



complex projects

CONTENTS

- 1. REFLECTION PAPER**
- 2. ARTICLE**

REFLECTION PAPER

CONTEXTUALITY WITH A TWIST

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INTRODUCTION

Aspect 1 The relationship between research and design.

The research began with the migration of the idea of a skyscraper. With the development of technology many countries began building this typology of buildings and in some countries these buildings attracted business opportunities leading to immense socio-economic changes. As this typology became more common in major cities the urban implementation of these buildings failed to address the way in which people interact with it in the street level, as a result, these structures have become huge blocks in cities where these buildings only cater to certain user groups isolating the remaining which creates a disintegrated void in cities. When this factor multiplies in cities, the urban street level becomes less active. The design, addresses the issue of this separation and by creating an inclusive environment that motivates interaction that eliminates a void in the city. The Twist is located in Delfshaven, a historical part of the city of Rotterdam. The research in this case is used as a design tool, considering the contextual aspect, the design explores what contextuality means to the different user groups and how they would interact with the different space of the building to create an inclusive environment with respect to the context. The research explores way of life of the people in Netherlands, how they interact in public spaces and the usage of hybrid zones for interaction and these are reflected as design choices starting from the plinth which is designed as a network of streets and plazas with hybrid zones of interactions for people.

Aspect 2 The relationship between your graduation topic and studio topic

The topic of the studio is migration of ideas. The skyscraper is an idea that began from the United states of America. People were inspired by this typology of building and the idea of building vertically spread throughout the world. As technology progressed, the process of building Highrise constructions became easier, and the technology spread giving rise to new typology of skyscraper setting new records. In these days' skyscrapers can be seen in most countries and the presence of skyscrapers symbolizes a powerful

As this typology of buildings continues to migrate, the neglect of the human scale interaction at the urban level also migrates and less consideration is given into the integration of the skyscraper with the urban fabric. Through research and understanding the functioning and the wide influence of the skyscrapers on a social and urban level, it was seen that contextuality is the key element to understand the urban scape to efficiently integrate elements that promote human scale interaction. Contextuality needs to become an idea that has to migrate for efficient integration of these massive structures in a way that the building activates the urban level instead of catering to a selective few, creating a void in the city scape.

Aspect 3 Research method and approach chosen by the student in relation to the graduation studio

The beginning of the graduation studio was to find a specific interest in migration, this came from a personal fascination after hearing David Basulto (founder of Arch daily) talk about countries losing their identity in architecture and the glass building typology that is over taking the entire world. Looking at the context of the studio given site in Rotterdam the dominant factors are the bold modern architecture and high soaring skyscrapers. The initial stage began through secondary research and observation of the skyscrapers

and identifying the migration pattern and elements of these buildings throughout the history. Through means of these research the influence of these structures both socially and economically were observed and with it the flaws of selective interactivity were also identified.

The Second stage of the research was to establish relevance to Rotterdam and the site of western archipelago. At this stage more literature study was done to understand the city's vision for further development and the High-rise vision of Rotterdam. The high-rise vision defines its compaction strategy and the proposal for new extension of the existing high-rise zones. The limited interactivity on the urban level is one of the main issues highlighted in the high-rise strategy and Rotterdam had already devised a plinth strategy to create a coherent urban street level. Empirical research was done on and around the site where several skyscraper buildings were observed, based on the knowledge from the initial research, the limited interactivity to specific user groups were observed in many towers in Rotterdam. More secondary research conducted to understand the urban integration of skyscrapers through the works of Dr. Kheir Al-Kodmany and place making in the Netherlands from the City at Eye level (2017). By observation and inferences a key framework was established that could be spatially translated into the design to have an effective urban integration. By means of personal fascination and with respect to the high-rise strategy, the site was selected in Delfshaven at the border of its heritage fabric. The second stage concludes with the research question "How can the urban implementation of the skyscraper create a connection between the people of Delfshaven and the building itself and cater to its inhabitants at the same time? "

The third stage of the research was to apply the established key framework to understand the contextuality in terms of architecture and what it would mean to different user groups which is later translated spatially into Design leading to the Design development.

Aspect 4 Relationship between the graduation project and the wider social, professional and scientific relevance

The compaction strategy by building high rises integrates multiple different infrastructures, making every compacted zone accessible by high quality transport and other essential infrastructure such as water and electricity. Since these are focused on these compaction zones, these distribution and accessibility of these infrastructure becomes more efficient. The upcoming years can see more rise in this typology of high-rise vertical cities and the psychological well being of these people in and around the building need to be considered. Rotterdam aims to build more residences and an attractive urban environment in the upcoming years through means of the compaction strategy. Currently in major cities most built skyscrapers neglect the human level of interaction on the urban level severing interaction with the building which create voids in the urban city scape. Rotterdam's High-rise vision has devised the plinth strategy and the city at eye level which explores ways in which the skyscraper can be integrated with the surrounding.

This graduation project in collaboration with the group of western archipelago explores how areas in Rotterdam can be gentrified and developed to accommodate high quality transport nodes which make it eligible for high rise construction as stated by the high-rise vision 2019. The focus of the graduation project is Delfshaven, which is a heritage fabric of the city. The individual focus of the graduation project is to effectively integrate the skyscraper can be integrated in a heritage fabric and be inclusive to different user groups to create an active urban street level. The project researches on how public spaces are utilized in Netherlands to create an urban situation where people can interact instead of creating voids in the city. The research explores way of life of the people in Netherlands, how they interact in public spaces and the usage of hybrid zones for interaction and these are reflected as design choices starting from the plinth which is designed as a network of streets and plazas

for people. Through the graduation project its deduced that contextuality plays a major role in effective integration of a building on an urban level and lays a blueprint for the city of Rotterdam for future high-rise construction in heritage fabrics of the city.

inside with changing field of views as you go up.

Aspect 5

Ethical issues and dilemmas you may have encountered during graduation

The initial ambitions of the project were to create an iconic landmark by the river Maas that represents the Delfshaven and to have a low carbon footprint. However, to create an iconic structure that creates a visual experience of a twist enveloped by contextual elements, the engineering requires a hybrid timber tower which makes it harder to reduce the carbon footprint due to the usage of concrete and steel to give rigidity to the hybrid timber tower.

The second dilemma was questioning the architectural decision of introducing the twist, "Could this have just been a simple hybrid timber construction?". This brings me back to the topic of contextuality, and what contextuality would mean for the different user groups that interact with the building and the building itself. The integration into the heritage fabric requires relevance from the past, the present and where it's headed towards in the future and Polarity seems to be a key factor in drawing the line between the past and present. In this case the orientation of the geometry twist from the side it faces the heritage fabric of the city to the contemporary part of the city which creates a polarity that makes the building a unique variant of the standard cuboidal skyscraper skyline of Rotterdam. Further through materialization and articulation of this polarity, relevance is established that links the building to its heritage and at the same time setting it up for the future. The tower of Delfshaven becomes the first tower of Rotterdam one may come across entering Rotterdam through the river mass which displays the bold polarity that symbolizes the connection to the past and the modernization and bold architecture of Rotterdam, making the twist a dynamic visual experience from the outside as well as the

ARTICLE

CONTEXTUALITY WITH A TWIST

Connecting the past, present and future through design.

Akaz Warman

INTRODUCTION

Project introduction

The current skyline of cities is a result of migration of an idea which is the skyscraper. The first Skyscraper was developed in 1885 in Chicago, the home insurance building. Soon this type of building became a symbol of power and representation which started to migrate within America and then to the other parts of the world giving rise to the current skylines of the major cities as we know it.

Skyscrapers are already a dominant part of Rotterdam's context; however, it can be observed that, in spite of the development of technology which allows to build higher, better and more efficient, a persistent issue that can be seen throughout the migration is the unchanged urban implementation of these buildings. The street life and the way it interacts with the building have not been clearly addressed. Netherlands is a country which has a strong urban street life connection, outdoor social and interaction spaces such as markets, outdoor cafes, bars and restaurants can be found throughout the cities. Rotterdam is one such city where in spite of the urbanization and the modern architecture, the spirit of Rotterdam remains outdoors with a good social interaction. However, the modern Highrise buildings in certain parts of the city still stands as an isolated entity in the neighbourhood severing the urban street life connection with the building. Now understanding the significance of the urban street life connection, Rotterdam's Highrise vision 2019 states the need for spaces for social integration in the plinth of the building.

The major design consideration in this context is translated as the design research question, "How can the urban implementation of the skyscraper create a connection between the people of Delfshaven and the building itself and cater to its inhabitants at the same time?".

Research

Every skyscraper that has been built has an influence on this society and its urban environment. It determines the quality of life and the social space around it. Skyscrapers have always been associated with people and cities as a symbol of representation.

In the case of Times square, over the years the interaction between the people and the buildings in the Times Square evolved from being exclusive to cars, to a space with a pedestrian plaza (Young, 2019). This change was exclusive only to the surrounding urban space and not the skyscraper, which evolved with respect to the needs of the people who visited to view the time square. The evolution of surroundings with respect to people's needs can also be observed in the vicinity of the Trafalgar Square in England and the Petronas tower in Malaysia. This evolution of the space with respect to people's needs is called place making and is vital for a healthy urban environment. In spite of placemaking, the skyscraper as observed in timesquare still stands as an isolated entity where the interaction with the building is limited to certain users. In the case of Rotterdam, looking at this issue on a larger collective scale the city produces large isolated entities in cityscapes that limits human interactions and mobility.

Dr. Kheir Al-Kodmany, in his paper titled "Place making in High rise city" (Al-Kodmany, 2013) introduces an important topic called contextual specificity. Each tower has to be implemented with respect to its own city's context, this would in turn allow people to associate more towards the built environment. (Al-Kodmany, 2013). Contextuality is a vital element in the urban implementation of buildings. The urban implementation of the skyscraper would deal with how users interact inside the building,

with the building and around the building. With regards to contextual specificity, Netherlands is a country with many outdoor based interactions, Plazas are used for social gatherings, interactions and markets. Outdoor seating for cafés, bars and restaurants are utilized which serves as a hybrid space that creates a smooth transition between the outdoor and the indoor spaces. These hybrid spaces promote social interaction and integration between the building and the surroundings.

Based on the research, to achieve efficient urban implementation, the key factors that need to be considered are

1. Heritage Fabric of the city
2. Urban street life connection
3. Relation to human scale
4. Sense of belonging

This would involve incorporating historical elements of Delfshaven and large open spaces along with spaces for social interaction within the plinth with respect to the existing urban gathering spaces in the Netherlands. Further the plinth can be designed with respect to the narrow streets in the Netherlands, which would create a familiar environment motivating people to interact with the building.

Design Brief

Rotterdam is still growing and the city has plans for the future to build a strong economical and an attractive residential city. To ensure a balance in working and living population of the city, compaction has been adopted as a strategy by means of the Highrise vision 2019. (Gemeente Rotterdam, 2019). Delfshaven being a prime location close to the Rotterdam centrum and one of the historically significant areas stands as a potential location to accommodate densification and economic opportunities. Due to the limited availability of land, the idea of a skyscraper is proposed to accommodate densification and economic opportunities with respect to the compaction strategy of Rotterdam.

Through precedent analysis of different skyscrapers all over the world and in the

Netherlands the project is estimated to be about 70,000sq.m. The project aims to have a 10,000 Sq.m of public area that creates a seamless connection between the building and the public with flexible and adaptive open spaces that also caters to the residents of the building who would be accommodated in a 24,000sq.m area. The project also consists of a hotel to accommodate tourism and office spaces to accommodate economic opportunities.

The skyscraper aims to emphasize and represent the city of Delfshaven. The major focus of the project is the urban implementation of the skyscraper in the heritage fabric of the city and it aims to incorporate the character and materiality of the context to stay relevant to Delfshaven and the Netherlands. The primary urban ambition is to establish a connectivity between the building and the surrounding urban level with respect to Rotterdam's Highrise vision (2019). The major focus would be the urban implementation. This includes the participation of the public with the building which in turn activates life at street level.



Figure 1: Program Bar (Warman, 2021)

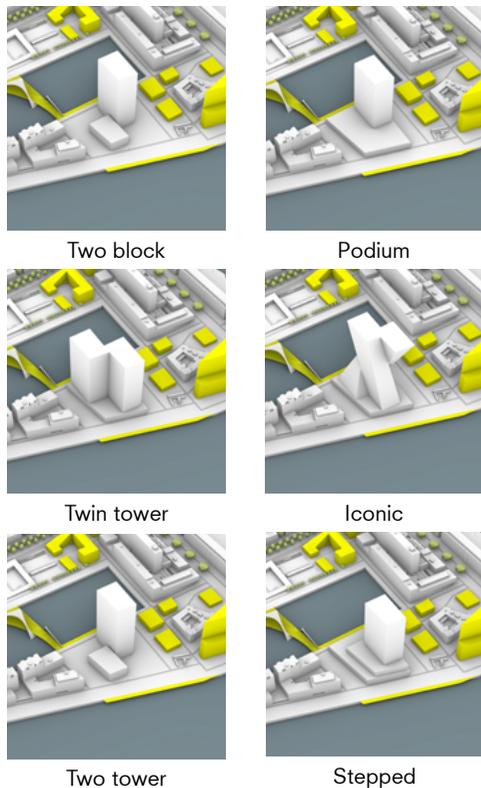


Figure 3: Massing Options (Warman, 2021)

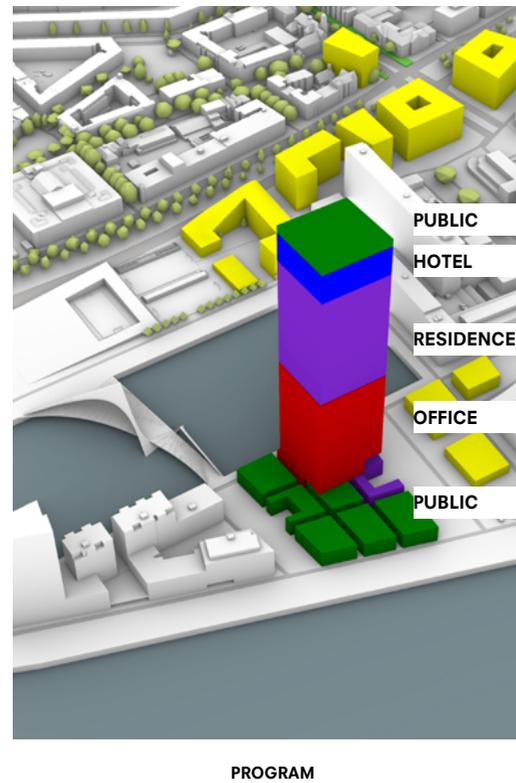


Figure 4: Program Distribution model (Warman, 2021)

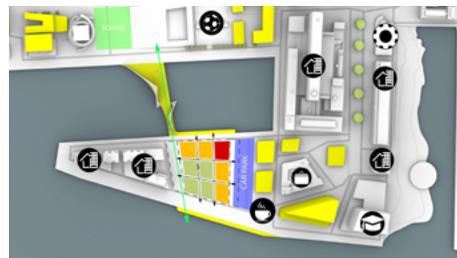


Figure 2: Privacy Division (Warman, 2021)



Figure 6: Tower Placement (Warman, 2021)



Figure 5: Voids and massing distribution (Warman, 2021)



Figure 7: Recessed walls to cut-off radiation (Warman, 2021)

Site Concept

The site is located on the economic strip that is proposed by the group strategy of western archipelago (WA). The incorporation of the metro makes the site eligible to have high rise construction as specified by the Highrise vision 2019. A bridge has been proposed to connect the metro directly to the site to have a direct access. The implementation and orientation of the building takes into consideration the surrounding site context such as the view towards the river Maas and the heritage fabric of Delfshaven. The site being surrounded by water also provides waterfront opportunities for the building. Looking at the surrounding context of building the height restriction was set at 180m to not exceed the Euromast which is an important landmark. Massing studies (figure 2) were done to determine the orientation and placement of the building itself and the podium structure was selected since it stays relevant to the height of the surrounding context and connects at the human scale. The podium acts as a transition space between the tower and the urban level. Based on the research to achieve efficient urban level integration, contextuality is used as a design tool. The ground floor is subdivided as streets based on privacy levels to separate different user groups, and the majority of the ground floor is allotted for public usage to allow free access throughout the site (Figure 4). Possible voids are explored which will can host central gathering spaces such as atriums and courtyards. (Figure 5). Based on privacy division, the semi restricted space hosts a courtyard which act as a buffer between the private residents and the public and the public space hosts an atrium which leads the way to the main core of the building itself.

The tower is placed on the north eastern corner of the site away from the existing buildings around the site for it to not engulf the existing context (Figure 6).

The tower is then divided into its respective program with the top most level being a public level which would host a viewing deck with restaurants. The hotel is placed below the public level so that they have the highest

view for the luxury rooms and provides guests exclusive access to the viewing deck. The residential blocks sit above the office block so to ensure privacy for the residences.

The overall concept of the design is to ensure the urban implementation of the structure to connect with the context of the Delfshaven. Contextuality to the different user group within and around the building breaks down to relevance and experience between the past, present and the future, which in this case would be the connection to the heritage and how it transitions to the contemporary connecting the past and present and looking towards the future standing as a representation of the Delfshaven.

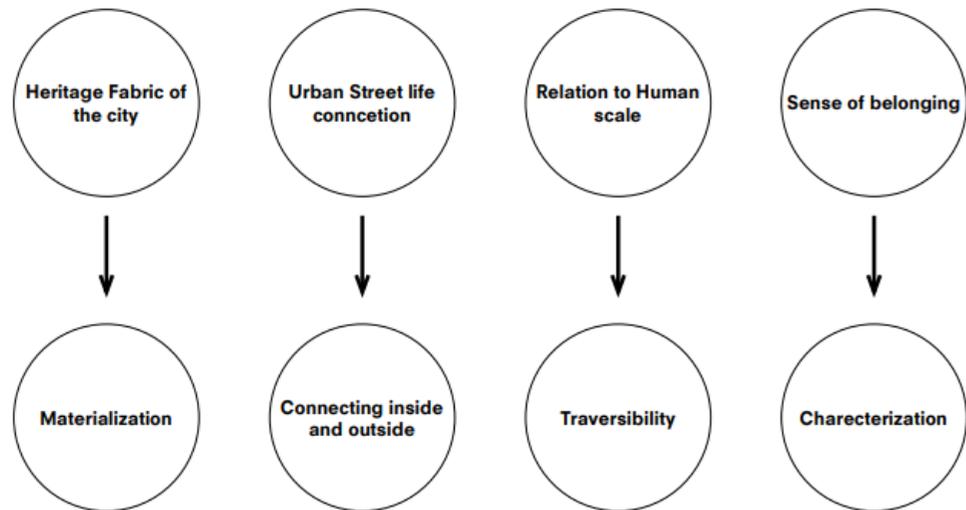


Figure 9: Translation of research into spatial concepts (Warman, 2021)



Figure 8: Final conceptual Model of the twisting tower (Warman, 2021)



Figure 10: Translated spatial concepts tower (Warman, 2021)

Overall Concept

The key factors derived from the research are used to develop the overall design of the building. These factors are spatially translated into design through materialization, articulation of space, and integration of contextual elements. (Figure 8) Sense of belonging is created by developing the plinth as a network of streets with hybrid zones of activities as seen in Netherlands which gives character to the building. This also creates a seamless connection between the exterior and interior which creates an urban street life connection which encourages users to interact with the building itself. This connection is not confined just to the ground floor but also to the entire podium which steps back from the ground level with a series of staircases which provides direct access to the top of the podium which cuts dependence on elevators. (Figure 10).

In relation to human scale, to maximize interactivity the functions are compartmentalized into blocks which create in-between void spaces. These spaces are articulated as different collective interaction zones for each blocks with open spaces and greenery that activates and encourage users to socialize that would benefit their psychological wellbeing in high rise building. To address the heritage fabric, it is essential to understand what contextuality means to the building itself and the different user groups that interacts with the building. Contextuality to the different user group within and around the building breaks down to relevance

and experience between the past, present and the future, which in this case would be the connection to the heritage and how it transitions to the contemporary connecting the past and present and looking towards the future standing as a representation of the Delfshaven. Polarity is used here as a key design tool to separate the building from the existing line-up of the skyscrapers of Rotterdam. A twist is introduced that cuts through the typical cuboidal form of the skyscraper which exposes the typical cuboidal part towards the heritage fabric. This would incorporate contextual material such as brick on the façade, whereas the twist begins from the east façade that is adjacent to the heritage fabric and smoothly transitions towards the river Maas as it goes up facing the beginning of the contemporary part of the city. This would incorporate contemporary material such as CLT. This creates a dynamic visual experience from the outside as well as the inside with changing fields of view on different levels.(figure 9)

Through materialization and articulation of this polarity, relevance is established that links the building to its heritage and at the same time setting it up for the future. The tower of Delfshaven becomes the first tower of Rotterdam one will come across entering Rotterdam through the river mass which displays the bold polarity that symbolizes the connection to the past and the modernization and bold architecture of Rotterdam, making the twist a dynamic visual experience from the outside as well as the inside with changing field of views as you go up.

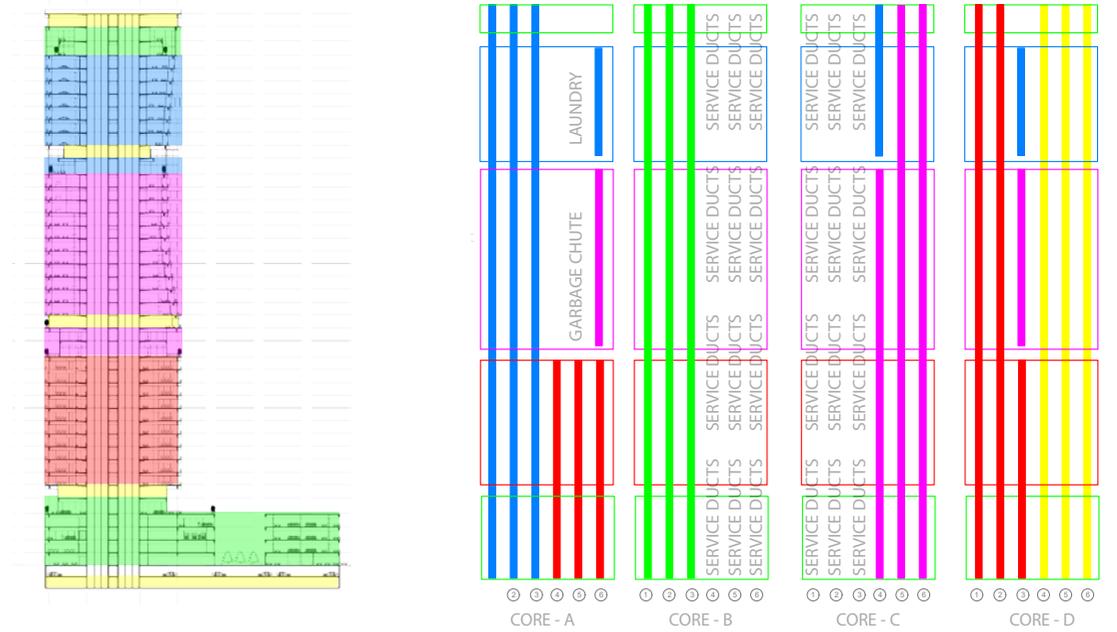


Figure 11: Core Configuration diagram (Warman, 2021)

Design Development

Due to the complex nature of the project, the tower is broken down to 3 parts. The core, The tower, and the Plinth.

The Core

First the approaches and flows of the different users of the respective functions were defined to understand the vertical movement. The proposed bridge creates a steady flow of pedestrian traffic from the metro to the site creating a public axis. Access to the core for the public and the office workers are branched from the public axis giving rise to separate entries to the core. The elevators are grouped in the center of the core for the office workers which can be accessed by the allocated entry. The residential access is defined on the east end, separating it from the public and office traffic to give more privacy for the residents. Elevators were grouped and assigned to these different users to access their functions. The construction is a hybrid timber construction with the core being made of concrete that provides stability to the building itself.

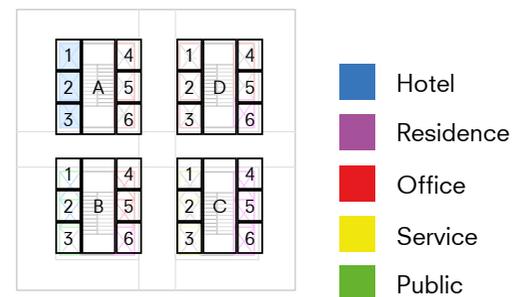


Figure 12: Core Legend (Warman, 2021)

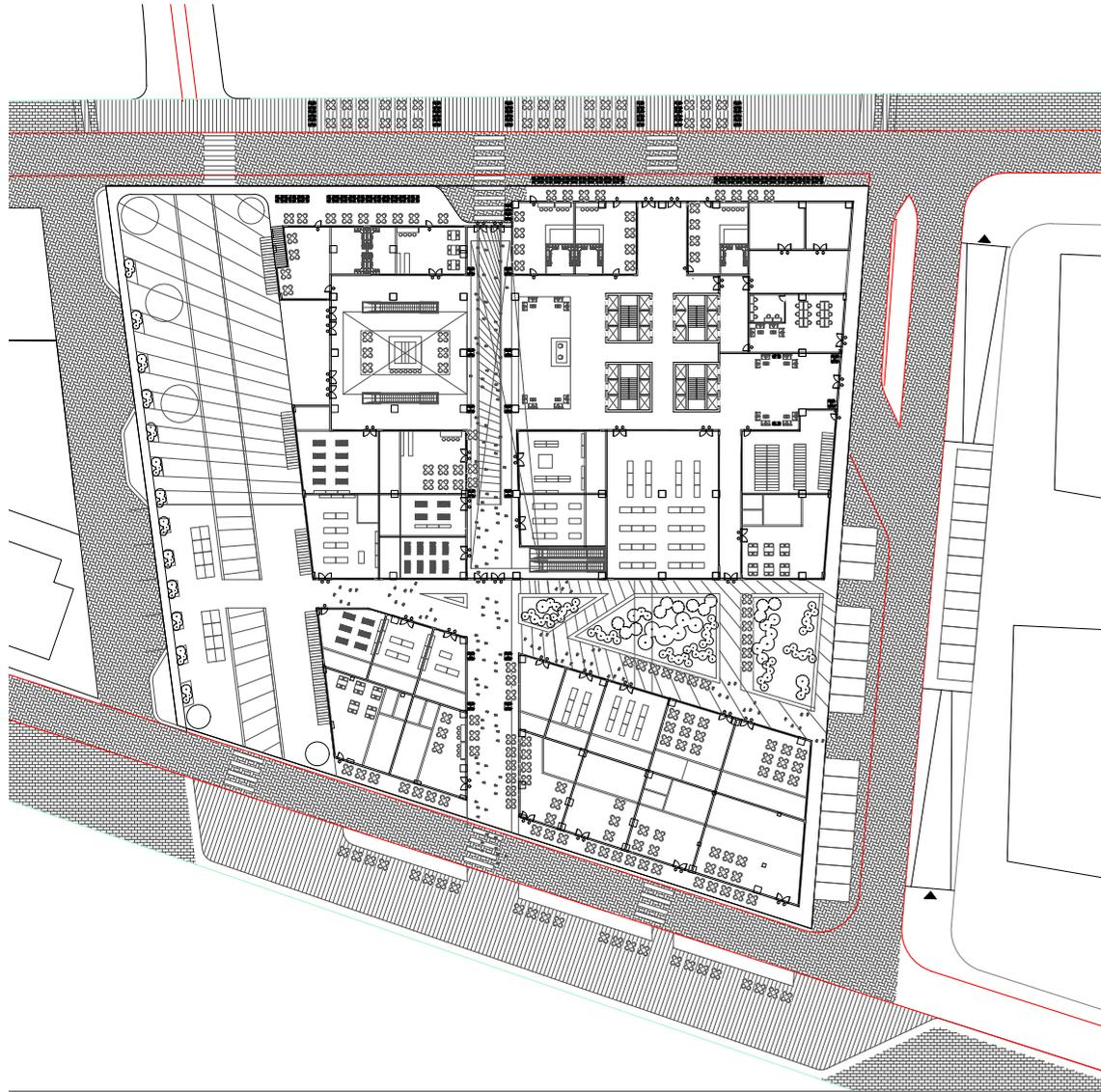


Figure 13: Urban implementation Drawing (Warman, 2021)

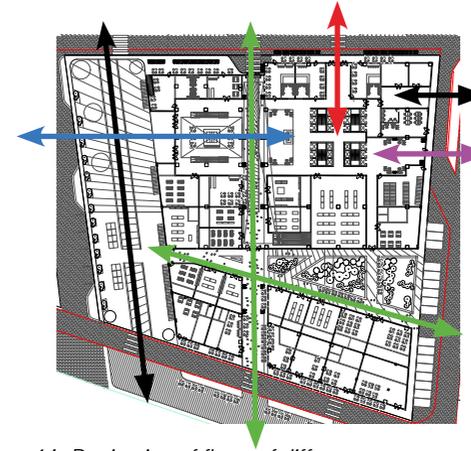


Figure 14: Depiction of flows of different user groups (Warman, 2021)



Figure 15: plazas and courtyards (Warman, 2021)

The Plinth:

The functions of the plinth are developed based on the defined accesses, the plinth is divided into, public, private, and semi-private areas and spaces are organized based on this division (Figure 4), to give privacy to the residence. Drawing inspiration from the contextuality of Delfshaven and the Netherlands, the plinth is designed as a network of streets connecting with courtyards and plazas where there can be interaction of the various user groups. The entry for the office workers is branched from the main metro axis to the north entrance which directly leads to the central core to the office elevators. To cater to the recreational needs of the office workers, the north part of the plinth is designed dedicated to the office workers where one can find corporates cafes, bars and restaurants with hybrid zones of interaction on the street (Figure 16). Further the core also leads to the business plaza where one can find interaction between different user groups close to the public passage. (Figure 17)

- Hotel
- Residence
- Office
- Service
- Public



Figure 16: Corporate street, (Warman, 2021)



Figure 17: Interior lobby (Warman, 2021)

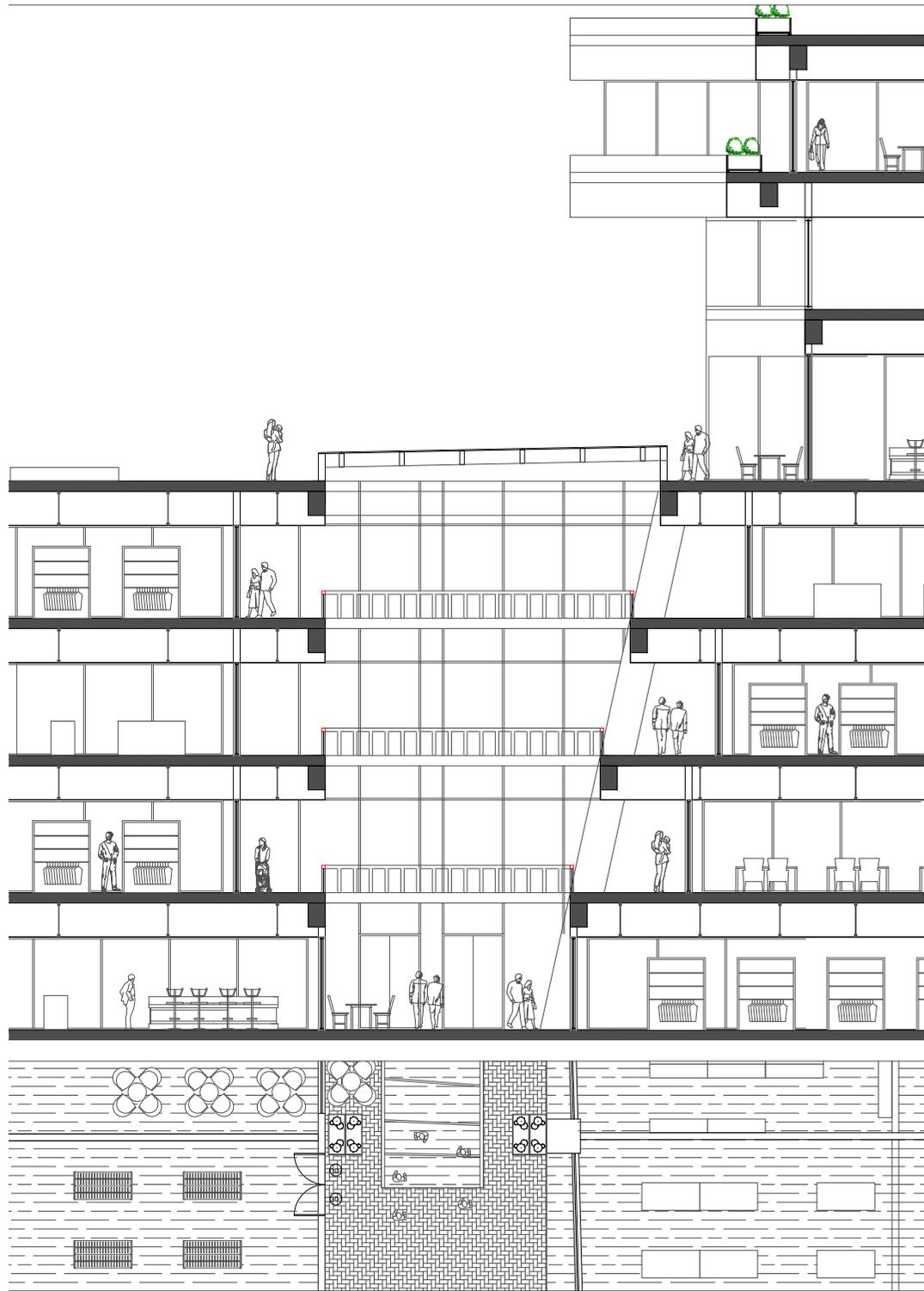


Figure 18: Interior Fragment (Warman, 2021)



Figure 19: Rendered section of the street (Warman, 2021)

The public passage is the main point of interest for a typical user. Tourists, locals and hotel guests can primarily use the public passage that consists of several retails and coffeeshops. The passage is well lit by a transparent atrium with a clear view of the twisting of the tower and it connects the waterfront on the north to the south (Figure 18). The south part of the plinth consists of bars, cafes and restaurants that cater to the typical users (Figure 20) and is separated from the core by a courtyard. The courtyard acts as a buffer that creates privacy on the east end for the residential users who have direct access to the core. (Figure 21)



Figure 20: Courtyard (Warman, 2021)



Figure 21: Public waterfront (Warman, 2021)



Figure 22: View of the Tower from the river Maas
(Warman, 2021)

THE TOWER

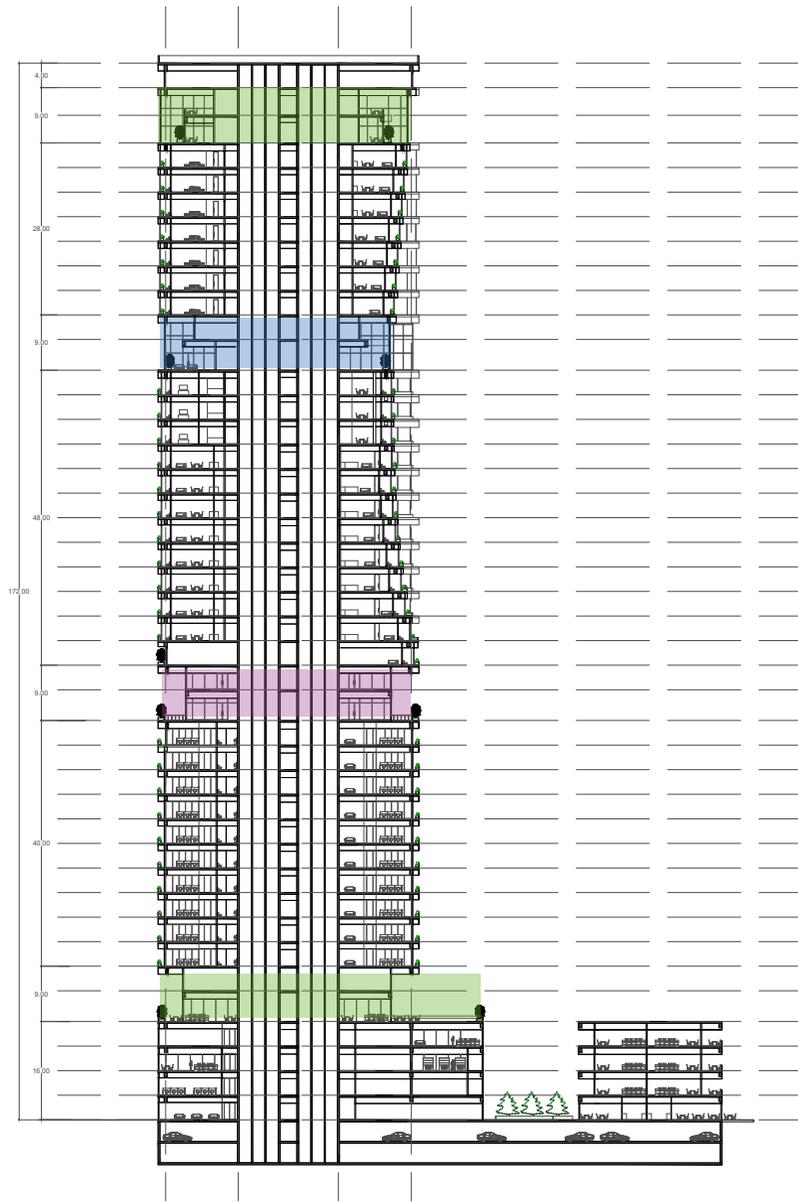


Figure 23: Long section depicting Voids (Warman, 2021)

- Hotel
- Residence
- Office
- Service
- Public

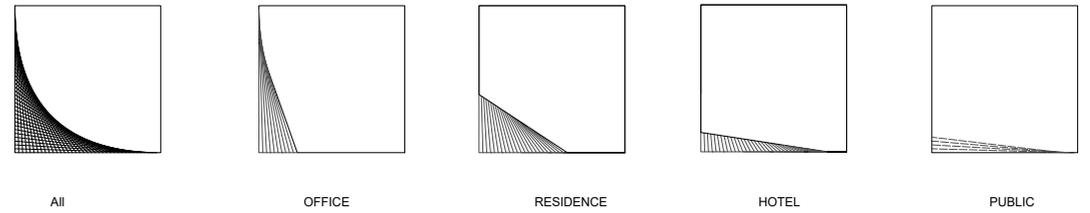


Figure 24: Floorplates generated from the conceptual form (Warman, 2021)

The Tower:

Floor plates are generated from the conceptual form and developed with respect to the program division (Figure 24). The floor plates keep changing as the twist changes from east to west, changing the observable field of view on every different floor. Every program within the building is designed as blocks and partitioned in a way that they form voids between their respective function. These Voids act as a social space for interaction between different user groups. It becomes a communal space of and interaction for the residential block, A grand hotel lobby for the Hotel block and a public viewing deck on the top floor. Moving between the multiple voids the user can experience the change in the field of view. Every block has their own respective mechanical floors to accommodate heating and ventilation equipment's and the horizontal transfer of plumbing.



OFFICE

Figure 25: *Office Workstation (Warman, 2021)*

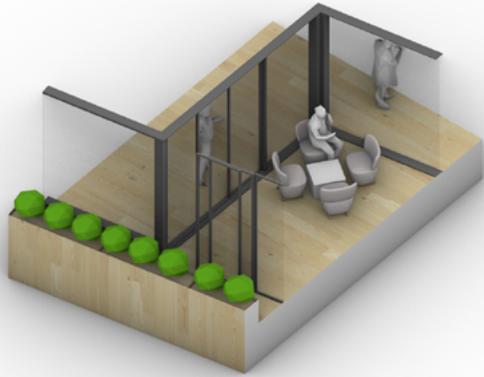


Figure 27: Double skin facade on the twist (Warman, 2021)

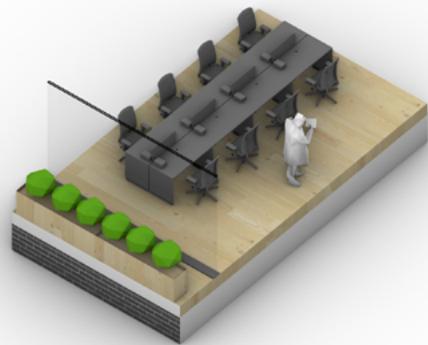
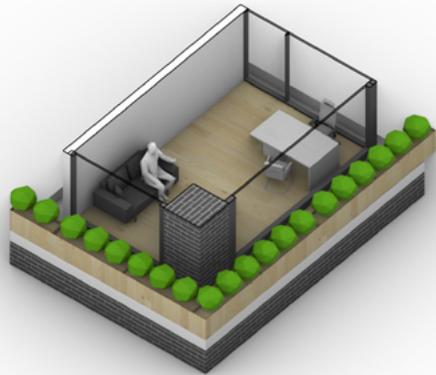


Figure 26: Office workspace Axo - North and Cabin Axo - south (Warman, 2021)

The office:

The offices are carefully planned with respect to the wellbeing of the workers. Majority of the workstations are focused on the north and the east part of the floor to have ample lighting and reduced exposure to heat for the comfort of the occupants (Figure 26). The infrastructural spaces, such as server rooms, file cabinets and toilets are organized close to core to have easy access to the service ducts and to not interrupt the view from the periphery of the building. Corner offices are provided on the south and north for the higher administrative people (Figure 26). Recreational break areas such as pantry and the dining are allocated next to the twist to have view towards the Mass, and a double skin façade (Figure 27), is provided close to the twist which accommodates informal breakout spaces and dining where there can be natural ventilation and in summers can be opened up to have cool air coming in. The overhang of the office floors has green planters placed throughout the periphery which act as a thermal buffer on the south side, and provides a psychological relaxation. (Raji et al. 2015).

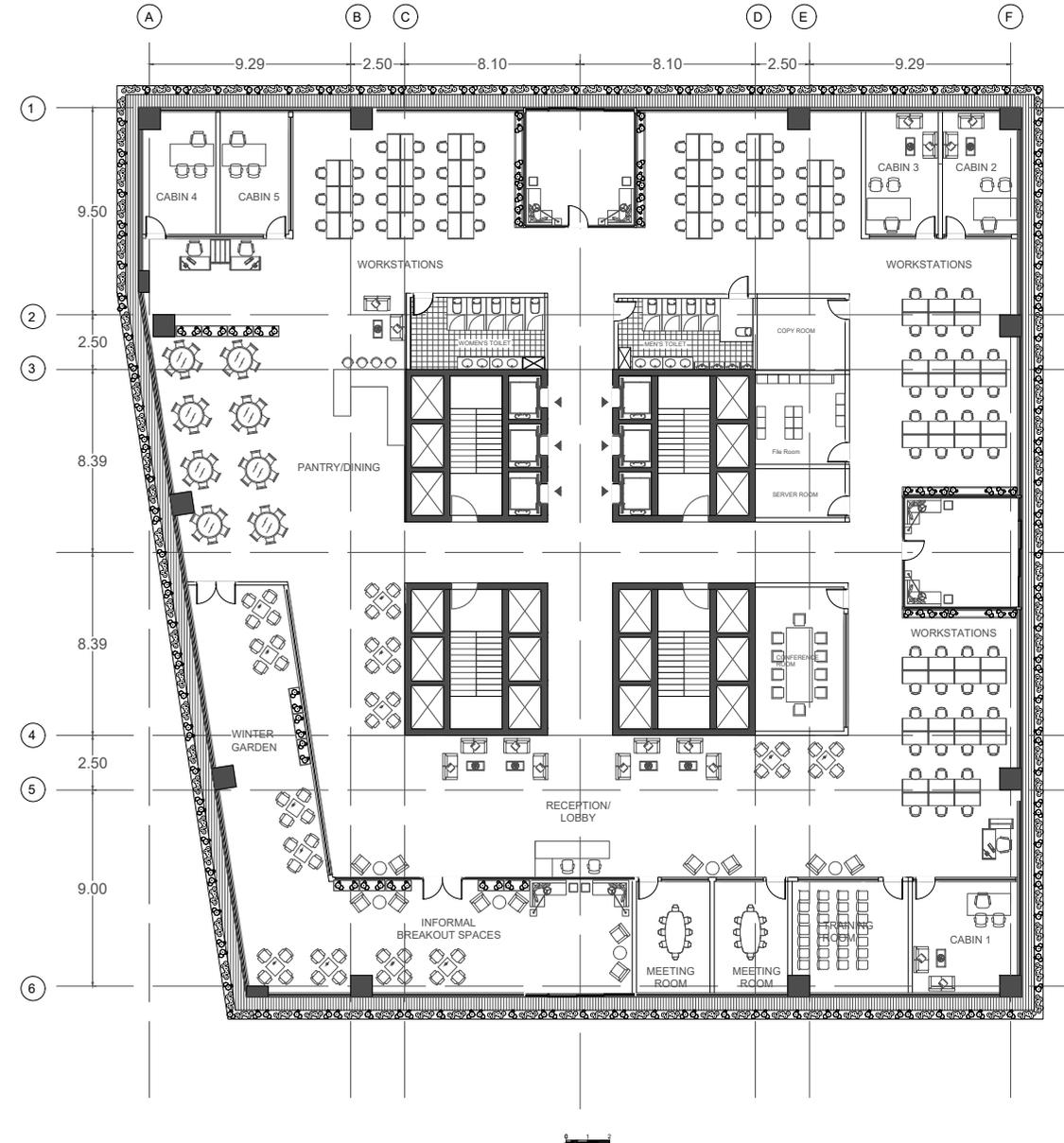


Figure 28: Typical Office floor plan (Warman, 2021)



Figure 29: *Elevator Lobby (Warman, 2021)*



Figure 31: *Workstations (Warman, 2021)*



Figure 30: *Pantry and Dining (Warman, 2021)*



Figure 32: *Double skin facade of the office (Warman, 2021)*



RESIDENCE

Figure 33: Residential void (Warman, 2021)

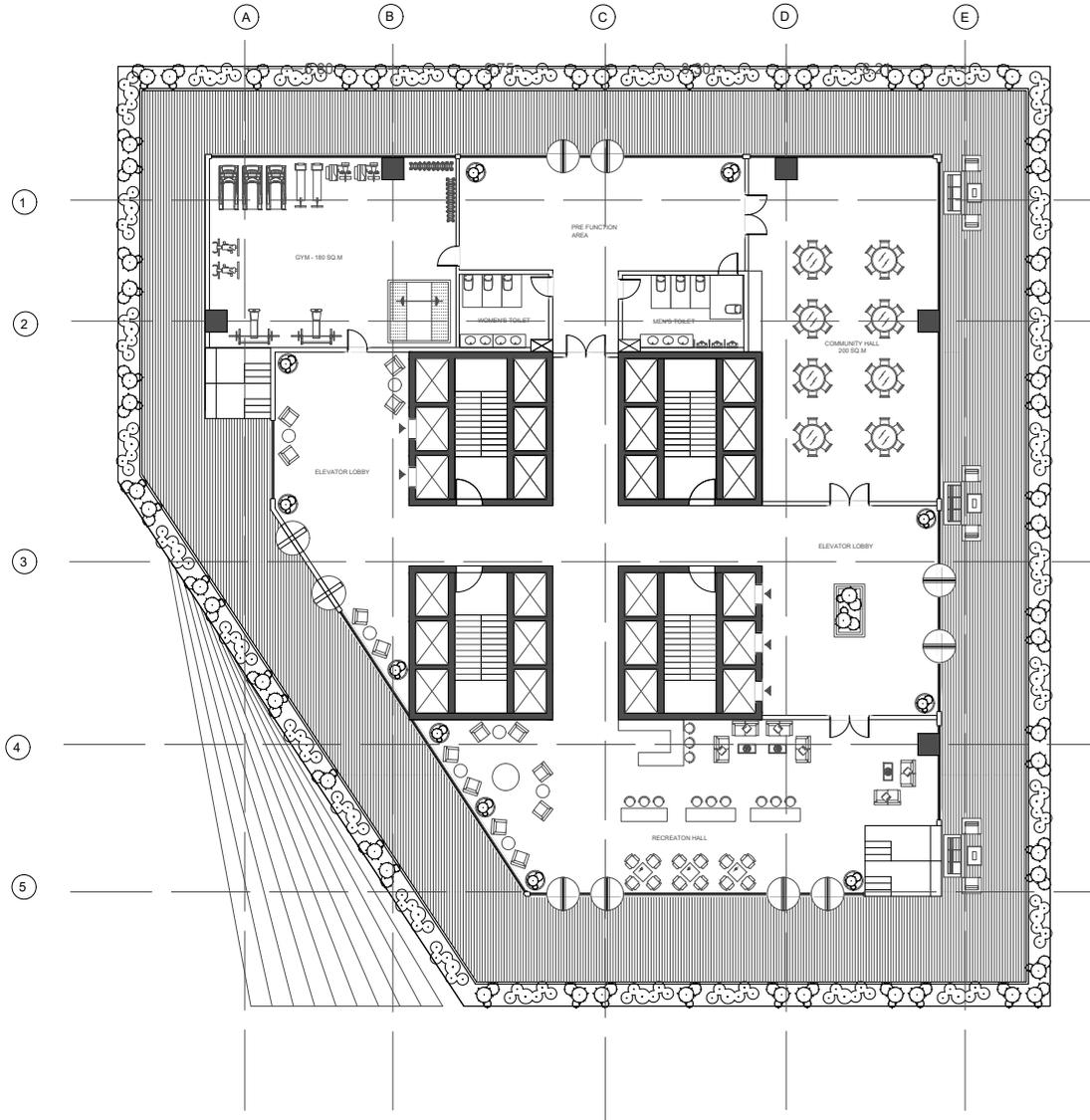


Figure 34: Residential void floor plan - Lower (Warman, 2021)

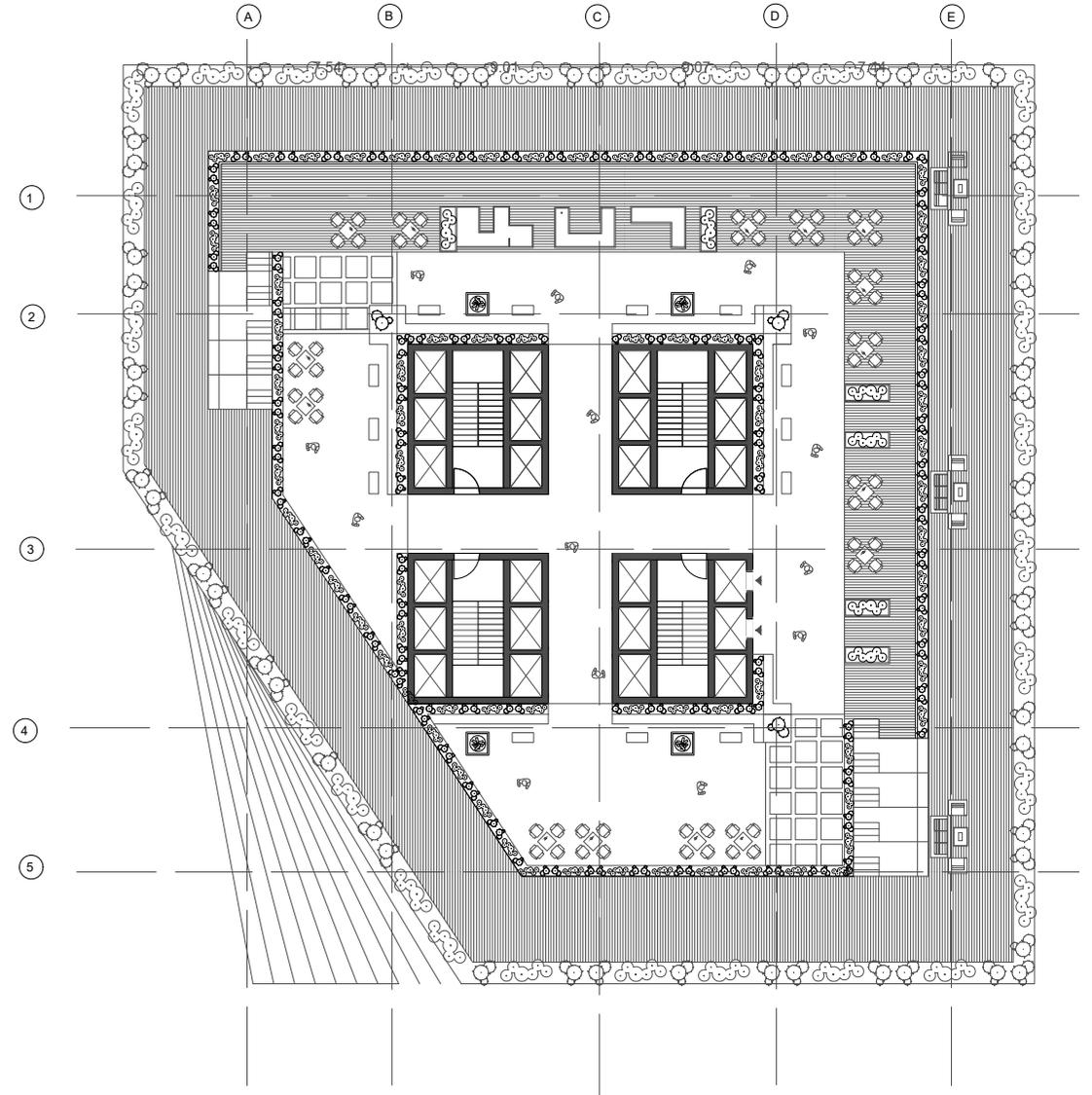


Figure 35: Residential void floor plan - upper (Warman, 2021)

The Residential Void

The residential void is a social gathering space that consists of several amenities for the residents of the tower. It sits between the residential block and the office block in a columnless space with unobstructed view towards its surroundings from all sides. The residential void is filled with lush greenery

on both levels. The second level of the void consists of sitting areas with fireplaces and flexible open spaces which can be used for activities or simple social gatherings.



Figure 36: Staircase of the residential void (Warman, 2021)



Figure 37: Interior of residential void (Warman, 2021)

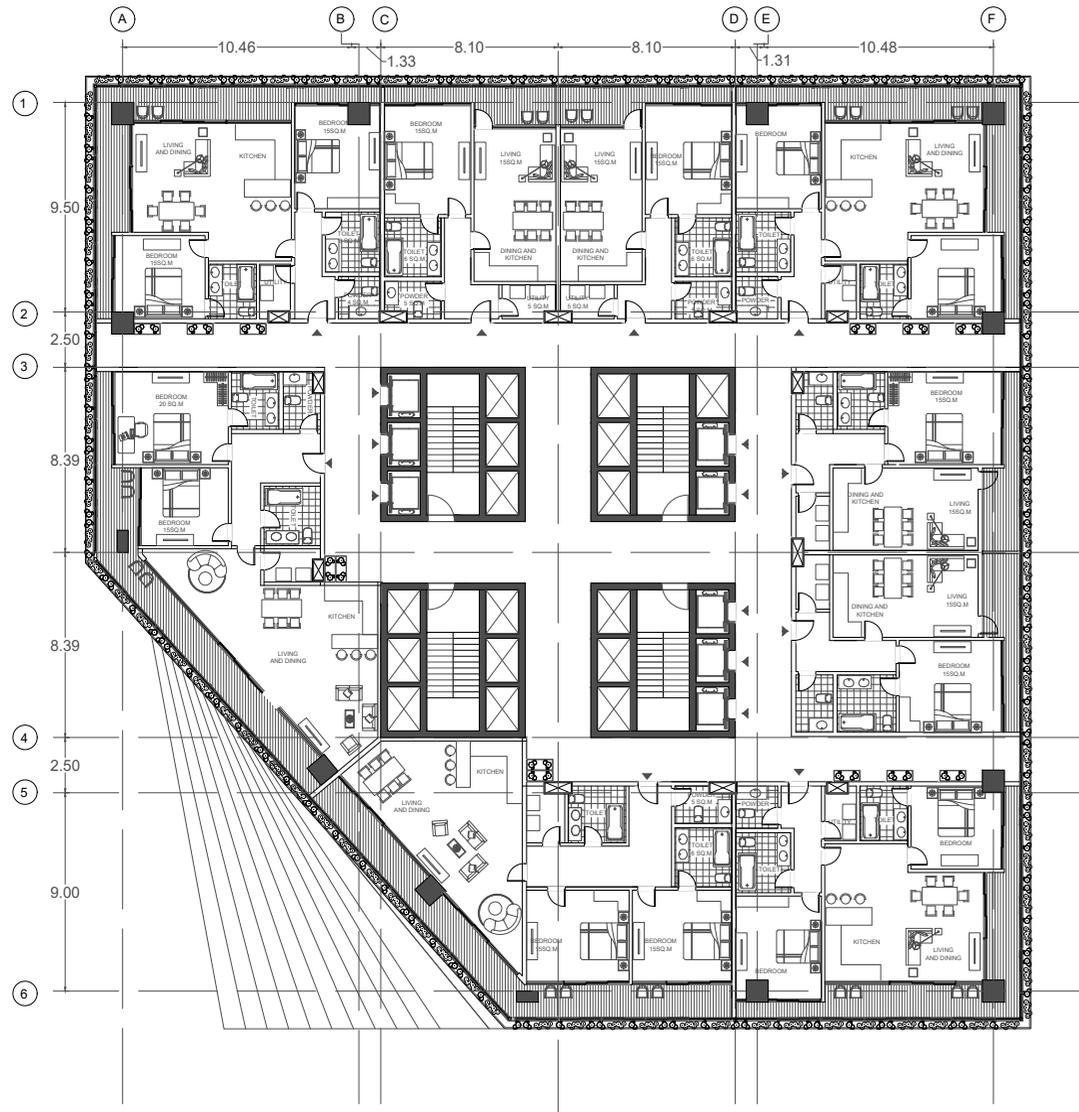


Figure 38: Typical Generic Residential floor plan (Warman, 2021)



Figure 39: 1 BHK 60 sq.m apartments (Warman, 2021)



Figure 40: 2BHK 100Sq.m Apartments (Warman, 2021)



Figure 41: Twist Houses - 120 Sq.m each (Warman, 2021)

The Residence.

The residences are designed for working class people and their families. The residential block is 11 floors and comprises of 20,000 Sq.m. Which includes residential amenities on the lower floors. Typical floor plans are designed where the sizes of the apartments vary from 60 Sq.m to 200 Sq.m. The apartments have a winter garden with a double skin façade, which can preheat air during the winter and can be opened up during summers to let in natural ventilation. The ends of the apartment corridors are well lit by glazing. The generic floors from level 20 to 27 consists of 60 Sq.m, 1BHK apartments (Figure 39), designed for working class couples and 110 Sq.m Corner 2BHK apartments (Figure 40) with two sided

views designed for families. These floors consist of two exclusive twist houses which are 120 Sq.m each, with 2BHK with exclusive two-sided views (Figure 41). The organization and the field of view of the twist houses keep changing as the floors goes up. Levels 28 to 30 consists of exclusive luxury apartments. The North apartments are 200 Sq.m luxury apartments (Figure 43) with 4 bedrooms and a study. The luxury floors also have 150 Sq.m apartments with 3 bedrooms facing the east, and the exclusive twist houses of 180sq.m each. (Figure 44) The luxury floors have large open interactive green space facing the twist.

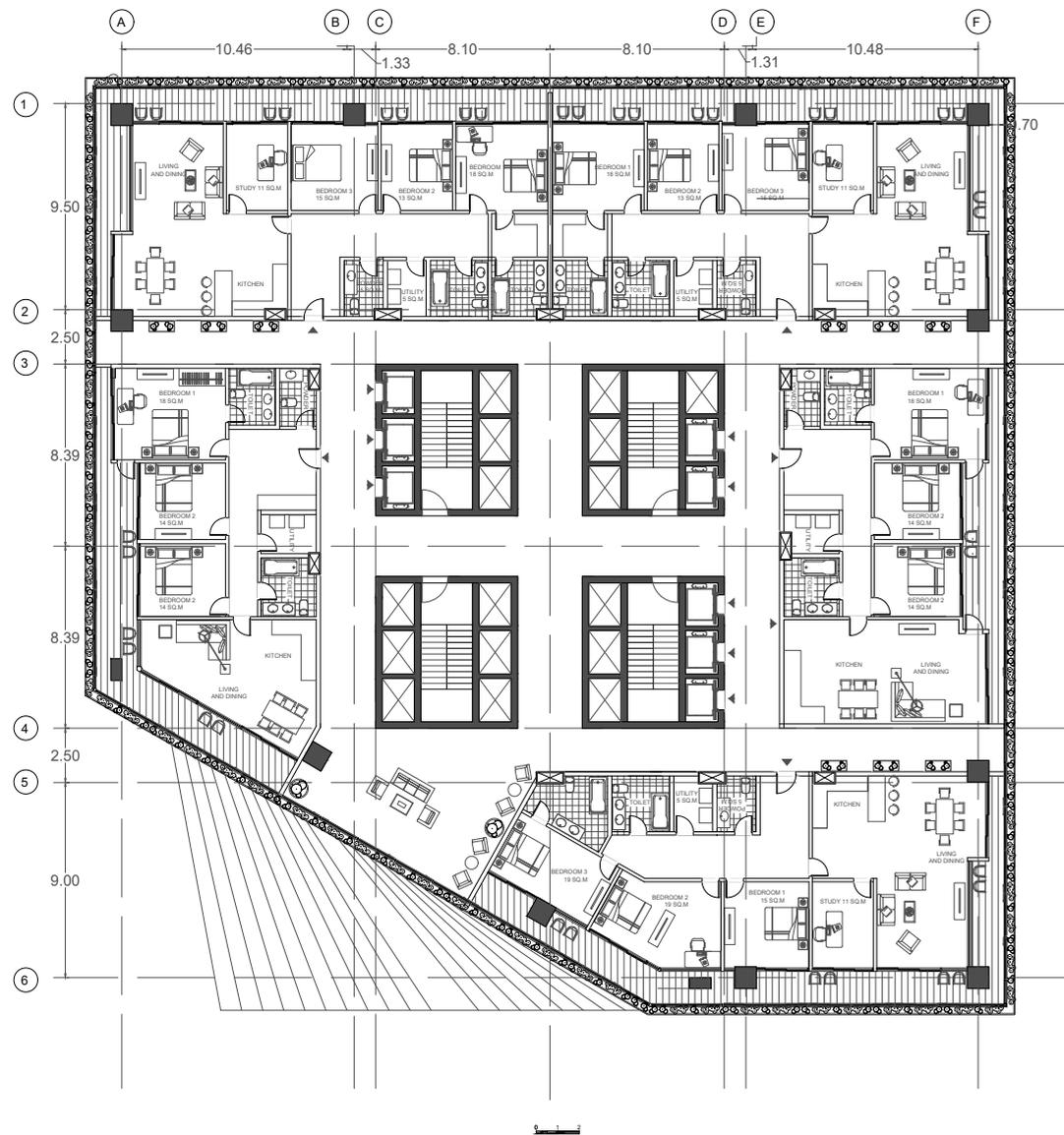


Figure 42: Typical Luxury apartments floor plans (Warman, 2021)



Figure 43: 4BHK 200 Sq.m (Warman, 2021)



Figure 44: 3BHK Twist house 150 Sq.m (Warman, 2021)



Figure 45: Interior View of a 2BHK residence (Warman, 2021)



Figure 46: *Hotel Lobby* (Warman, 2021)

HOTEL

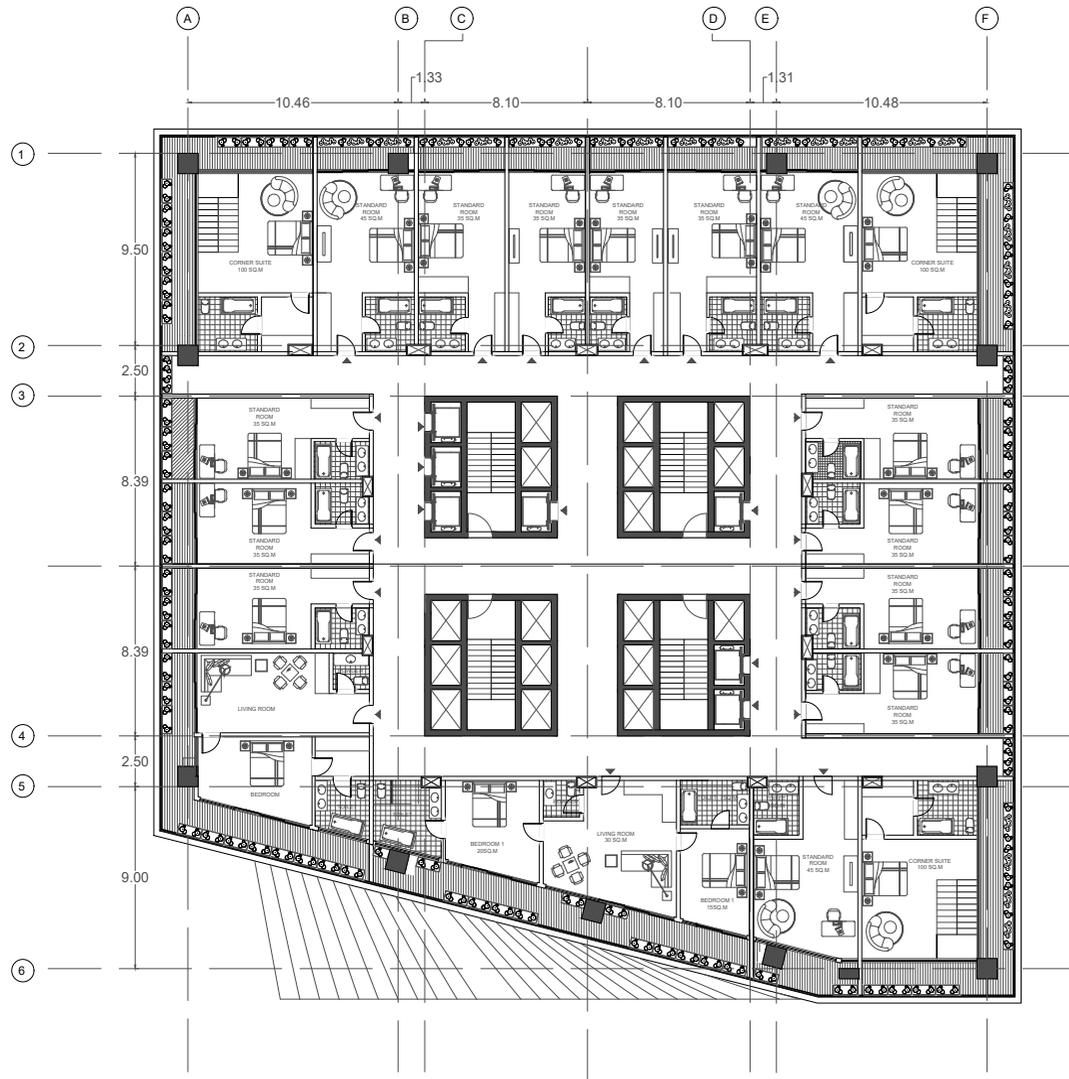


Figure 49: Typical Hotel Lower floor plan (Warman, 2021)



Figure 47: 35 Sq.m Hotel room (Warman, 2021)



Figure 48: 80 Sq.m Hotel room (Warman, 2021)

The Hotel:

The Hotels are designed similar to the residential apartments, with well-lit corridors. Due to high-speed winds on the higher levels, these rooms have glazed double skin façades. Balconies with greenery that bring in controlled natural ventilation if needed. The rooms however resemble the row houses of Netherlands. Rooms range from 45 Sq.m to 100 Sq.m corner rooms and the twist rooms being the largest. The standard rooms range from 45 Sq.m to 50 Sq.m which comprises of an attached toilet and bedroom (figure 47). The Contextual deluxe rooms are multi-level rooms of 100 Sq.m (figure 51) which consists of a living room and a powder toilet on the lower level, and bedroom with an attached

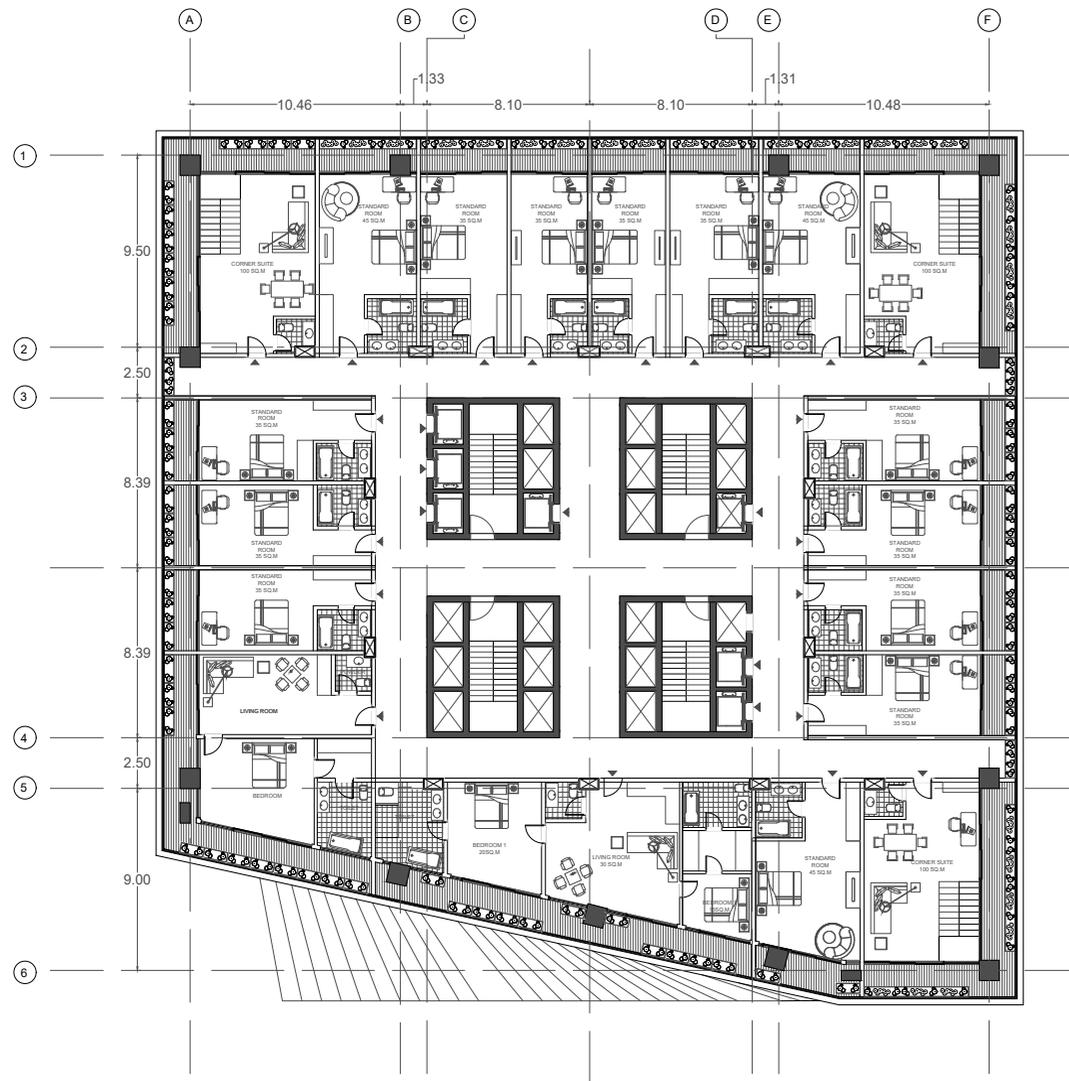


Figure 50: Typical Hotel upper floor plan (Warman, 2021)

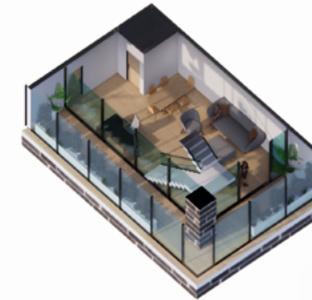


Figure 51: 100 Sq.m Hotel room (Warman, 2021)



Figure 52: 100 Sq.m Hotel room (Warman, 2021)



Figure 53: 120 Sq.m Hotel room - Twist (Warman, 2021)

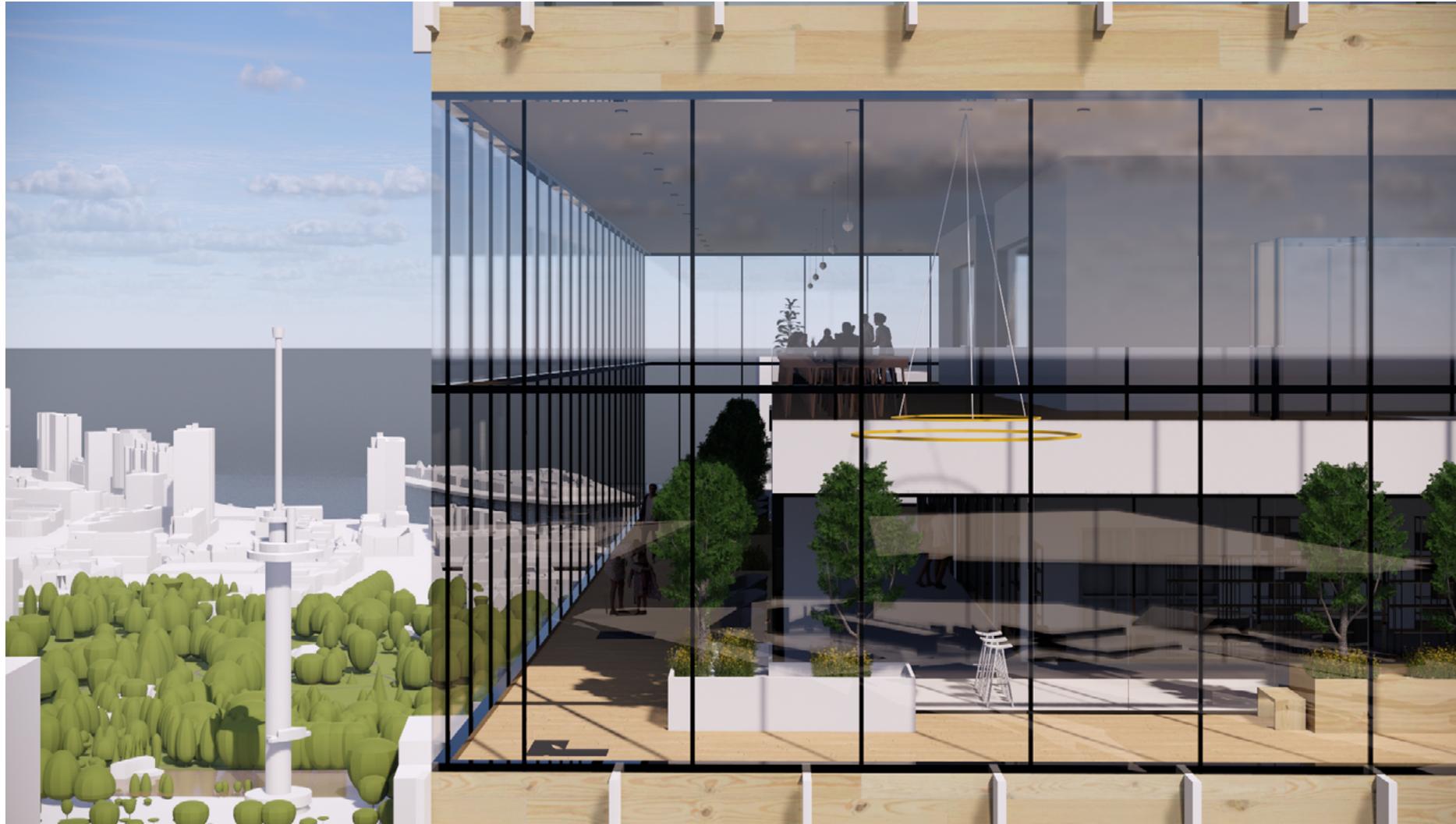
toilet and walk in wardrobe on the upper level. These corner rooms have two sided views. The deluxe twist suite has a two-sided view towards Mass and Delfshaven (figure 48). The suite consists of a bedroom with an attached toilet and a living room. The presidential twist is one of the largest rooms in the hotel, it is 150Sq.m (figure 53) and consists of 2 bedrooms and a living room. The entire suite has a panoramic view towards the river Maas.



Figure 54: *Hotel Corner room - Lower level (Warman, 2021)*



Figure 55: *Hotel Corner room - upper level (Warman, 2021)*



OBSERVATORY

Figure 56: *Public Void* (Warman, 2021)

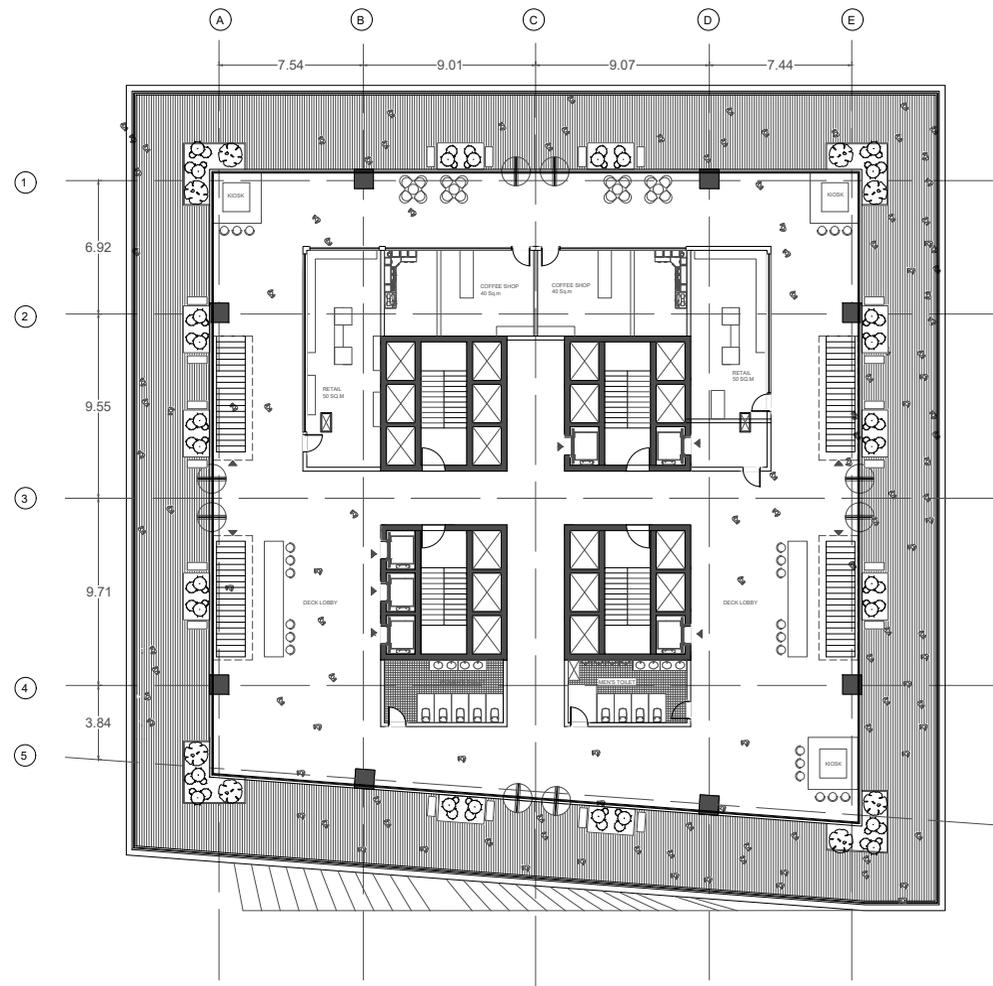


Figure 57: Public Viewing Deck floor plan(Warman, 2021)

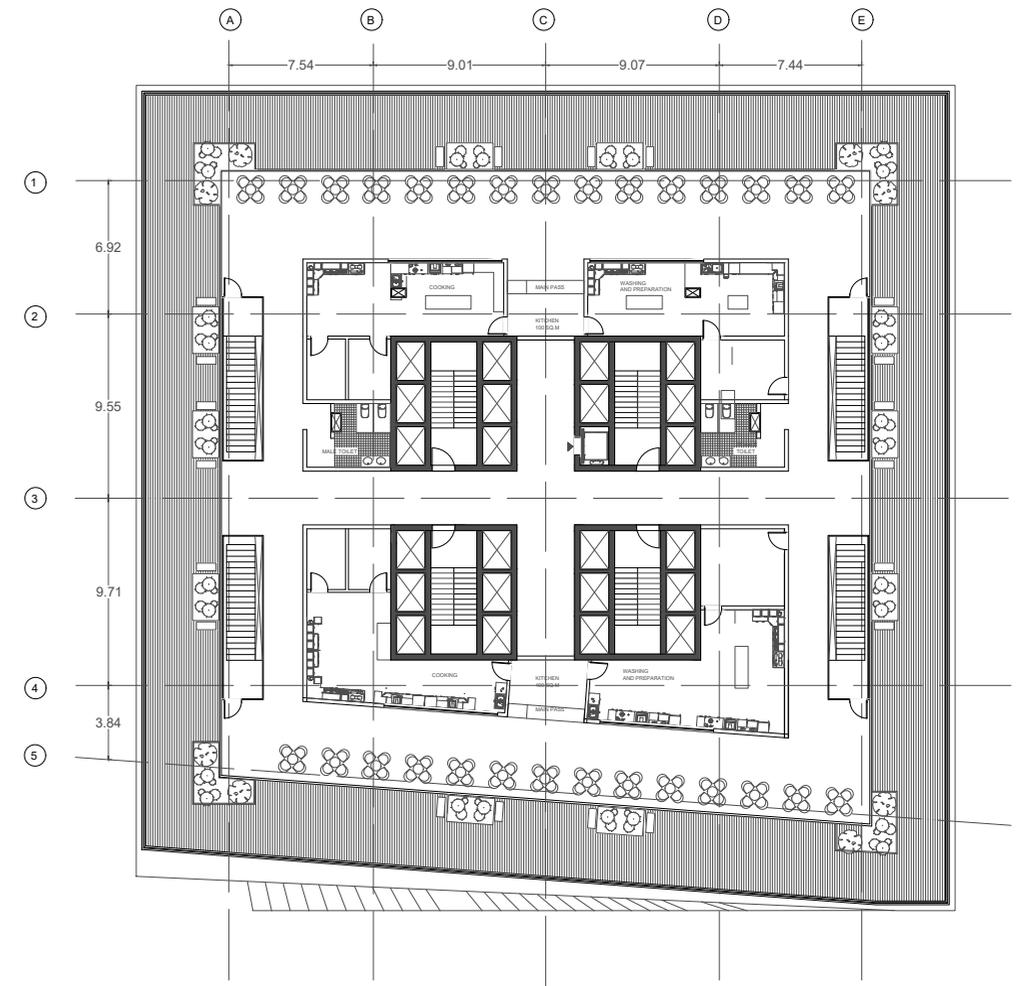


Figure 60: Viewing deck mezzanine level floor plan (Warman, 2021)

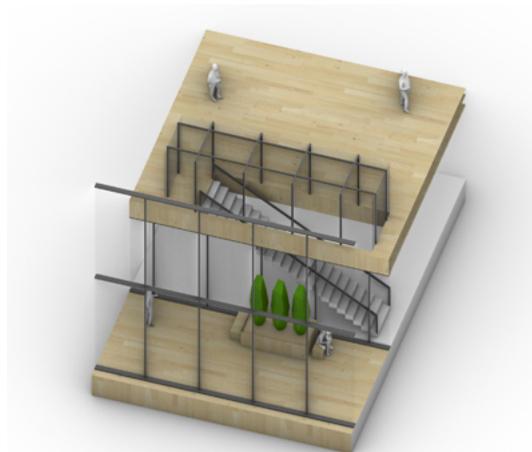


Figure 58: The glass box staircase (Warman, 2021)



Figure 59: Double height space (Warman, 2021)

The Void:

The final Void of the building becomes a viewing deck with a 360-degree panoramic view towards all of Rotterdam. This public level is designed as a tourist attraction with retail and coffee shops on the lower level and restaurants on a mezzanine level with views towards Delfshaven and Maas. The void is also designed as a double skin façade which will allow controlled natural ventilation during the summer with a complete walkway on the periphery with tall lush green plants. (Figure 59). On the mezzanine level the kitchens and toilets are organized along the core to not obstruct the view. (figure 60)



Figure 61: Retail stores of the observatory (Warman, 2021)

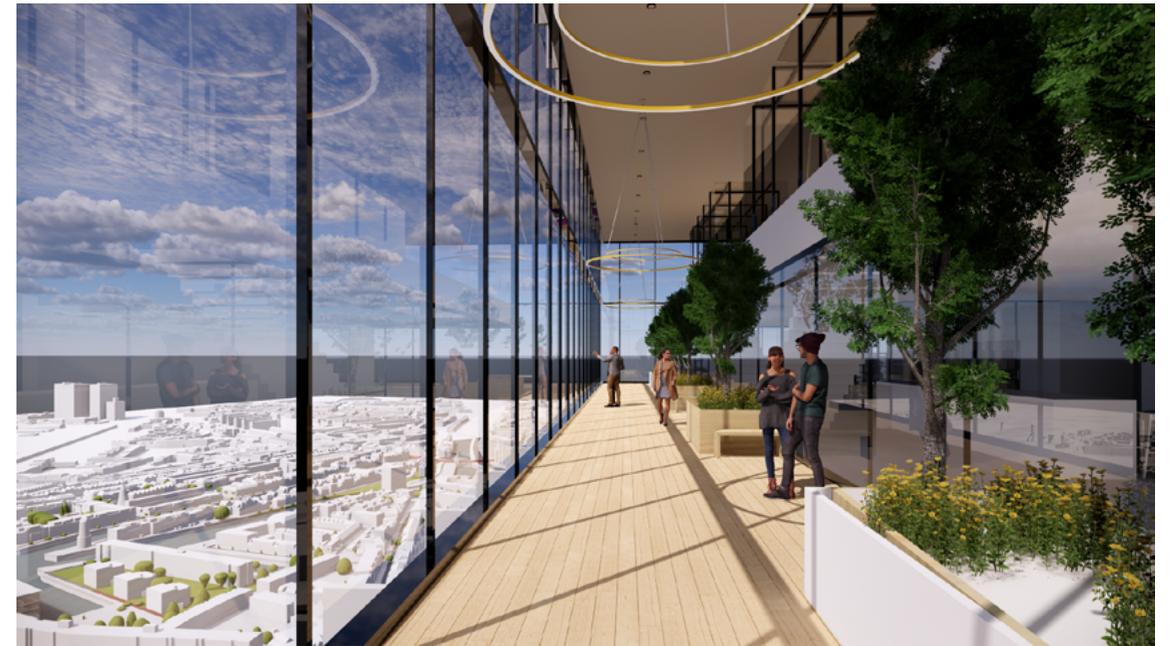


Figure 62: Restaurant and Viewing deck of the observatory (Warman, 2021)

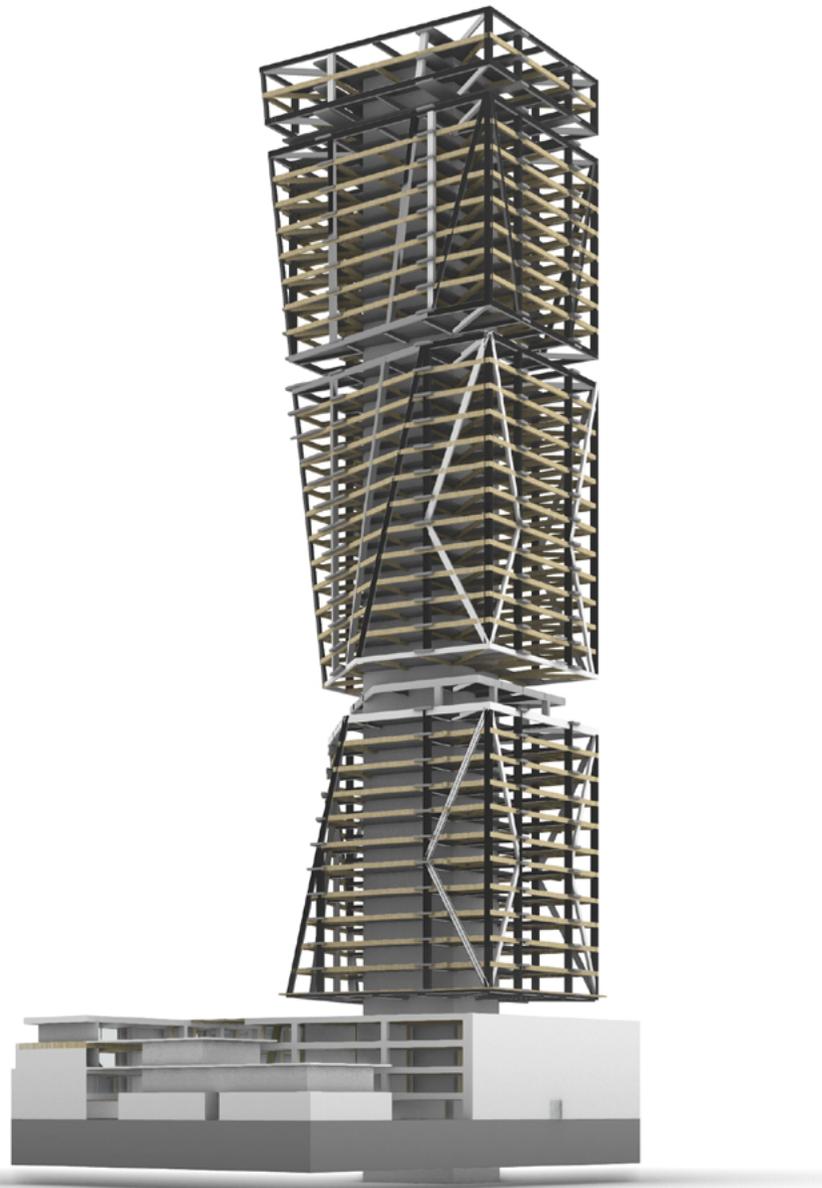


Figure 63: Hybrid Structural System of the tower over view (Warman, 2021)

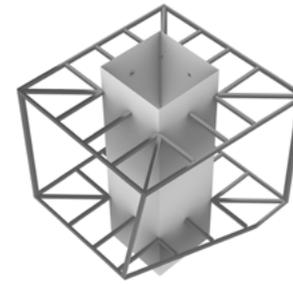


Figure 64: Primary cage structure with steel elements (Warman, 2021)

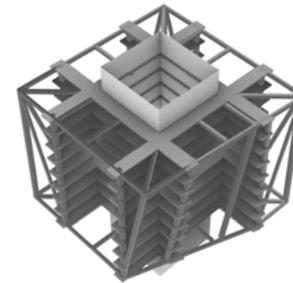


Figure 65: Concrete support beams extended from the core (Warman, 2021)

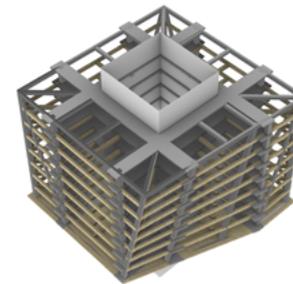


Figure 66: Secondary supports of timber elements (Warman, 2021)

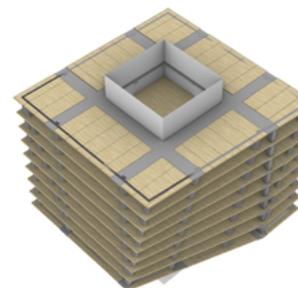


Figure 67: CLT floor Assembly(Warman, 2021)

Structure and Climate Explanation:

The structure is primarily a hybrid timber construction. The plinth begins like a regular hybrid timber construction with concrete foundation and basements, which then transitions to Glulam columns and beams that raise the base podium of the building. However, from this point on the concrete core is the primary structural element that holds up the building. The structural concept of the building is that every respective program is designed as a cage which is anchored to the concrete core which liberates and gives freedom to develop the twisting geometry of the skyscraper. The primary support elements that run along the periphery of the cage are made of steel elements that tie back to the core itself. (Figure 64). To give more rigidity to each cage concrete beams of 2.5m width are added as an extension of the core which is anchored strongly to the core itself which also connects the primary steel elements of the cage. (Figure 65). The concrete beams provide a strong base to lay on CLT floors that take load back to the core (Figure 67). The extended concrete beams are repeated on every level and are supported by a column which forms a four sided loops that ties back to the core which transfers load back to the ground (figure 66). The corners of every floor are supported by a column which is tied back to the main core by diagonal elements that branch to the main loop system to transfer load. This block system is repeated for every function where every block consists of this cage and a loop system that is anchored back to the central core.

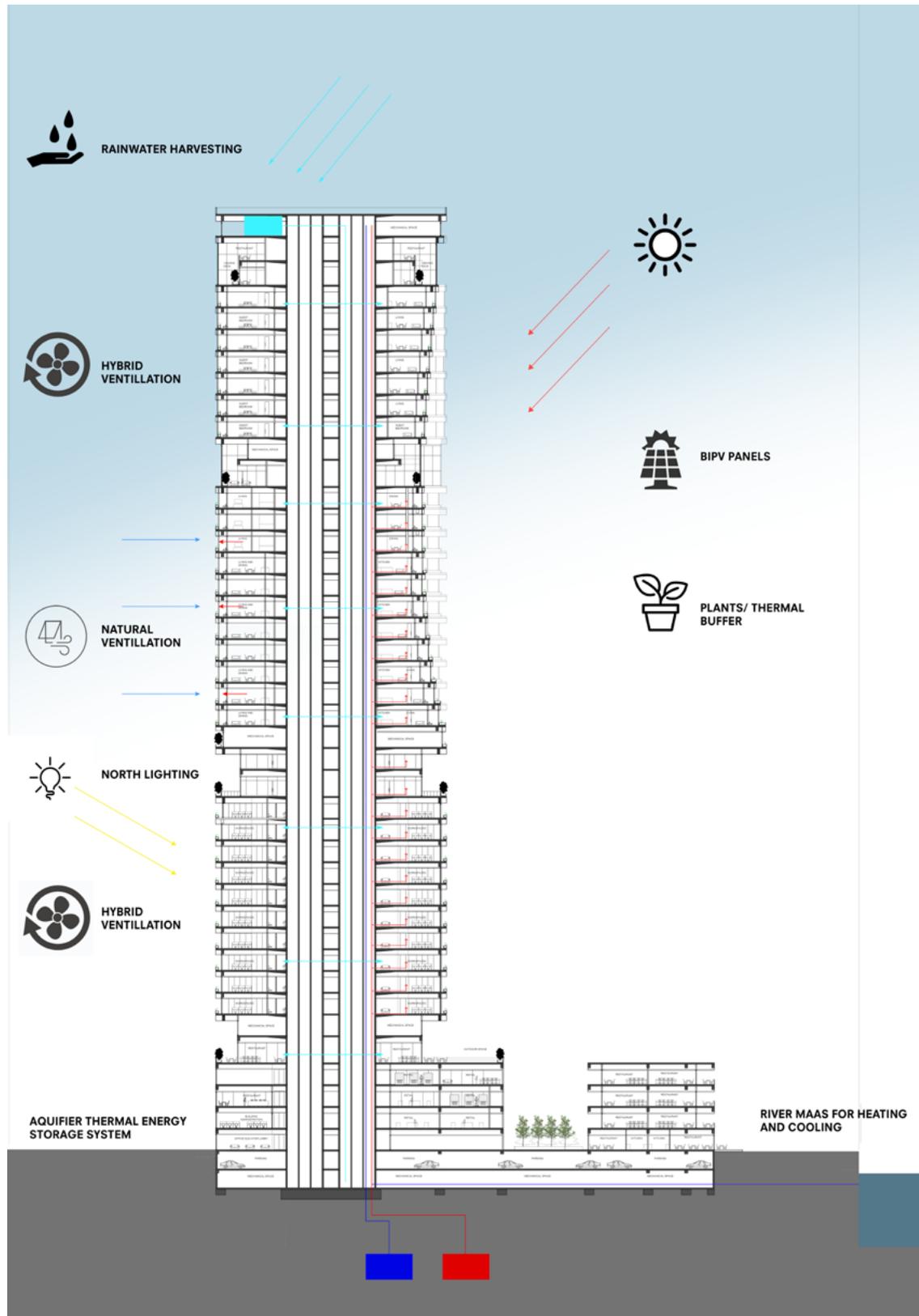


Figure 68: Climate diagram (Warman, 2021)

The building makes use of the context to make it energy efficient. The geometry of the building itself twists in a way It reduces the surface area exposed to incident radiation throughout the day. The building's façade has brise soleil with semitransparent building integrated photovoltaic panels (BIPV). These vertical brise soleils are closely spaced on the south side to provide shade during the summer and are tilted towards the incident radiation to receive radiation. The BIPV are also integrated in the passage's Atrium. During the summer, the passage can be completely opened to natural ventilation and is kept cool through stack effect utilizing the atrium's skylight. Similarly on the lower levels of the tower in office and residential blocks, winter gardens are provided where sliding doors are provided and can be completely opened up during summer to bring fresh air in with plants on the periphery that acts as a thermal buffer and also purifies air. The skyscraper has an integrated rainwater harvesting system in the upper level and the rainwater collected and can be utilized or stored underground. The building uses the river Maas and an Aquifer thermal energy storage system for the heating and cooling of the building. At the beginning of the winter the river water is still warm and is passed through a heat exchange which can absorb the warmth. As the river cools down further, the system pumps up water from the warm source of aquifer to heat up the building and then is stored in cold well. In summertime this process is reversed to cool the building making it energy efficient.

Conclusion

The tower of Delfshaven is a skyscraper that stands as an architectural symbolization of how contemporary can embrace heritage and serve for the people in and around the building. The strategies and techniques used can become a framework for future execution of highrises in netherlands which can use contextuality as a key element to eliminate the voids in the city to create a very active urban street level accessible to everyone.

different user groups to and around the building. The introduction of the street network in the public plinth level provides access and serves to these wide variety of user group. By doing this the urban implementation avoids a semi isolated space within the cityscape. Through the group strategy of the western archipelago, delshaven becomes eligible for high rise construction. With Rotterdam's need for new residential units in the upcoming years, this provides grounds for rise of more highrise construction. Using compaction as a strategy helps accommodate densification in a sustainable way. However planning a tower close to a heritage fabric needs to be controlled and executed based on what the tower has to offer and how the surroundings can benefit.

The execution of the tower activates the entire water front of schiedam and it attracts

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