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Poster design: possible future living space for overpopulated Hong Kong

by

Rong Dai

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Fine Arts in Visual Communication Design

School/Department of Design College of Art and Design

Rochester Institute of Technology Rochester, NY May 02, 2022

Committee Approval:

Adam Smith Date

Graduate Director of the Visual Communication Design, Undergraduate Director of the New Media Design/ Associate Professor/Chief Thesis Advisor

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Committee Member/Co-Director of the Visual Communication Design/Senior Lecturer/Thesis Advisor

Abstract

According to the official statistics of China, Hong Kong's limited land space has always struggled with overpopulation, and cheap cage homes quickly became an easy solution for many poor people. However, terrible and cramped living conditions not only make physical activities difficult, but also deprive residents of their basic housing rights. People can not envision what the living space will look like in the future, and they lack a sense of what a healthy community is.

This project intends to visualize a possible future living space through illustration and information diagrams, giving the audience who live in overpopulated countries an understanding of the parasitic architecture and modular pods. In the final solution, the whole poster uses abstract illustrations and intuitionistic infographics to innovatively show a futuristic modern living space with Hong Kong characteristics, uses color to convey a mood and atmosphere rather than depict a specific space. Through the data visualization of population prospects and ethnic groups, show the audience the ecological background of Hong Kong in the future. The positive and negative spaces created by different color scales make it form a visual contrast, and the decorative elements create an attractive look and flow to communicate a possible concept of future parasitic housing to the audience.

Keywords

Future, Information design, Illustration, Parasitic Architecture, Living space

Problem and Solution Statement

Problem of high cost of living and lack of housing force Hong Kong poor residents to share public space with a dozen people in the shabby "caged-homes". They have no idea what a healthy living space is. In order to show a possible future living space for overpopulated countries, I created a design poster that uses graphics and illustration to visually communicate complex features and informational data regarding parasitic architecture for modular housing.

Essay

Hong Kong is among the smallest cities around the globe with a total land area of 1,106 km2. The small land area and a ballooning population have induced an overpopulation problem in the city. The population density has progressively increased with the continued population growth. Currently, the population density stands at 7,140 persons per square kilometer. The main product of the overpopulation problem in Hong Kong was the emergence of sub-divided units (SDUs)², also referred to as cage homes. The average area of a cage home per capita is 5.8 square meters. By the end of 2010, according to official figures, approximately 80,000 people were living in inadequate housing, such as cage homes, around the city. The median monthly rental payment for the households in these SDUs is HK\$4,200. The defining characteristic of the cage homes was the poor living conditions.³ The living spaces were so small that they made it difficult for residents to walk around. These spaces did not allow electric appliances and other furniture apart from a bed. The other major housing-related problem was poor ventilation. Most cage homes are designed with a single window. Apart from the housing-related problems, Inadequate waste disposal systems leave rubbish sprawling around cage homes.

The cage homes was a residential area for immigrants, these units currently house ex-offenders, people suffering from mental illness, drug abusers, the working power, the unemployed, and other marginalized groups. They had no idea what their living space will look like in the future, and they could not imagine that parasitic architecture could be a possible solution for their future housing. Therefore, through illustration and information design, I communicated an idea of a new living space, and expressed the design in an interesting, eye-catching way. Illustration is an effective way to represent the future lifestyle in a tangible, easily relatable way, as well as providing a fresh perspective on doing recreational activities in the living environment, or clarifying a complex future living space. Illustration also helps to convey some particular scenes. For example, I used a close-up view to draw an elderly person playing mahiong, and another perspective view to draw other scenarios. In addition to depicting community life, I created another poster that visually illustrates modular housing, showing what the residents' personal living space is like. In order to show the living space that was completely different from the cage home, I drew the explosive view of the modular pod to give people a clear diagram, including the size of the modular pod, the distribution of basic furniture in the interior space. I depicted how modular housing forms a connection with parasitic architecture in comic form. What more, I brought data visualization to enrich the creativity of the poster as well as visualize the map design of overpopulated countries. It was an efficient way of communicating when the population data or proportional distribution information was numerous. By using the visual elements like charts, graphs, and maps⁴, the poster showed a good visual weight to balance out the relationship between parasitic housing,

¹ "Hong Kong Population (Live)." Worldometer. Accessed April 26, 2022.

https://www.worldometers.info/world-population/china-hong-kong-sar-population/.

² Society for Community Organization. "Urban Age". 2022.

Urbanage.Lsecities.Net.https://urbanage.lsecities.net/essays/hong-kong-s-housing-shame.

³ "Urban hell: A look inside the cage homes of Hong Kong – Four Facades" Four Facades, 6 Sep. 2020.

https://fourfacades.com/urban-hell-a-look-inside-the-cage-homes-of-hong-kong/

⁴ "The Data Visualisation Catalogue" *The Data Visualisation Catalogue*, https://datavizcatalogue.com/Accessed April 26, 2022.

data, shapes, and living space. For the map design, I searched the satellite map of Hong Kong, following the style of the whole poster to create a flat map with a dark background and white lines. To provide more map information, in addition to the text description of the location, I also recorded its latitude and longitude.

The appearance of the future living space was inspired by parasitic architecture⁵ and container urbanism⁶. Parasitic architecture refers to the art and science of attaching a building to an existing larger structure. In reality, This concept would provide many elements to people's lives, from warmth to security, protection and even a sense of well-being. Like parasitic architecture, container urbanism would also provide numerous solutions to cities with housing problems. It arose from the idea of using shipping containers to create commercial and residential spaces. Multiple containers can also be combined to create multilevel residences. On this basis, I illustrated many modules overlayed together and placed them in different sizes and shapes. From the design perspective, I used isometric illustrations to show the architecture. It creates a visual representation of a three dimensional object in two dimensions. With an isometric illustration, many kinds of complicated details could be displayed in a way that is easy to visualize and understand.

In order to simplify the picture complexity, I used a simple and clean layout and linework to complete the whole poster. To ensure the unity of the poster, I searched for the color choice that could represent the Hong Kong characteristics, and selected the colors from the Hong Kong national flag. Keeping the color systems limited to the low saturated colors, the information prevented visual overload and kept the design easy to understand for the audience. To create an appealing sight and flow, my layout revolved around the giant parasitic building, from which it extended to illustrate modular architecture. I also used decorative elements to help people understand the illustration of space design, such as text boxes and descriptions. They were used to represent integration of architecture, space, climate, and common plants in Hong Kong.

Conclusion

When looking at other existing design cases in the market, there were similar cases in real life, most of them only depicted an unrealistic and cool architectural appearance, their ideas did not provide enough information and help the audience understand the concept behind it. Therefore, based on the solution I put forward, I created this poster to foster an efficient and effective understanding of the parasitic housing and module pods, also providing the audience information of future density and an attractive future living space. The form of illustration allowed the architectural concept to be effectively represented, and my design made stronger connections to the future living and reinforces people's knowledge of it.

If I could push this project further in the future, I hope it can expand beyond a flat poster and become more dynamic, such as making an interactive page for the audience to see the changes between current cage homes and possible future living space.

⁵ Lindsay, Calum. 2018. "Parasitic Extensions To Paris Apartment Building Could Reduce Energy Consumption". DEZEEN X MINI LIVING.

https://www.dezeen.com/2018/03/14/video-malka-architecture-plug-in-city-75-parasitic-extensions-paris-reduce-energy-consumption-movie/.

⁶ Schwarzer, Mitchell. 2013. "The Emergence Of Container Urbanism". Places Journal, no. 2013. doi:10.22269/130212.

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Society for Community Organization. "Urban Age". 2022. Urbanage.Lsecities.Net.https://urbanage.lsecities.net/essays/hong-kong-s-housing-shame.

"Urban hell: A look inside the cage homes of Hong Kong – Four Facades" *Four Facades*, 6 Sep. 2020. https://fourfacades.com/urban-hell-a-look-inside-the-cage-homes-of-hong-kong/

"The Data Visualisation Catalogue" The Data Visualisation Catalogue, https://datavizcatalogue.com/Accessed April 26, 2022.

Lindsay, Calum. 2018. "Parasitic Extensions To Paris Apartment Building Could Reduce Energy Consumption". DEZEEN X MINI LIVING.

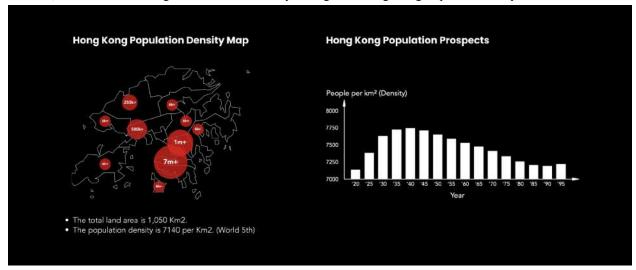
https://www.dezeen.com/2018/03/14/video-malka-architecture-plug-in-city-75-parasitic-extensions-paris-reduce-energy-consumption-movie/.

Schwarzer, Mitchell. 2013. "The Emergence Of Container Urbanism". Places Journal, no. 2013. doi:10.22269/130212.

Appendix A: Expanded Thesis Defense Presentation

1. Problem validation and research

Hong Kong is one of the most densely populated countries in the world. According to the official figures Population of China, we can see the rising trend of future density through the Hong Kong Population Prospects.



References: https://www.worldometers.info/world-population/china-hong-kong-sar-population/

Due To high cost of living and lack of housing in Hong Kong, many poor people are forced to live in the shabby "caged-homes" and share public space with a dozen people. The costs for a cage home can reach up to \$300 a month, it's an extremely high price to pay for just 50 square feet. The conditions of these cage homes are barely humane. It's cramped and dirty. Such space is only suitable for people to take a rest, and people have no space to do any additional recreational activities.

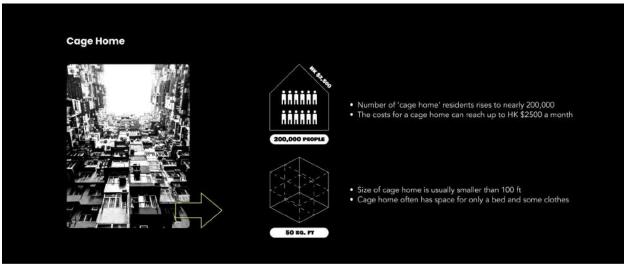
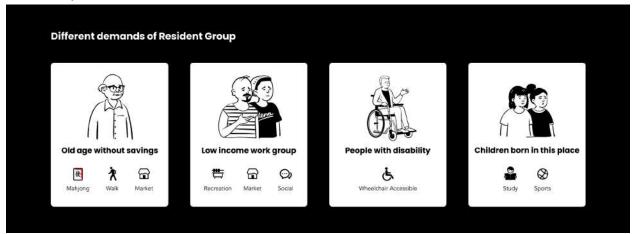


Photo credit: https://www.davidleongphoto.com/blog/hong-kong-photographers-paradise
References: Society for Community Organization. "Urban Age". 2022. https://urbanage.lsecities.net/essays/hong-kong-s-housing-shame.

Generally, the residents are low-income people, including the elderly without savings, some low-skilled or unskilled laborers, disabled people and people who grow up in the cage home. Different resident groups have different

demands and desired activities. For example, the elderly want to play mahiong. Some people may want to have a barbecue. From a design perspective, a livable community should accept different lifestyles, so the final design should satisfy the residents' demands.



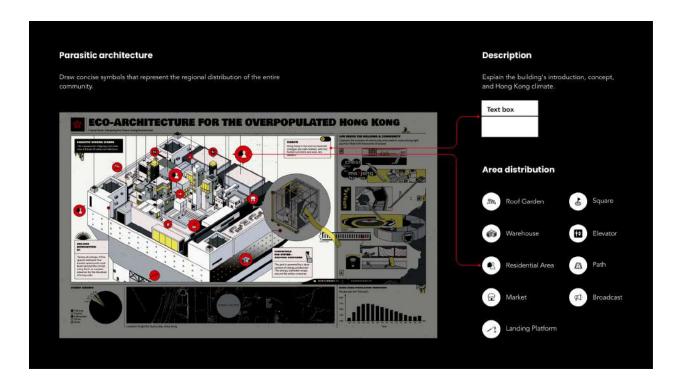
2. Solution validation and research

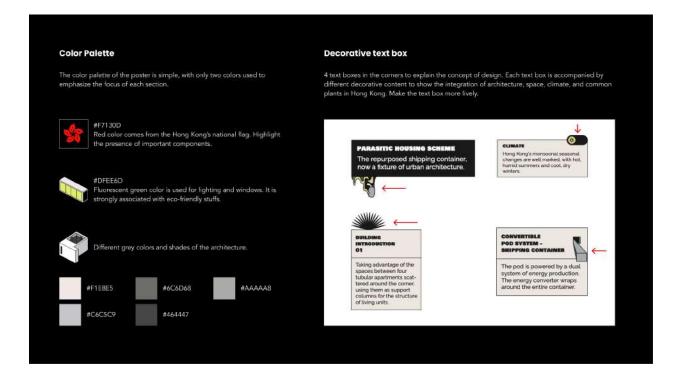
My final proposal for living space is to create an eco-friendly parasitic architecture, add sustainable living pods that can be attached to existing large structures, making the whole place seem like a massive community. This approach is cheap to construct, it doesn't waste the space between each building, and extends the floor plates of the existing apartments. A healthy community should provide opportunities for people to be physically active and socially engaged, improving the physical and mental health of its residents.



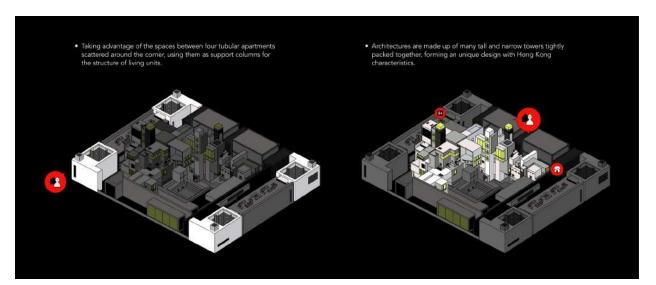
References: https://www.cnn.com/style/article/parasite-architecture/index.html#:~:text=Small%20packages.congestion%20builds%20in%20urban%20areas.

Details of the main body. Simple lines are used to draw symbols that represent the regional distribution of the entire community, a strong red color highlighting the presence of symbols. Draw concise symbols that represent the regional distribution of the entire community.



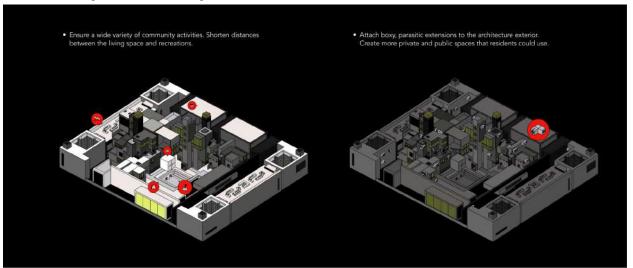


The arrangement of the main body of living buildings was inspired by Kowloon walled city. This massive community is like many tall and narrow buildings tightly packed together, forming a unique design with Hong Kong characteristics. In order to make the whole place seem organized, I used 4 tubular apartments scattered around the corners, enclosing the main living space in the center of the community.



References: https://www.atlasobscura.com/articles/kowloon-walled-city

Ensure there are enough spaces to do a wide variety of recreations. Distinctive attitudes in the use of the space, allow residents to use the rooftop of every separate building. The living pods are attached to the exterior of parasitic architectures. Each pod would not only add an enclosed extension to the existing apartment, it would also offer the residents of the apartment above an open terrace.

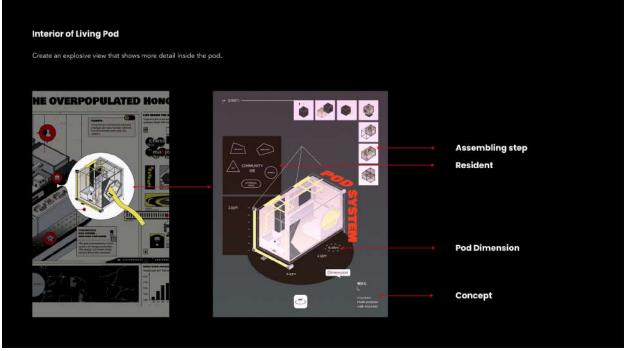


 $References: \underline{https://www.dezeen.com/2018/03/14/video-malka-architecture-plug-in-city-75-parasitic-extensions-paris-reduce-energy-consumption-movie/$

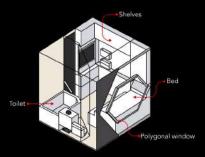
Details of the pod interior. A bubble extends to the right. Show people an exploding view of the living pod. In order to improve the living conditions and provide more private space for each resident, I got inspiration of eco-friendly shipping container material to create the pod, the pod would be fabricated off-site, then attached to parasitic

architectures, it's like being "plugged" into the architecture's exterior.

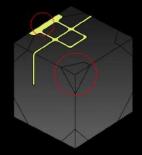




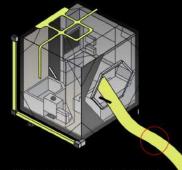
The explosive view of living pod



To fit the basic furnitures into the pod, the exterior and interior are drawn as **modules**. Compared with traditional square window, a **polygonal window** can bring a new feeling.



Draw geometric shapes on the corners to make the energy efficient system looks **mechanical**. The gradient and green color represent the energy flow.

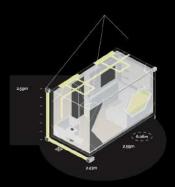


The framework details are presented in the form of an **explosion diagram**. The yellow bar from the inside out, lead auidence's sight to the right side of poster.

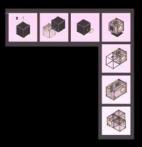
Poster of Pod



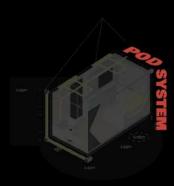
Use different **geometric** shapes to represent different resident groups, it shows a wide diversity inside the community.



Write dimensions around the pod, circle this pod's dimension with dotted lines.



This set of illustrations shows pod assembly features in the form of **little comics**. This arrangement fills in the gaps in the poster.

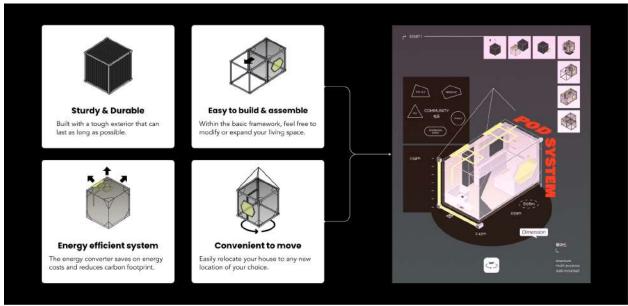


I placed the font at a special angle, it's



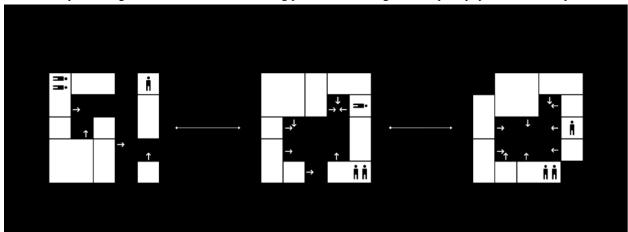
These texts are decorative, allowing people to capture the main message at the first glance, visualizing the text.

One of the reasons to choose a shipping container is because the living pod, built with a tough exterior, can last as long as possible. It's durable, easy to build and assemble. Based on this idea, I made another poster to show what this living pod looks like, the dimension of the pod, how to assemble your personal pod from a shipping container to a pod that you can live inside. Also, I drew some geometric shapes on the corners to make the energy efficient system look mechanical. The gradient and green color represented the energy flow and the built-in energy efficient system to ensure the living standard.



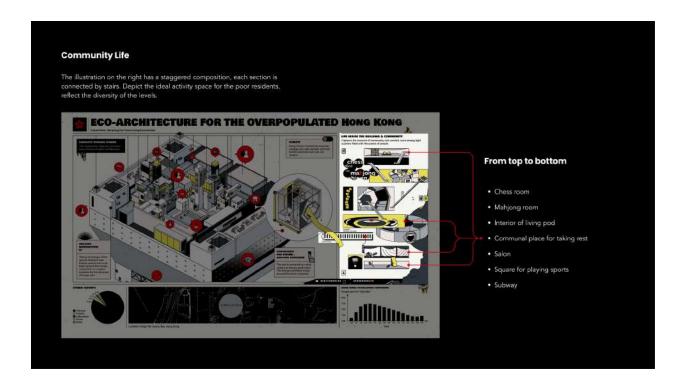
References: https://www.sulexinternational.com/container-home-pros-cons/

Another benefit for using a shipping container is Within the basic framework, residents can feel free to modify or expand their living space. residents can easily relocate their living pod to any new location of their choice. That will form varied pod configurations. The number of living pods can be changed to adapt to population mobility.

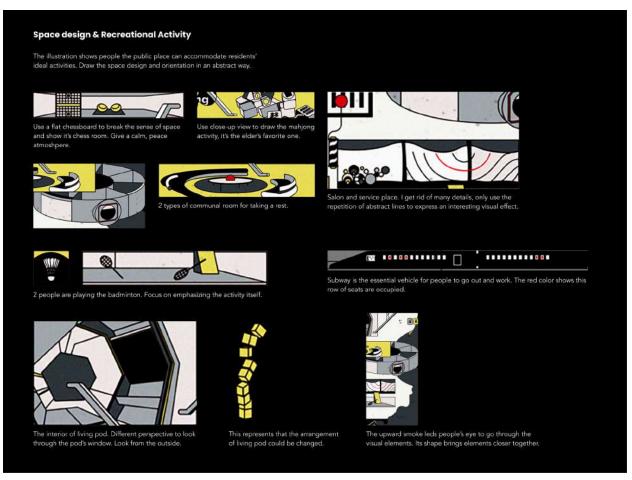


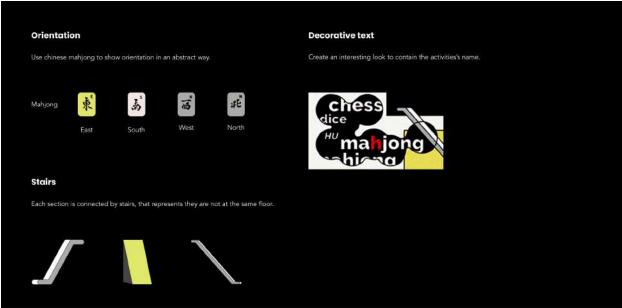
 $References: \underline{https://www.sulexinternational.com/container-home-pros-cons/} \\ References: \underline{https://placesjournal.org/article/the-emergence-of-container-urbanism/} \\$

Details of community life. The illustration on the right had a staggered composition, each section was connected by stairs. Depicted the ideal activity space for the poor residents, reflecting the diversity of the levels.



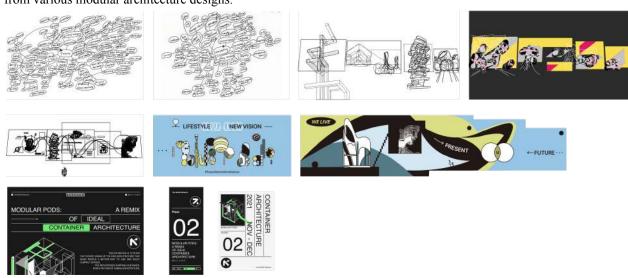
The illustration showed people that the public place can accommodate residents' ideal activities. Drew the space design and orientation in an abstract way.





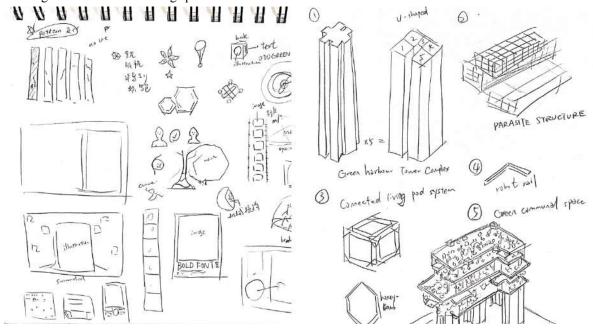
3. Explorations and iterations

Initially, my idea was to envision a future architectural appearance and a new way of life. Created a meaningful visual and informational hierarchy in the built environment, exploring audience viewing interactions, experiences and considerations. I brainstormed the keywords of "future" and "storytelling". I designed different projects to investigate what the future of the living environment will look like. I gave the viewer some predictions of what's going on in the next future, how the lifestyle changes. Viewers can explore the amazing diversity the future holds for us. During the exploration, I found illustration to be an effective way of conveying information. I also got inspiration from various modular architecture designs.

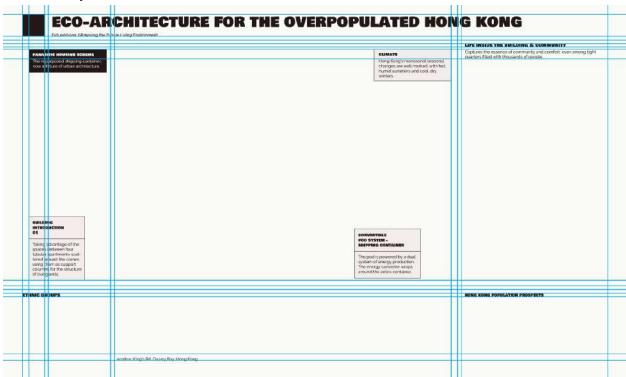


Initial sketch, I illustrated some visual elements and the concept of architecture. I started to draw some visual elements to develop a poster design, including thinking about the layout of the poster and exploring the future living space. The previous sketch included the concept of parasitic architecture, and the illustration was inspired by existing Hong Kong architecture. I originally planned to design some future living spaces for different overpopulated countries, so each poster would indicate the number. I also considered how the new living space would affect people's behavior. I randomly drew some modules and put them together without thinking about the

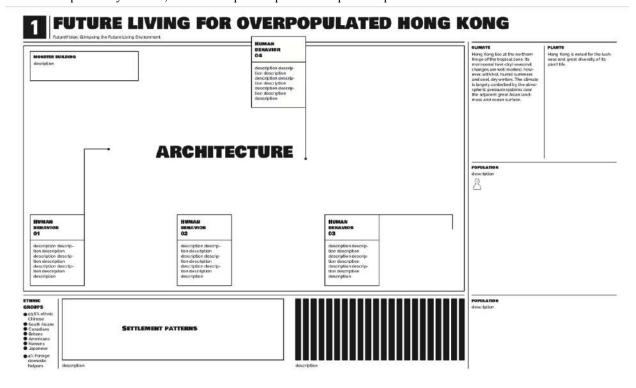
meaning behind the future living space.



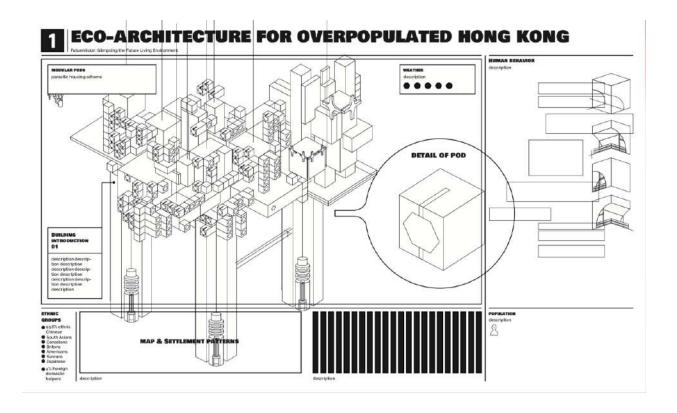
Grid system. Breaking down a single design space into a grid to help position individual components in ways that can catch the eye.



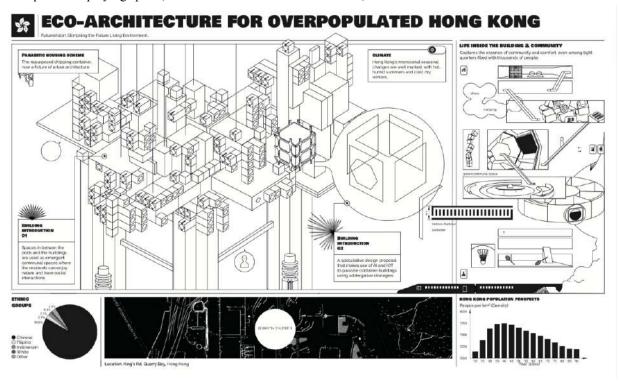
Decided the poster layout first, the most important parts took up more space.



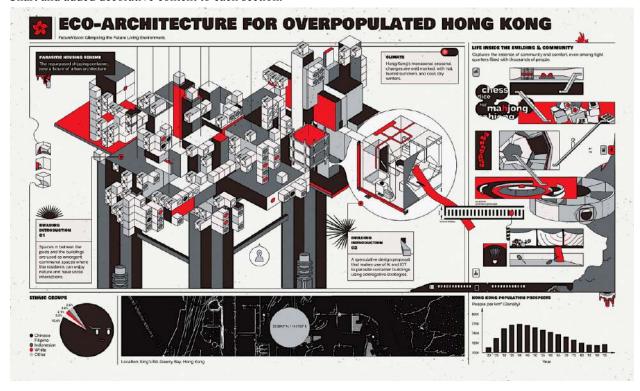
Decided the visual style of the poster. Filled in the element of parasitic architecture. Because the occupied area was limited, the initial idea was to make the community high up. I tried various data diagrams, and finally I used pie charts and bar charts. For the map design, I chose King's Road because it had traditionally been an industrial and residential area. I used Photoshop to edit an image photographed by the satellite. I added the longitude and latitude of this place, to show this is a Hong Kong map.



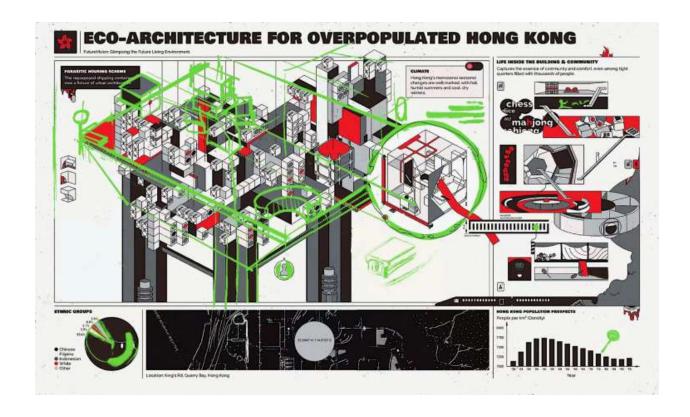
Illustrated the life inside the community on the right side of the poster. Provided space for elderly to play mahjong. Some squares for playing sports, and took a rest in the common room, etc.



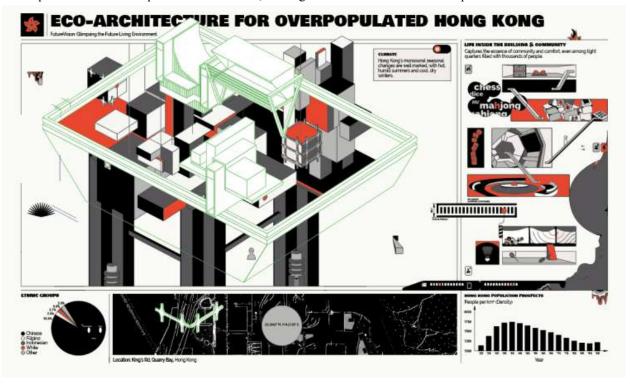
Color the poster, refined the subtle details and the data visualization of ethnic groups and population prospects. I filled the rest of the poster, and started to stylize the whole poster. For example, drew cartoon-style faces on the Pie Chart and added decorative content to each section.



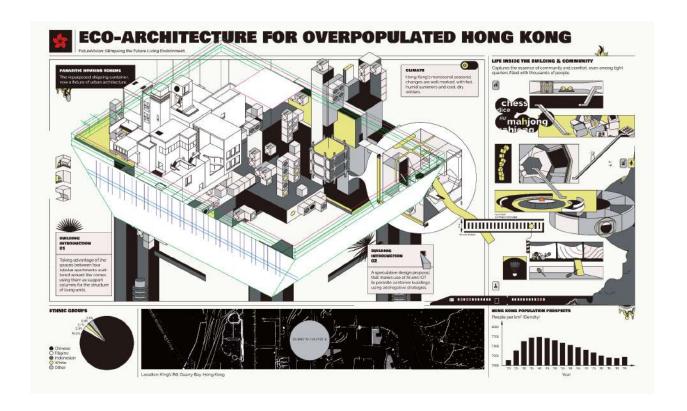
Redesigned the architecture, making it more reasonable. Enriched the whole poster. In order to better show the influence of parasitic architecture on future living space, I tried to change the main part of the poster. The original illustration could not fully convey its characteristics and possibility. I changed the color palette, because I wanted to show this living space was healthy.



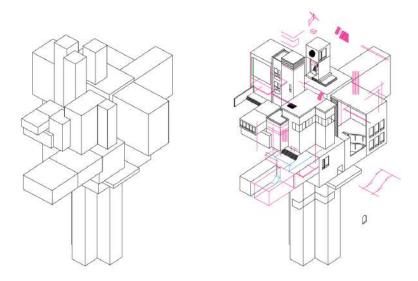
Developed the new base of parasitic architecture, making more modules to form a unique combination.



Continue redesigning the architecture, make it more reasonable. Changed the color palette.

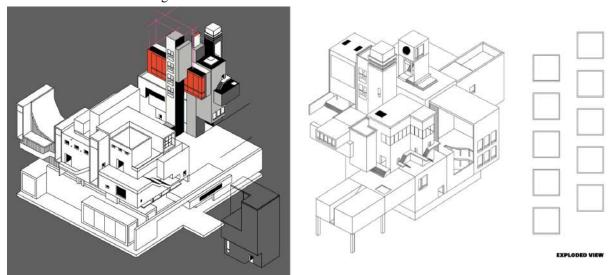


Added some stairs, fences, roofs, decorations, etc.

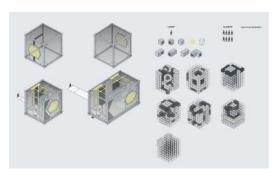


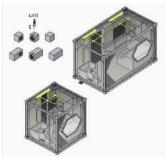
Assembled the new buildings and made them connect together or tightly pack together. Continued iterations. I took inspiration from Kowloon Walled City. The whole architecture is like many tall and narrow buildings tightly packed together. So I drew more modules to make this living space more convincing. I continued to add stairs, fences, roofs,

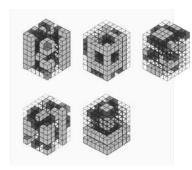
decorations to enrich the design of architecture.

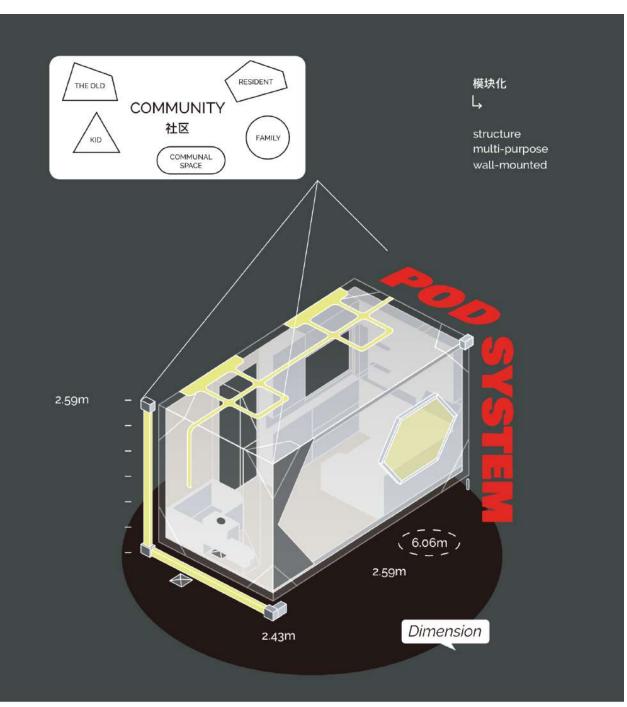


I changed the way I drew the living pod, the new design was more complicated. I kept changing the color of the pod and started the sketch of the secondary poster. I didn't keep trying different boxy combinations, I found that using flat graphics was better than building a 3D model.

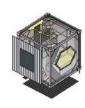




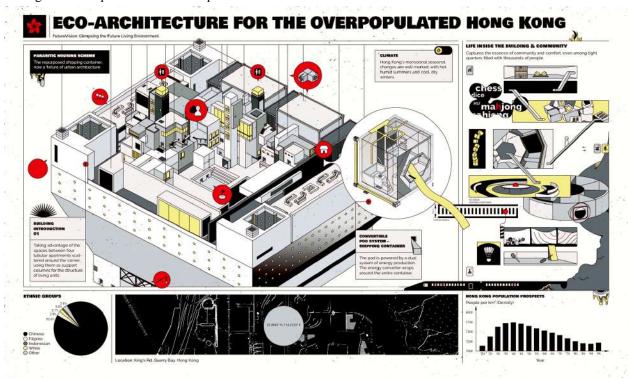


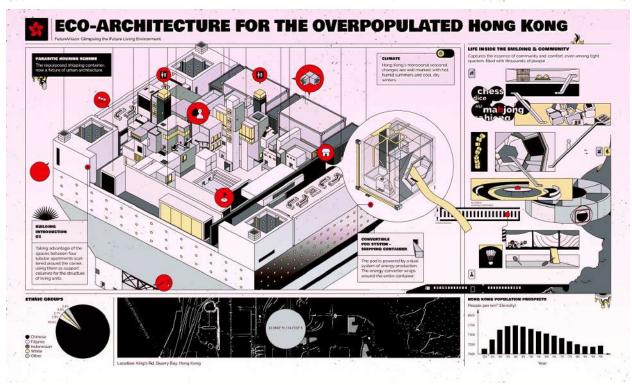


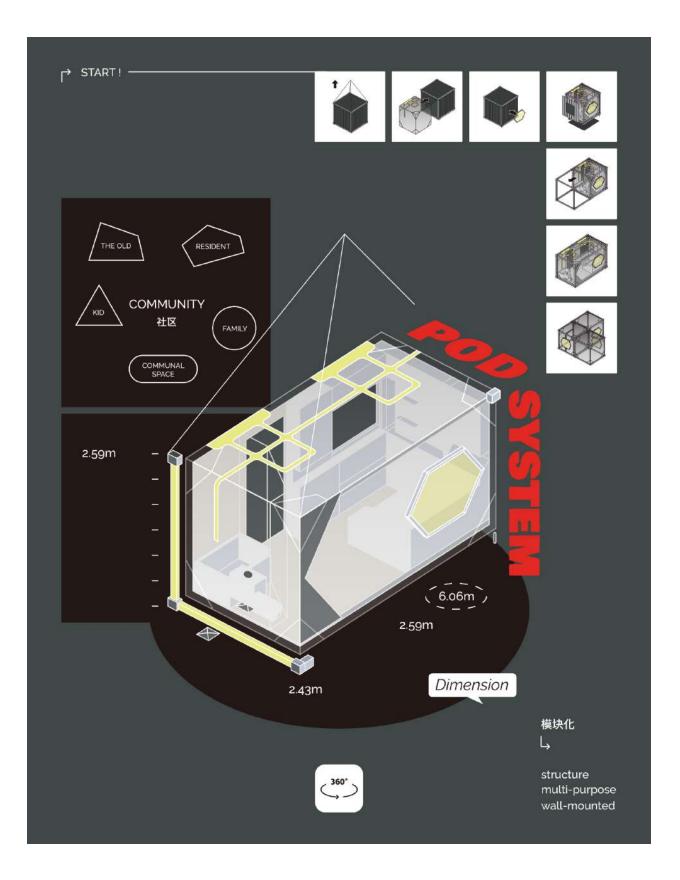
Varied Pods Corrigurations



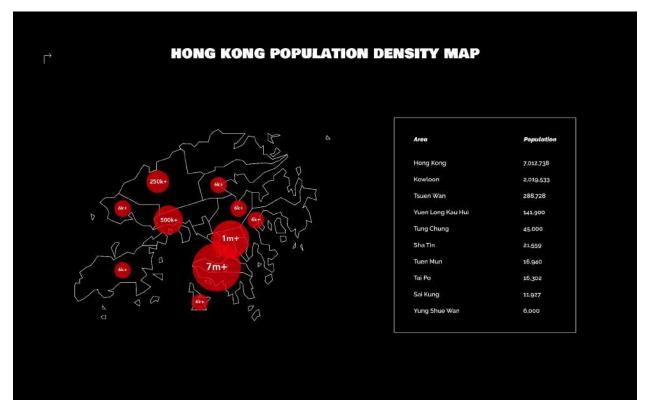
The title font was changed, I chose another bold typeface, it was not as flat as the previous font. I continued to improve the overall atmosphere of the poster, the same pink gradient was applied to the pod poster to achieve consistency. The secondary poster layout appeared to be haphazardly placed, and I put the arrangement of assembling steps in an organized composition. I mixed the pod's shadow with the black block behind to avoid making the whole poster look too complicated.





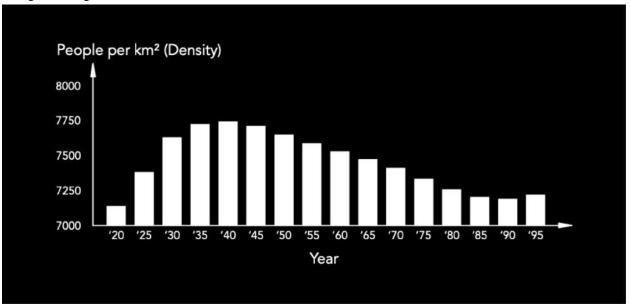


4. In-depth diagrams and summaries of use cases, informational charts



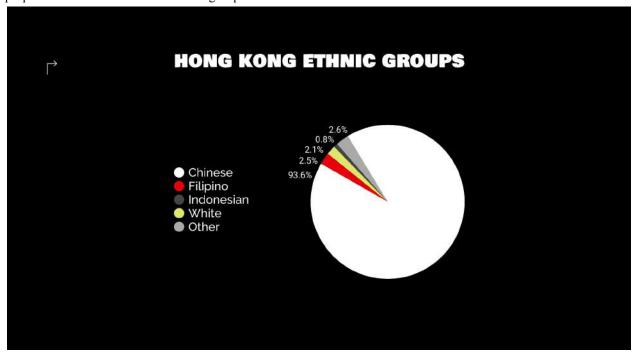
Hong Kong Population density map. References: https://worldpopulationreview.com/countries/hong-kong-population

The Bar chart showed discrete, numerical comparisons across years. We could see the rising trend of future density through this diagram.



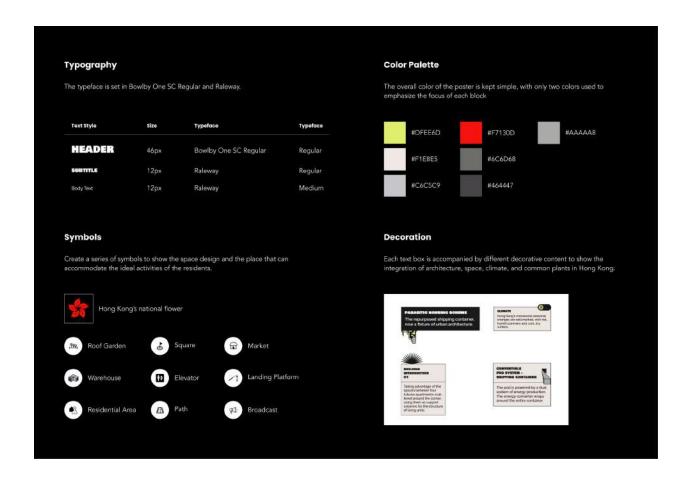
Hong Kong Population Prospects. References: https://www.worldometers.info/world-population/china-hong-kong-sar-population/

Hk is an International region, many foreigners stay here. Pie charts are ideal for giving people a quick idea of the proportional distribution of the ethnic group.

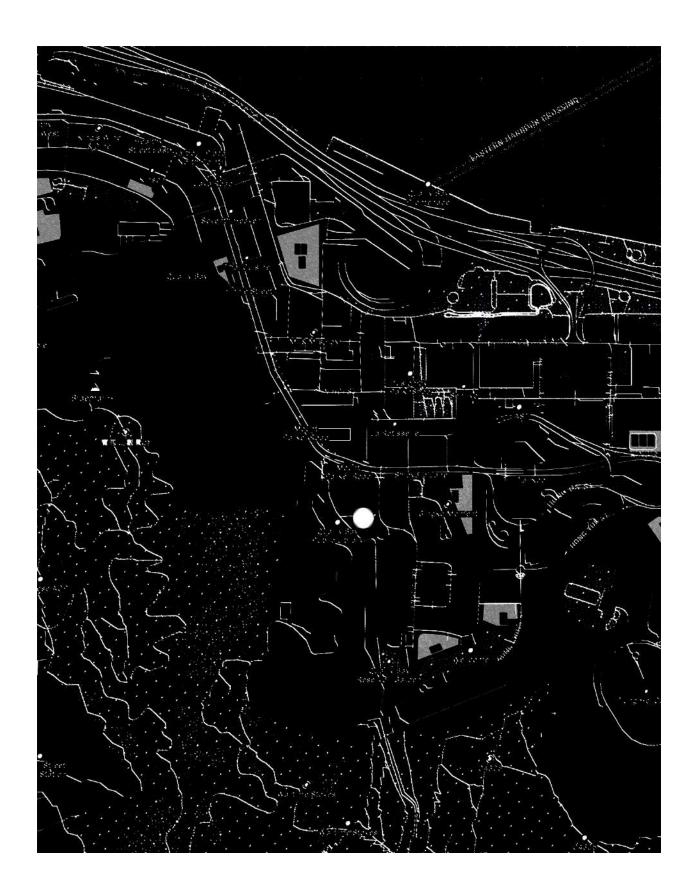


Hong Kong ethinc groups. References: https://www.worldometers.info/world-population/china-hong-kong-sar-population/

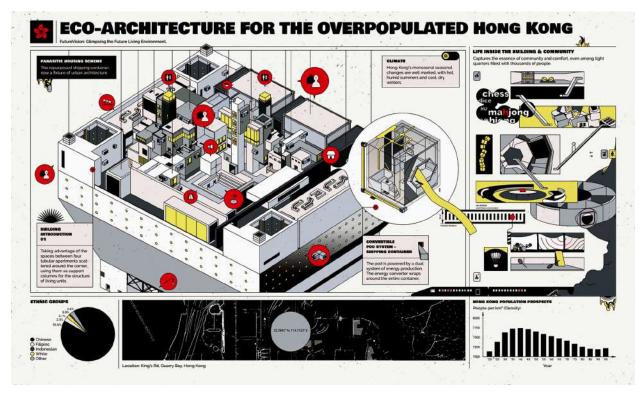
I made a collection of visual components.



I chose King's Road because it has Traditionally been an industrial and residential area. I used photoshop to edit an image photographed by the satellite. I zoomed in and stylized the map.



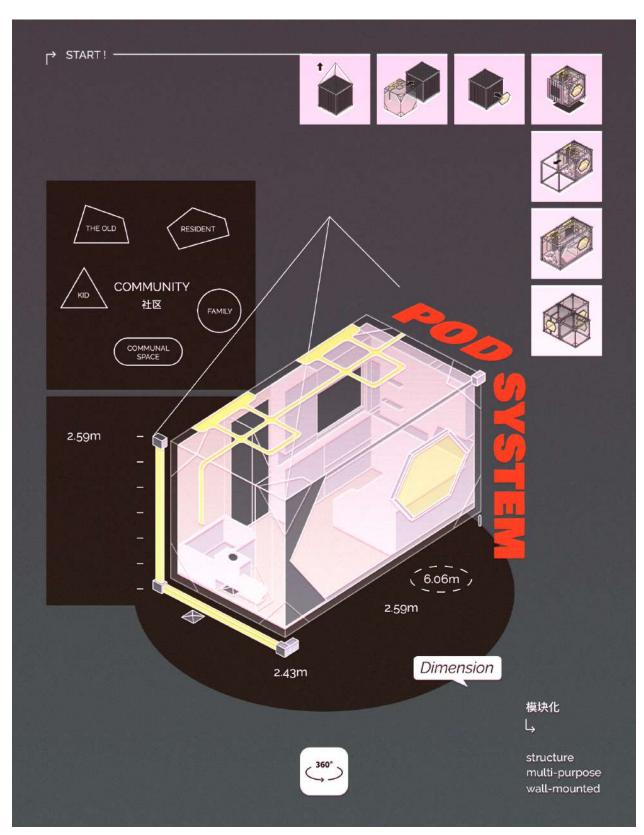
5. Visual design and animation



Main poster



Promotional video (still form)



Poster for living pod

6. Evaluations and feedback

After the presentation of the whole project and the intention behind it, people were surprised to see the completeness of the living pod and appreciated the visual representation of the poster. Some people hoped to know more about why Hong Kong's population would increase so much in the future, but this is not very important to the core theme of the project. For the final solution, some hoped to see more visual design about the interior of the parasitic building, or added 3D models to make the implementation more intuitive for Hong Kong's poor people. It is pointed out that it is necessary to form more resonance between the content of the preliminary investigation and the poster, for example, how do residents act in the community. The map design could be clearer.

7. Summary

To sum up, this project provided a vision for the future living space. I used information design and illustration to visualize a possible future living space for the audience who live in overpopulated countries and are unfamiliar with parasitic architecture and modular pods, giving them an understanding of the parasitic architecture and modular pods. Based on parasitic architecture, I managed to pack the activity into the illustrations, drawing the life inside the community in an abstract way. In the final solution, the whole poster had a good visual effect. The positive and negative spaces created by different color scales make it form a visual contrast and make the whole picture more three-dimensional. Most of the red color was applied to the main body to make people's eyes more focused on it. Vertical lines in the main body create a visual guide, and the position of text boxes does not block important visual elements. The visual elements blended well with the poster texture to create an attractive look and flow, especially the extended bubbles and yellow bars. The data visualization formed a good visual weight. It's simple design contrasts with the community life section. The second poster showed the modular housing of the future in a succinct and intuitive way. Red title grabs people's attention and avoids too much text to read. On this basis to show people how to balance the space design of innovative parasitic architectures and container living pods, and provide entertainment space for residents. I also used simple line work to create a series of symbols to show the area distribution of the entire community, and strong red color highlights the presence of symbols. During the design iteration, the grids system helped to prioritize components, making primary information and visuals more attractive and clear to the viewer. To further demonstrate the positive impact of this project, the entire architectural appearance was designed to be more habitable, so people could better understand its design concept. More surveys of residents are needed if the scheme is to be widely promoted.

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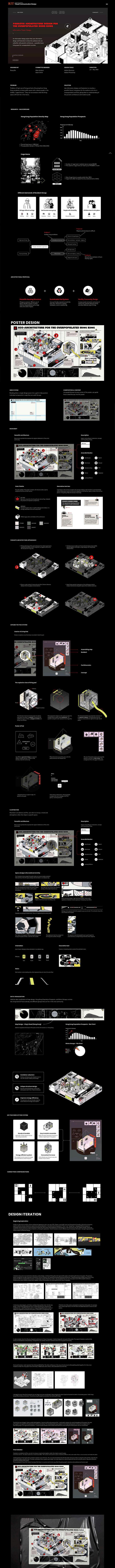
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Appendix C: Semplice Screenshot

Semplice link:

https://designed.cad.rit.edu/vcdthesis/project/rong_conceptual-future-eco-architecture-in-the-overpopulated-hongkong



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JW.

PROMOTIONAL VIDEO

SECO-ARCHITECTURE FOR THE OVERPOPULATED HONG KONG

Reactions Company the future Living Environment.

THANKS FOR SCROLLING!

Design