

-----DHARAVI SITE  
WITH PRESENCE OF PROJECT



**SITE ANALYSIS**  
Dharavi India

1.5 km  
130000 inhabitants  
40000 structures  
at end of the 19th century  
officially based (permission granted by  
the police and storage of the sewage  
to the Municipal Corporation  
in 1907)  
into century 20th  
central government (1971)  
7.2 km<sup>2</sup> area  
area (in a water pipe 2.5 km)

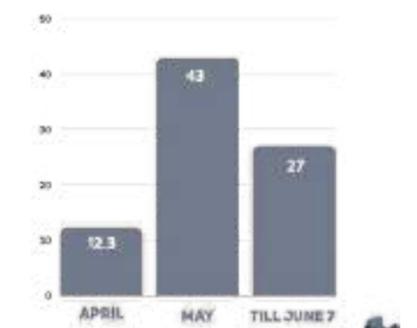
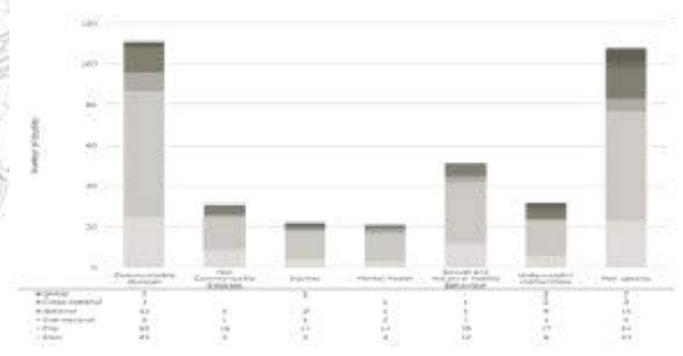
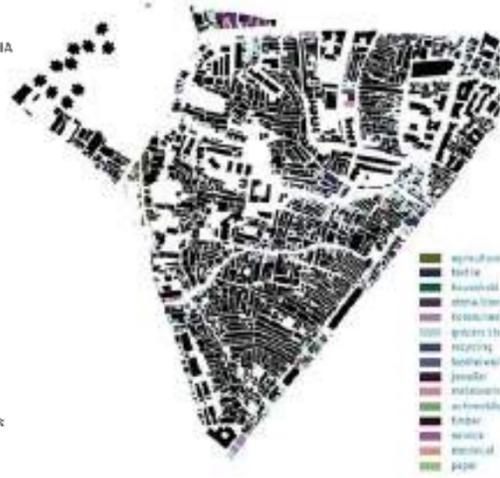
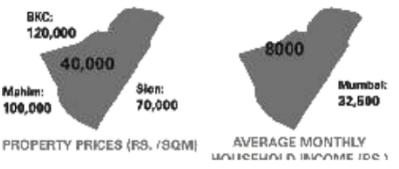
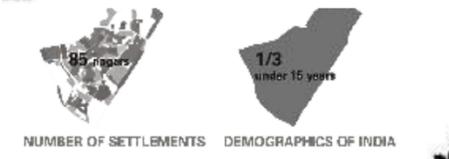
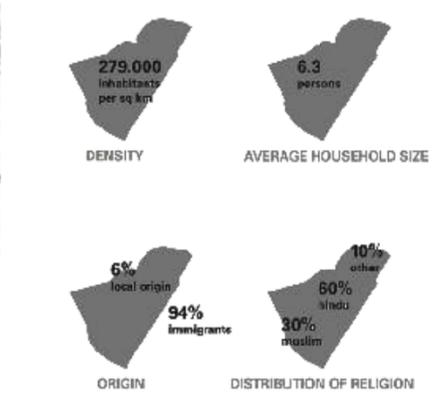
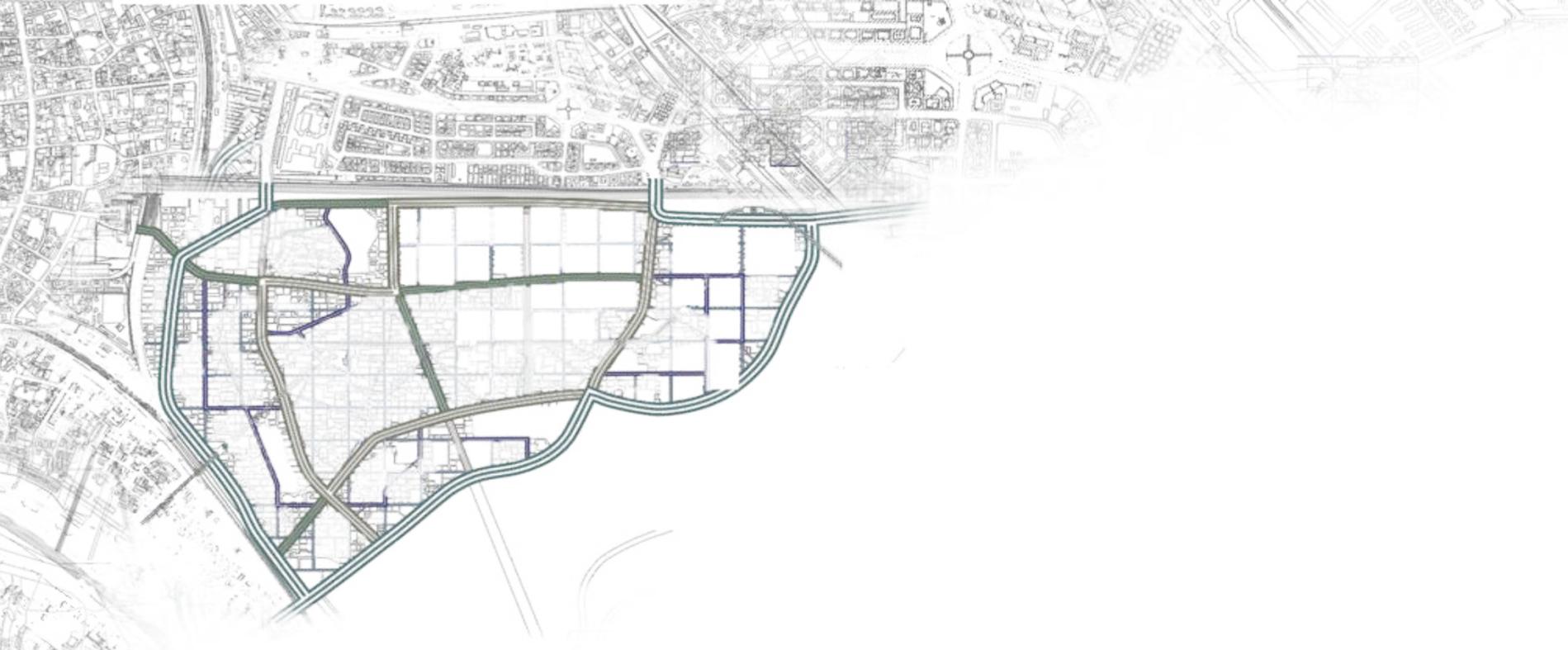


Photo by Yue Zhang, January 2016.

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-----DHARAVI SITE  
WITH PRESENCE OF PROJECT



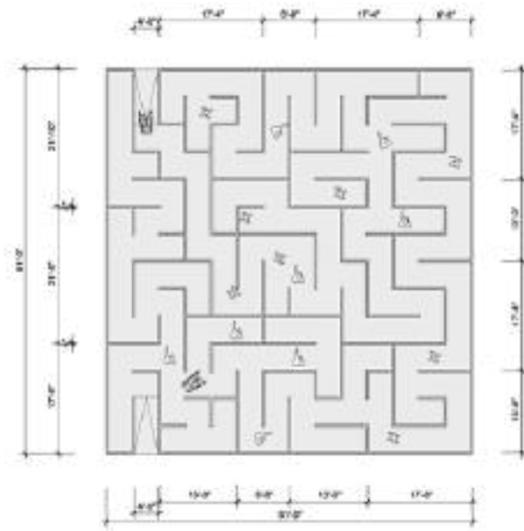
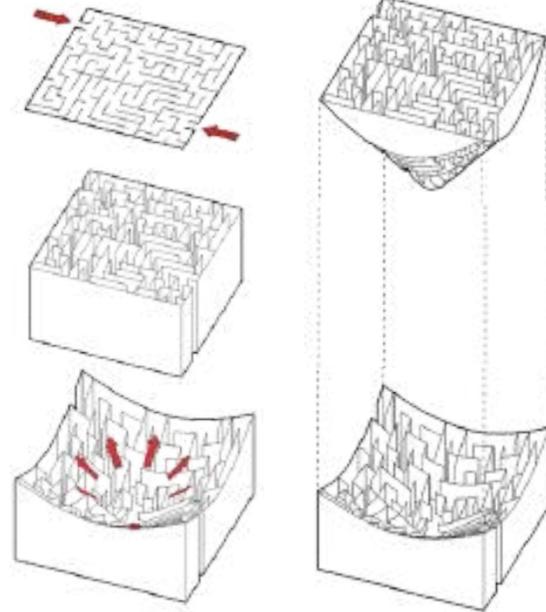


-----DHARAVI SITE  
WITH PRESENCE OF PROJECT

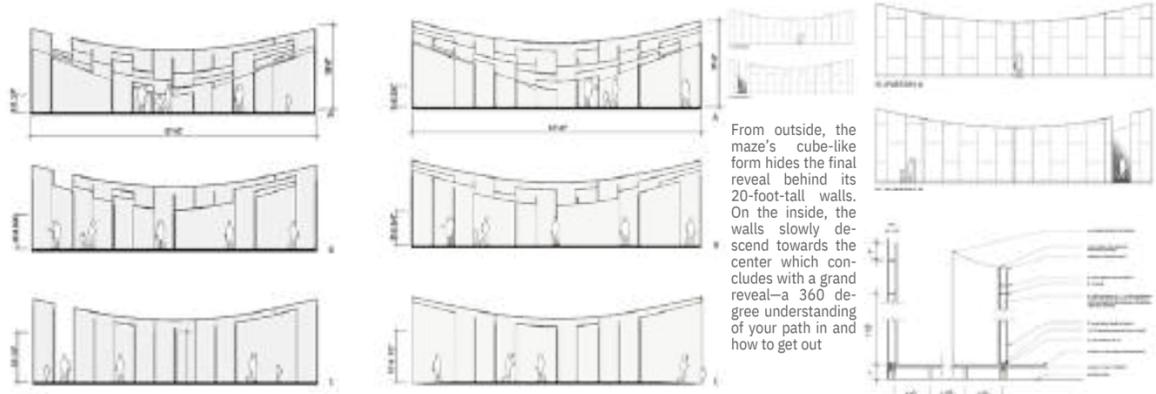


# THE BIG MAZE

Opens at National Building Museum



The concept is simple: as you travel deeper into a maze, your path typically becomes more convoluted. What if we invert this scenario and create a maze that brings clarity and visual understanding upon reaching the heart of the labyrinth" — Bjarke Ingels, Founding Partner, BIG



From outside, the maze's cube-like form hides the final reveal behind its 20-foot-tall walls. On the inside, the walls slowly descend towards the center which concludes with a grand reveal—a 360 degree understanding of your path in and how to get out

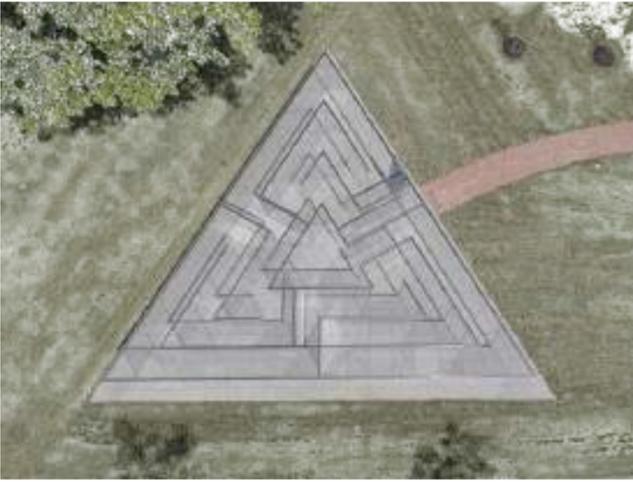


Inspired by ancient labyrinths, gardens and hedge mazes of 17th-18th-century Europe, and modern American corn mazes, the BIG Maze is located in the National Building Museum's historic Great Hall.



# Robert Morris

Glass-Walled Labyrinth



"The idea of a labyrinth as a place in which we lose ourselves in order to find ourselves is intriguing," said Antonia Boström, Director, Curatorial Affairs. "This sculpture encompasses many things: engagement, participation, a spirit of theatricality, and also pushes boundaries between an art object and personal experience"

\* The installation of Glass Labyrinth begins a series of celebrations of the Sculpture Park that will include family activities, educational programs and special events. The 22-acre park has been championed through the years by Mr. Hall, whose keen eye and diligent stewardship have allowed the grounds to become a stellar asset to Kansas City and an outdoor destination for many.

This dynamic sculpture will provide visitors with an intimate experience, enticing them to interact with the art by winding through the glass maze. The installation of Glass Labyrinth in the southeast section of the park marks the start of a six-month long celebration of the 25th anniversary of the Donald J. Hall Sculpture Park. The 62-foot by 62-foot by 62-foot, seven-foot-tall labyrinth, which weighs more than 400 tons, will be fully installed on May 22, when a public celebration will be held.

While the labyrinth is a deceptively simple structure, its creation required a very large team and much ingenuity to see its realization. Construction began on the project last fall, under the leadership of Steve Waterman, Nelson-Atkins Director, Presentation and in collaboration with Erich Blohm Design, engineer for Robert Morris. A crew of more than 80 worked on the physical construction of the sculpture, with an additional crew of local and national companies involved in the planning and development.





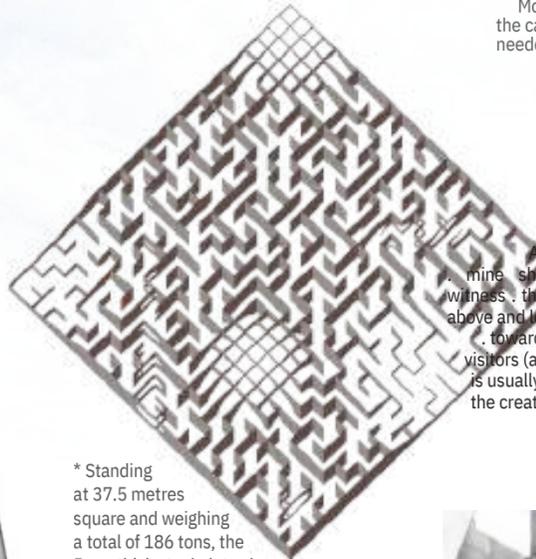
### Gijs Van Vaerenbergh Installation

### Labyrinth of Boolean Walls in Genk

Most of our site-specific installations result from an in-depth analysis of the environment, which leads to an interesting dialogue between work and context: the work tells something about the context and vice versa. In the case of 'Reading Between the Lines' – our most famous installation – the work spoke about the changing meaning of the typology of the church in the physical and cultural landscape. 'Reading between the Lines' really needed that context to be understood. It was only through the topography of the landscape that the different aspects were revealed: the perspective of the viewer transformed the work from a highly transparent and open image into a very massive and closed one.

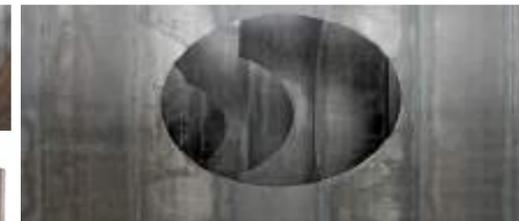
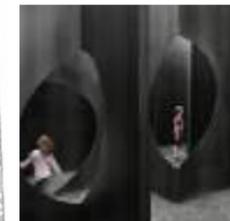
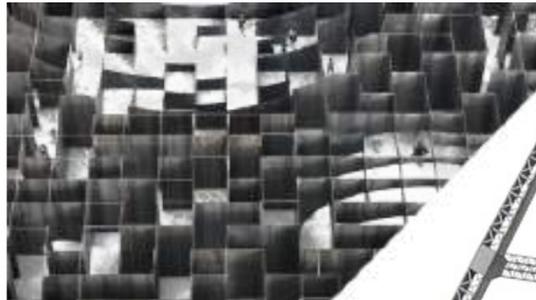
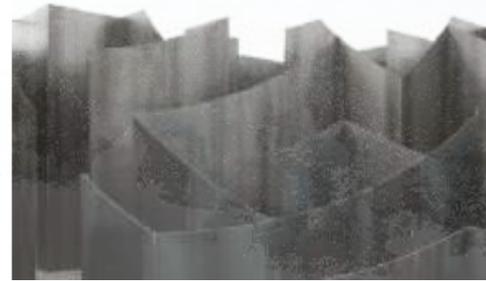
In any other context, the installation wouldn't have worked. The central square at C-mine is a completely different environment. Here, we were confronted with an artificial, highly designed, large-scaled context that wasn't very welcoming to make a similar installation. We therefore chose to build an installation that was directed inwards and dealt more strongly with space and one's relation to it. We did so by looking for inspiration in a primal architectural typology: the labyrinth. In a way, this is an essential form of architecture, which is only composed of walls. A series of Boolean transformations, however, generates openings and perspectives on the environment, which gives the labyrinth a new meaning. Finally, the ascension of the mine shafts are included in the experience in order to create another interesting relationship with the environment.

Gijs Van Vaerenbergh, an artistic collaboration between architects Pieterjan Gijs and Arnout Van Vaerenbergh, have created a labyrinthine intervention at the heart of the c-mine arts centre in Genk, Belgium. ,

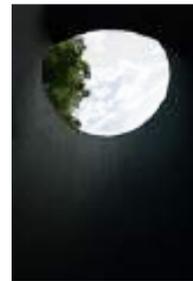


Ascending . the old mine shafts . one can witness . the structure from , above and look down . towards the wandering . visitors (a point of view that is usually only reserved for the creator of the labyrinth)

\* Standing at 37.5 metres square and weighing a total of 186 tons, the 5mm thick steel plates have been geometrical-ly hollowed to create a collection of frames. \*Through a "monotonous succession of high corridors, the viewer is confronted with openings that reveal what is on the other side of the walls.



**Pezo von Ellrichshausen's**  
 Vara Pavilion at the Venice Biennale is a Maze of Circular Forms



\*According to the architects, "the resulting sequence of spaces can be understood both as a traditional open plan – with several access- es [but] without any shape, hierarchy or pre- dominant direction – and also as a limited arrangement of singular segments." The inter- rior spaces vary from "narrow and acute con- cavities" to "wide but irregular convex room" and "from overexposed cores to dark corners."

\*Since we believe architecture is a form of knowledge, it seems inevitable to face a triangular (or circular) problem:

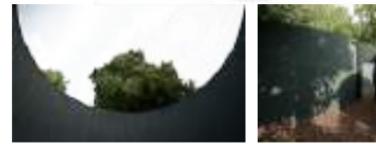
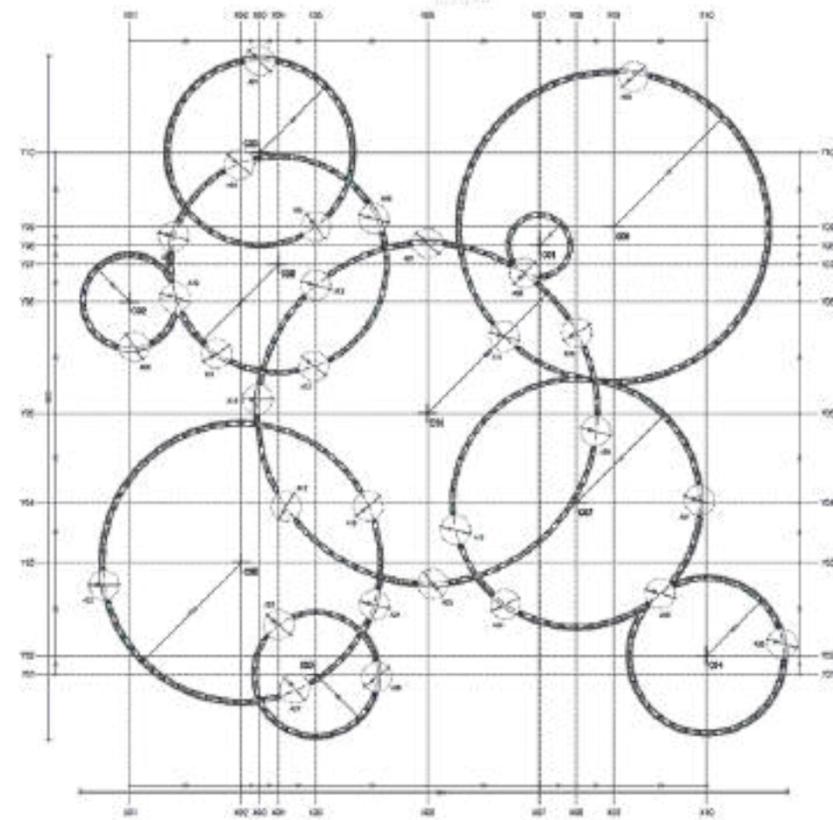
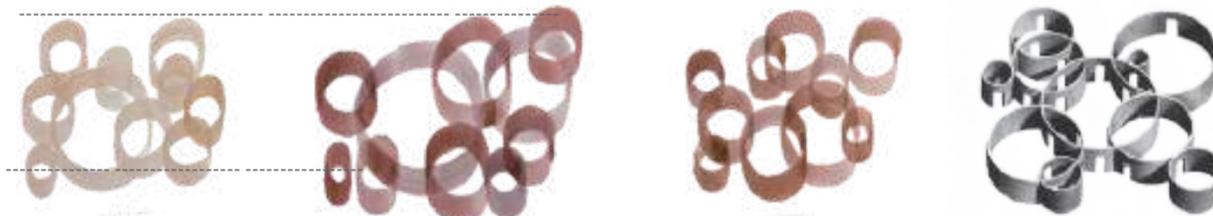


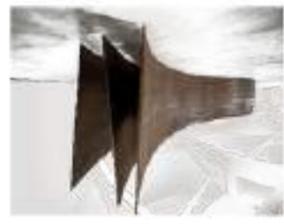
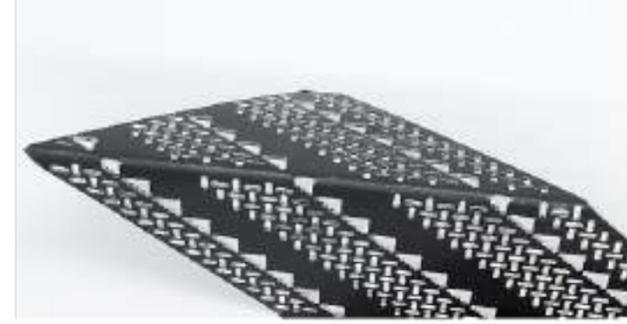
The 324 square me-  
 imprecise and obs-



ter pavilion's title,  
 "vara," refers to an  
 ulate Spanish unit of  
 measurement, that was  
 employed during the  
 country's conquering  
 of America to trace  
 and measure cities.

Pezo von Ellrichshausen's Vara Pavilion for the 2016 Venice Biennale is described by the architects as "a series of exteriors within other exteriors." Breaking down this crypticness, what emerges is a maze-like complex of circles – ten of them – formed with steel, cement, and painted plaster, which collectively create a series of walls, but no roof, thus forming a pavilion that is open to the elements from above.

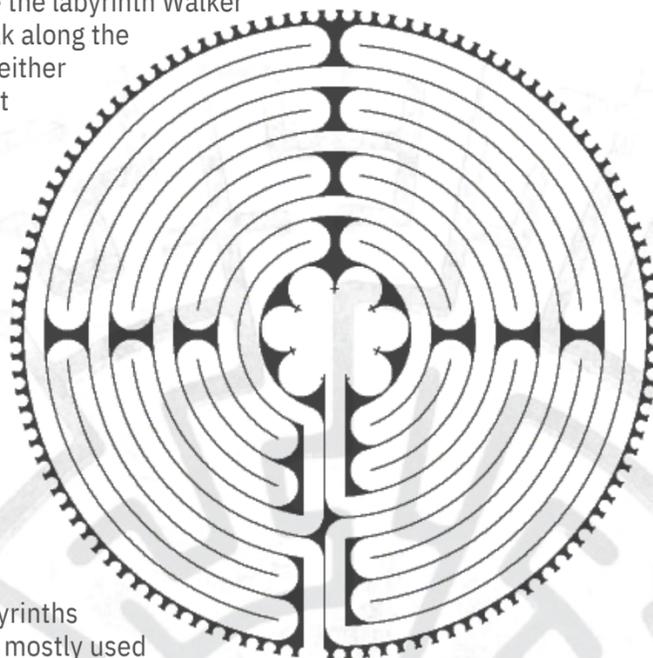




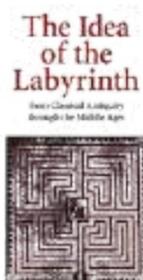


a unicursal labyrinth is one that makes all use of the available space it is complex intricate and aesthetically pleasing to see from above if you were the labyrinth Walker then just head forward walk along the path and eventually you'll either reach the center or the exit depending on the style

the destination of the labyrinth or unicursal path is clear like destiny your fate is sealed you won't hit a dead end inside no need to double back and it's a not so straight line to the end



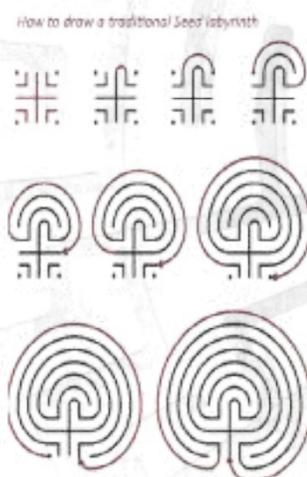
labyrinths are mostly used throughout the Middle Ages and in many meditation and spiritual health groups the purpose of the labyrinth is not to solve an external conflict but an internal one reflection meditation and facing your personal demons.



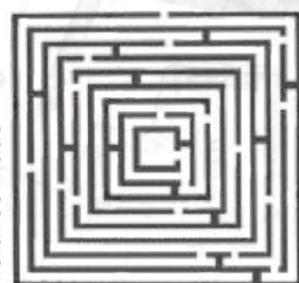
Penelop Reed book offers two simple terms to solidify the difference between a maze and a labyrinth.

\*Term 1 : UNICURSAL PATH

\*Term 2 : MULTICURSAL PATH

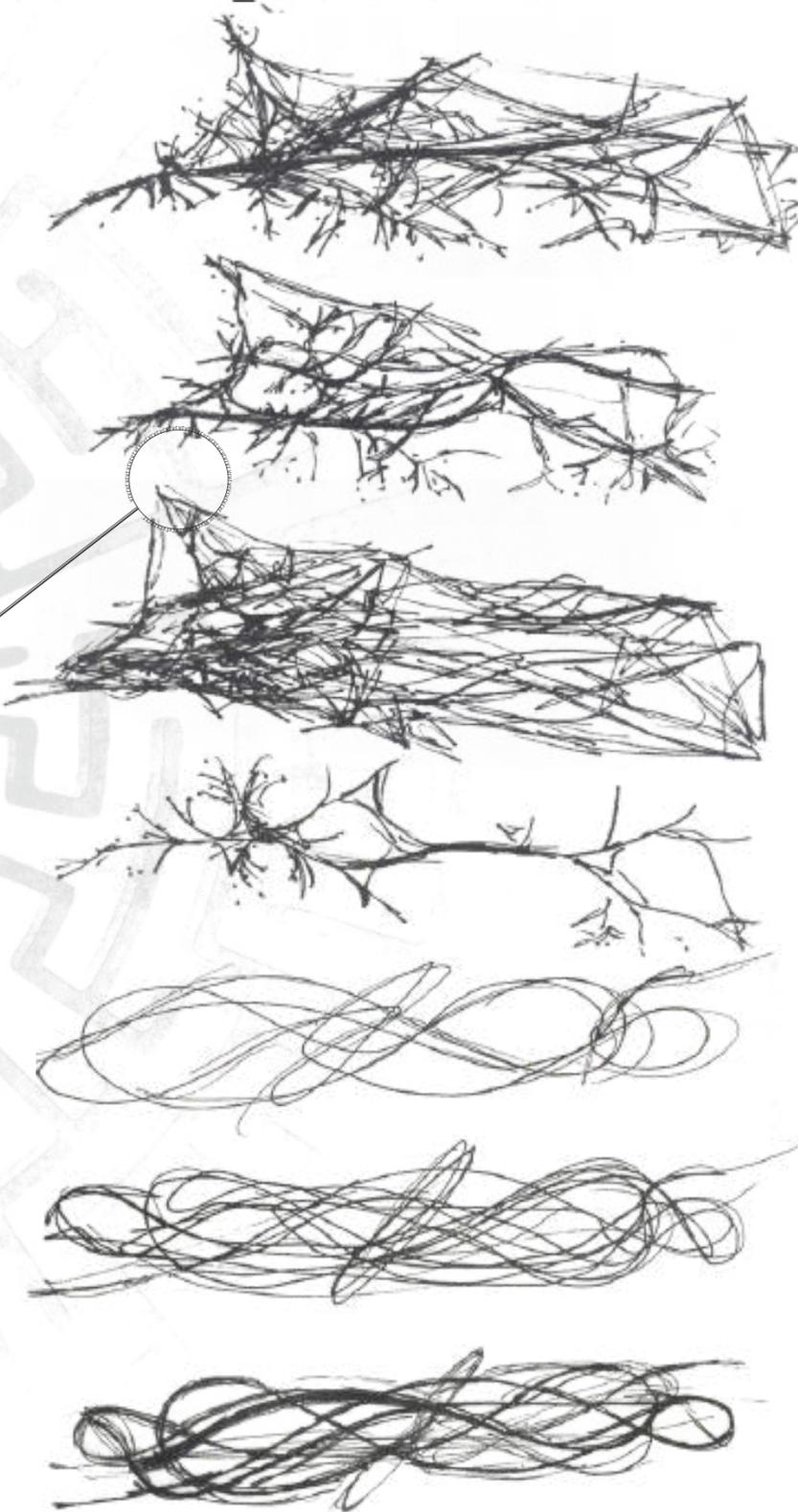


mazes are excellent and giving the Walker much more agents the mistakes made



inside are your choices you might hit a dead end it is a game of trial and error

the other way instead the difference here is choice in video games movies and kids puzzle books

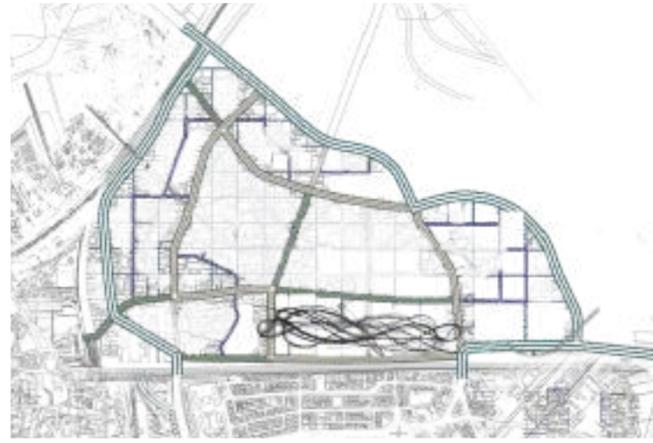


DESIGN.....PROCESS  
DHARAVI SITE / INDIA

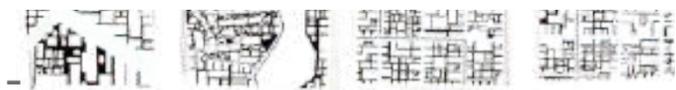
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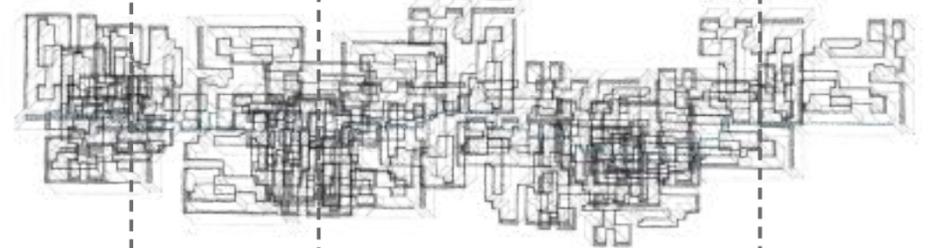
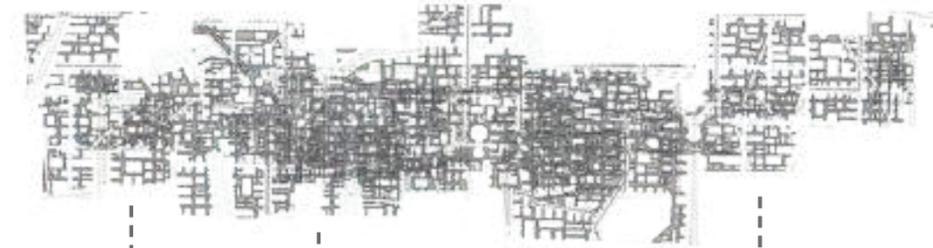
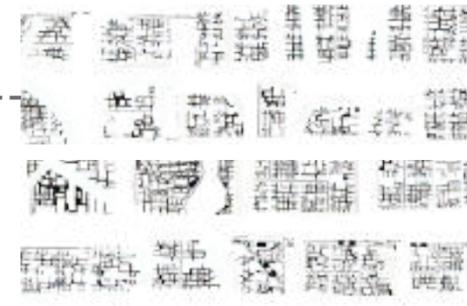
2



Focusing on the paths we can easily notice the maze pattern: \*Multi-cursul path \*Dead ends \*What if element \*Architectre without architect. The new development of the city will have one and only one entrance, the same thing for the exit, but an individual can easily access his destination without passing through all the site due to its parallel plan facing the city near the slums location.



3



Freeing Dharavi from this complicated dead end maze by literally removing all the pathways and blending them all together in a space that doesn't exceed quarter the space they were using .Then focusing on it's path



## OASIS (SEASON 1)

year 2016

format TV SERIES

location CAPE TOWN, SOUTH AFRICA

studio AMAZON STUDIOS  
LEFT BANK PICTURES  
MOONLIGHTING FILMS

director KEVIN MACDONALD

prod. designer MICHAEL CARLIN

position DRAUGHTSMAN

outline of work DESIGN AND DOCUMENTATION VARIOUS SETS  
TECHNICAL DRAWINGS AND DETAILING  
3D MODELLING AND RENDERING  
CONCEPT DESIGN

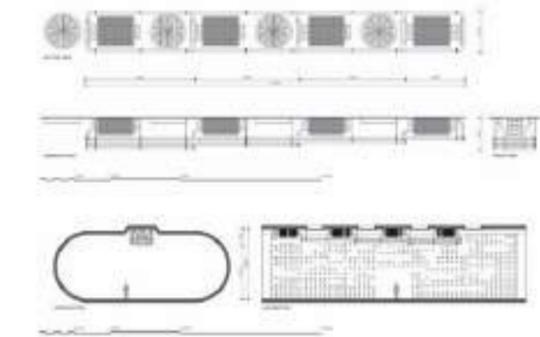
### description

A SCOTTISH CHAPLAIN IS UNEXPECTEDLY ASKED TO TRAVEL TO A REMOTE PLANET, WHERE USIC, A MYSTERIOUS COMPANY, IS BUILDING THE FIRST PERMANENT OFF-WORLD HUMAN COLONY. AS ENVIRONMENTAL COLLAPSE SHOWS EARTH'S HABITABILITY FOR HUMANS IS COMING TO AN END.



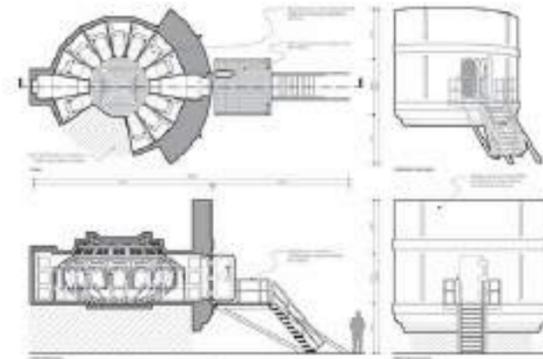
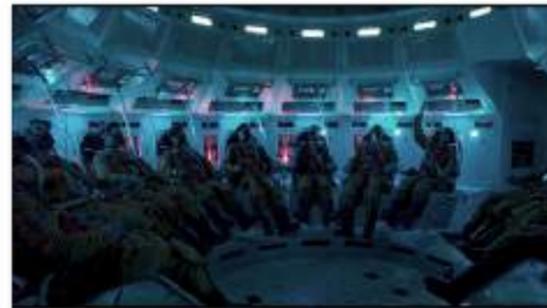
## USIC BASE: HEAT EXCHANGE

location CAPE TOWN, SOUTH AFRICA



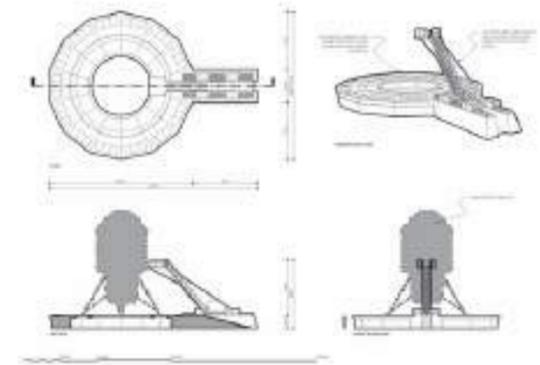
## USIC SHUTTLE

location CAPE TOWN, SOUTH AFRICA

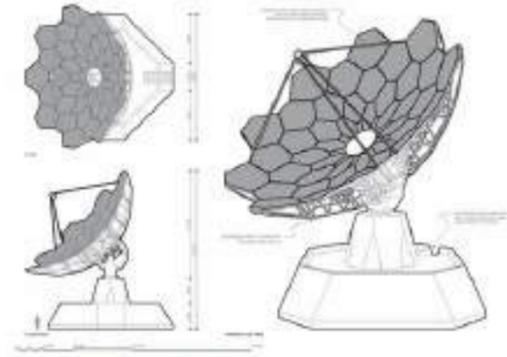


## SHUTTLE LANDING PLATFORM

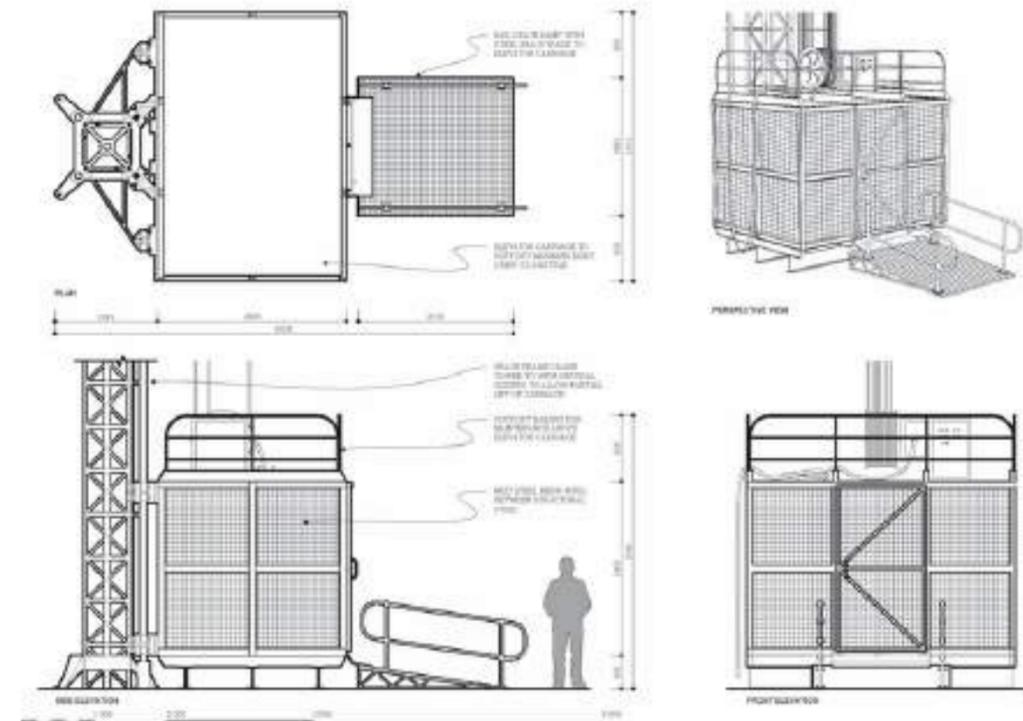
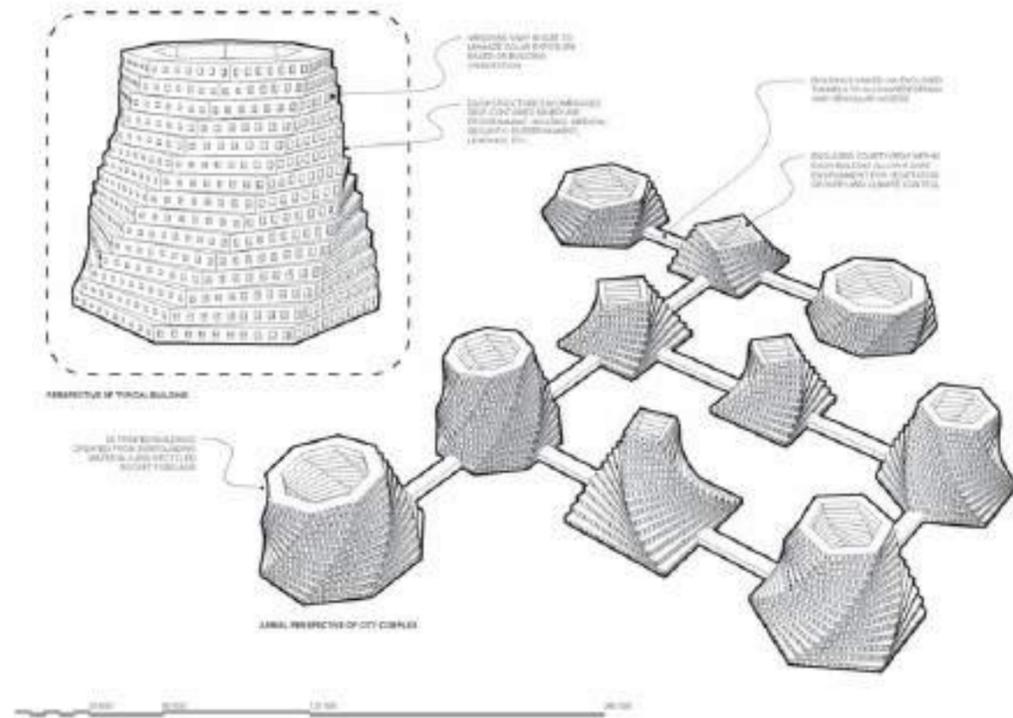
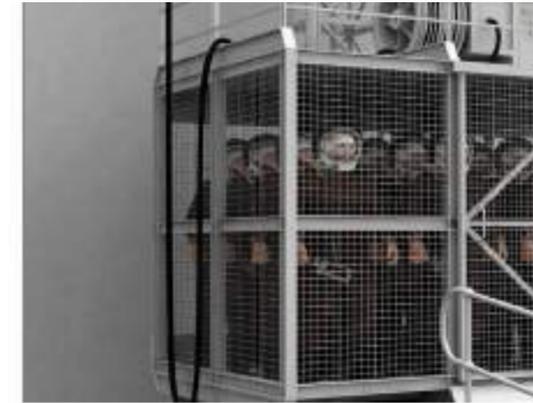
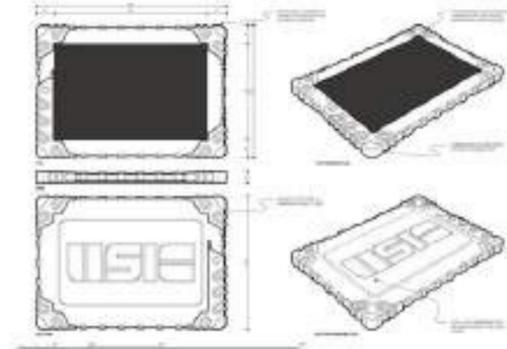
location CAPE TOWN, SOUTH AFRICA



USIC COMMUNICATION SATELLITE



USIC TABLET COVER



# BLOODSHOT

year 2020

format FILM

location CAPE TOWN, SOUTH AFRICA

studio COLUMBIA PICTURES  
MOONLIGHTING FILMS

director DAVID WESON

prod. designer THOMAS BROWN

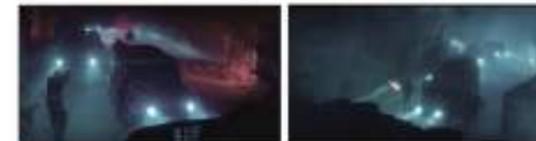
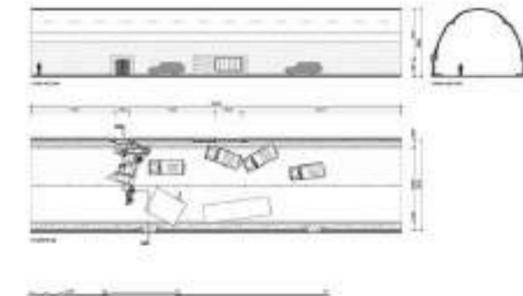
position SET DESIGNER

outline of work DESIGN AND DOCUMENTATION VARIOUS SETS  
TECHNICAL DRAWINGS AND DETAILING  
3D MODELLING AND RENDERING  
ART DIRECTION AND SET SUPERVISION

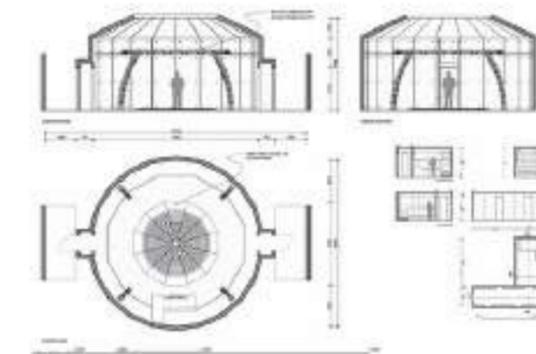
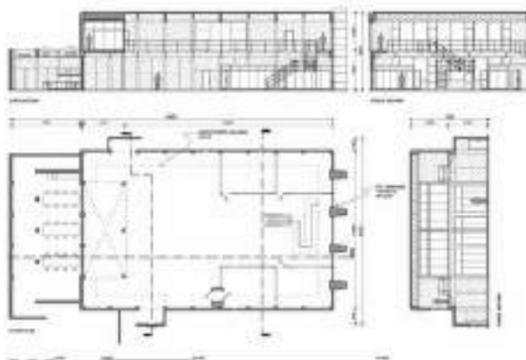
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## BUDAPEST TUNNEL



## PROTOTYPE LAB



## VR LAB



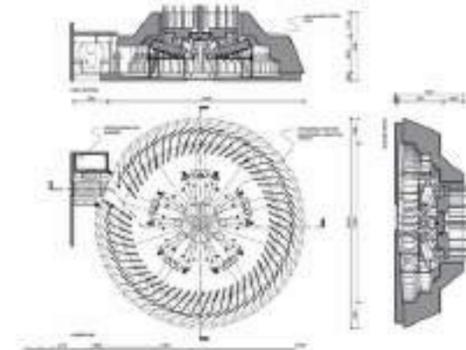
# ORIGIN

<i>year</i>	2018
<i>format</i>	TV SERIES
<i>location</i>	CAPE TOWN, SOUTH AFRICA
<i>studio</i>	YOUTUBE RED LEFT BANK PICTURES MOONLIGHTING FILMS
<i>director</i>	PAUL W. S. ANDERSON
<i>prod. designer</i>	EDWARD THOMAS
<i>position</i>	SET DESIGNER
<i>outline of work</i>	DESIGN AND DOCUMENTATION VARIOUS SETS TECHNICAL DRAWINGS AND DETAILING 3D MODELLING AND RENDERING SET SUPERVISION AND PREPARATION

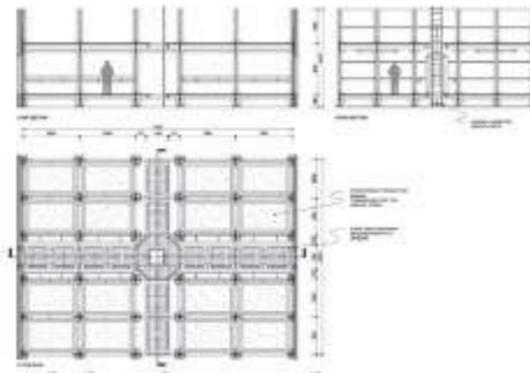
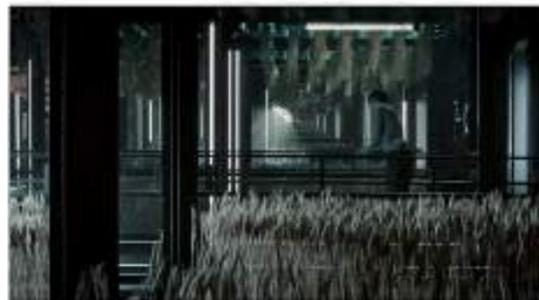
*description* A GROUP OF STRANGERS STRANDED ON A SPACECRAFT BOUND FOR A DISTANT PLANET. THE ABANDONED PASSENGERS MUST WORK TOGETHER FOR SURVIVAL, BUT QUICKLY REALIZE THAT ONE OF THEM IS FAR FROM WHO THEY CLAIM TO BE.

# ORIGIN

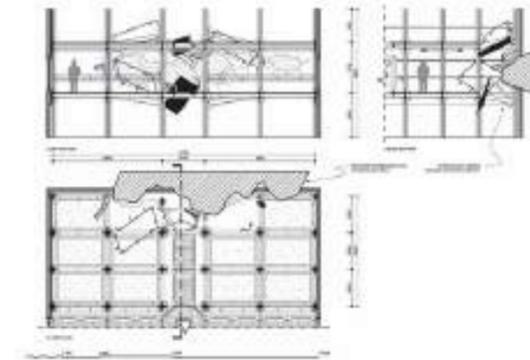
## HIBERNATION POD CHAMBER



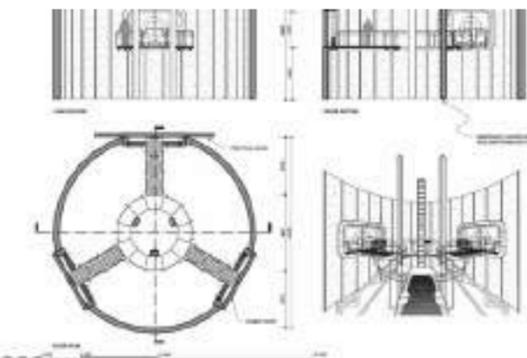
## HYDROPONICS ROOM



## ASTEROID COLLISION

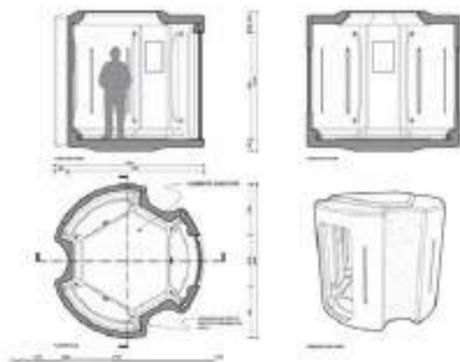
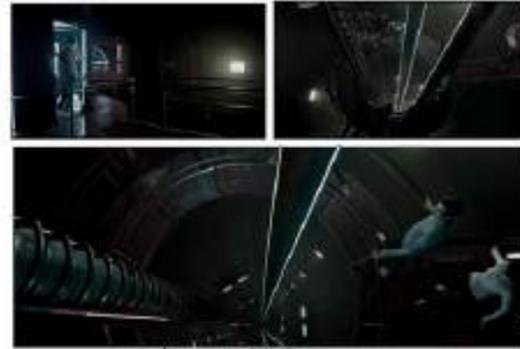


## ELEVATOR SHAFT

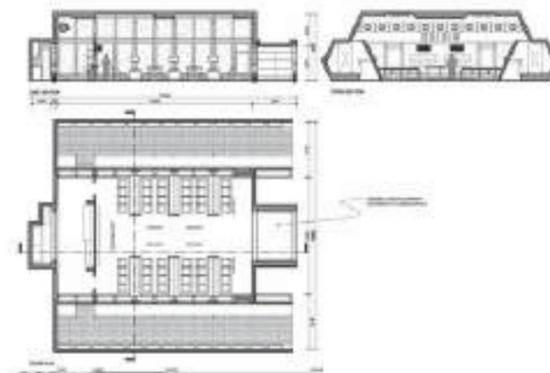




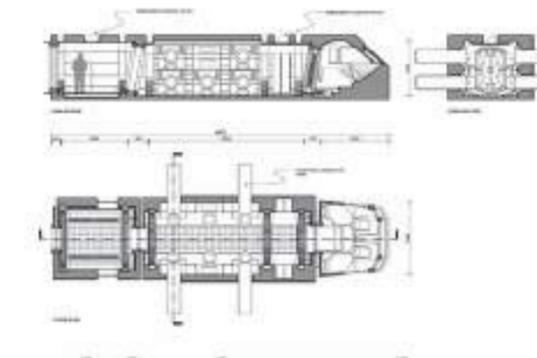
ELEVATOR SHUTTLE



CANTEEN



EVACUATION CRAFT



HYDROPONICS - LED ARM



## WARRIOR (SEASON 1)

year 2018

format TV SERIES

location CAPE TOWN FILM STUDIOS  
CAPE TOWN, SOUTH AFRICA

studio HBO  
MOONLIGHTING FILMS

director ASSAF BERNSTEIN

prod. designer ANDREW LAWS

position SET DESIGNER

outline of work DESIGN AND DOCUMENTATION VARIOUS SETS  
TECHNICAL DRAWINGS AND DETAILING  
3D MODELLING AND RENDERING  
SET SUPERVISION AND PREPARATION

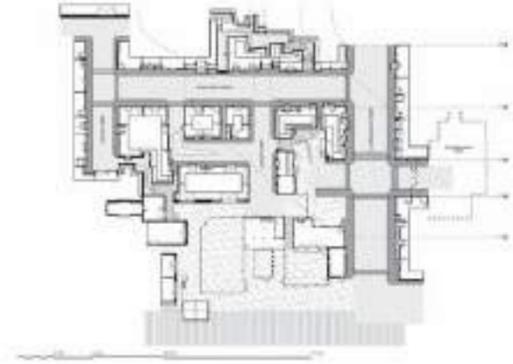
description SET AGAINST THE BACKDROP OF SAN FRANCISCO'S CHINATOWN  
IN THE AFTERMATH OF THE CIVIL WAR, WARRIOR TELLS THE  
STORY OF A YOUNG MARTIAL ARTS PRODIGY, NEWLY ARRIVED  
FROM CHINA, WHO FINDS HIMSELF CAUGHT UP IN THE BLOODY  
CHINATOWN TONG WARS.



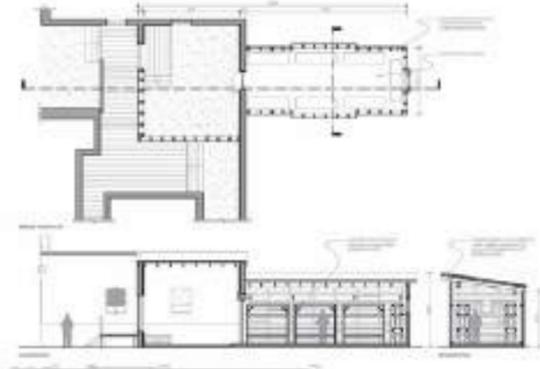
# WARRIOR



## BACKLOT: SAN FRANCISCO CHINATOWN 1875



## WANG CHAO'S ARMORY



# MAZE RUNNER: THE DEATH CURE

year 2018

format FILM

location CAPE TOWN, SOUTH AFRICA

studio 20th CENTURY FOX  
OUT OF AFRICA ENTERTAINMENT

director WES BALL

prod. designer DANIEL T. DORRANCE

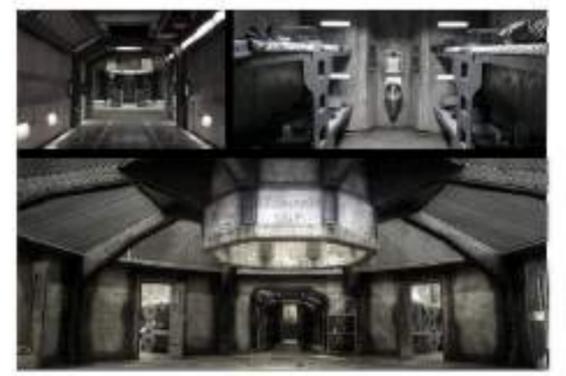
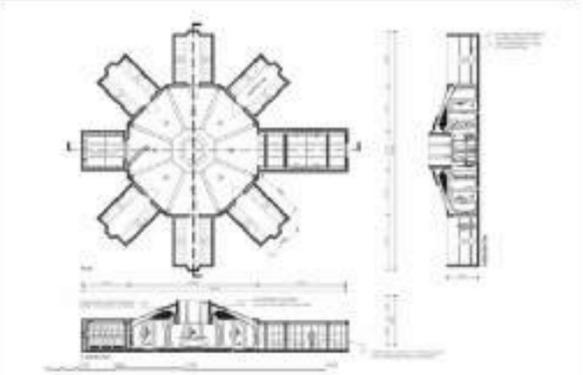
position SET DESIGNER

outline of work DESIGN AND DOCUMENTATION VARIOUS SETS  
TECHNICAL DRAWINGS AND DETAILING  
3D MODELLING AND RENDERING  
ON-SET SUPERVISION AND PREPARATION

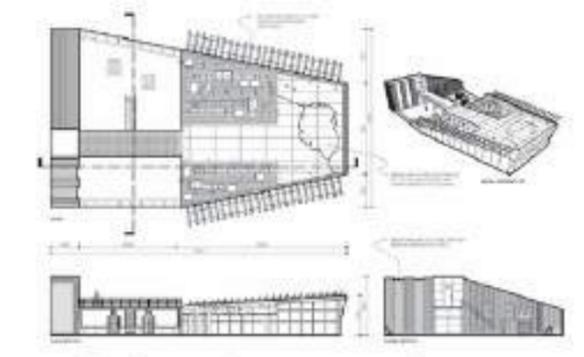
description THOMAS LEADS SOME ESCAPED GLADIATORS ON THEIR FINAL AND MOST DANGEROUS MISSION YET. TO SAVE THEIR FRIENDS, THEY MUST BREAK INTO THE LEGENDARY LAST CITY, A WICKED-CONTROLLED LABYRINTH THAT MAY TURN OUT TO BE THE DEADLIEST MAZE OF ALL.



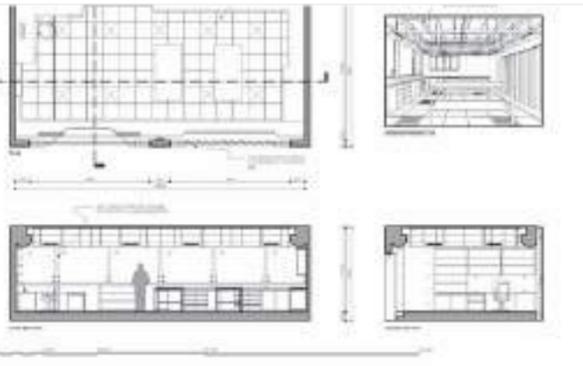
## HOLDING AREA / SERUM VAULT



SECTION THROUGH PRODUCTION ELEMENT

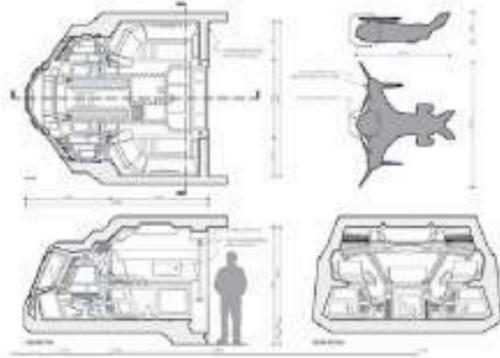


## THERESA'S OFFICE

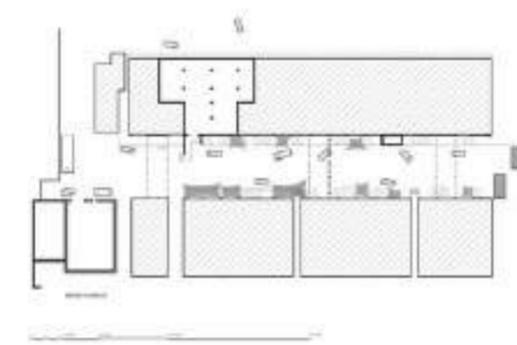




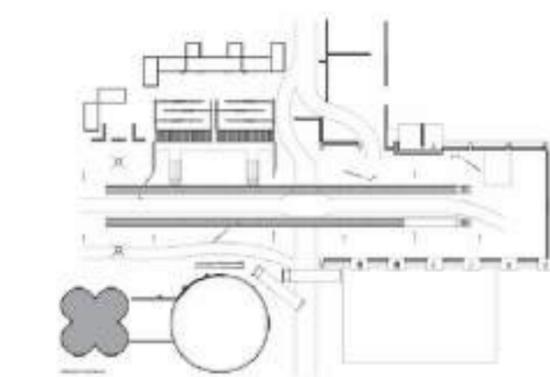
**BERG COCKPIT**



**CITY SLUMS**



**NO-MAN'S LAND**



## RAISED BY WOLVES

year 2019

format TV SERIES

location CAPE TOWN, SOUTH AFRICA

studio HBO MAX  
SCOTT FREE PRODUCTIONS  
FILM AFRIKA

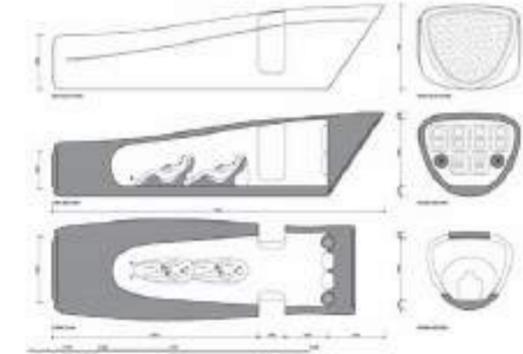
director SIDLEY SCOTT

prod. designer CHRIS SEAGERS  
TOM McCULLAGH

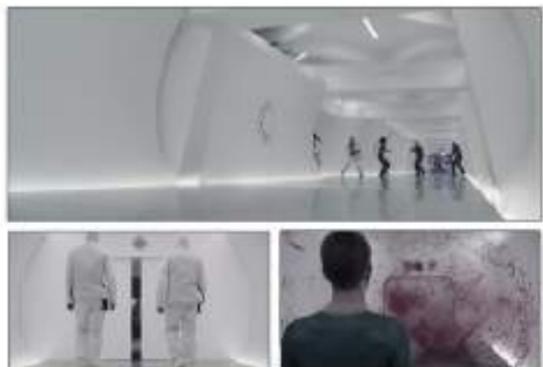
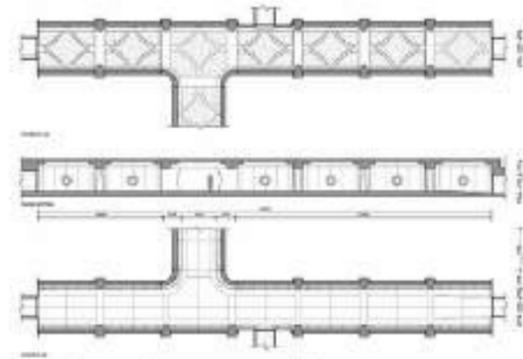
position ART DIRECTOR



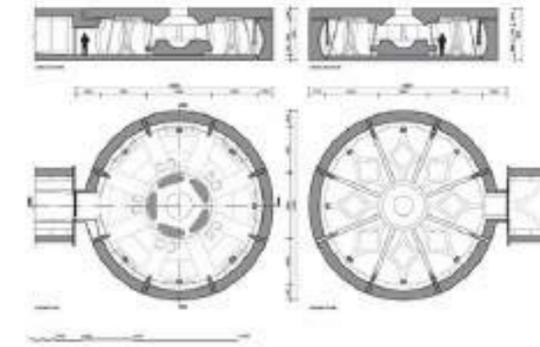
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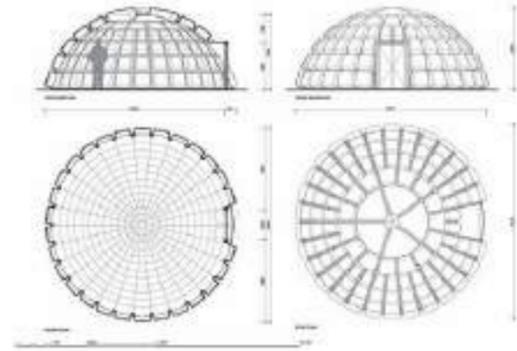
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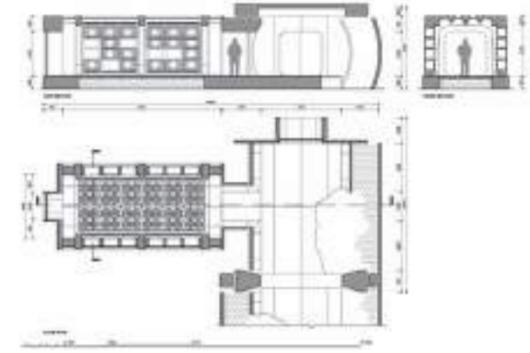
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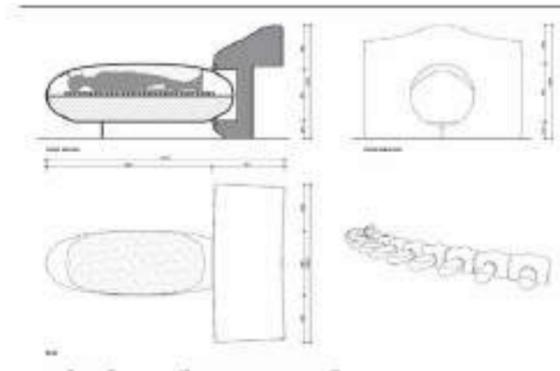
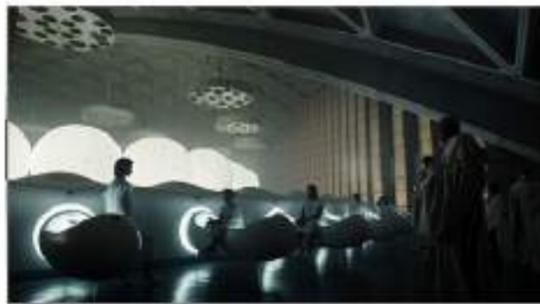
NURSERY



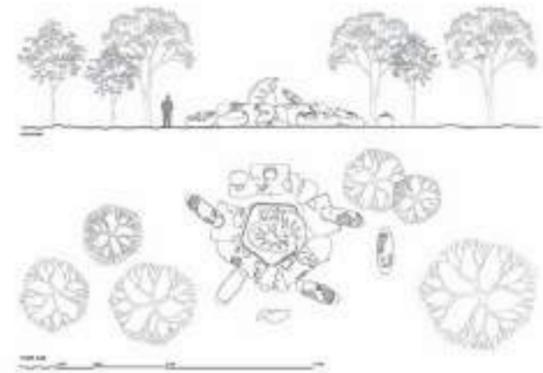
DAMAGED MEDICAL ROOM

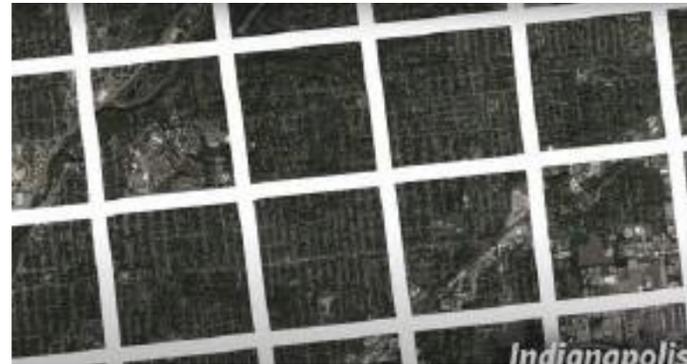
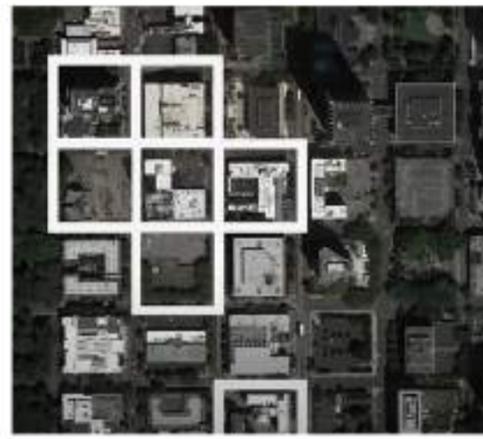
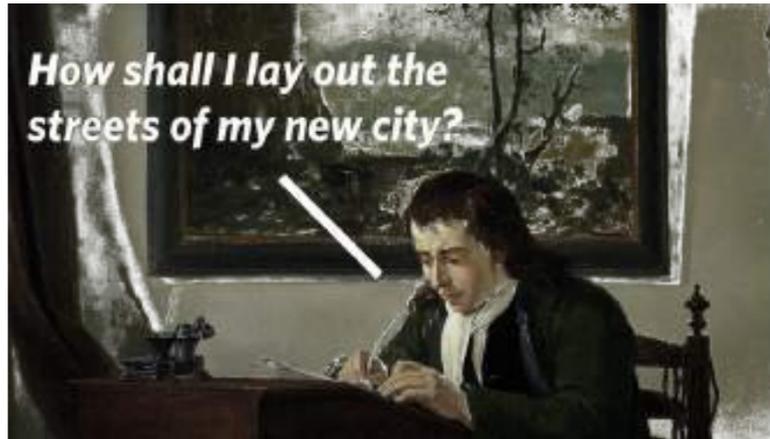
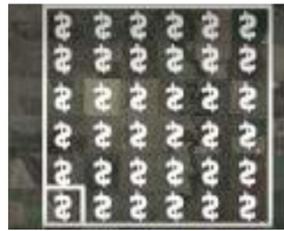


HIBERNATION PODS



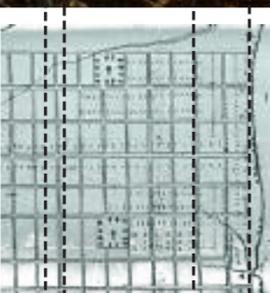
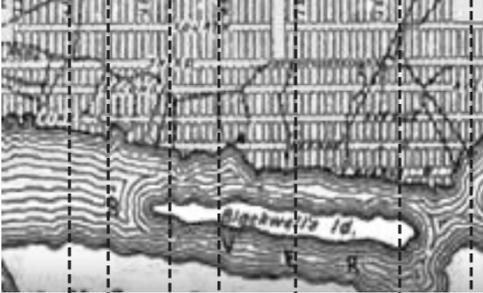
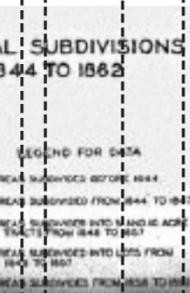
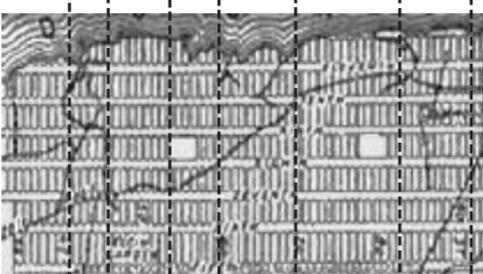
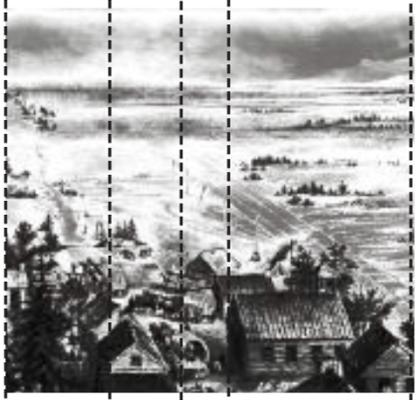
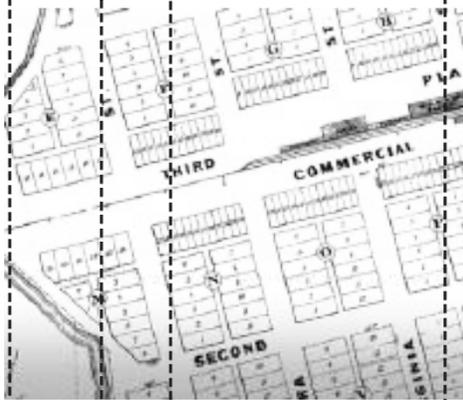
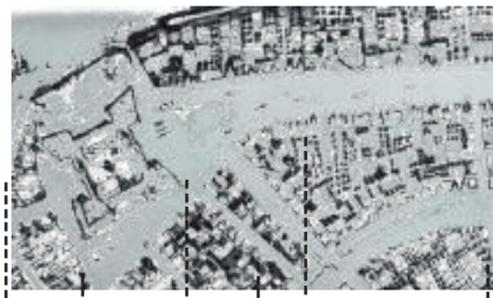
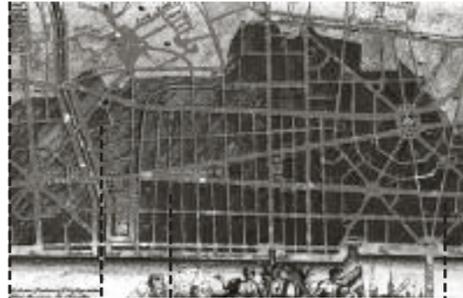
DAMAGED CLERIC POD





-----Readings

many cities in the United States have something in common the oldest parts of the city usually downtown have gridded streets why are so many cities in the United States originally designed with a gridded Street pattern there are plenty of good reasons but let's look at a few really critical ones the first one is just human nature early US cities adopted the grid because it was the cool thing to do at the time cities weren't designed in a vacuum city founders looked for their latest and greatest ideas for how to lay out a new city at that time it was the wide straight streets of Versailles or the plan for London after the great fire in 1666 perhaps the most influential plan the one that captured the imagination of a new nation was William Penn's plan for the city of Philadelphia it wasn't the first colonial city to use a simple grid pattern but as the colonial capital in larger city it was influential and spreading the idea of a rational grid pattern if the grid is good enough for the most powerful city and a newly founded America it must be good enough for all cities right of course there are more practical reasons to design a city with a grid pattern grids are great if you expect your city to grow really fast for example in its earliest days New York streets were laid out without any kind of discernible pattern and ended at Wall Street named after the literal wall that separated the city from the wilds of Manhattan in 1811 a group of civic leaders predicted that New York would continue to grow northward at a rapid pace they drafted a street pattern that imposed a repetitive grid over the rest of the island critics of the plan doubted that New York would ever grow into such an audacious grid but less than 100 years later it was a city of over 3 million people that kind of rapid growth may not have been possible without a clear rational grid New York was not the first to realize that using a simple repeatable grid would facilitate fast easy subdivision and growth in fact at this point it was happening at a national scale in the 1780s President Thomas Jefferson signed two national land ordinances that imposed a simple one-mile grid over much of the Midwest a further act in 1862 continued that grid through the American West just like in New York dividing the country into one mile grids and six mile townships allowed for orderly settlement of the continent selling grid squares also served as a great fundraiser for a fledgling nation short on cash this nationwide grid brings us to the next reason city in the u.s. used a grid pattern with all of these new grid lines Criss crossing the country it just made sense to use them when plotting out a new city a great example here Chicago a Chicago grew from the shores of Lake Michigan it incorporated those square mile lines into its street network its majorstreets will be laid out at one mileintervals this map for the mid 1860sshows using dotted lines that the futureroad to follow those grid lines you cansee this today if you fly in ChicagoChicago's neighborhoods conform to thisgrid pattern laid out during theJefferson administration in the 1780sthe streets on the edge of Detroit arelaid out in the same way not only didthey accept the lines from the NationalSurvey they didn't even bother with clever names you got six mile road 7Mile Road and 8 mile yep that's where Eminem got the name of his movie now aswe move further west the founding of new cities is tied to the construction ofrailroads the railroad companies received vast land grants from thefederal government to lay their tracksto serve those trains railroad barons established hundreds of new cities along the routes railroad com- panies in the interest of growing these cities fast and making a lot of money use gritted Street patterns in the new cities they often use the exact same plans for cities along the same route to recap u.s. cities were founded with grid patterns because of influential ex- amples of gridded cities because grids make it easy for cities to grow fast because cities use the same lines as those done by the national land audiences and because grids are re- ally easy to plo down on building cities along a railroad all of them with the exception of the influential examples really comes down to money gridded streets create lots that are rectangles or squares making them easy to survey subdivide and sell of course these days cities are growing as fast as ever with Street patterns full of loops and cul-de-sacs



Wren Plan for London, 1666  
 Detroit, 1889  
 New Amsterdam (New York), 1660  
 Mile Road Chicago, 1862  
 Chicago from the air  
 Philadelphia, 1668  
 Chicago, 1900  
 New York, 1900

Readings

INFLUENTIAL  
 EXAMPLES

EASY TO  
 GROW FAST

LAND ORDI-  
 NANCES

RAILROAD  
 TOWNS



go, 1898

Virtual reality represents a fundamentally revolutionary way of interacting with computers. It also is a powerful new medium of expression that is still evolving and changing. In this paper, systematic studies of VR and its applications in design are described. The major historical development of key components constituting an updated and contemporary VR system are illustrated. Based on the advantages, disadvantages, and limitations found in the current development, potential methods of generating a design tool are explained to explore future possibilities. It is hoped that by combining VR and the new information technology, VR can be used as a design instrument to increase creativity and as a research tool to meet the diversified information media challenges to be encountered in the 21st century.

1. Background Introduction Two terms are applied to the world of information technology: cyberspace and virtual reality. The term “cyberspace” was first used by William Gibson (1984) in the book entitled “Neuromancer” to illustrate the imaginary world experienced by engaging within a globally networked data space. Therefore, cyberspace indicates the data space of the computer. All data are entered by the system users. And virtual reality means the world users experience while using the data system. It involves more emotional situations than what cyberspace can offer. In this paper, the definition of virtual reality refers to the data space in which some subset of human senses can be stimulated and reflected. Virtual reality (VR) environments provide an immersive experience in which participants wear tracked glasses to view stereoscopic images, listen to 3-D sounds, and are free to explore and interact within a 3-D world. As an advanced human-computer interaction and interface tool (Durlach and Mavor, 1995; Mine, 1995a; 1995b), it not only provides diversified media for visually, aurally, and interactively experiencing architectural design (Ellis, 1991a; 1991b), but also allows designers to perceive, grasp, and move three-dimensional building elements in the VR space.

2 C. S. CHAN In a VR space, virtual displays surround users with three-dimensional stimuli. Users have a sense of inhabiting a new place instead of looking at a picture. With sensory immersion in the VR space, users become a part of the environment and can perceive and visualize the surroundings by walking around the space. For architectural designers, applying VR will enable them to understand the spatial qualities of their own designs intermediately, and will be able to comprehend their works by walking through the virtual space to visualize the color and texture of assigned materials, proportions of the spatial layout, and the aesthetic expression of structural elements. Therefore, VR will become a valuable visual tool for architectural learning and teaching, and is now in the rapidly developing research stage.

2. Evolution of Virtual Reality In the following, the history of the evolution of major components needed for constituting a VR system is reviewed briefly.

2.1. HEADGEAR The most significant aspect of VR is that it gives users the impression of actually being in a synthetic world rather than simply perceiving images and events. The earliest development to produce such an effect were stereoscopes, holographic stereograms, and 3-D film shown on a wide-screen motion picture system attempting to immerse viewers. An early experiment which closely approached the contemporary VR systems is the Stereoscopic Television Apparatus for Individual Use (STAIU) developed in 1957 by Morton Heilig. He designed headgear for the STAIU which included wide-angle optics and individual lightweight display screens for each eye of the viewer. Extending this idea further, he designed the Sensorama Simulator in 1961 to incorporate “color, visual movement, 3-D sound, breezes, odor and tactile sensations.” Both STAIU and Sensorama were based on a pre-determined model of user perception instead of allowing users to determine substantial aspects of his or her own experiences.

2.2. HEAD-MOUNTED DISPLAY (HMD) Ivan Sutherland’s work represented the first step towards creating a VR beyond the flat screen of the monitor interface. It was the first computer-based head-mounted display (HMD) developed at MIT in 1966. This helmet-like device earned the nickname “Sword of Damocles” due to the mass of hardware that was suspended from the ceiling and hung over the user’s head, and featured two video displays. Sensors connected to the HMD recorded the user’s head position and movement.

3 VIRTUAL REALITY IN ARCHITECTURAL DESIGN

2.3. HELMET In 1982, Thomas Furness developed the “Super Cockpit,” a flight simulation system which was designed to assist training pilots to fly high-speed aircraft. Test pilots wore the oversized helmet and sat in cockpit mockup. This specially constructed helmet allowed the pilot to see a computer-synthesized environment on the inside of a shield. The pilot’s glove was lined with position sensors so that by pointing to virtual buttons various functions could be controlled. to simulate the force-feedback. In the 1980s, a joystick was developed by Richard Feldman to generate appropriate force through the manipulation of a T-Shaped joystick control.

## -----Readings

Development of VR in Design Until now, architects have had to communicate their design ideas through scale models and perspective drawings. If clients wanted changes, drawings and models needed to be redone. A tool that allows the clients to visit the design and to walk around in it before it is built, would benefit architects and clients tremendously. Frederick Brooks at UNC had modeled the new computer science building, Sitterson Hall, with working drawings as a guide. Using a powerful graphic computer, the viewpoint can be positioned anywhere in the model for rendering. By controlling speed and direction, consecutive interior and exterior images can be generated. With the use of a treadmill and handlebars, users can physically walk down hallways. Other programs for architectural walkthrough were also developed at UNC to generate a visual tool for evaluating design concepts (Brooks, 1986). The first commercial VR product for marketing design concepts is the virtual kitchen designed in April, 1991 by Japan’s Matsushita Electric Works. Customers can experience what a custom-built kitchen will look like (Bylinsky, 1991). These computer simulations provide designers and clients valuable knowledge that can be used to improve the environment and design. John Walker, one of the founders of Autodesk, started the “Autodesk Cyberspace Initiative” in 1988. Applying the VR peripherals of glove and goggles (head-mounted display), they started VR in PC platforms. The first product is the core of a new object-oriented 3-D simulation language entitled “Cyberspace Development Toolkit.” This toolkit provides programmers with an easy way to create complex virtual environments. Detailed introductions to the VR history and current development can be found in Pimentel and Teixeira (1995). Other information about VR in design are in Bertol (1997).

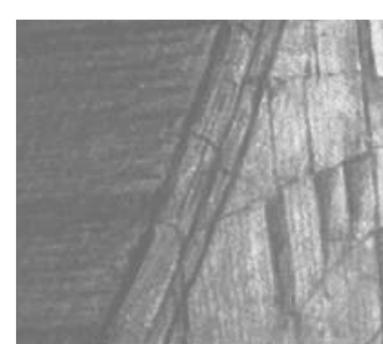
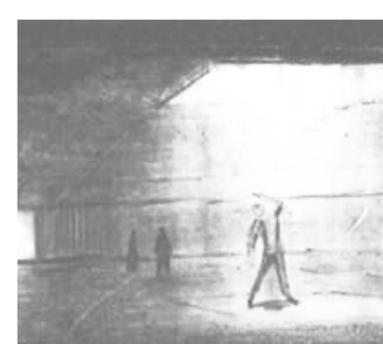
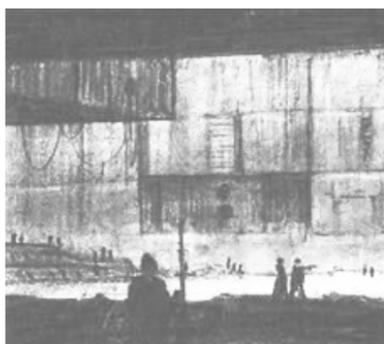
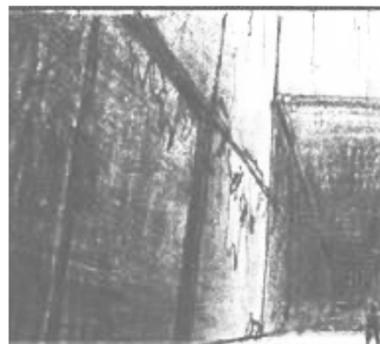
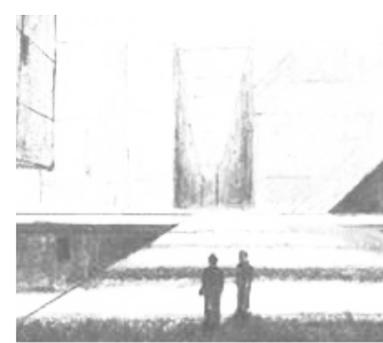
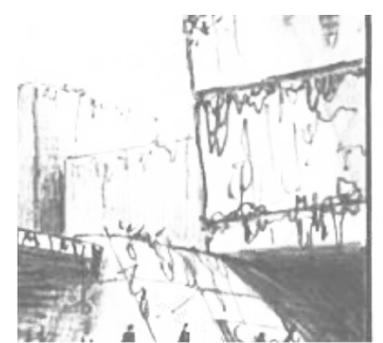
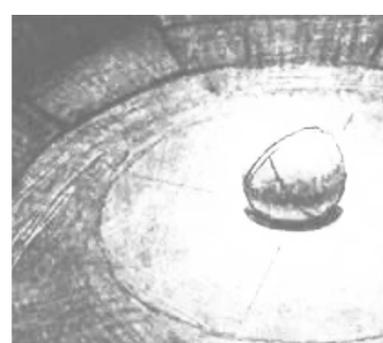
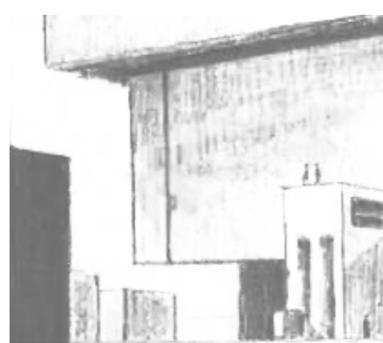
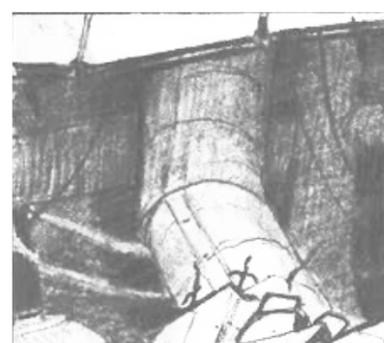
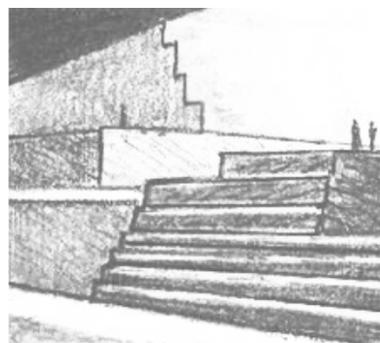
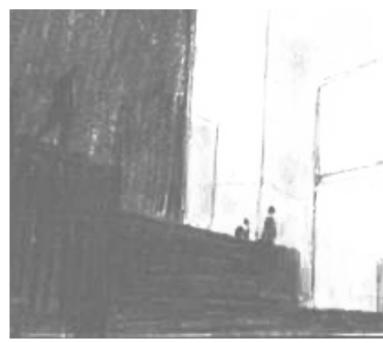
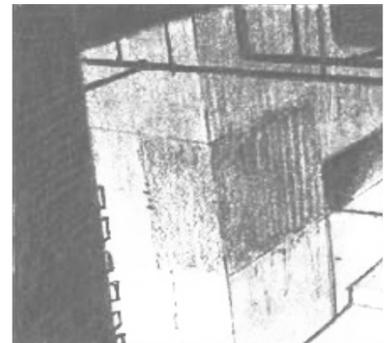
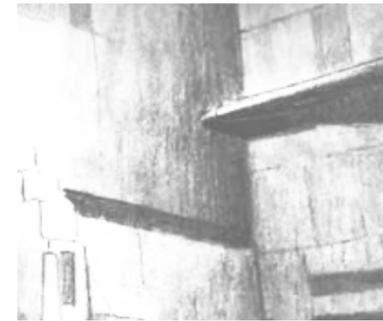
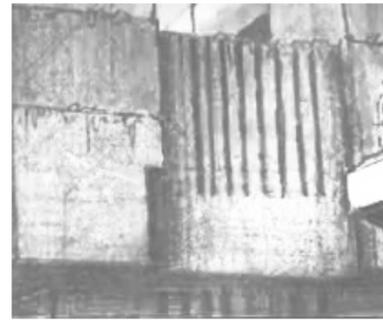
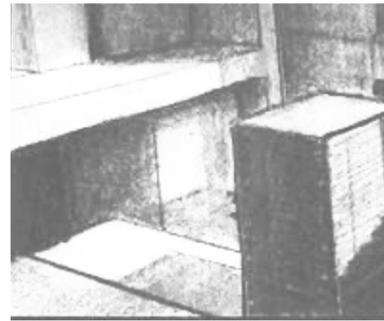
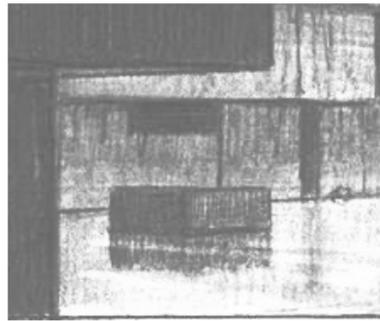
4. Characteristics of VR VR systems are rapidly developing along with the quickly advancing computer hardware and software technology. Currently, the most advanced platform to run VR efficiently and powerfully is the Silicon Graphics Machine. Five features describing the characteristics of VR systems are: (1) three-dimensional dynamic display, (2) users are active navigators, (3) the image displayed in the VR is from the point of view of the user’s head, and (4) multimedia interaction (Stuart 1996). VR is a human-computer interface in which the computer creates a sensory-immersing environment that interactively responds to and is controlled by the behavior of the user. Thus, two extraordinary features exist in the VR scene: immersion and interactivity.

4.1. IMMERSION The success of creating a VR environment isn’t whether the created virtual world is as real as the physical world, but whether the created world is real enough for viewers to suspend their disbelief and to create the experience of being there for a period of time. This relates to the notion of immersion which means to block out distractions and focus selectively on just the information with which you want to work. In order to achieve this immersive effect, the image of the world on the display is viewed from the perspective of the user (that point which is being manipulated by the control). Thus, the explorer of a virtual environment will view that world from a perspective akin to that of a camera placed on the explorer’s head, rather than on a fixed camera position and viewpoint. The effect of immersion is similar to that of an audience and a theater production. Only when the audience is immersed in the theater will their attention focus on the actors’ performances. If a theater has an immersive atmosphere, then through setting, drama, and music, audiences are invited in the performers’ story. When it works, the theater has the power to engage the audience and hold the audience’s attention. This immersive experience can convince, teach, and inspire.

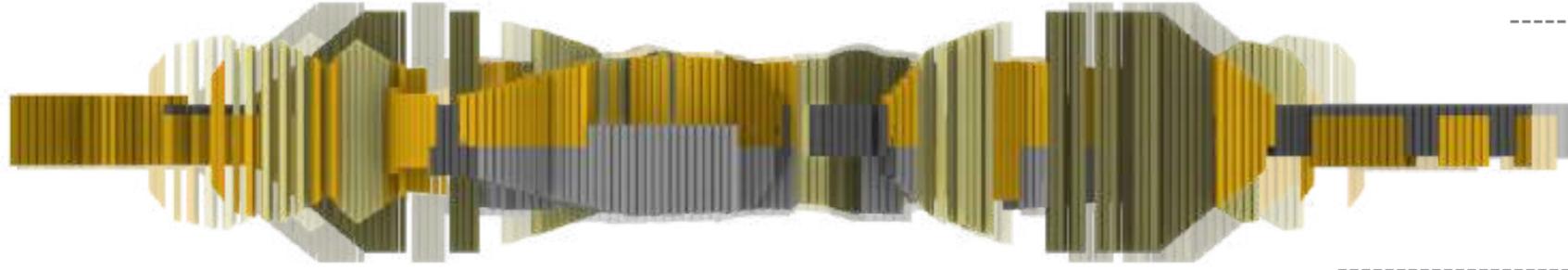
4.2. INTERACTIVITY Interactivity is a crucial aspect of VR which has two dimensions: navigation within the world and the dynamics of the environment. Navigation is the user’s ability to move around independently. It also relates to the capacity of the number of degrees of freedom provided by the VR software. The dynamic of the environment is the flexible positioning of a user’s point of view. It could be used, for example, to move through the design of a new building as if in a wheelchair to test whether it really will be wheelchair accessible.

5. Methods of Modeling a VR environment There are many ways of generating a VR space, although the generic procedures of constructing buildings in the SGI platform have the following sequences. It is necessary to first collect floor plans, elevations, and other documentation of the building. VR system can be utilized as a tool for observing a designer’s thinking process to understand how information technology and virtual reality affect design thinking

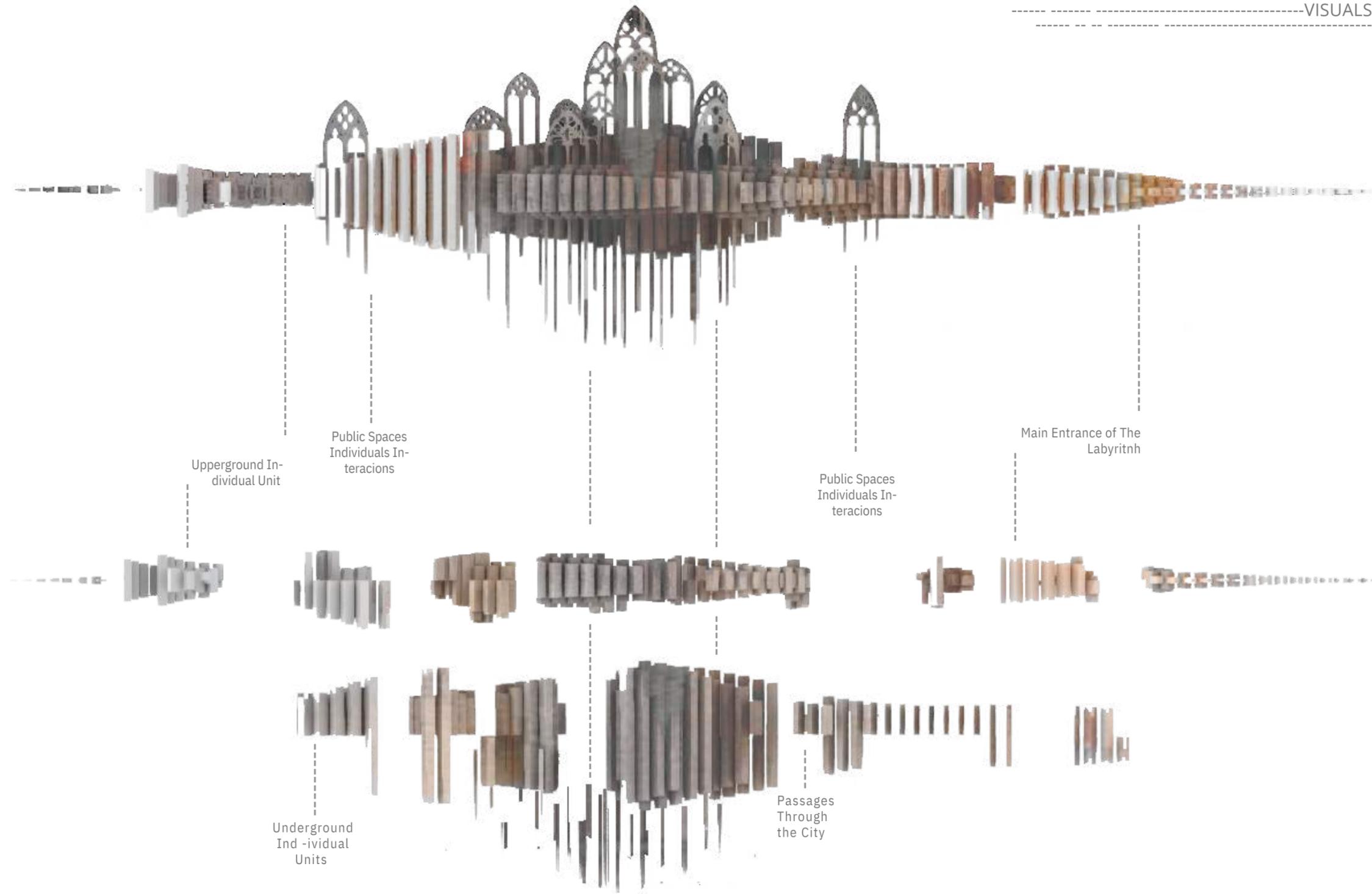
STORY BOARD

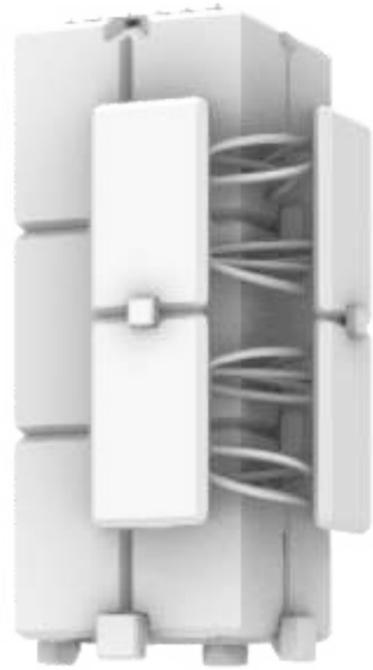


INFORMAL PROGRAM  
BAR



- Main Entrance ----- 
- Individual Unit ----- 
- Underground Units ----- 
- Commonground Units ----- 
- Identity Figure ----- 
- Public Space ----- 





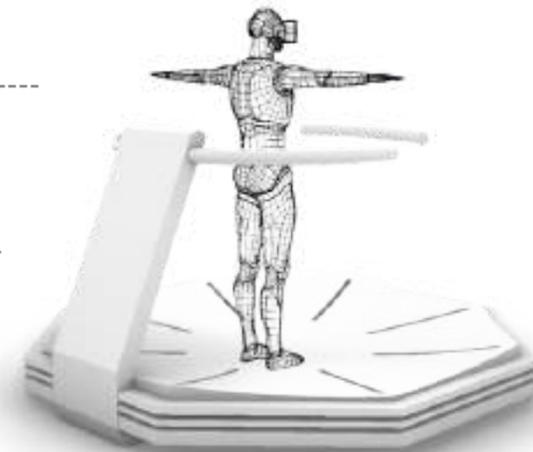
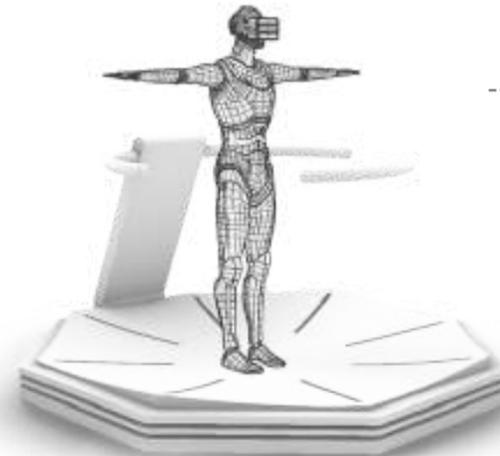
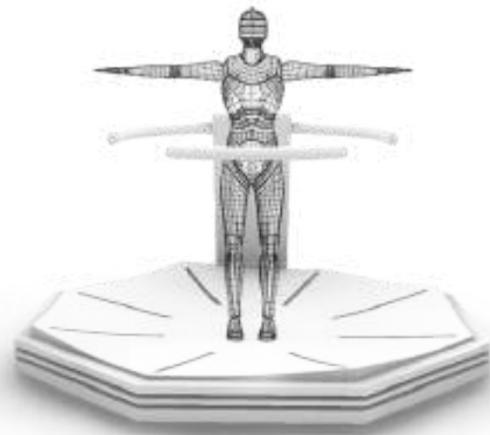
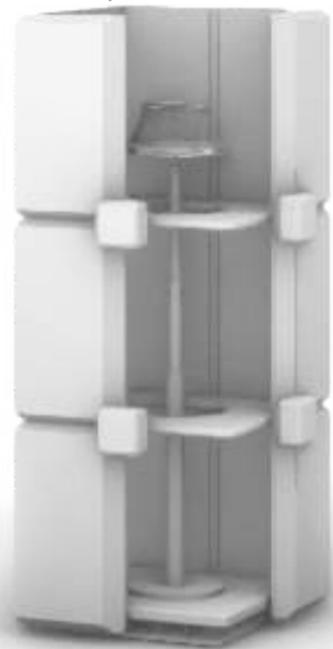
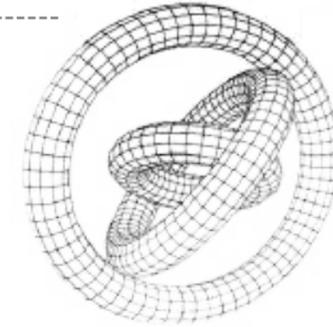
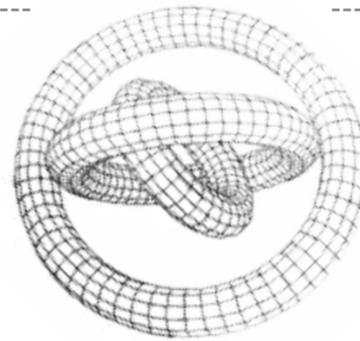
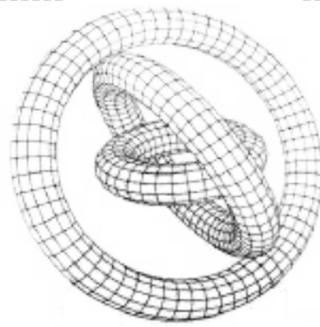
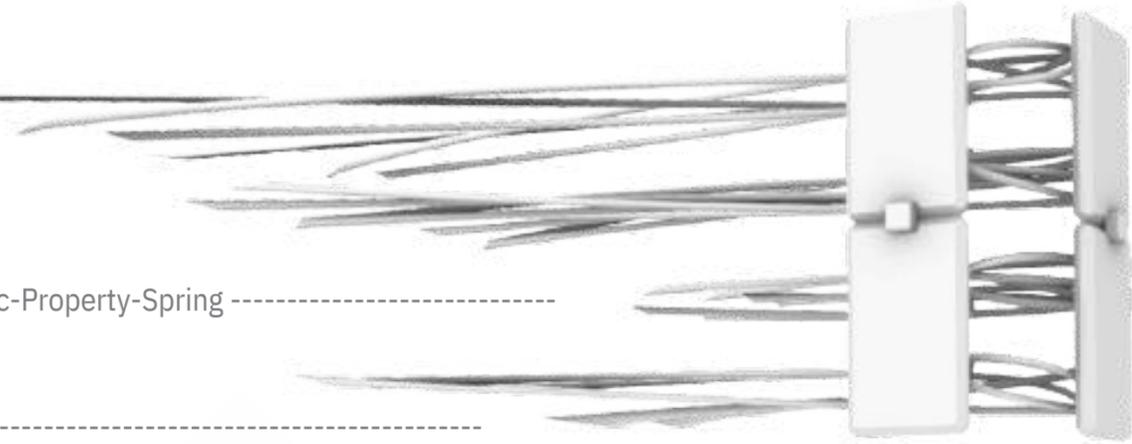
----- Shape -----

----- Motion-Force -----

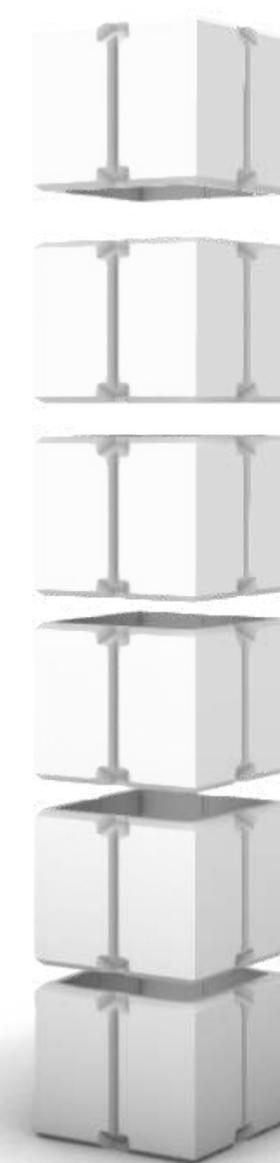
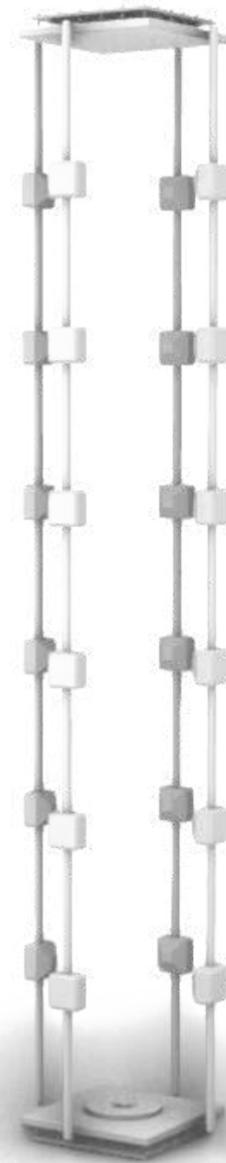
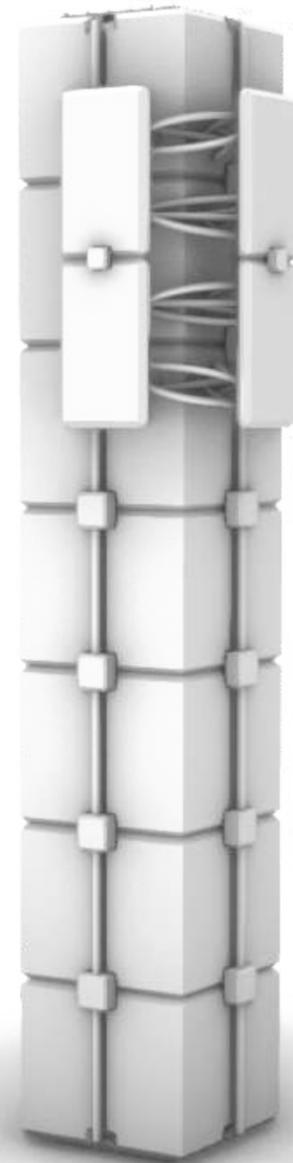
----- Vibration-Layer-Snapping-Texture-Volumetric-Property-Spring -----

----- Haptic-Robots -----

-----PROGRAM BAR-----



MATERIALS

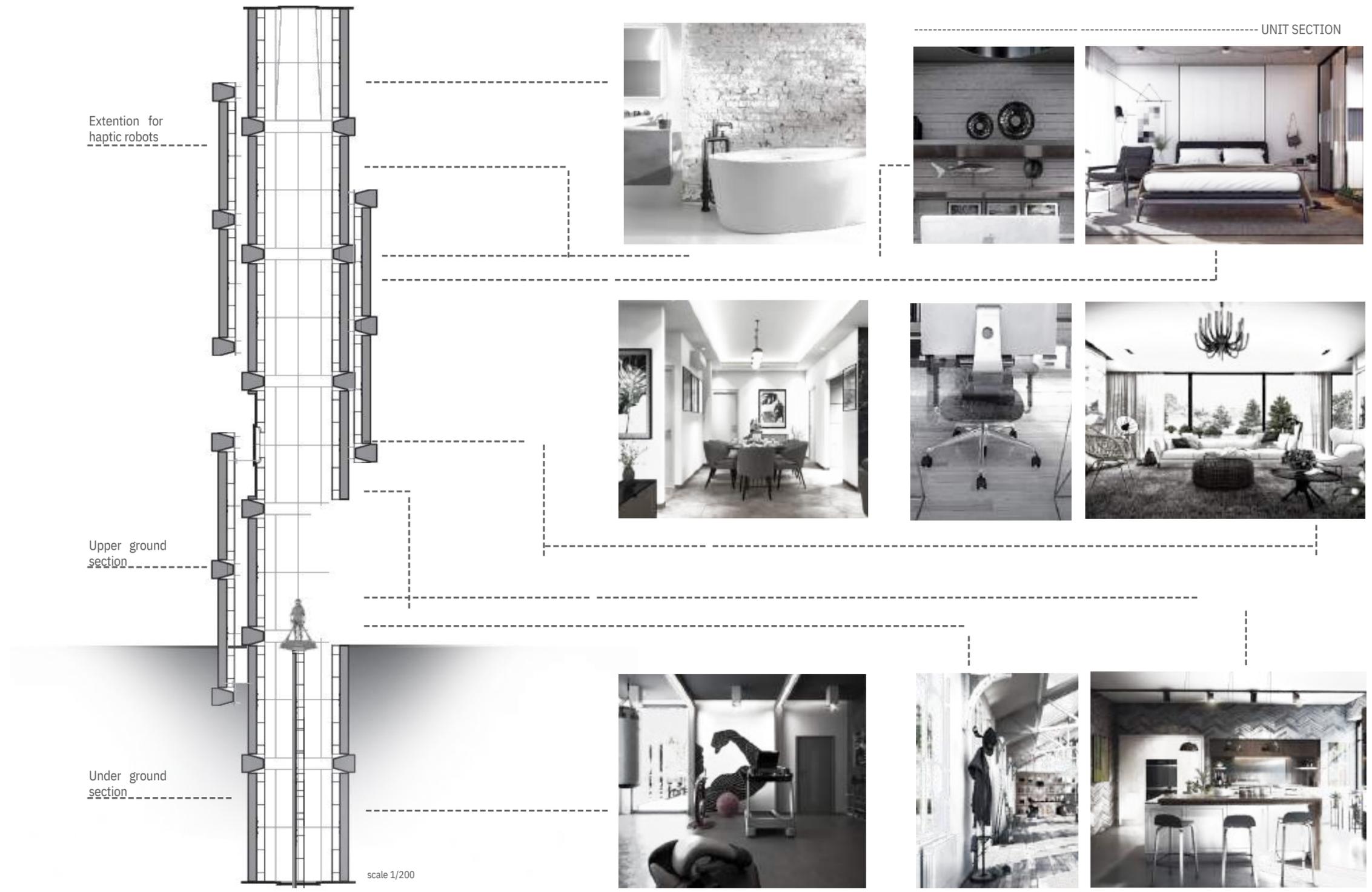


Haptic Robots are used to give the individual the feeling of every single material

Concrete modular cubes built vertically giving the structure the ability to hold compressions

Steel beams connected through rectangular joints mainly for holding the longitudinal structure with applying tension to all the possible stretches increasing the flexibility of the structure

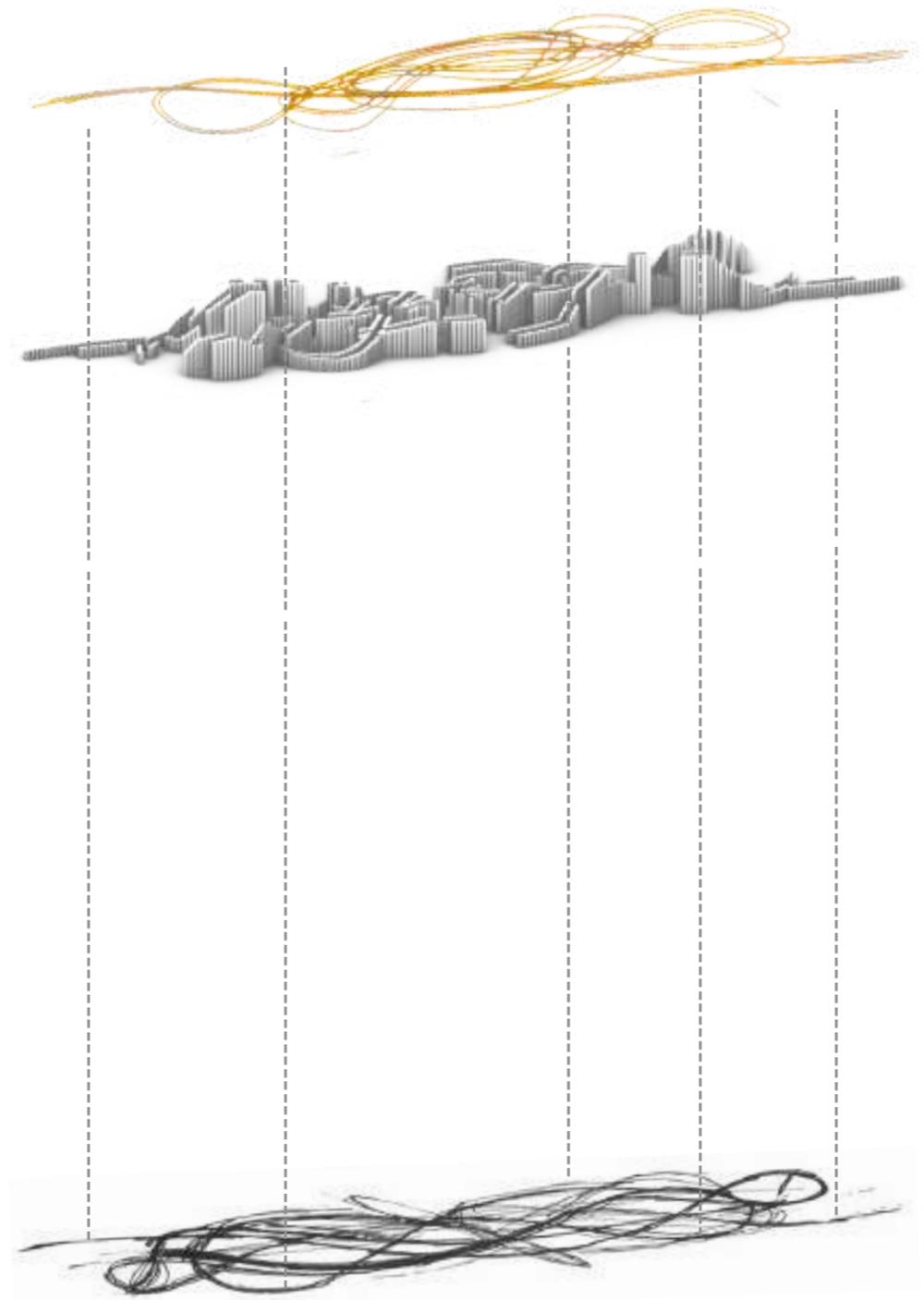
The combination of materials creates a perfect structure for a longitudinal unit to live in, plus it gives it a modular flexible way to add or remove depending on the population

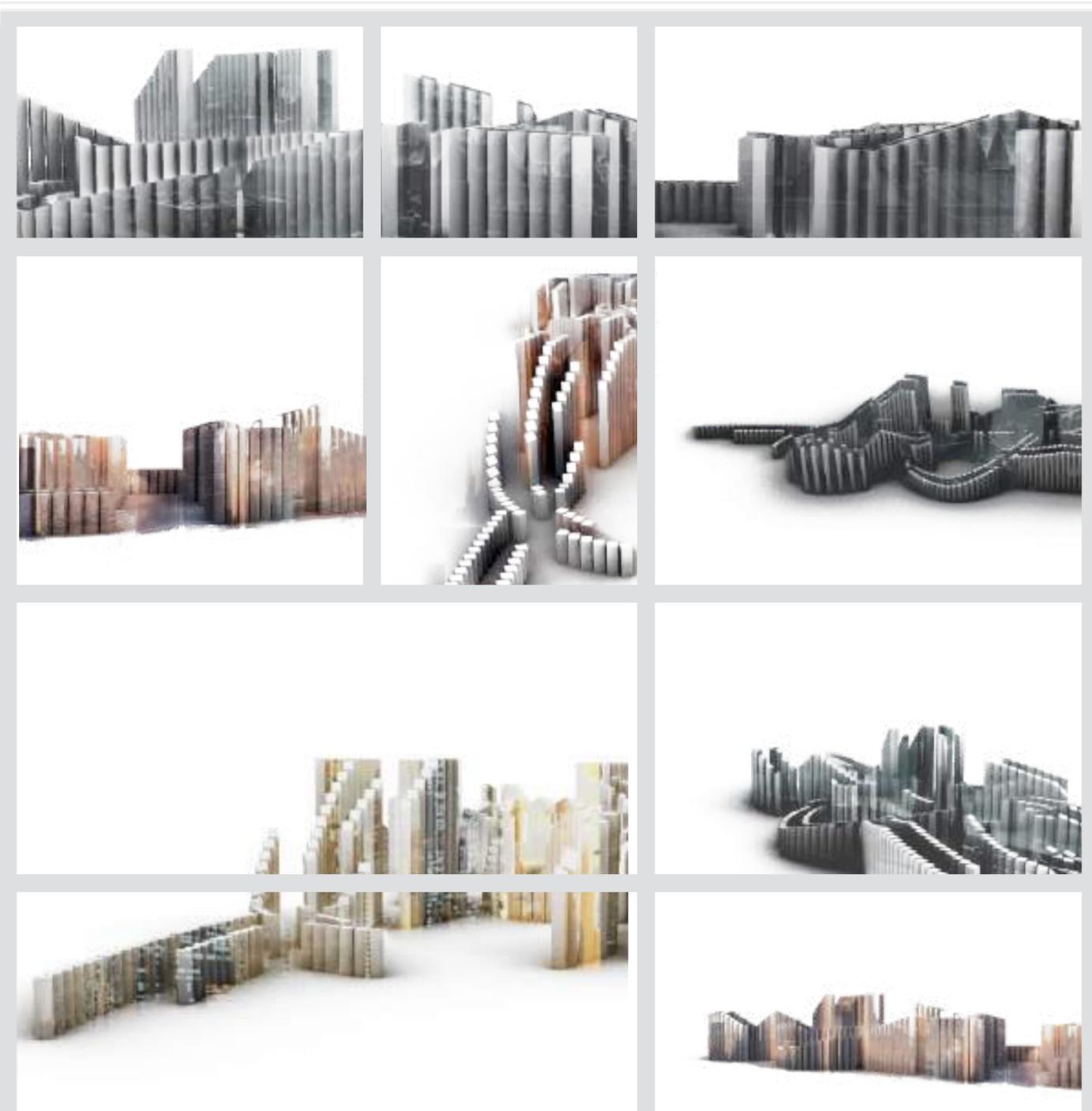




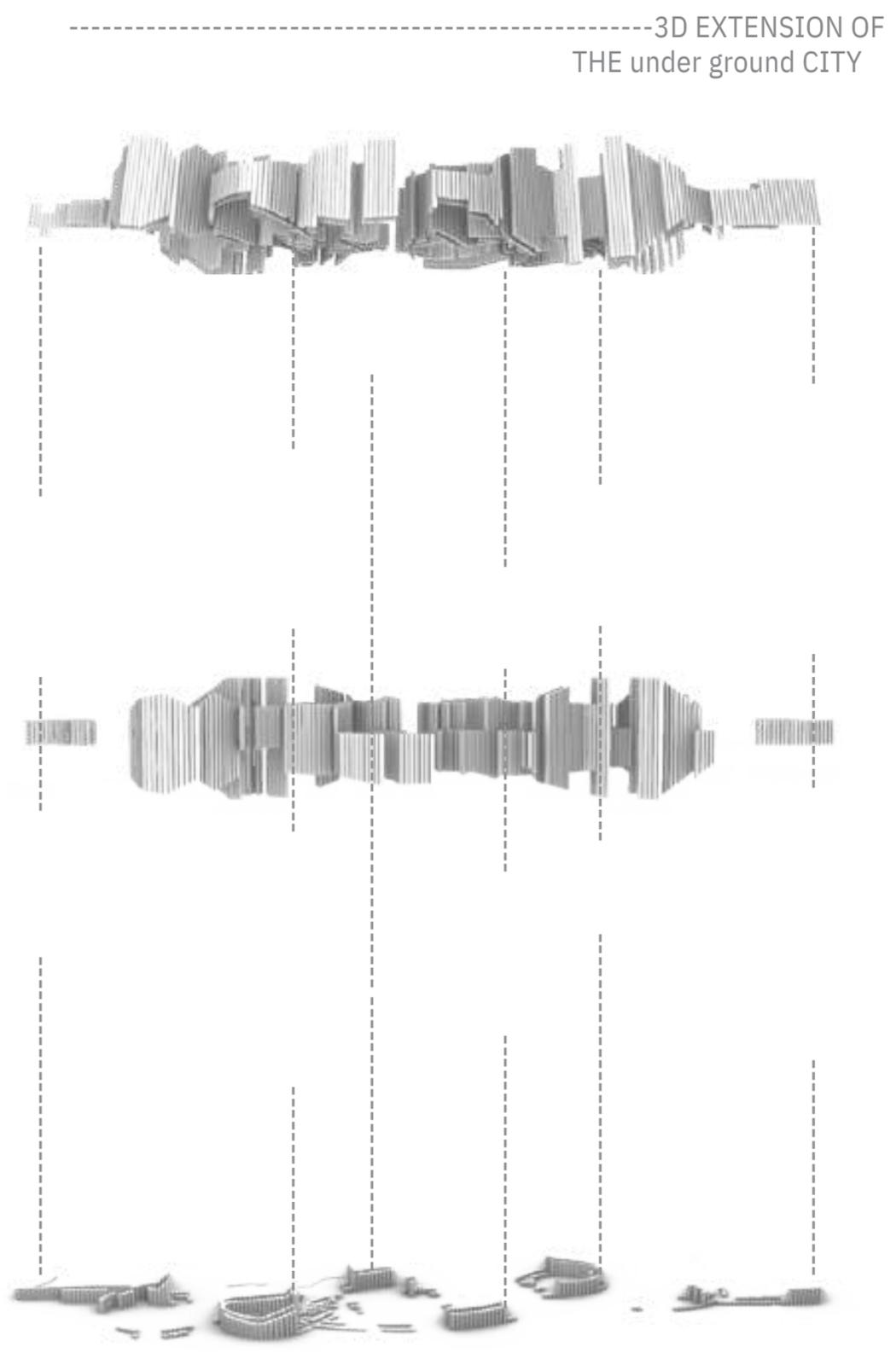
3 Out of 4 main reasons of orthogonal planning when designing a city are for MONEY purpose. Orthogonal plans are known since the romans, and the 1 out of 4 reason is that there is too many population. So beginning with the whole number of people and then cming up with a plan to fit all those population with no single consideration of an individual daily life or need so government can earn extra money. This is not the case in this city, following a unicursal path the city is build starting with finding the best way for and individual to live in the near future and multiplying this unit on the labyritnh path forming an overall city to live in.

3D EXTENSION OF THE CITY





The city can be divided to three main parts: Public spaces, Upper ground, and Under ground. Each part gives the individual a unique and practical experience for daily life. Public place based on Gothic structure to solidify the relation between users. Upper ground serves as a residential for every individual living within the city, and Under ground. Why Under ground? Why not... Citizens are living in a virtual reality with no need for windows and many other architectural element that limits our thought in designing spaces so being under or pper ground wont affect their life, plus it gives more stability for such a structure and more space for next generatio.



ELEVATIONS and SECTIONS



----- North Elevation



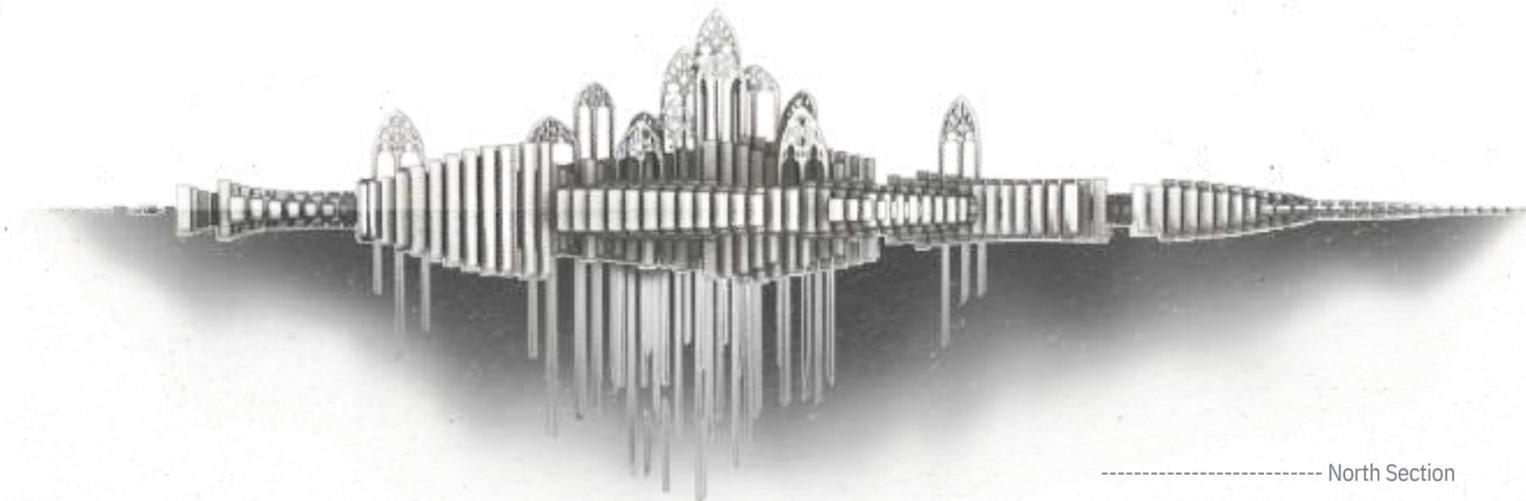
----- East Elevation



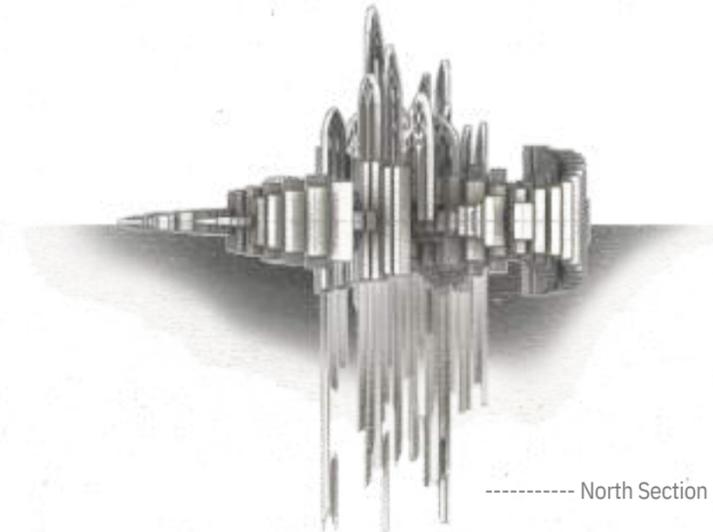
----- South Elevation



----- West Elevation



----- North Section



----- North Section

