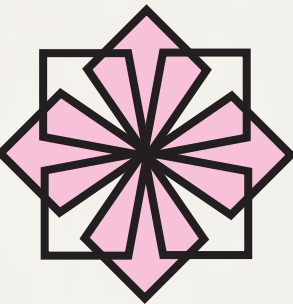


THE SITE STRATEGY

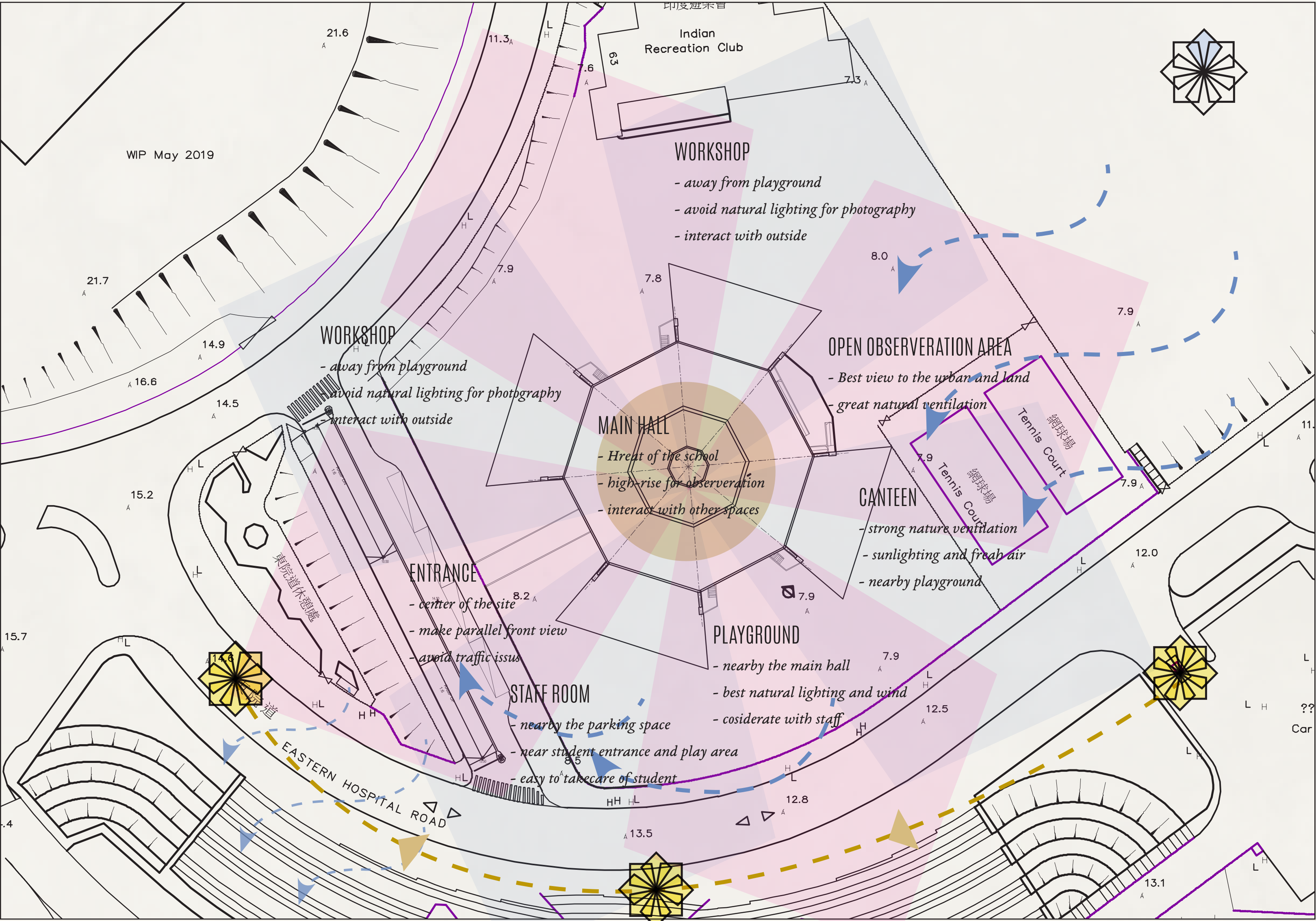
DESIGN PROJECT IN ARCHITECTURAL STUDY



SITE PLAN 1:1000



SITE STRATEGY DIAGRAM



ENTRANCE

- center of the site
- make parallel front view
- avoid traffic issues

MAIN HALL

- Heart of the school
- high-rise for observation
- interact with other spaces

OPEN OBSERVATION AREA

- Best view to the urban and land
- great natural ventilation

WORKSHOP

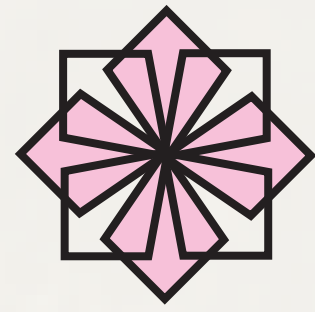
- away from playground
- avoid natural lighting for photography
- interact with outside

CANTEEN

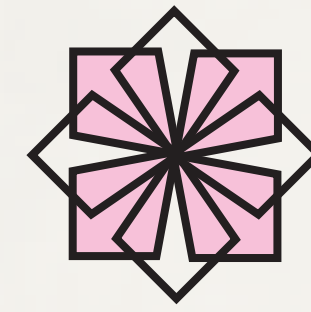
- strong nature ventilation
- sunlighting and fresh air
- nearby playground

PLAYGROUND

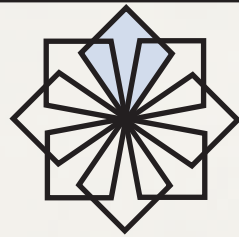
- nearby the main hall
- best natural lighting and wind
- considerate with staff



THE SENSE OF ARRIVAL



RELATIONSHIP BETWEEN OPEN SPACE, SEMI OPEN SPACE AND ENCLOSED SPACE



ENTRANCE STUDY OF PROTECTION AND OBSERVATION

Entrance and Exit

The in and out of the school should be protective and convenience, there are two main streets adjoining the site, Eastern Hospital Road and Caroline Hill Road.

Eastern Hospital Road is a two-way road, there are Hong Kong Stadium, when there are events at the stadium, that will be busy and unsafe for the students. Conversely, Caroline Hill Road is less affective of the Hong Kong Stadium, which makes the protective entrance for the student. For the theory of the exit, that should be provided for people to go multi-direction, the 2-way Eastern Hospital Road allows users to go to the east or west direction, it makes convenience for people leaving.

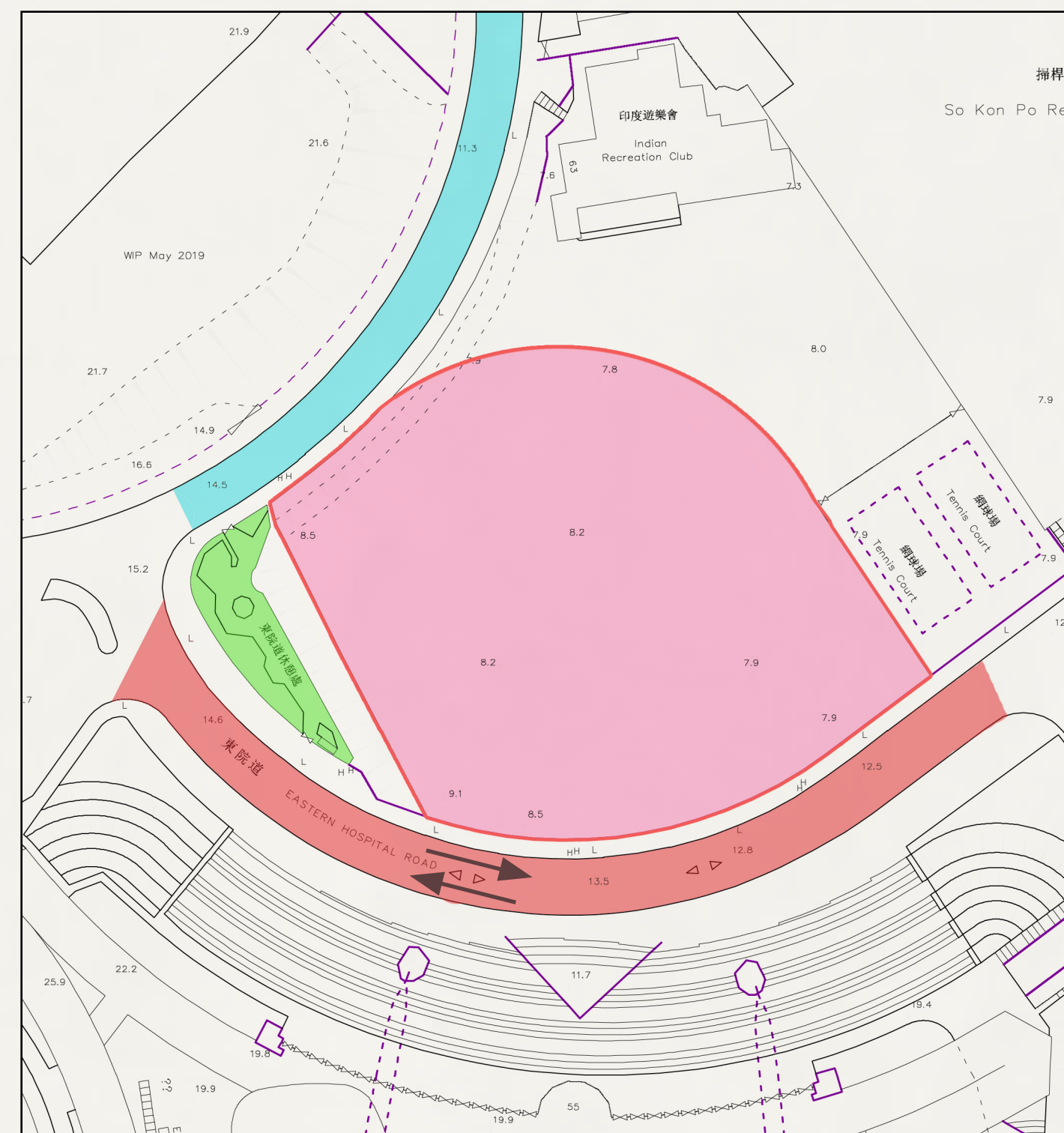


Caroline Hill Road

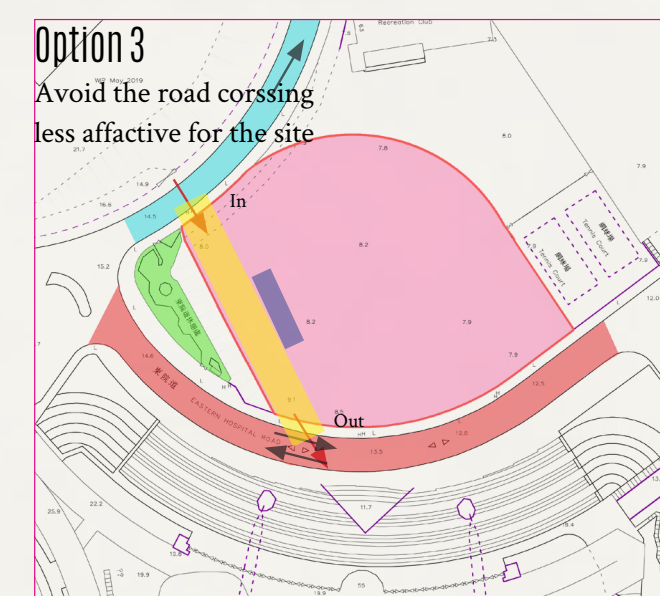
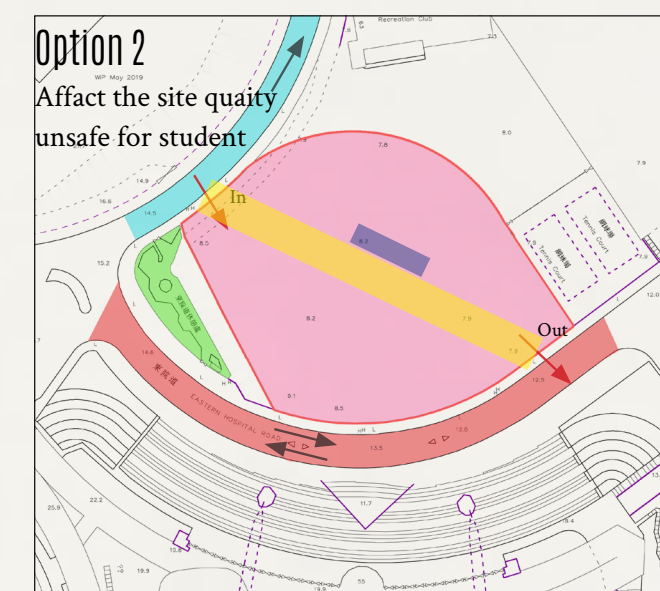
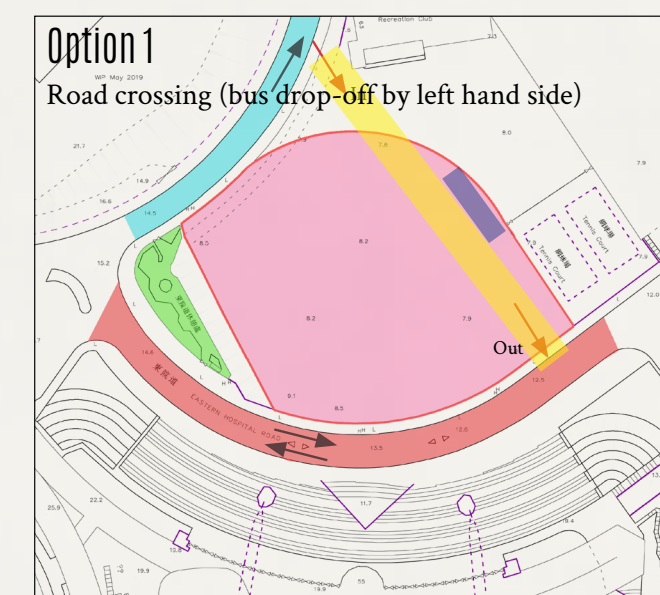


Hong Kong Stadium at Eastern Hospital Road

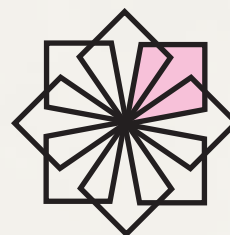
Drive way Study



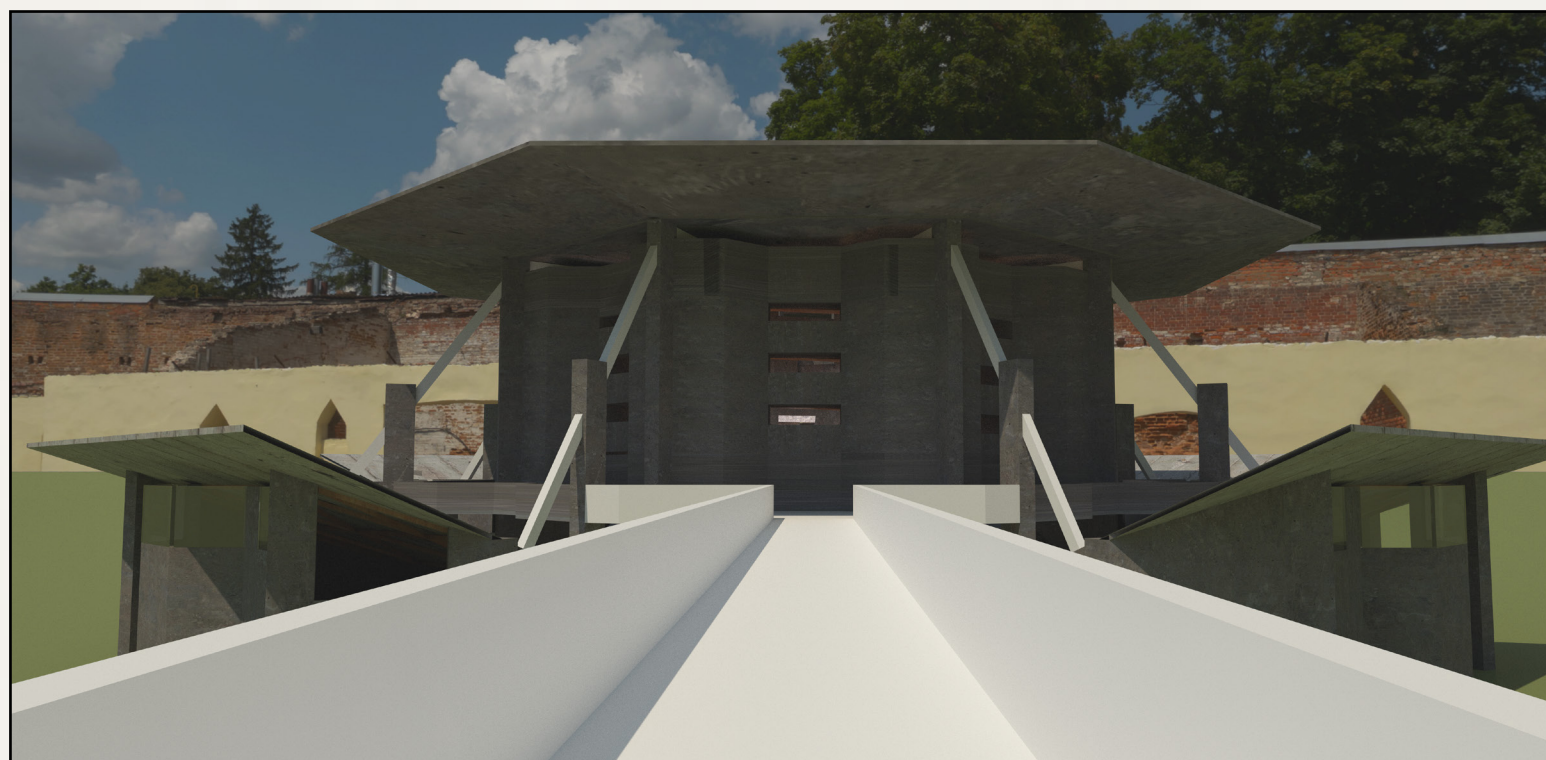
- Site
- Eastern Hospital Road Sitting-out Area
- Caroline Hill Road.
- Eastern Hospital Road
- Proposed Driveway
- Schoolbus Drop-off



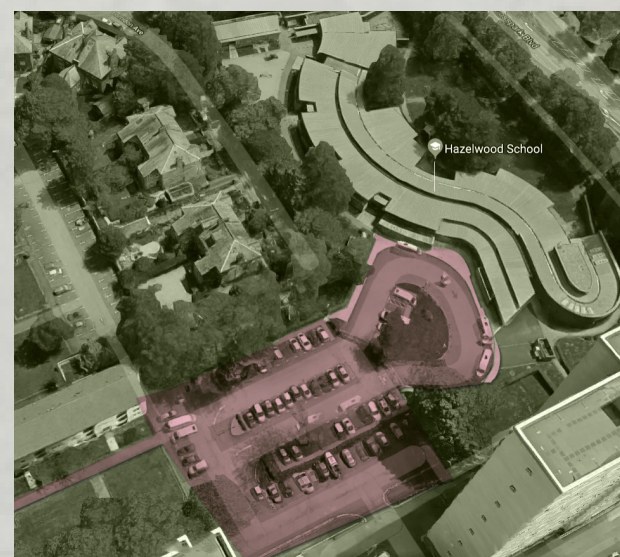
THE STUDY OF THE TRAFFIC SYSTEM AND ENTRANCE



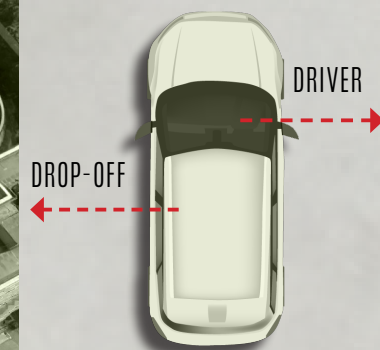
THR RELATIONSHIP BETWEEN MAIN ENTRANCE AND MAIN ARCHITECTURE



Sense of arrival study



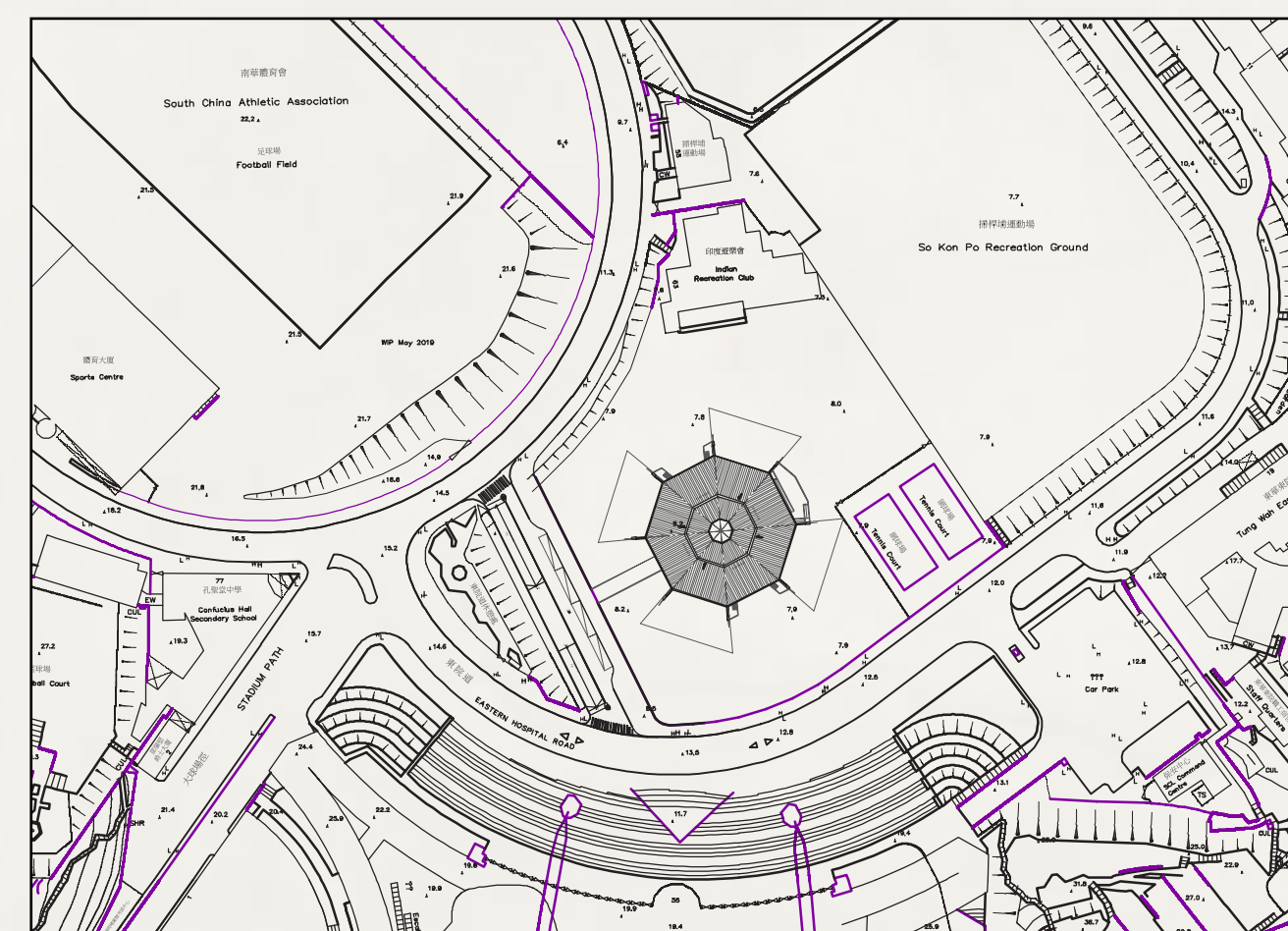
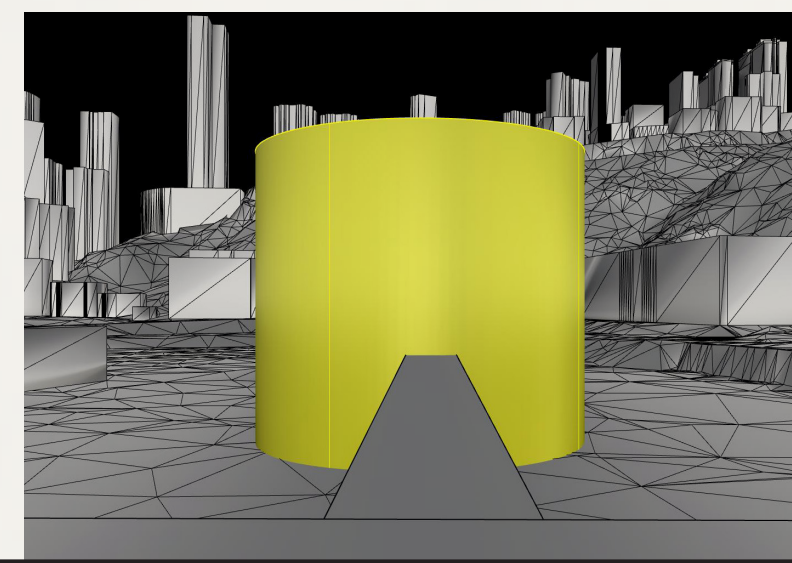
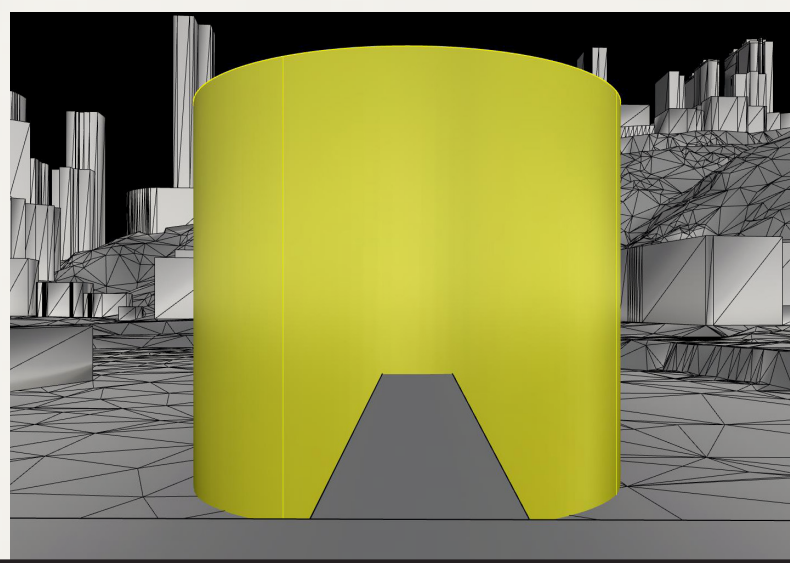
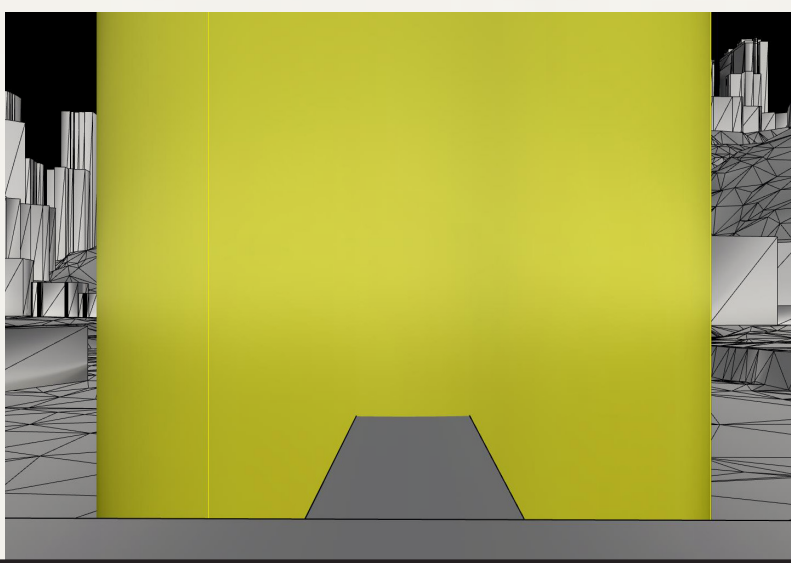
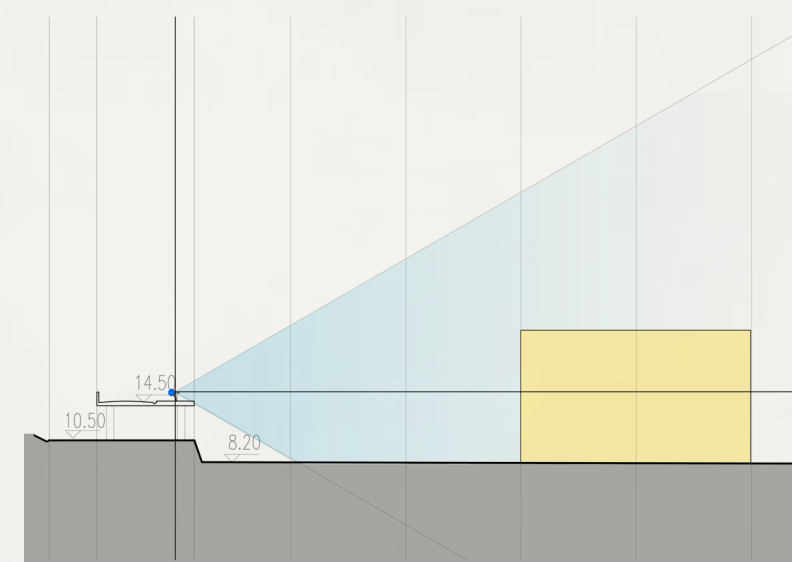
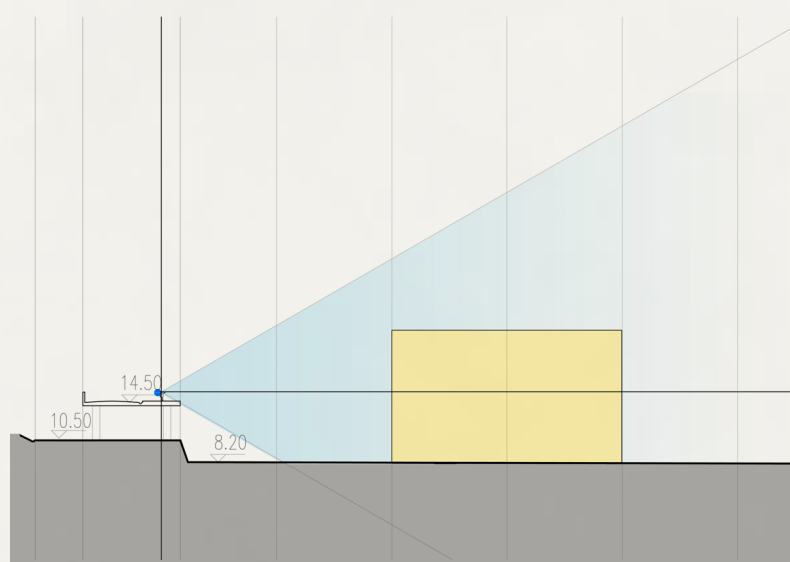
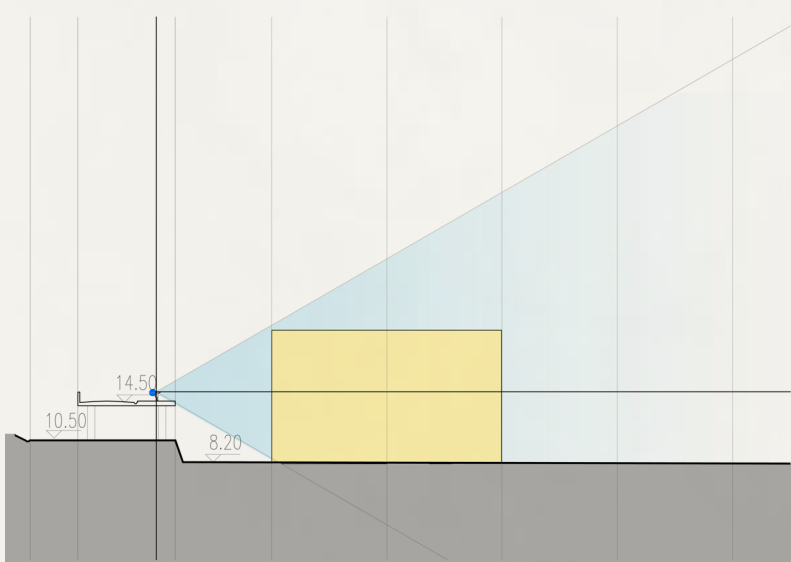
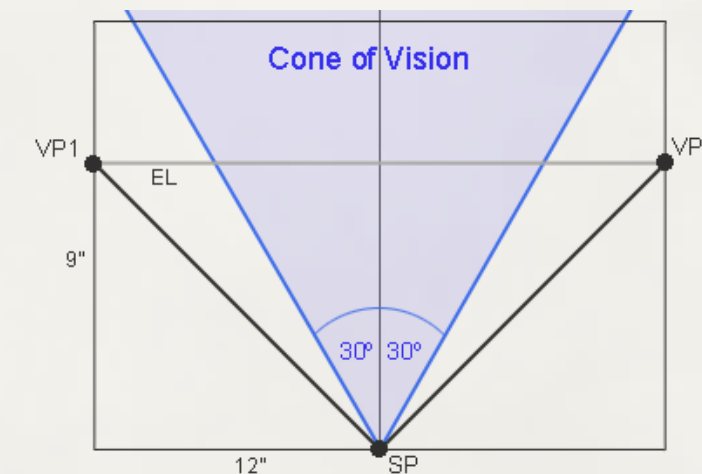
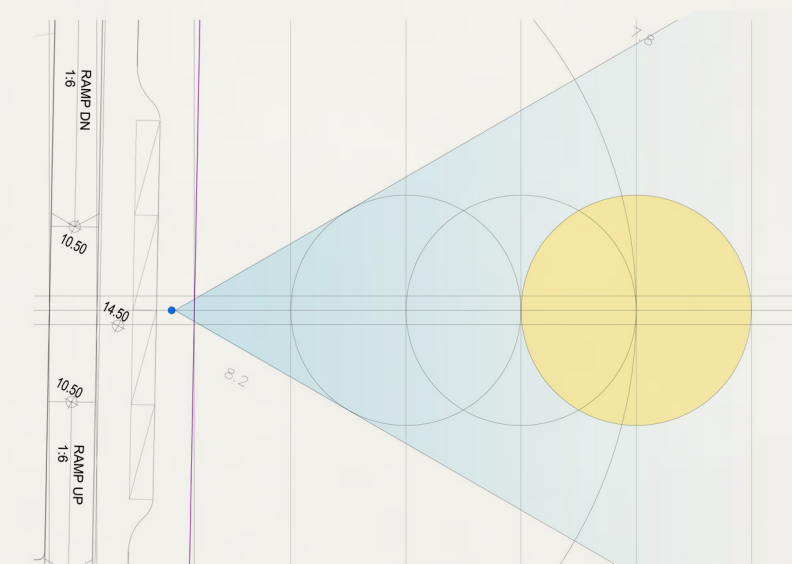
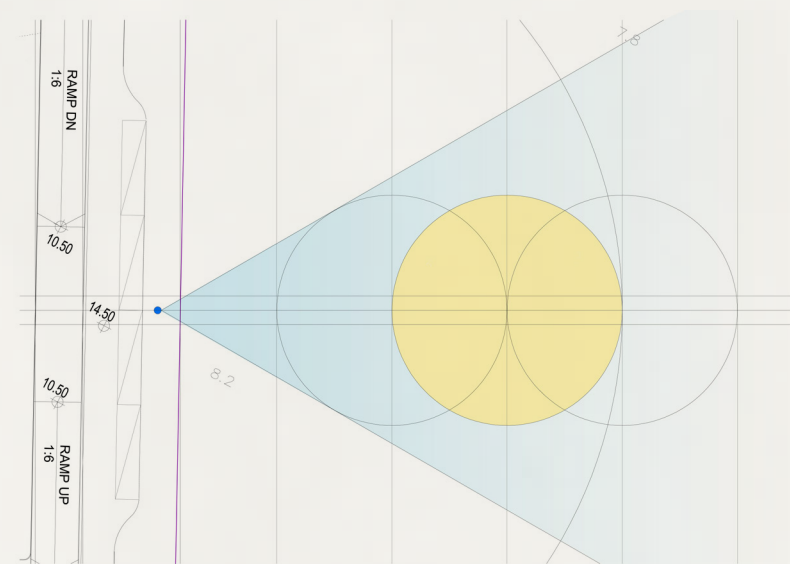
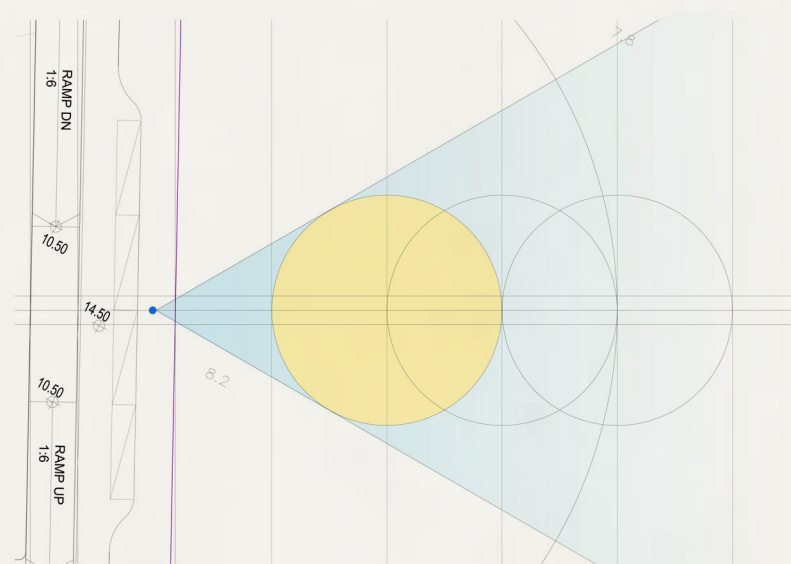
ROUNDABOUT



CONCLUSION

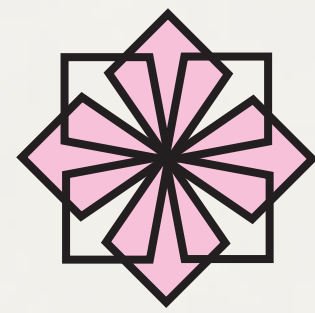
Considered with there are so many disabled students, the larger roundabout creates more space for drop-off, the clock-wise direction avoids student cross the road to protect them away form risk.

The difference in the material used for driveway and pavement, which is a find-a-way system for students with visual inperment identify their way to avoid the accident.

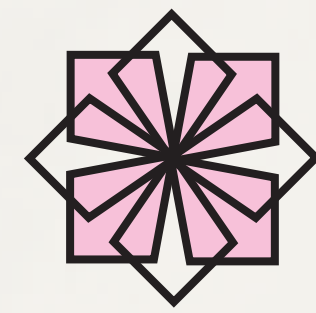


Site Layout Plan
1:2000 @A1

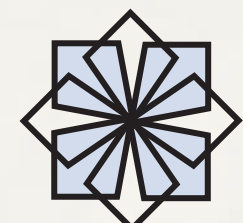
THE



PROGRAMME DESIGN

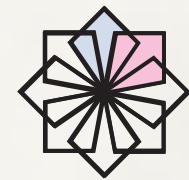


DESIGN PROJECT IN ARCHITECTURAL STUDY

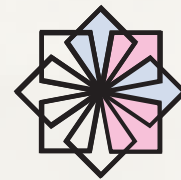


DESIGN THINKING

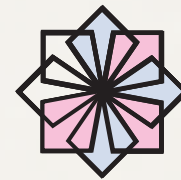
EMPATHISE



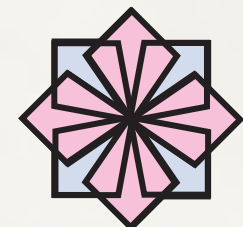
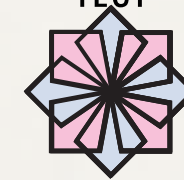
DEFINE



IDEATE

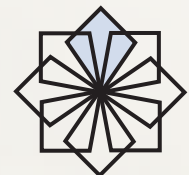


PROTOTYPE /
TEST

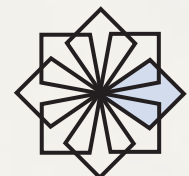


CHARACTER IN THINKING ASSEMBLY

There are 2 main charcters on the assembly, Student and Professor



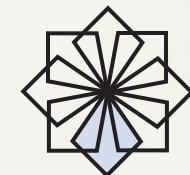
PROTECTION



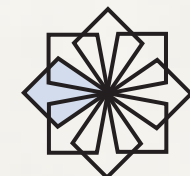
DIRECTION



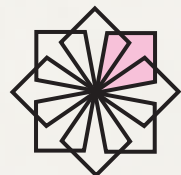
PROFESSOR



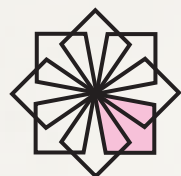
DEMONSTRATION



PROFESSION



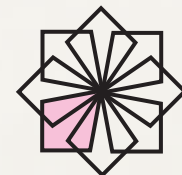
OBSERVATION



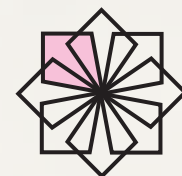
DEFINITION



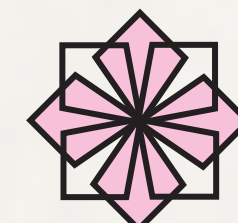
STUDENT



INTERACTION



PRESENTATION



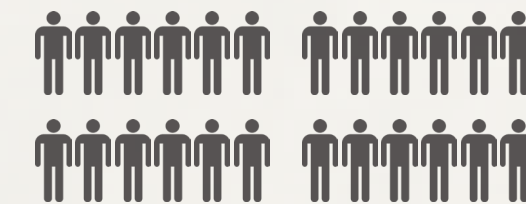
INTERACTION AND TEAM BUILDING



INDIVIDUAL EXPLORATION



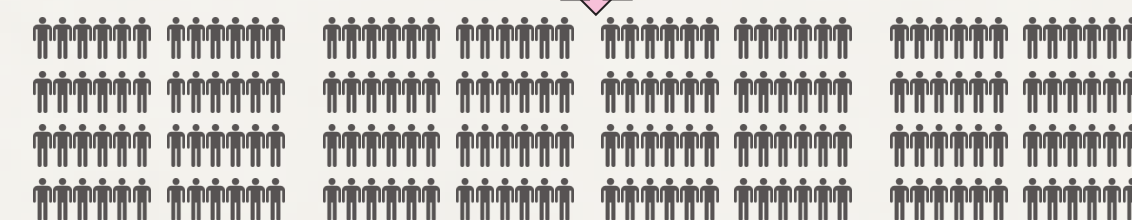
TEAM DISCUSSION



GROUPS PRESENTATION

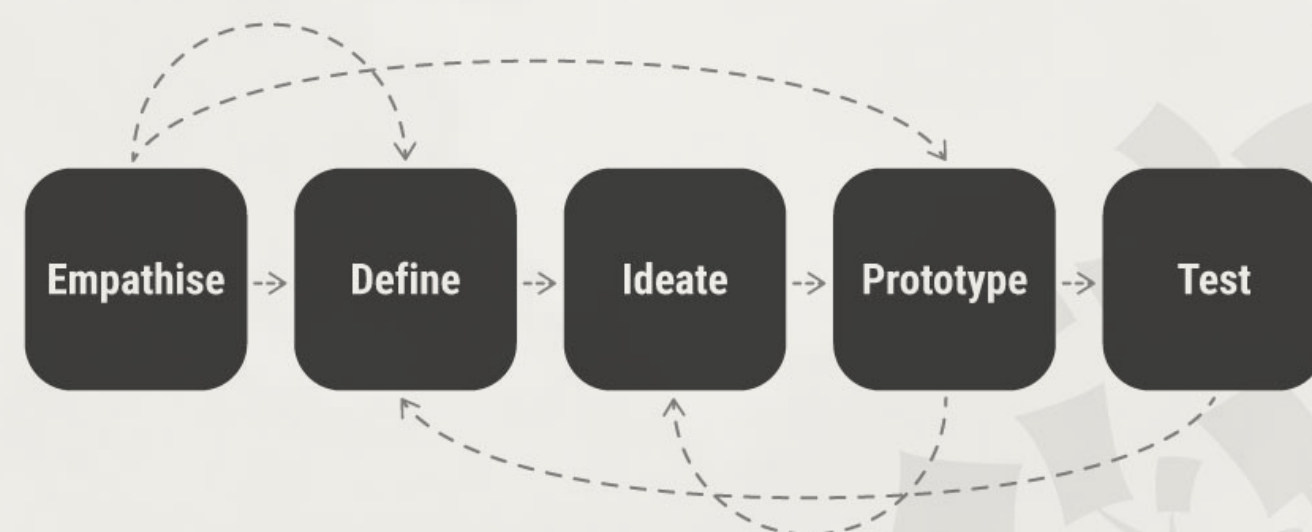


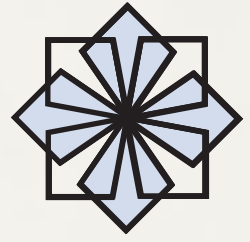
CLASS-WORKSHOPS



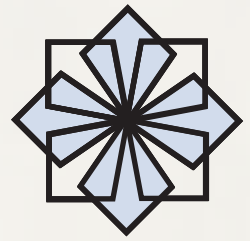
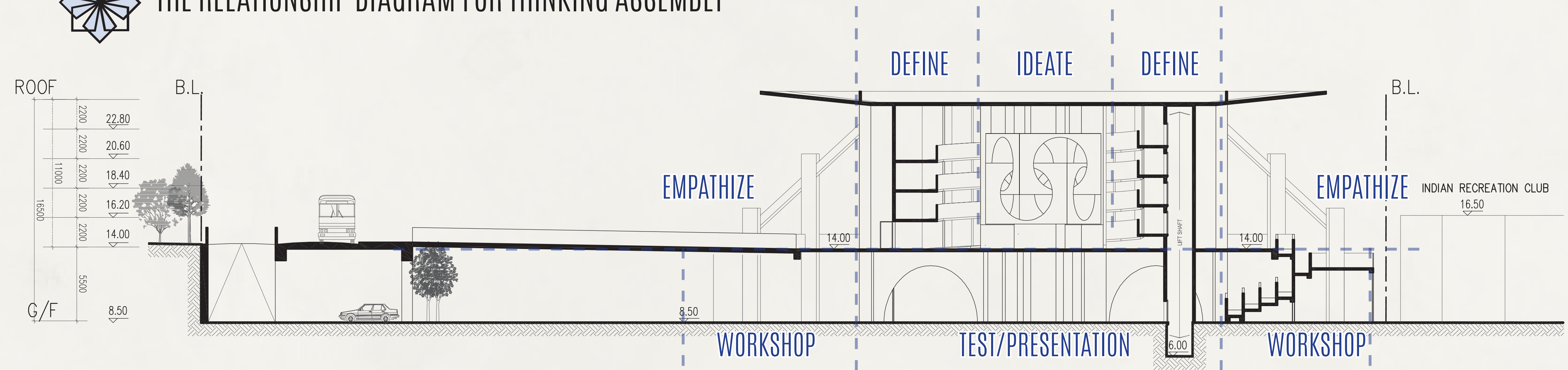
SCHOOL EXHIBITIONS

Design Thinking: A 5 Stage Process

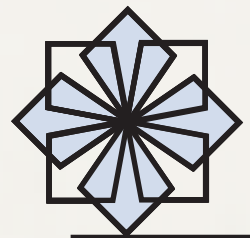
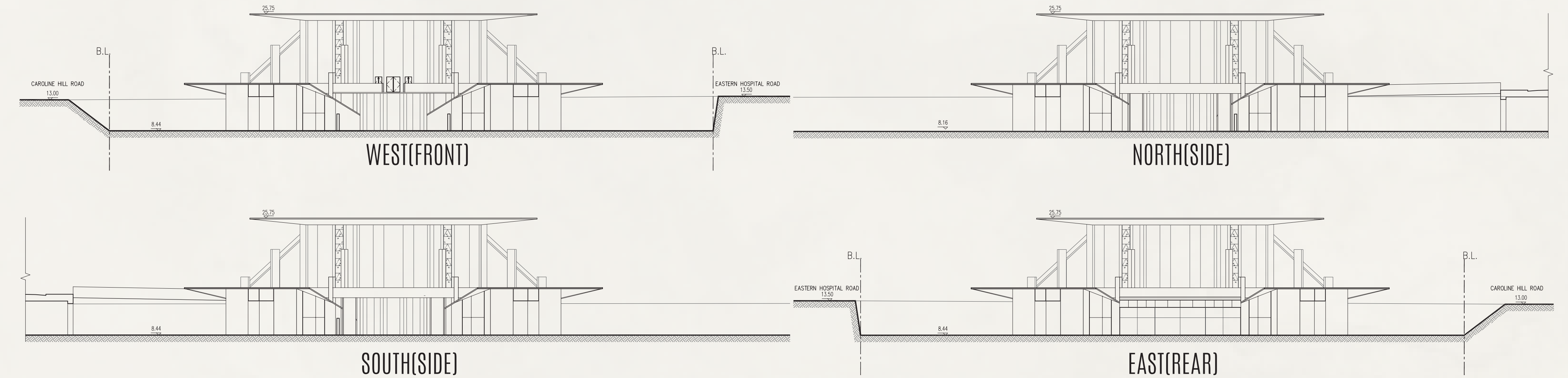




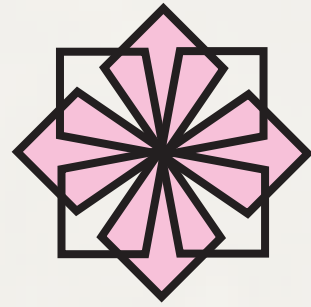
THE RELATIONSHIP DIAGRAM FOR THINKING ASSEMBLY



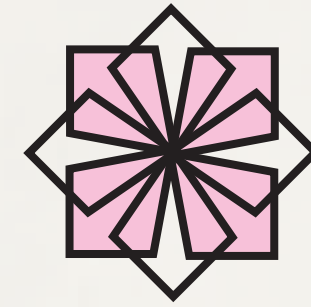
SECTION X-X 1:200@A2



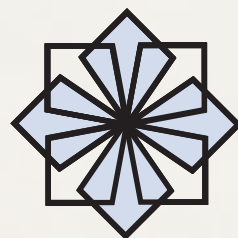
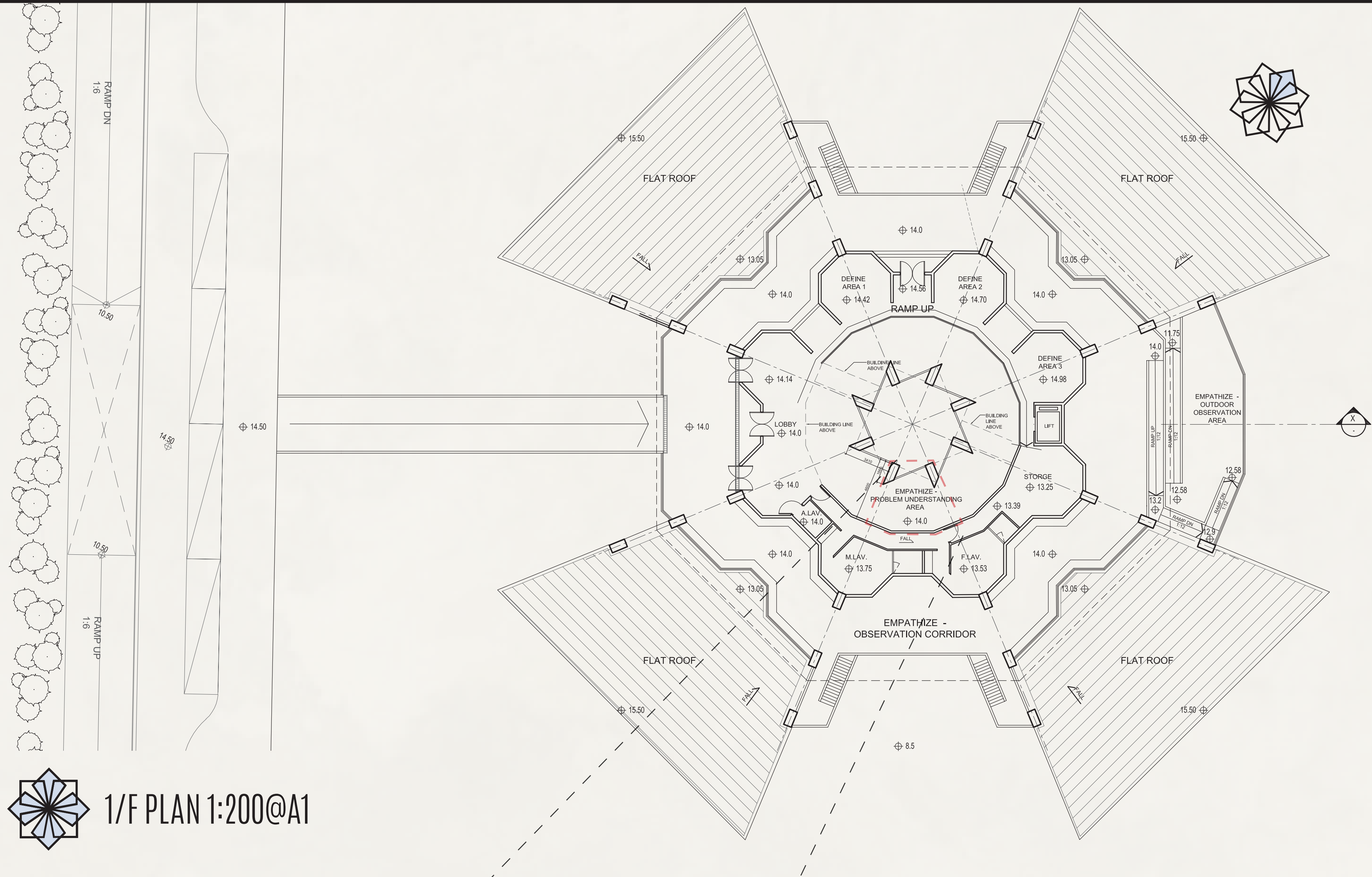
ELEVATIONS 1:400@A2



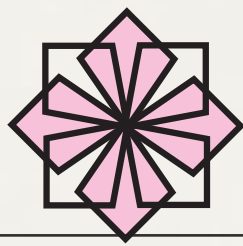
THE EMPATHIZE AREA



RELATIONSHIP BETWEEN OPEN SPACE, SEMI OPEN SPACE AND ENCLOSED SPACE

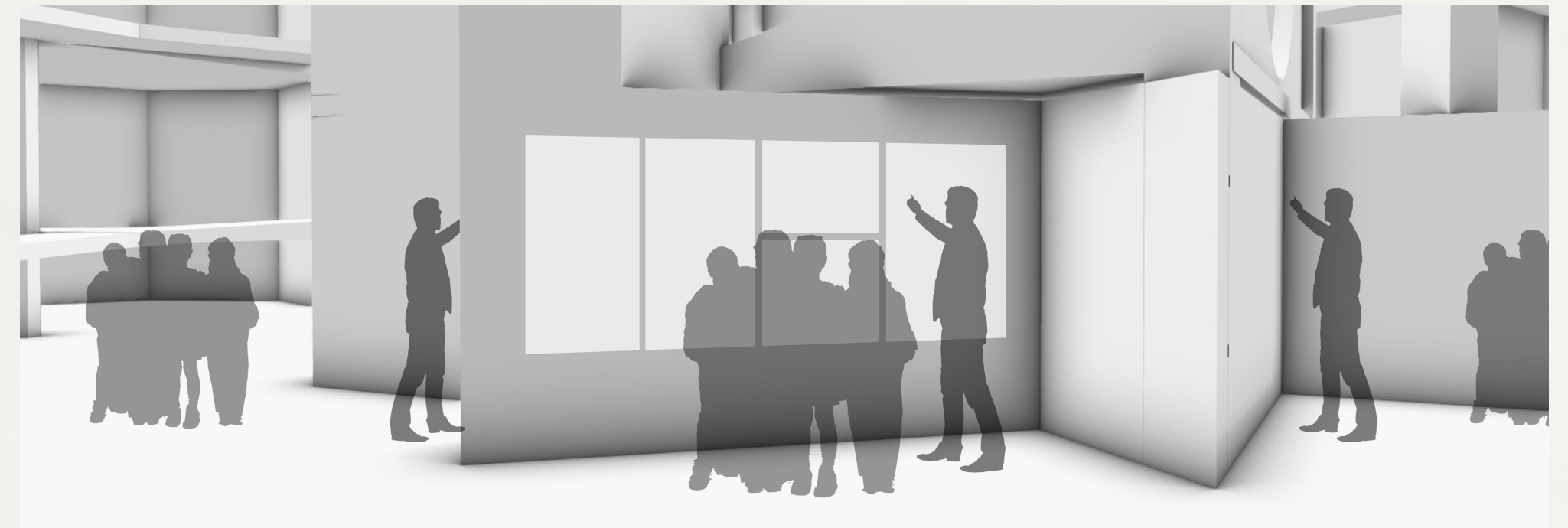
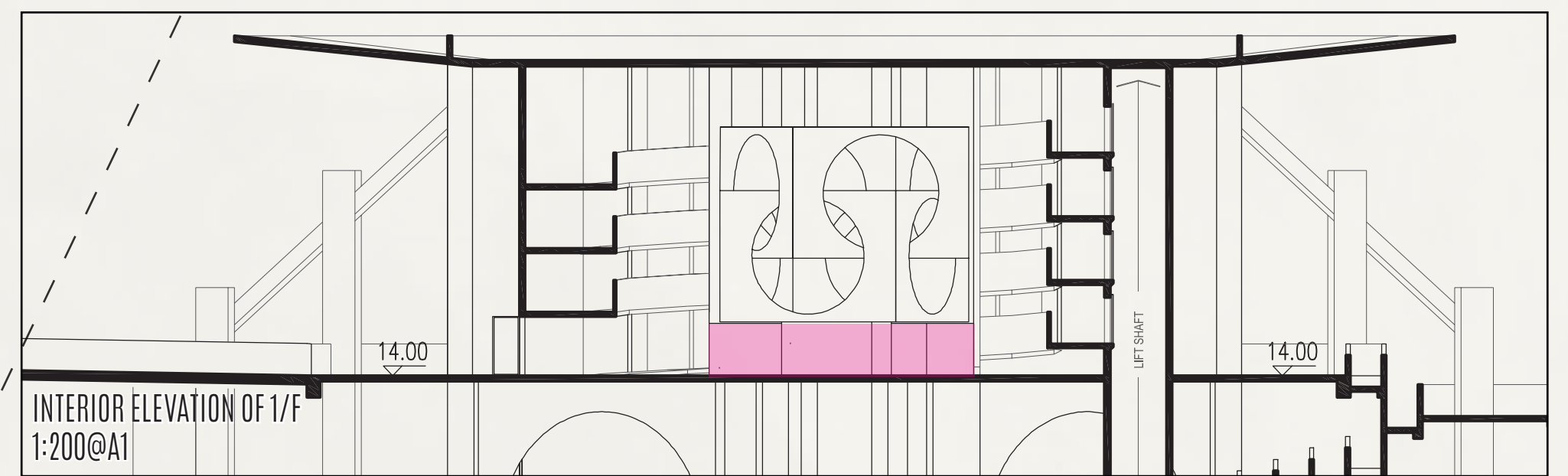
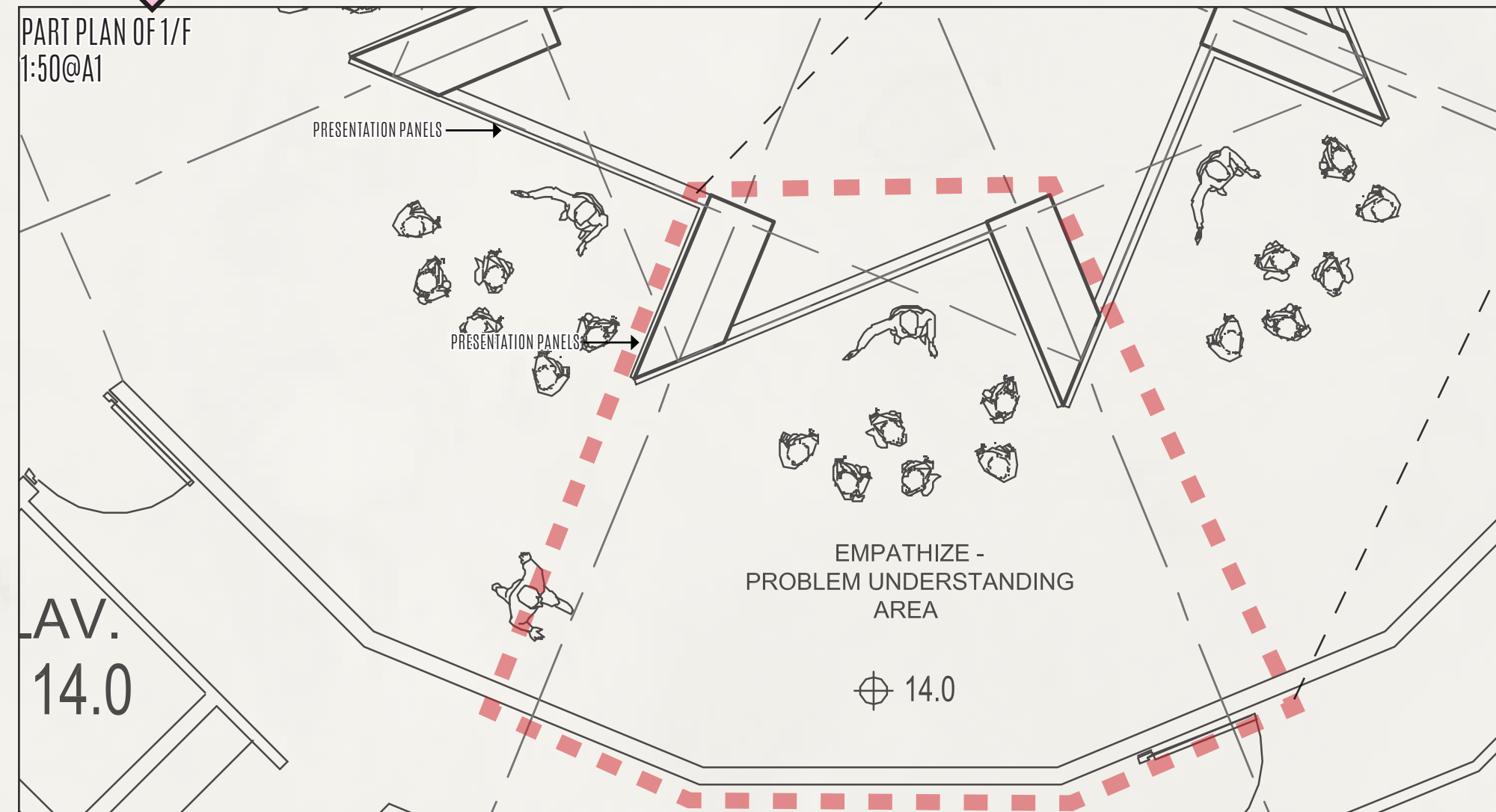


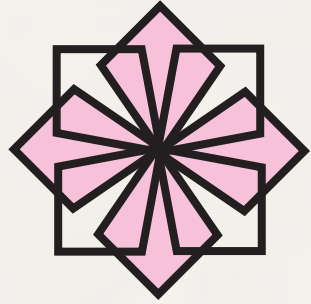
1/F PLAN 1:200@A1



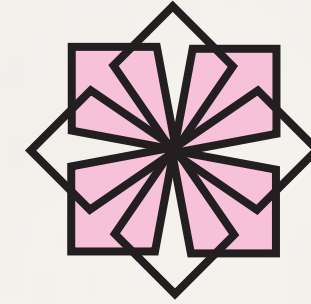
EMPATHIZE AREA - PROBLEM UNDERSTANDING WITH PROFESSOR

1 STUDENT (SELF STUDY)

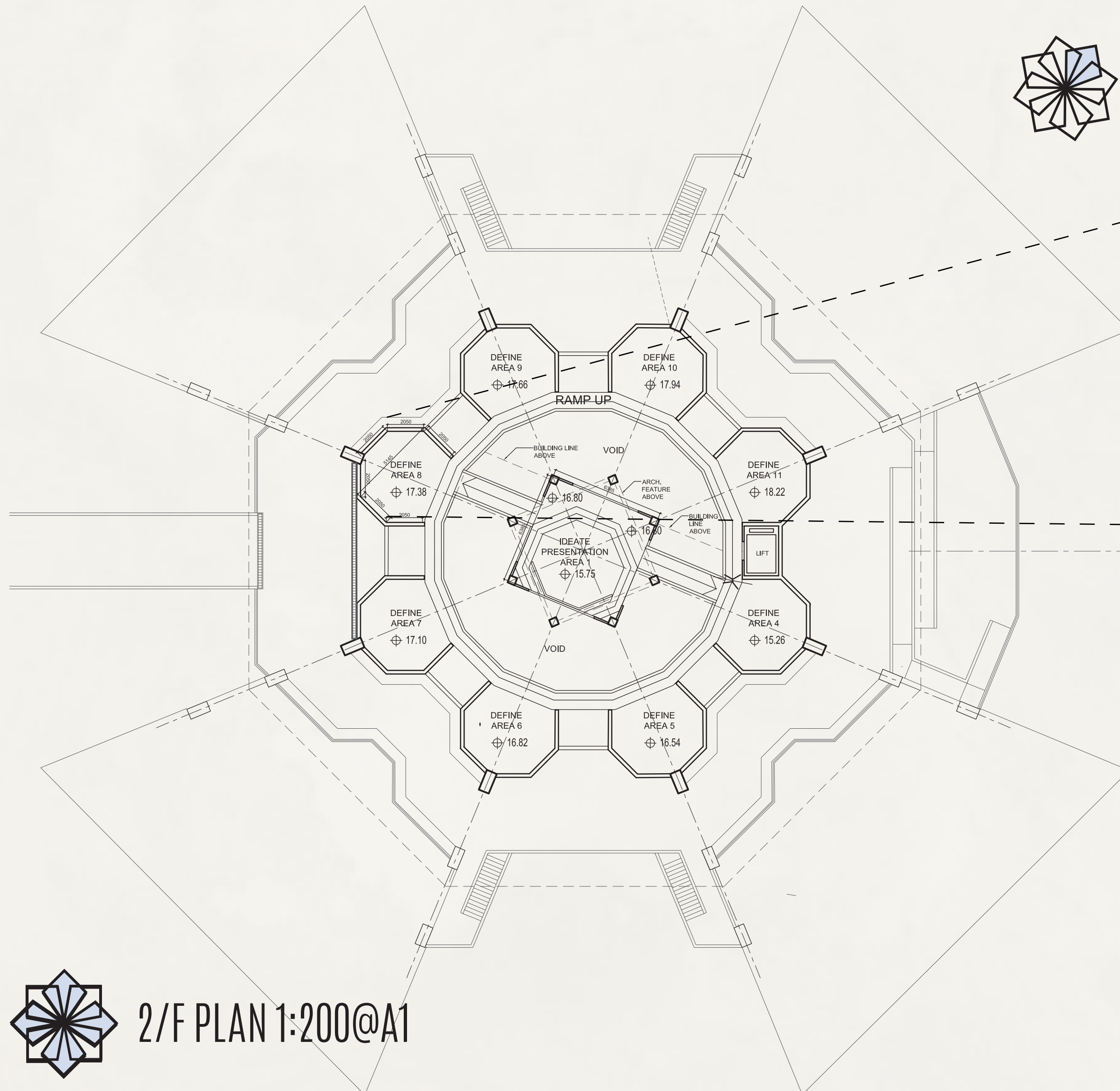




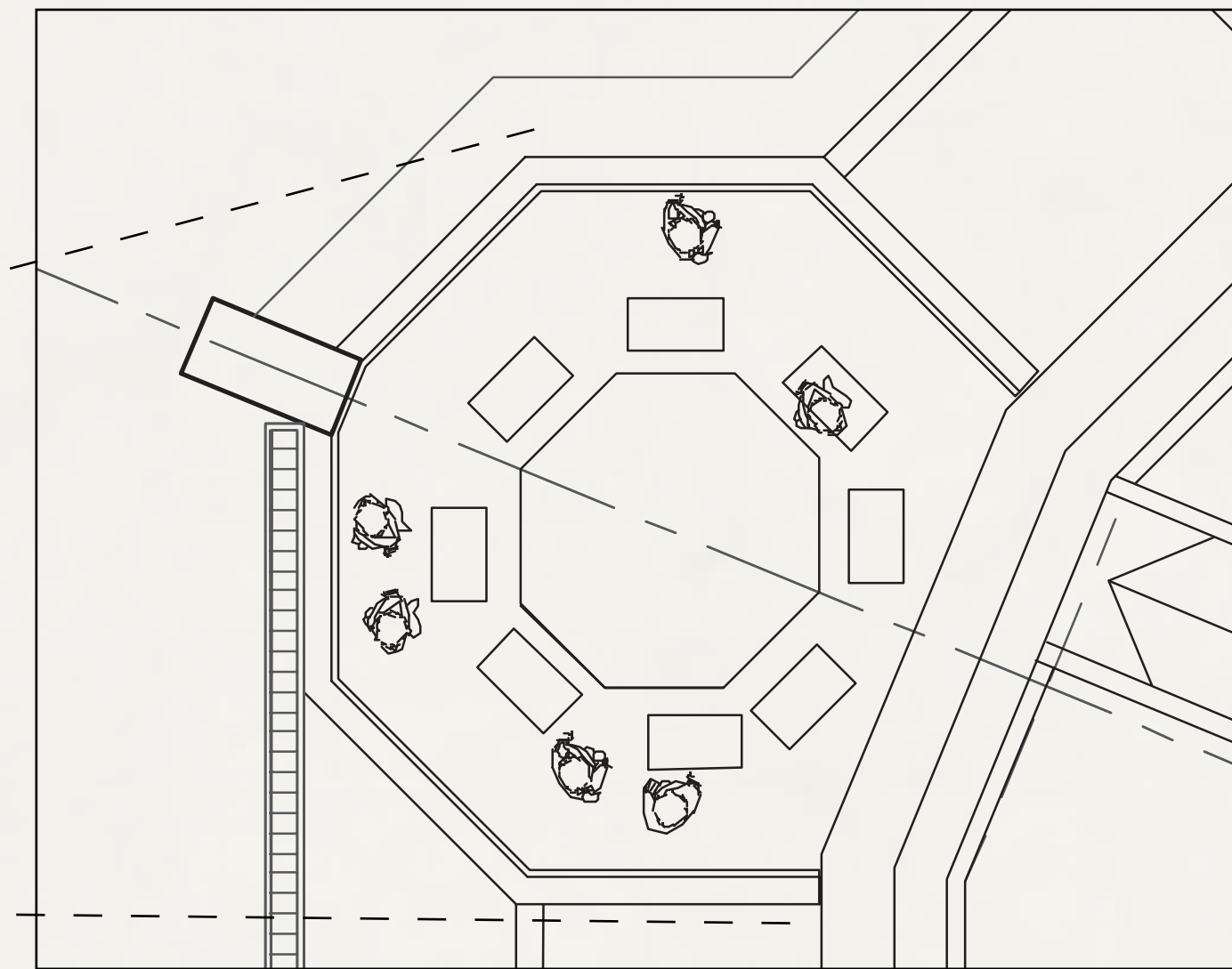
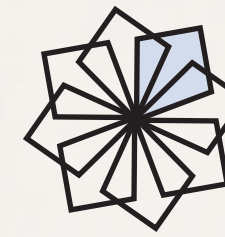
THE DEFINE AREA



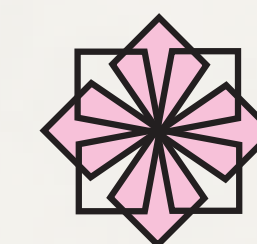
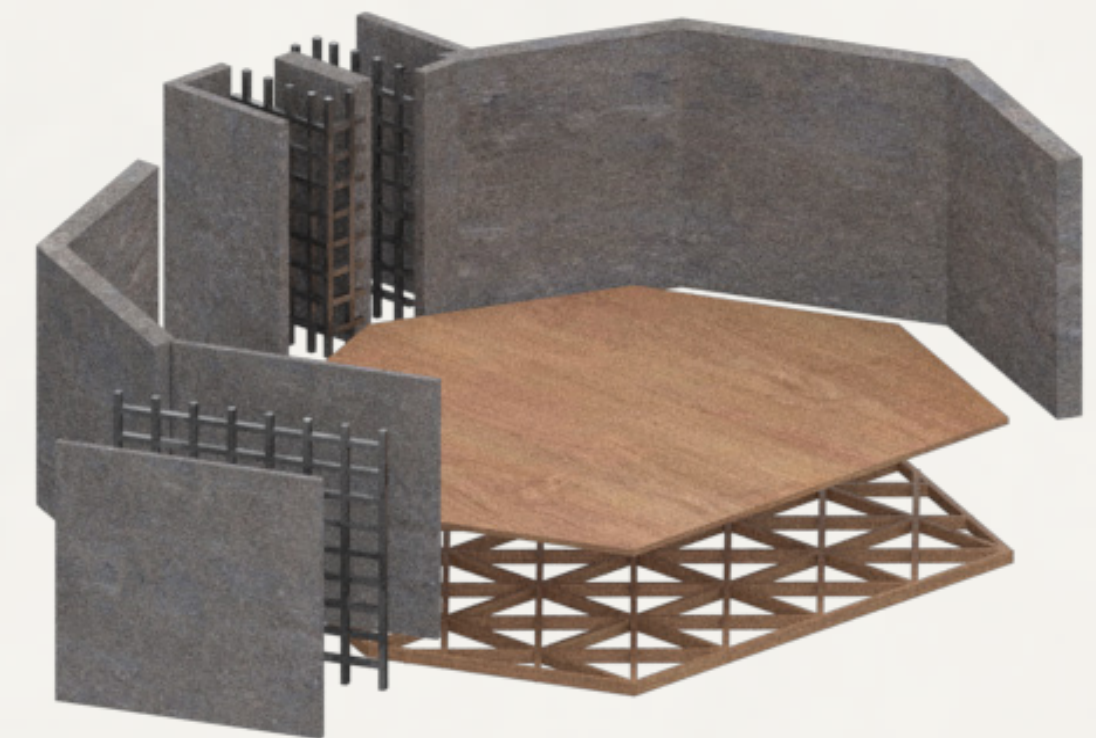
RELATIONSHIP BETWEEN OPEN SPACE, SEMI OPEN SPACE AND ENCLOSED SPACE



2/F PLAN 1:200@A1



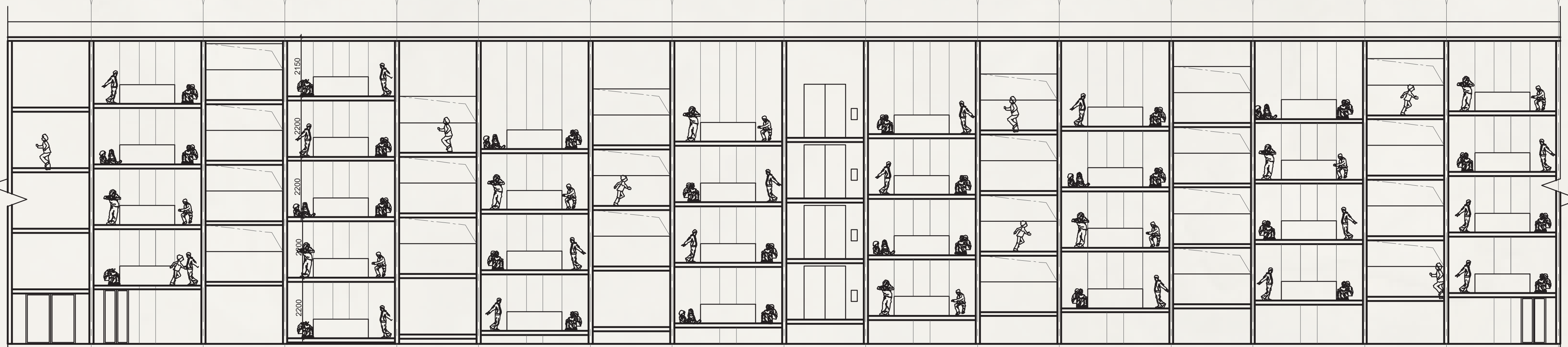
PART PLAN OF 2/F
1:50@A1



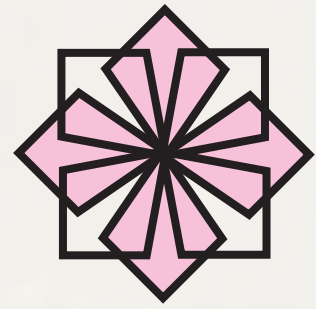
DEFINE WITH GROUP DISCUSSION
6 STUDENT PER GROUP



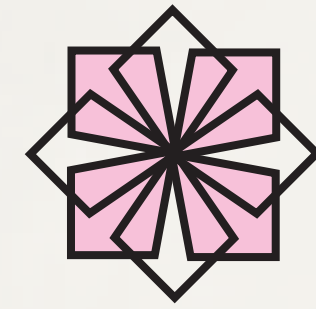
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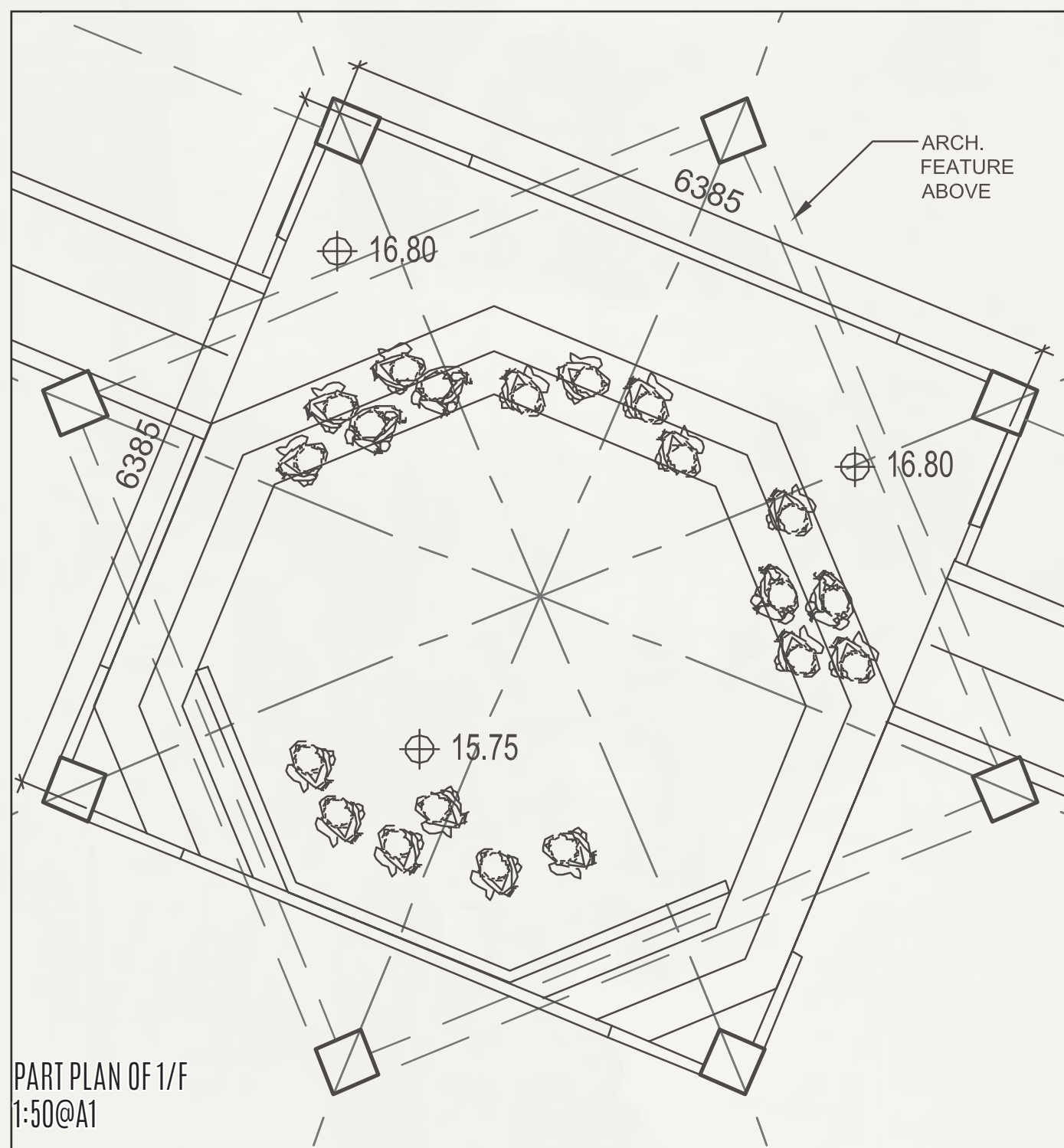
UNROLL SECTION ACROSS SPIRAL RAMP
1:200@A1

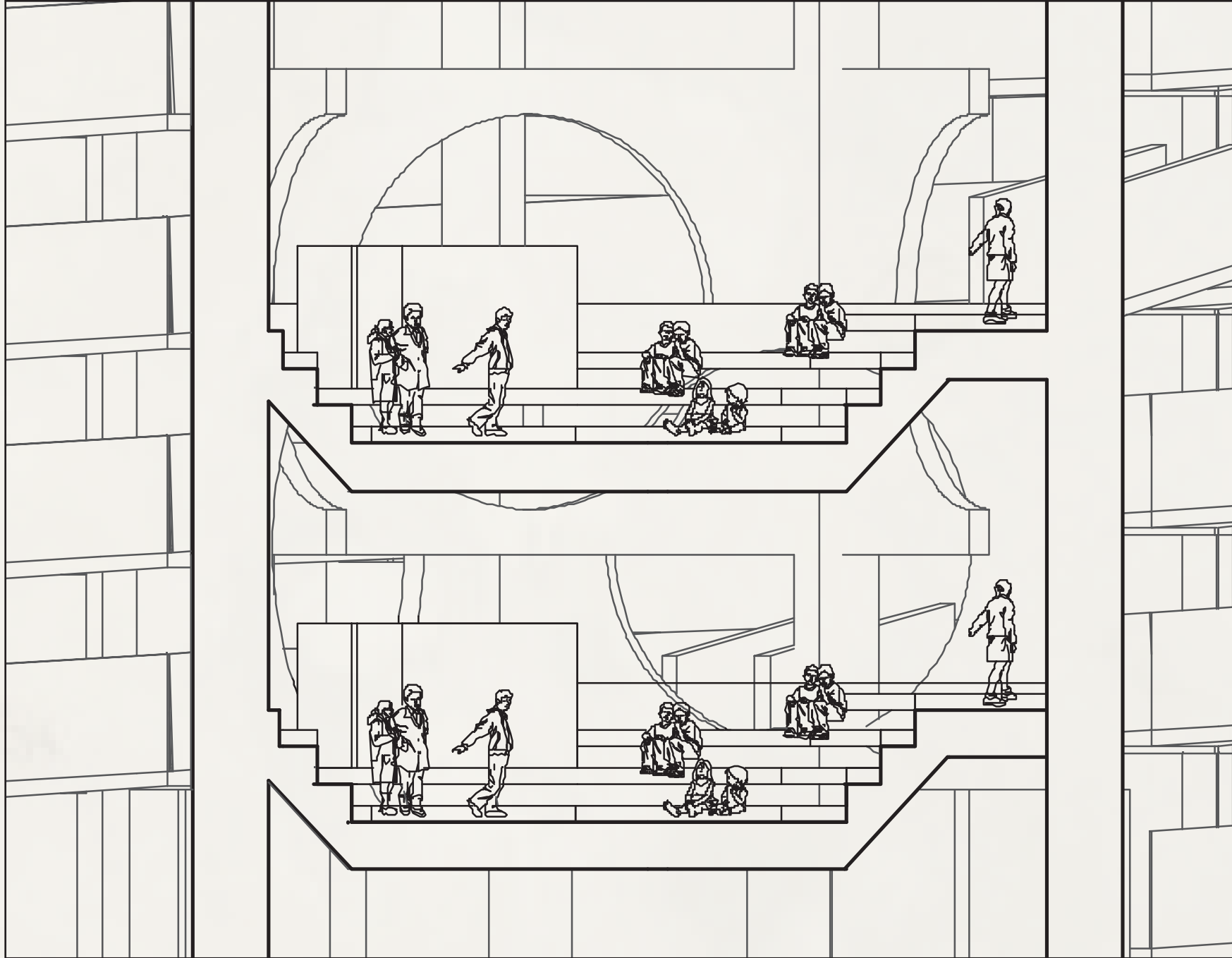


THE IDEATE AREA

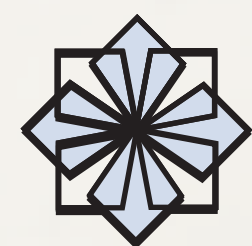
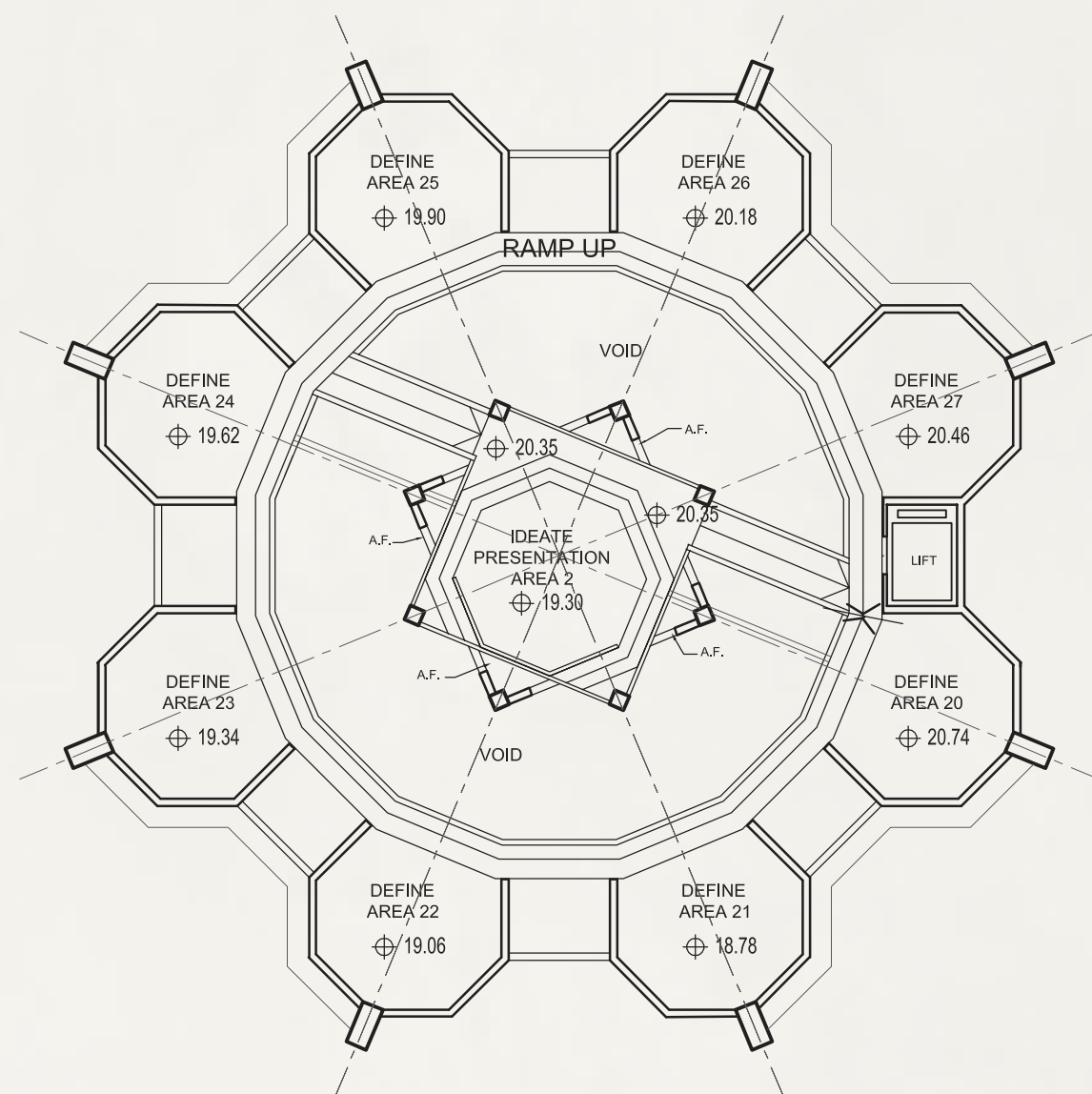
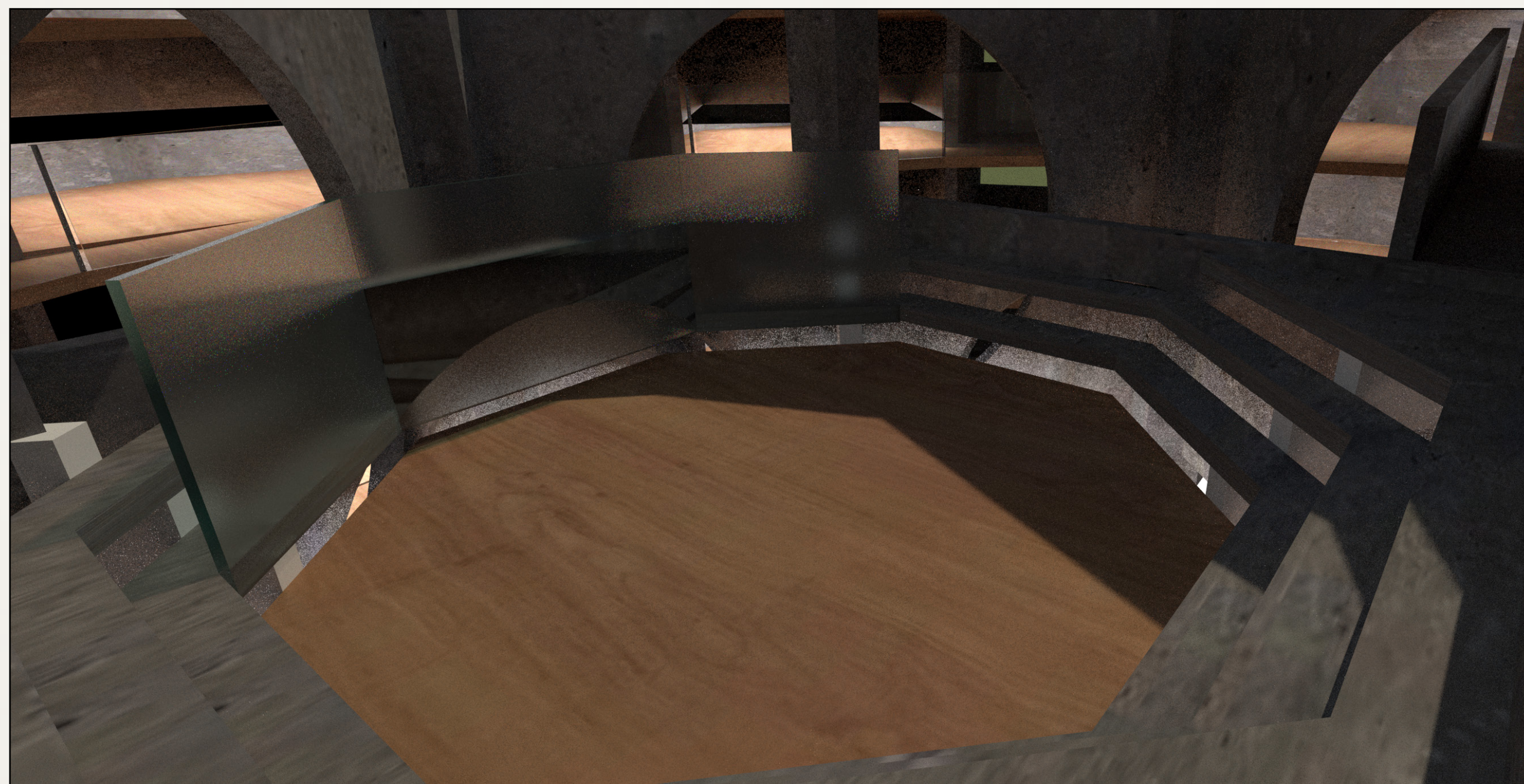


RELATIONSHIP BETWEEN OPEN SPACE, SEMI OPEN SPACE AND ENCLOSED SPACE

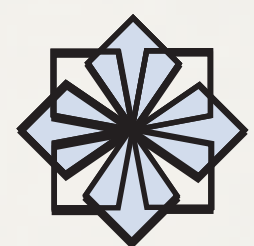
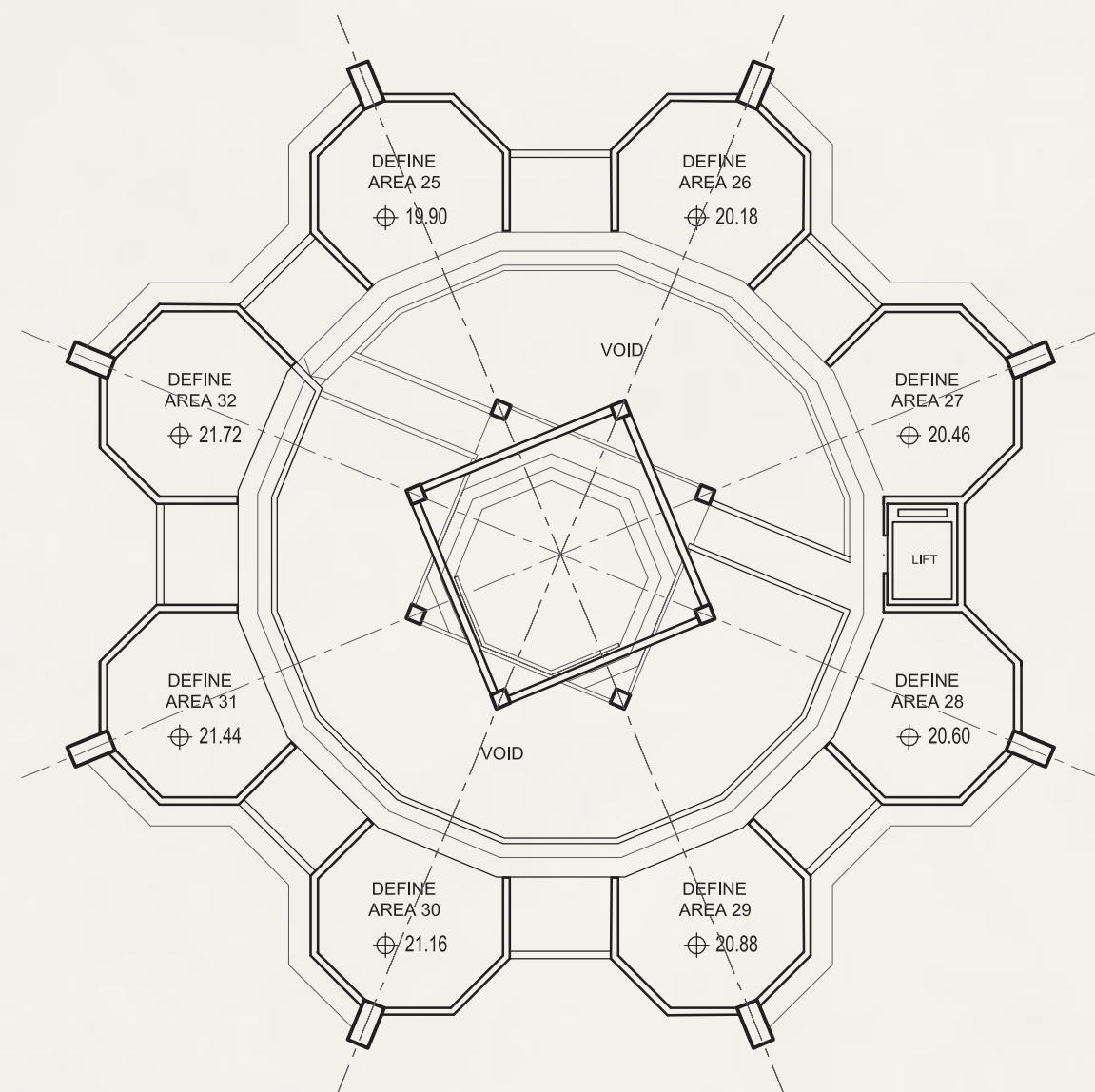




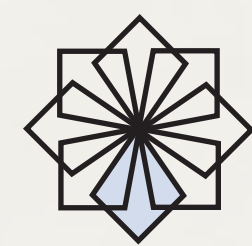
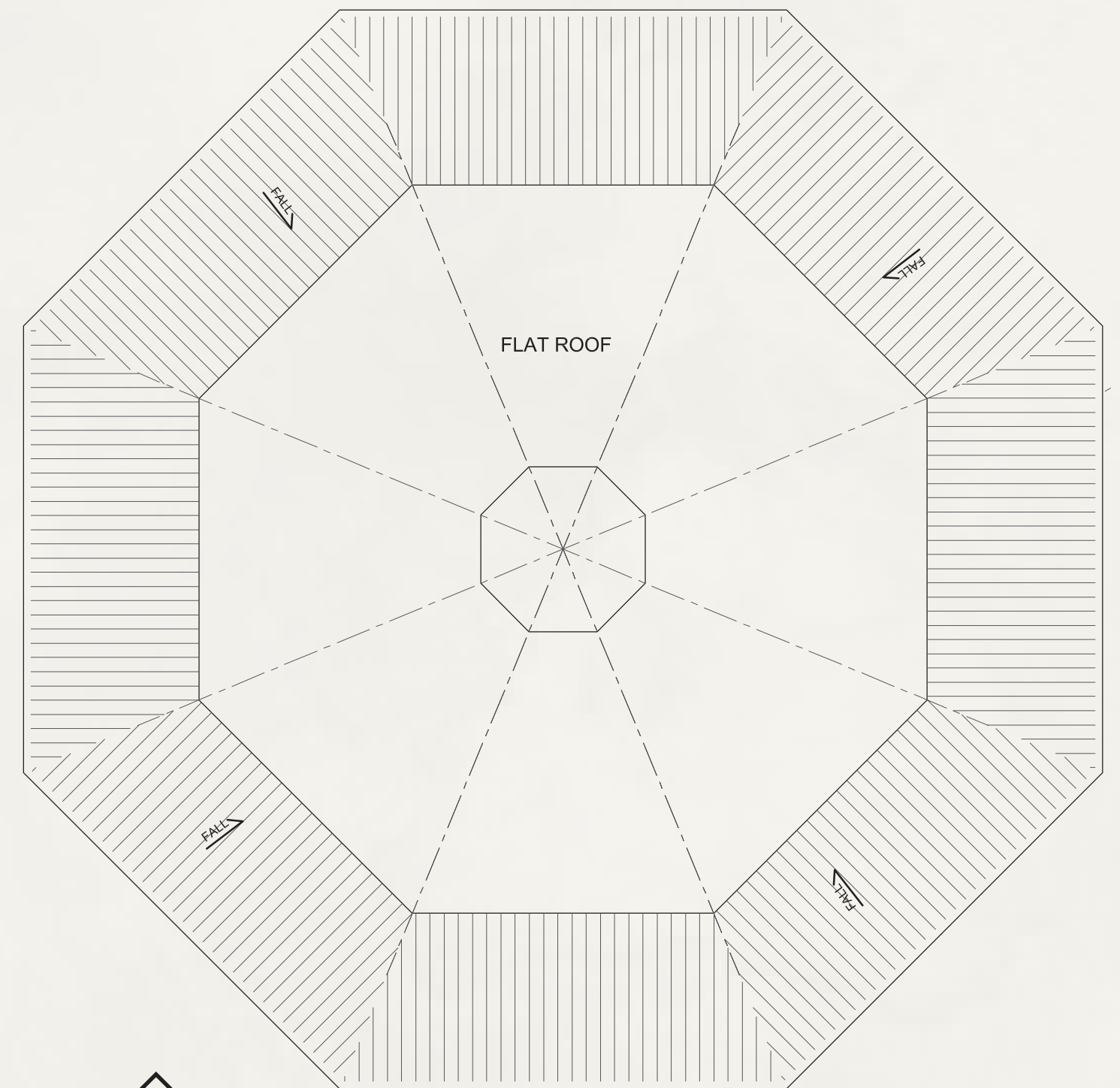
SECTION FOR IDEATE SPACE
1:50@A1



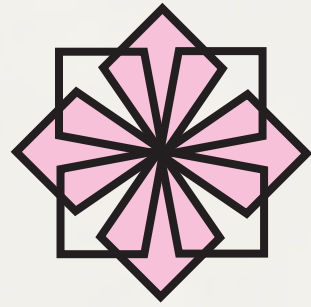
3/F PLAN 1:200@A1



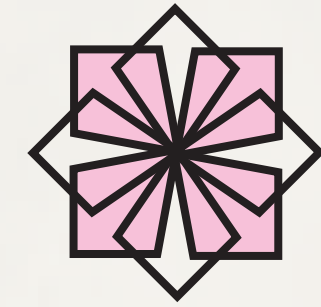
4/F PLAN 1:200@A1



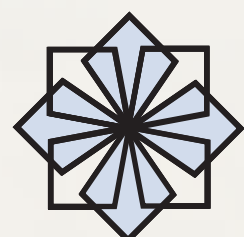
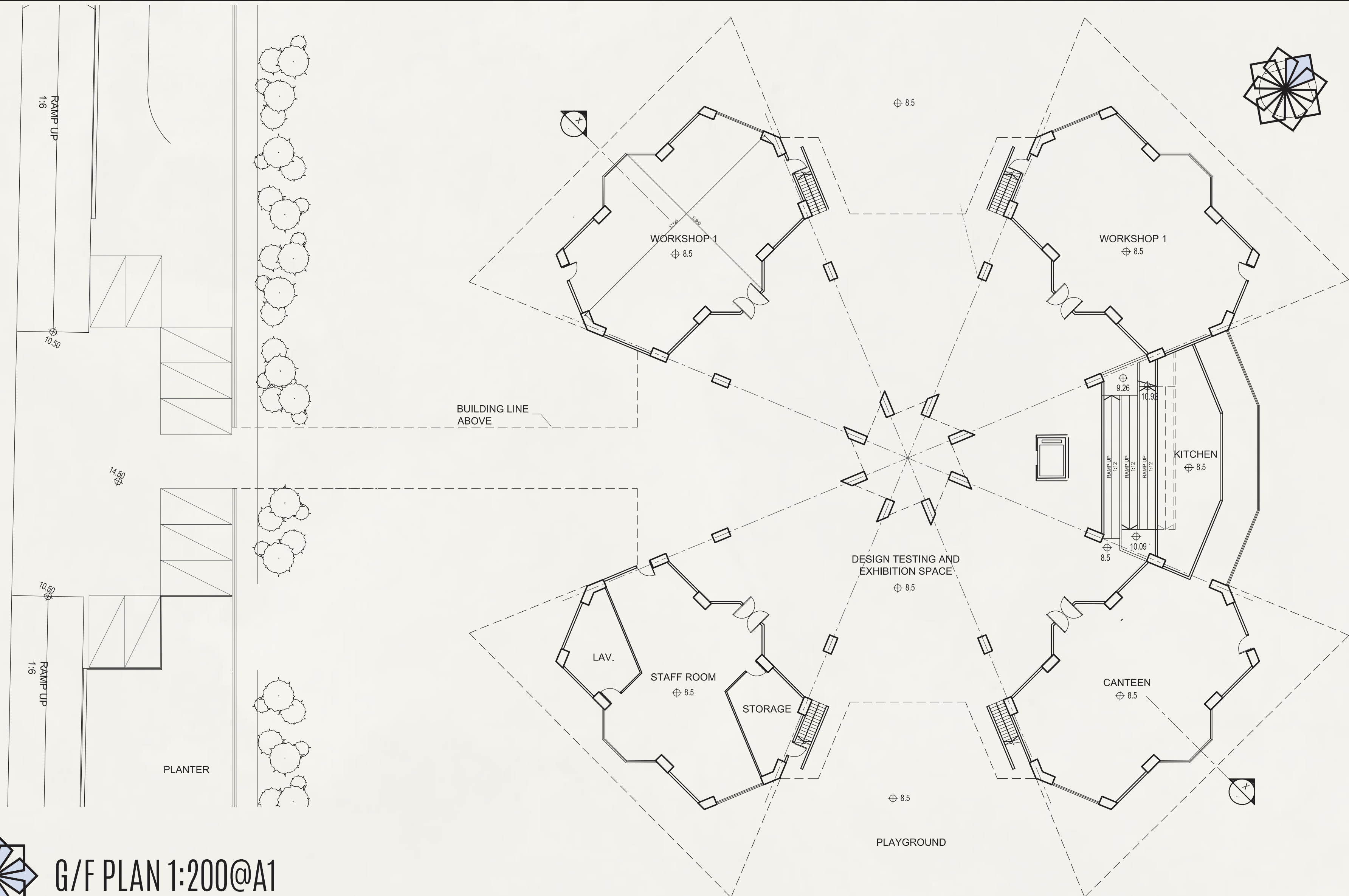
ROOF PLAN 1:200@A1



THE PROTOTYPE AREA



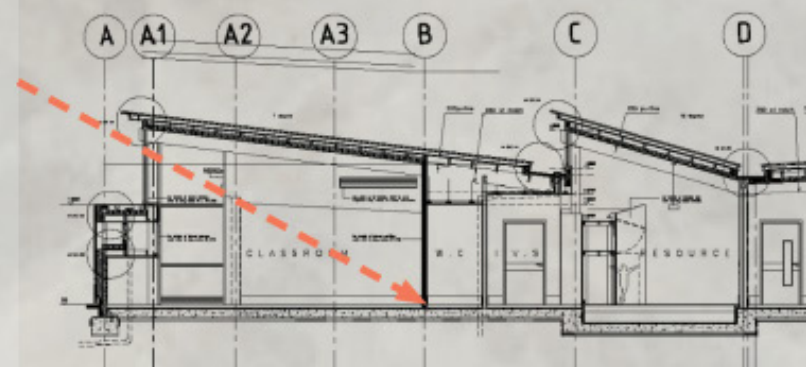
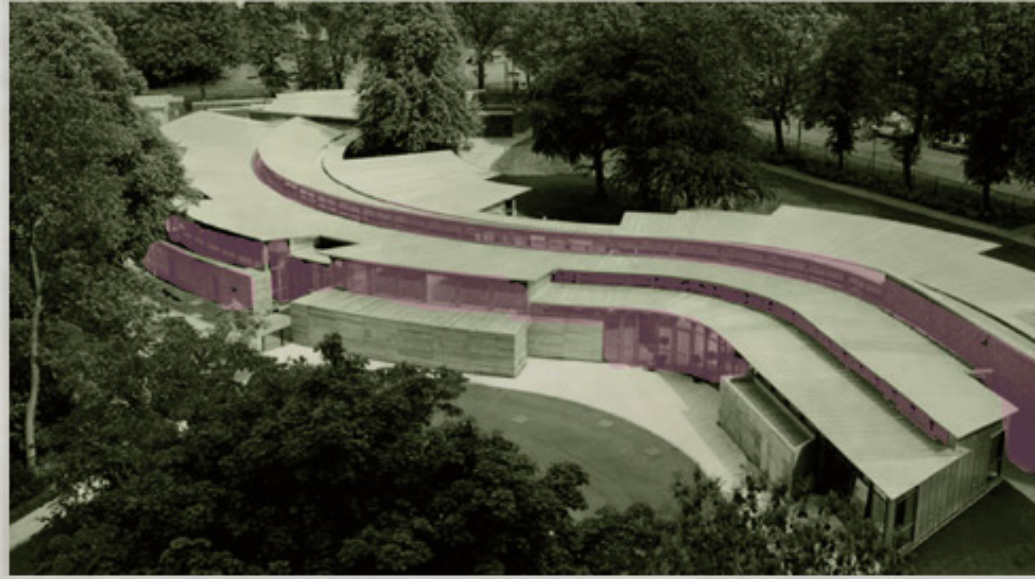
RELATIONSHIP BETWEEN OPEN SPACE, SEMI OPEN SPACE AND ENCLOSED SPACE



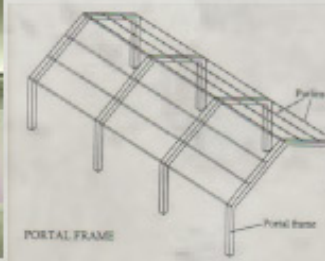
G/F PLAN 1:200@A1



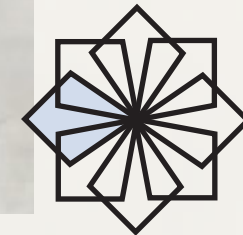
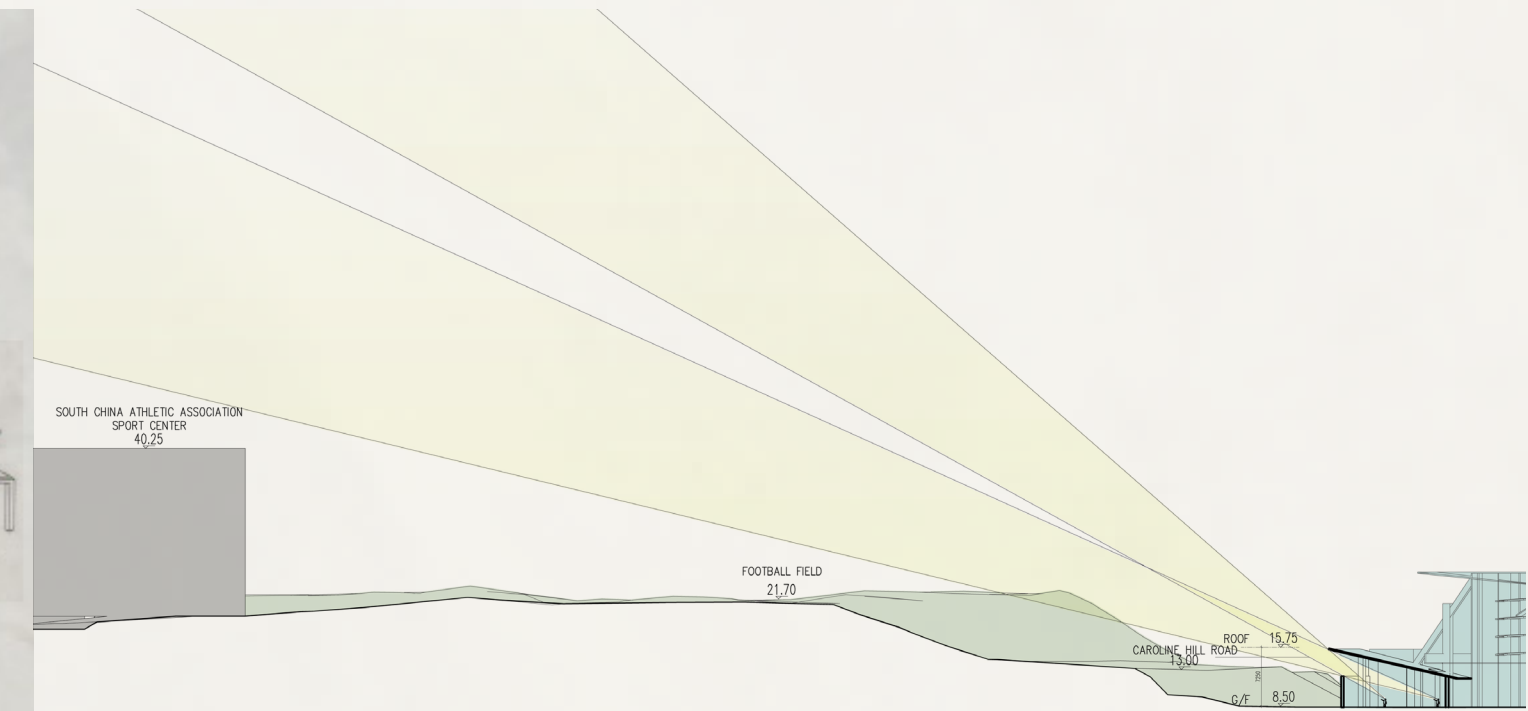
RESEARH AND STUDY OF HAZELWOD SCHOOL



The Classrooms of hazelwood school are multi-function, the furniture often relocate for difference events, and the spaces need no column to make more transformable, the frame structure helped to create a columnless space for classroom and multi-function room.



High-level windows are used as some of the students with visual impairments can be easily distracted by (movements/activities occurring outside.)



THE ANGLE OF VISION BENEFIT THE INTERACTION WITH NATUAL AND AVOID THE DISTRACTED



PART PLAN OF WORKSHOP
1:100@A1



PROTOTYPE WITH WORKMATES

THE STRUCTURAL DESIGN

DESIGN PROJECT IN ARCHITECTURAL STUDY

THE STRUCTURAL DESIGN OF THINKER ASSEMBLY

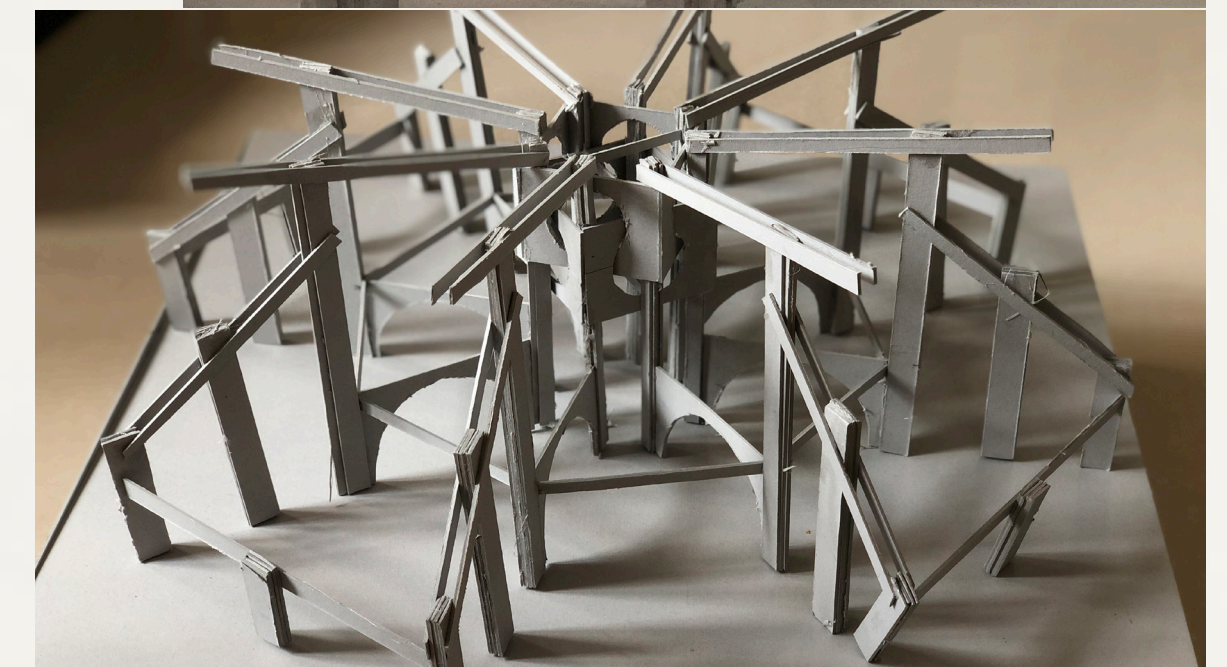
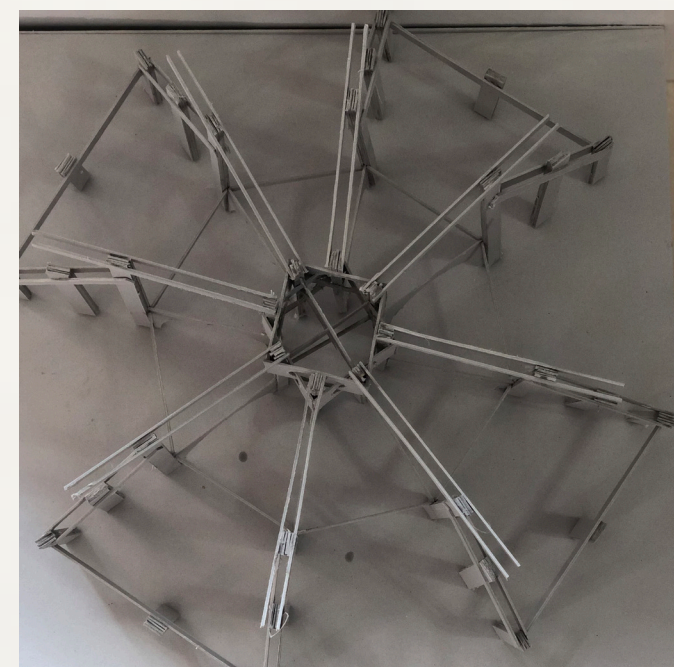
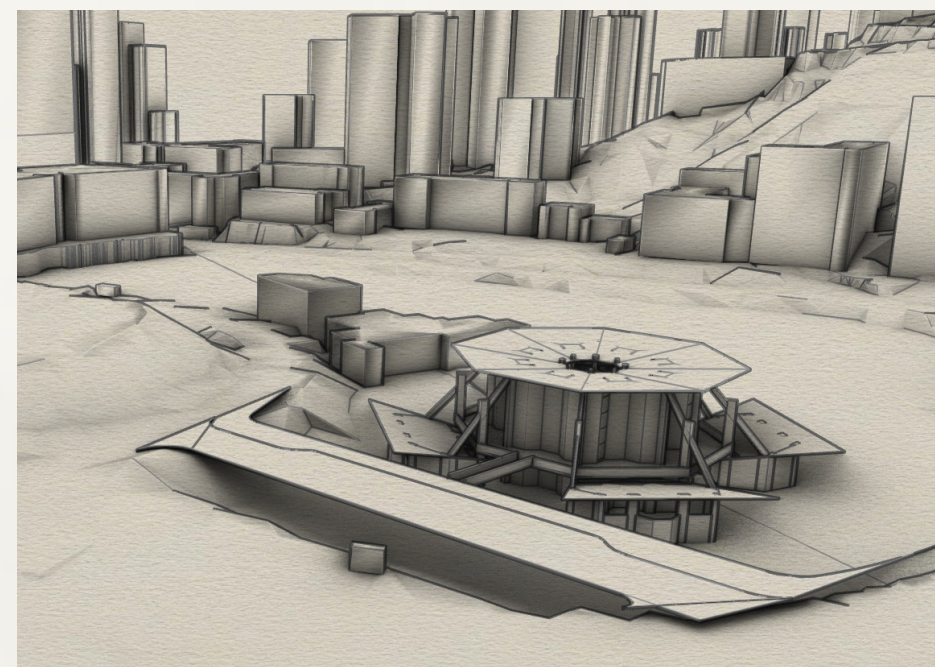
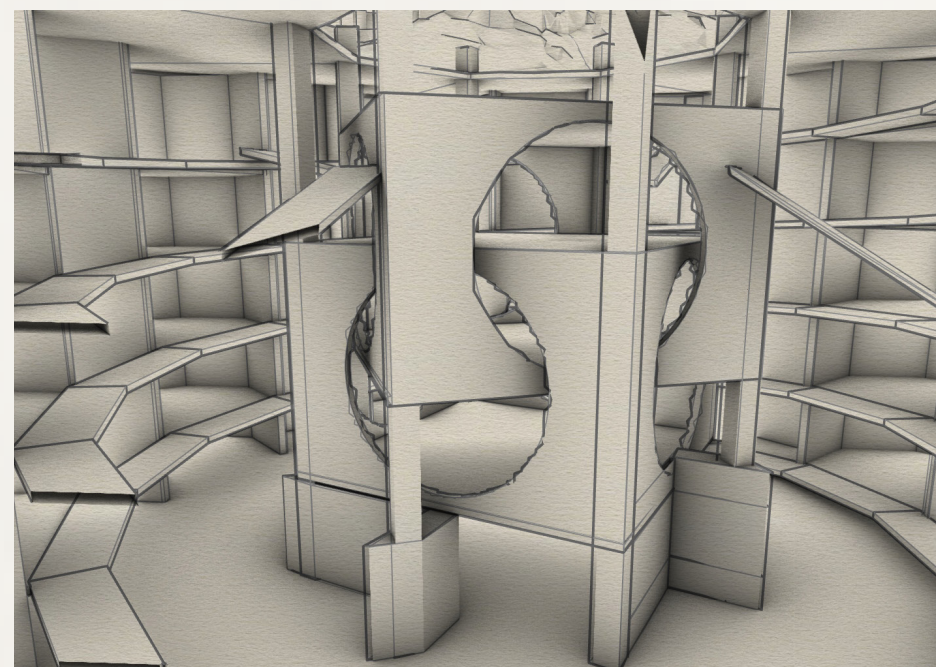
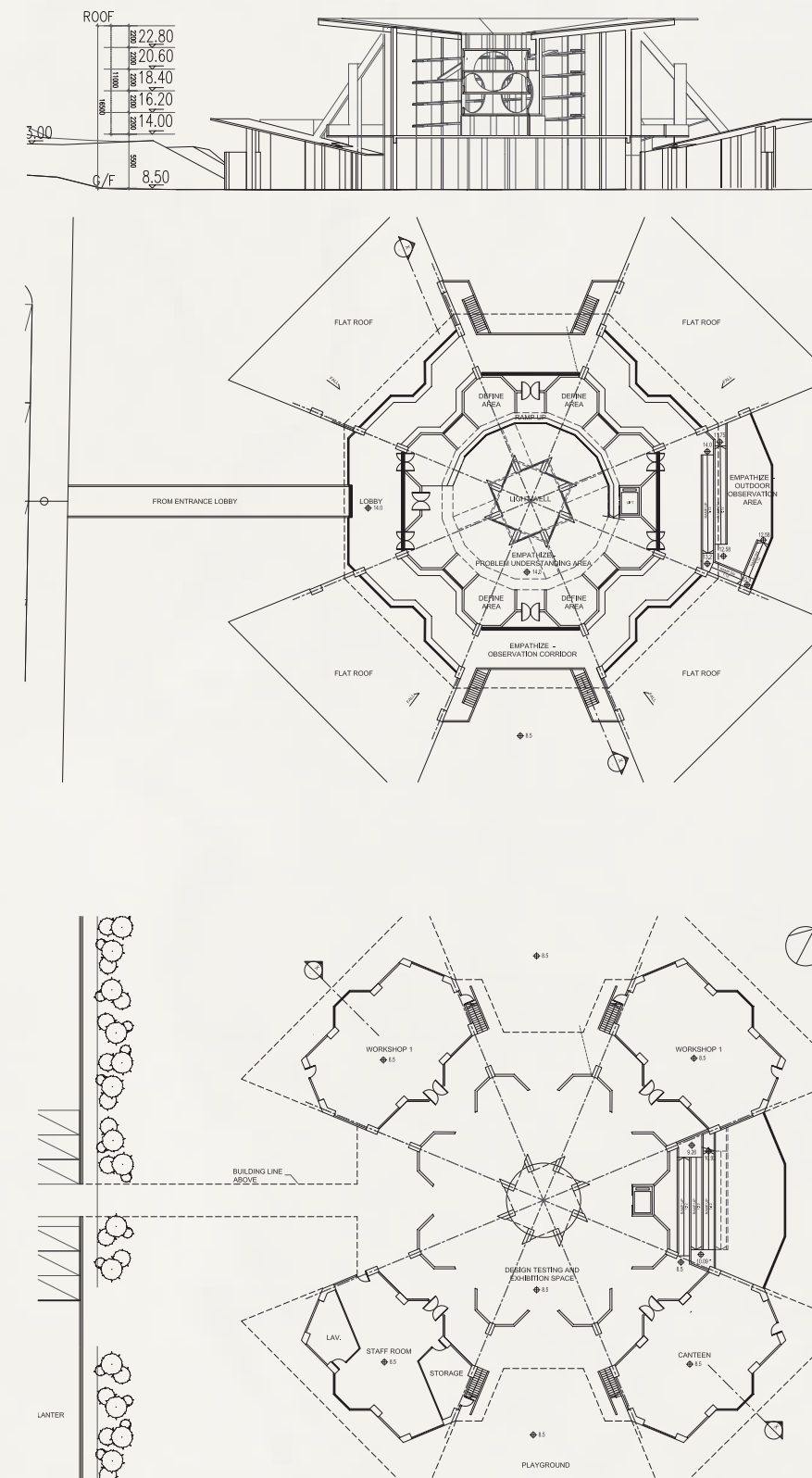
DESIGN PROJECT IN ARCHITECTURAL STUDY

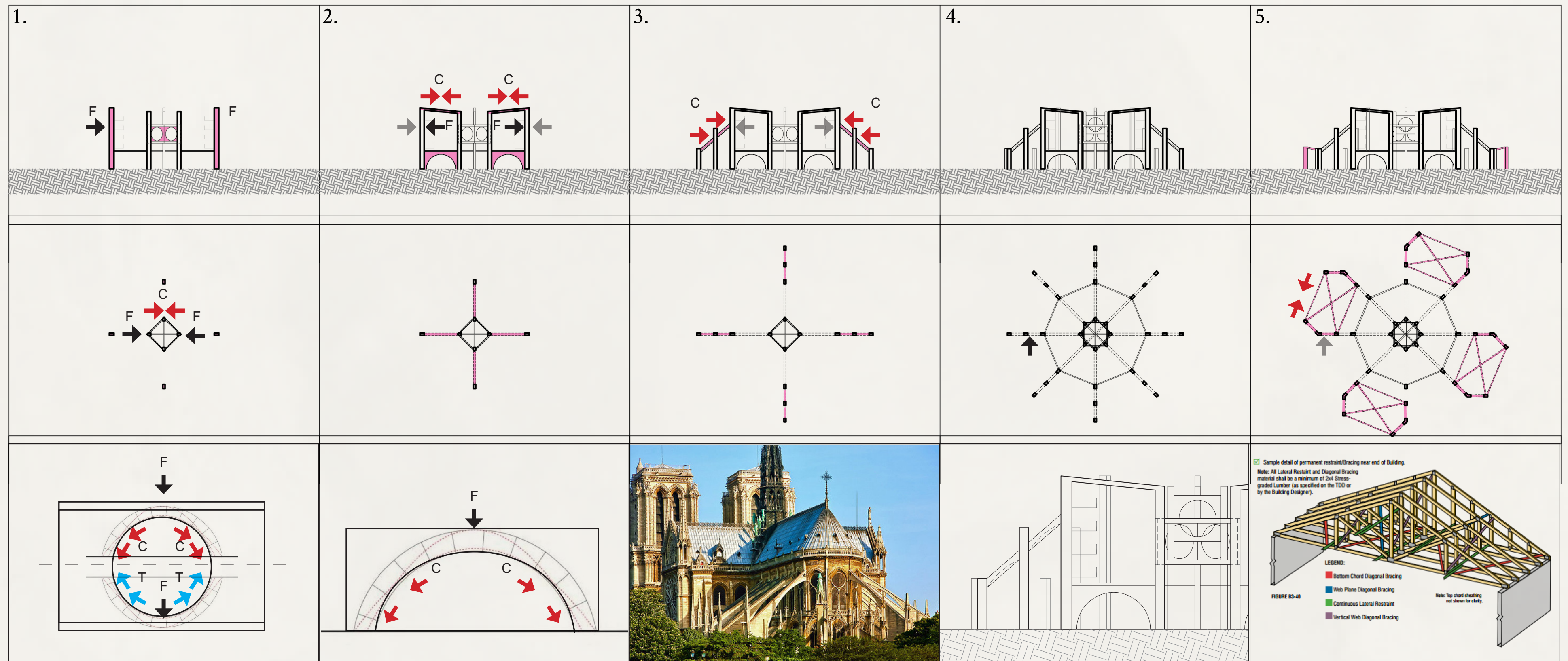
ABSTRACT

Thinker Assembly is a student leading campus, by the exhibition of professors, students are told to solve problems every day, they can solve the problem by observation, ideate, communication, and prototype in the campus, to learn from interaction with classmates.

Every single day, there are exhibitions provide in the exhibition hall, and there are four storeies of the communication space around the exhibition area. To create the columnless space for the exhibition, the architecture is using the flying-buttresses system and using arch to create the long span beams.

The primary material for the structure is concrete, which is easy to form and allow good compression for high architecture, for some of the long spans beams, the pre-stressed concrete provided to strengthen the tension power in the bottom of the concrete.

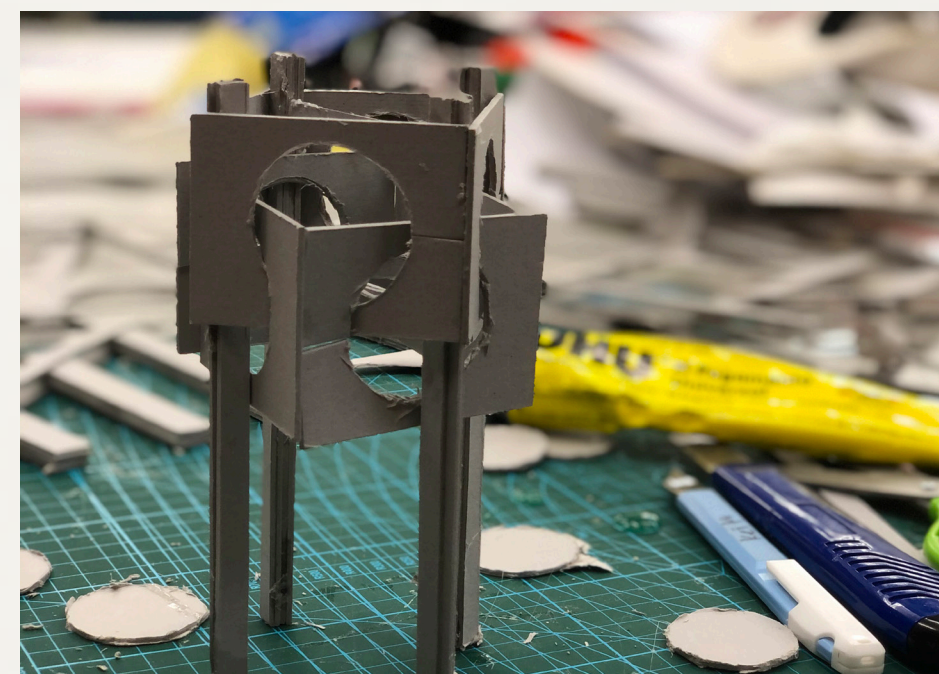
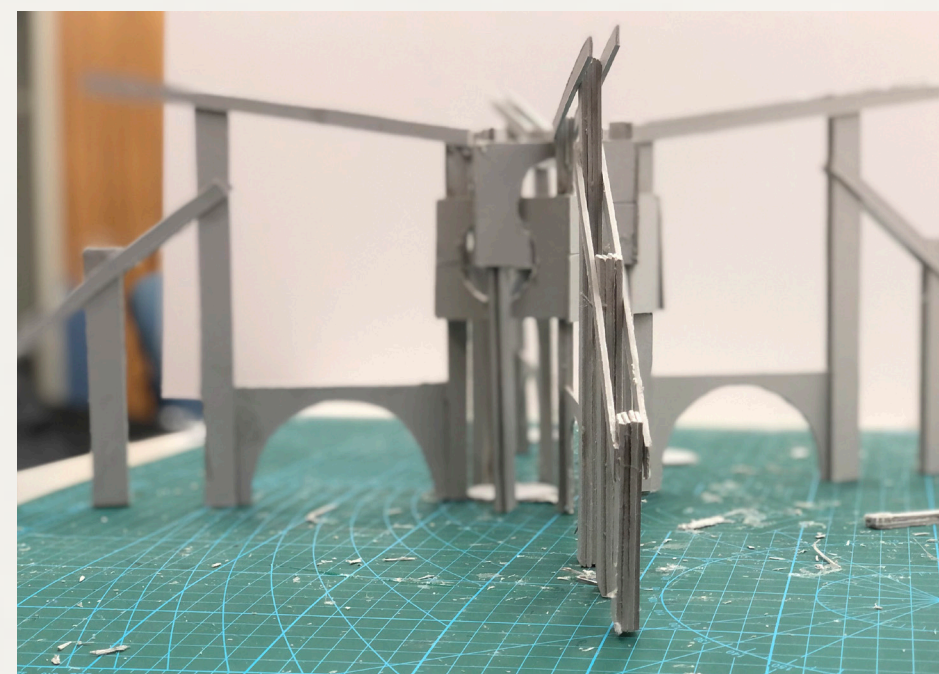
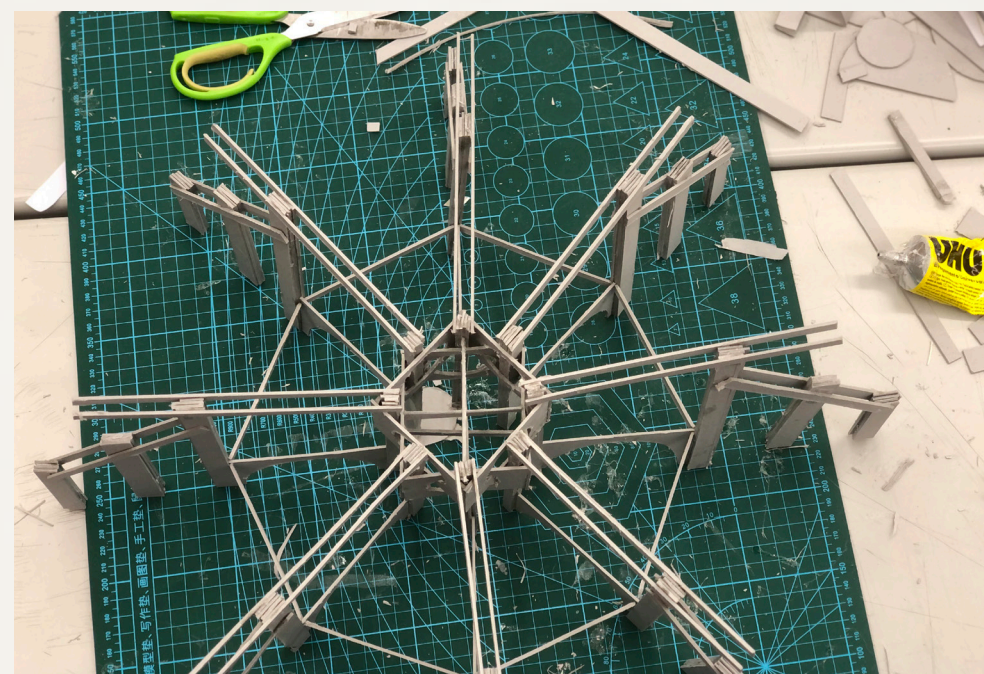




Arch

Flying buttress

Frame





THINKING ASSEMBLY

