

July 2017

Z-Cube: Mobile Living for Feminist Nomads

Zi Ye

University of Massachusetts Amherst

Follow this and additional works at: https://scholarworks.umass.edu/masters_theses_2



Part of the Advertising and Promotion Management Commons, Architectural History and Criticism Commons, Architectural Technology Commons, Art Education Commons, Civic and Community Engagement Commons, Community-Based Research Commons, Cultural Resource Management and Policy Analysis Commons, Environmental Design Commons, Gender and Sexuality Commons, Historic Preservation and Conservation Commons, Interior Architecture Commons, Other Architecture Commons, and the Urban, Community and Regional Planning Commons

Recommended Citation

Ye, Zi, "Z-Cube: Mobile Living for Feminist Nomads" (2017). *Masters Theses*. 545.
https://scholarworks.umass.edu/masters_theses_2/545

This Open Access Thesis is brought to you for free and open access by the Dissertations and Theses at ScholarWorks@UMass Amherst. It has been accepted for inclusion in Masters Theses by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

Z-CUBE: MOBILE LIVING FOR THE FEMINIST NOMADS

A Thesis Presented

by

ZI YE

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

MAY 2017

Architecture

© Copyright by Zi Ye 2017

All Rights Reserved

Z-CUBE: MOBILE LIVING FOR THE FEMINIST NOMADS

A Thesis Presented

by

ZI YE

Approved as to style and content by:

Kathleen Lugosch, Chair

Erika Zekos, Member

Stephen Schreiber, Department Head
Department of Architecture

DEDICATION

To my parents, Peizhi Ye and Yanjie Chen

and

all the Feminist Nomads out there

ACKNOWLEDGMENTS

Thanks to Dorrie Brooks

Thanks to Lorin Starr

Thanks to Kirin Makker

Thanks to Jeffrey Blankenship

Thanks to Ted Aub

Thanks to Phillia Yi

Thanks to Yifei Pei

Thanks to Paula Hodecker

Thanks to Sandy Litchfield

Thanks to Ray Mann

Thanks to James-Emery Elkin

ABSTRACT

Z-CUBE: MOBILE LIVING FOR THE FEMINIST NOMADS

MAY 2017

ZI YE, BA, HOBART AND WILLIAM SMITH COLLEGES

M.ARCH, UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Kathleen Lugosch

Homes proclaim our social standing and reflect the trend of the times. This project seeks to explore and redefine the relationship between modern homes and modern women who strive for mobile life styles.

Modernism and globalization have brought us a new way of living that could have never been imagined before— our workspace and homes are no longer limited to a specific unit but have extended to the entire globe. The physical changes compelled by modernity have also complemented the changing role of women. Since the beginning of the 20th century, modern women have expanded their lives outside of their homes and are playing a much more active role in society.

This project is designed for these modern feminist nomads—young women with international background living away from their home country—who are passionate about what they do professionally and proud of the women they are. They share the notion of global citizenship and an intention of better supporting one another for new challenges that go beyond the limit of distance and location. The project will allow these

women to determine what home means to them, and also allow their artifacts and concept of home to travel with them and, through the process, shape who they are. While raising the question of what is home and how women embed meaning into objects, I explored the idea of mobility and mobile living through a series of custom-designed “mobile architecture” in the hopes to facilitate unique and meaningful memories that give the feminist nomads a sense of home away from home.

This project is a series of 5 different scales of designs: the Z-Cases, the Z-Cubes, the Z-Units, the Z-Communities, and the Z-Global Business Model. This series of designs is developed to better aid the life on the move for the feminist nomads, by making traveling , moving, and adjusting to a new community a much easier process.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	v
ABSTRACT.....	vi
LIST OF FIGURES.....	ix
CHAPTER	
1. INTRODUCTION: WHAT DO WE CALL HOME?.....	1
2. HISTORY OF THE NORTH AMERICAN HOUSING EVOLUTION.....	4
3. CASE STUDIES.....	9
3.1 E1027 by Eileen Gray.....	9
3.2 The Split Wall: Domestic Voyeurism Part 1. Adolf Loos.....	26
3.3 The Split Wall: Domestic Voyeurism Part 2. Le Corbusier.....	34
4. CLIENT RESEARCH INTERVIEW REPORT.....	40
5. WHY MOBILE?.....	48
6. MOBILE ARCHITECTURE.....	53
7. DESIGN PROCESS.....	63
7.1 Overall Design Proposal and Branding.....	63
7.2 Scale 1 Z-Cases.....	65
7.3 Scale 2 Z-Cube.....	69
7.4 Scale 3 Z-Unit.....	72
7.5 Scale 4 Z-Community.....	76
7.6 Scale 5 Global Business Model.....	86
8. CONCLUSION.....	87
BIBLIOGRAPHY.....	88

LIST OF FIGURES

Figure	Page
4.1. Eileen Grey Portrait.....	15
4.2. E1027 Site Integration.....	16
4.3. Le Corbusier Vandalizing E1027.....	22
4.4. Plan and Section of E1027.....	25
4.5. Interior View of E1027.....	26
4.6. Exterior View of E1027.....	26
4.7. E 1027 Circulation Diagram.....	28
4.8. Villa Müller Theater Box.....	32
4.9. Adolf Loos, Josephine Baker House.....	34
4.10. Water Color Composition Series 1.....	35
4.11. Three Dimensional Composition Series 1.....	36
4.12. Watercolor Composition Series 2.....	37
4.13. Three Dimensional Composition Series 2.....	37
4.14. Women Portrayed in L'Architecture d'aujourd'hui.....	42
4.15. Watercolor Composition Series 3.....	43
4.16. Three Dimensional Composition Series 2.....	44
5.1. Interview Profile 1-6.....	46
5.2. Interview Profile 7-12.....	47
7.1. Plug-in City Conceptual Drawing.....	60
7.2. Nakagin Capsule Tower by Kisho Kurokawa.....	60

7.3. Curtain Wall House by Shiguru Ban, Tokyo, Japan, 1996	63
7.4. Curtain Wall House by Shiguru Ban, Tokyo, Japan, 1996.....	63
7.5. Furniture House 1, Shiguru Ban, 1996.....	65
7.6. Naked House, Shiguru Ban, 2000.....	65
7.7. Traditional Japanese Tatami Room.....	66
8.1. Nesting doll diagram of 5 different scales of design.....	69
8.2. Z-Cube Logo.....	70
8.3. Diagram of items in the Z-Carry-on Case.....	71
8.4. Drawing and transformation process of Z-Carry-on Case.....	71
8.5. Diagram of items in the Z-Checked Case.....	72
8.6. Drawing and transformation process of Z-Checked Case.....	73
8.7. Diagram of the Z-Cube Section Plug-in system.....	74
8.8. Elevation Drawing of the Cube composition.....	74
8.9. Drawing of the unfolding process the Z-Cube.....	75
8.10. Japanese Tatami Room.....	77
8.11. Northeastern Chinese Kǎng.....	78
8.12. Plan and Section of the Z-Unit.....	78
8.13. Diagram of Plug-in Process of Z-Cube Figure.....	79
8.14. Diagram of Transformation of Public and Private Space.....	80
8.15. Image of the New Lab Factory Building before renovation.....	81
8.16. Proposed Floor Plan of Z-Community at New Lab.....	82
8.17. Section Perspective of the proposed New Lab Building.....	83

8.18. Perspective Rendering of the Open Community Space.....	83
8.19. East London Warehouse Diagrammatic Floor Plan.....	84
8.20. Shanghai Waterhouse Factory Diagrammatic Floor Plan.....	84
8.21. Diagram of the Sign-up Process.....	85
8.22. Mobile App Diagram.....	86
8.23. Diagram of Community Benefits.....	86
8.24. Diagram of Global Communities.....	87
8.25. Cost Analysis of Domestic shipping, New York to LA.....	88
8.26. Cost of International Air Freight, New York-London.....	88
8.27. New York City Rent Analysis.....	89
8.28. Cost of buying cheapest Ikea furniture pieces.....	90
8.29. Revenue Analysis of Z-Cube Business Model.....	91

CHAPTER 1

INTRODUCTION: WHAT DO WE CALL HOME?

“Homes, whether in wood, stone and brick, or in concrete and glass, have always been a physical manifestation of the culture, values, and economic status of the people who inhabit them.”¹ “What do people call ‘home’?” is a question that I constantly asked myself and people around me over the years.

Having moved from the other side of the world when I was 18, plus constantly moving for over 30 times during the past 8 years, I was forced by reality to live a mobile life style in which I can pack my belongings up within a couple of days and move into a completely new place to call “home”. Home for me has never really meant a certain house or apartment. Home for me, has always been the things that I carry with me when I move into a new place, whether it is the coffee table that is covered with hundreds of stickers that I have collected over the years, or the kitchen knife that I have cooked delicious meals with, these are the things that reminds me of what home is: a place that you store all the memories you collect, a place where you can let loose of all the anxiety or pressure, and most importantly, a place where you can fully be your true self.

There are a surprising amount of similarities between the way I live now and the way my family lived way back when I was a little child. I grew up on the grassland in Inner Mongolia, China, where my grandparents used to herd sheep and cows. My family built up movable yurts and migrated around the area with their animals to consume the grass

and at the same time fertilizing the land with the animal waste. My childhood memory was filled with the experience of packing up my family belongings every year into a horse carriage, then rearranging and relocating everything back into the yurts— these yurts were what I called home, no matter where they were relocated. The Mongolian-style carved wood skeleton of the yurt and the wolf totem on the canvas painted by my grand father were always reminding me that this was where the milk tea and mom's hugs were, this was my home.

As I look back at this memory nowadays, what's amazing about this life style to me is that the traditional Mongolians lived on their land for thousands of years without negatively impacting the natural environment. They have established a well thought-out system to inhabit, and at the same time protect, the land that they live on. By maximally utilizing all the natural materials around them such as animals for food, animal skins for clothing, animal bones for tools, animal waste for fire and fertilizer, and relocating every year to allow the land to recover on its own, the Mongolians have carved out a space for themselves within the pre-existing natural environment to fit in. In the extreme weather that ranges from 95 degrees F in the summer to -50 degrees F in the winter, with limited natural resources, their lives had to be integrated into the natural system and play a positive role in it, because this is the place that they call home. The fundamental difference between the way we live now and that of the Mongolians, is that the Mongolians did not try to create their own living patterns as what we are doing at the moment—as we now cut down trees, take over land, drain the water to change the natural patterns of our habitat. We have built up a whole man-made system that

occupies the natural system but does not fit into nature's pattern. And this conflict between us and nature is what's creating all the environmental problems. So as designers, when we design the way we want to live, we need to compose our paths as a part of the larger system.

In designing a new way of living, I am comparing my childhood experience to where I am now as an individual living in a highly complex and involved social system, I am not looking at the idea of how to construct a comfortable home that stands on its own as a new system. The larger idea I am looking to define is, how do I, as an individual living in the complex modern world, redefine the idea of sustainable living by becoming a part of and positively contribute to the social and natural pattern that is out there now? How do I integrate my own preferred way of living into the concept of a mobile life style that is going to be more and more common among my generation? How do I carry a sense of home with me while living in the fast-paced changing social patterns? How do I, along with many women from conservative gender norms, pose our rejection towards the traditional expectations for women to marry a "good" man and settle down in their 20s? In other words, how do I, a modern young woman with a mobile life style, fit in and contribute to the evolution of the social, cultural, and natural patterns that have already been established?

¹Friedman, Avi. *Peeking through the keyhole: the evolution of North American homes*. McGill-Queen's University Press. 2002. Web. Page 14.

CHAPTER 2

HISTORY OF THE NORTH AMERICAN HOUSING EVOLUTION

The book *Peeking through the Keyhole— The Evolution of North American Homes* traces through the transformation that North American homes have undergone since the middle of the twentieth century, in the hopes of ultimately seeking the answer to the question “How do we carve out a piece of home that we can call our own?”.¹ The first chapter of the book “*What We Eat, Where We Eat*” focuses on how our daily behaviors and home design change each other, through investigation of a part of home design that we interact with everyday— the kitchen. The chapter begins with analyzing the changes in eating habits in North America that occurred under the influence of consumerism. As we all have undoubtedly experienced: walking into a mega-store that has literally everything you ever need in daily life, browsing through all the food that are pre-cut, ready to cook, or even ready to eat, picking up boxes of mac’n’cheese, potato chips, canned goods and frozen meals to fill up the cabinets and fridge, pushing a cart as large as “compact cars” that contains food that can last over a month. What is happening here? We are not stocking up for a snow storm or hurricane, but are just used to the idea of shopping in bulk to save money. Our generation is so accustomed to the idea of going grocery shopping once a week at a super mart, that no one buys into the idea of local grocery stores, butchers, or the organic juice made around the street corner anymore. We have the convenience that modern transportation has provided us to be able to obtain more fresh produce from all around the world in all seasons, but we are eating more processed food and obtaining more calories from fat.

This shift of shopping and eating habits arose from new technologies and changing life style— high-tech kitchen appliances and faster-paced daily activities. For example, the popularity of cheese in the recent years, is because it is a key ingredient in most fast foods and frozen foods. And thanks to the invention of microwave ovens, food has been available in ways that did not exist before to satisfy our new life styles. Pre-packaged meals are excellent choices for quick lunches— open the box and heat it up in the Microwave for 5 minutes, you have a full meal that might take hours to cook ready to eat.

All of the above factors lead to the changes in home kitchens. Kitchens evolved with the ever constant purpose—food preparation— in the last century. Originally, kitchens were enclosed separate rooms that were in the basement or in the back of the house, some of them even were in a different building apart from the house. In late 19th century and early 20th century, the placement of kitchens became the center of a political debate involving housewives and feminism in the domestic science movement.² Kitchens at this time were built smaller to be more efficient. Three major strategies were developed during this period : the Haven Strategy by Catherine Beecher in the 1840s, to “release the housewife from her domestic drudgery through better design”, August Bebel’s Industrial Strategy in the 1880s, that “moves traditional household work into the factory”, and Melusina Fay Pierce’s Neighborhood Strategy midway between the previous two in the 1870s, which “socialize housework under women’s control through neighborhood networks”.³ Kitchens from then on have arguably become the most

important room of a house. In time of specialization and industrialization in the kitchen, time-saving appliances were introduced to kitchens. Kitchens became smaller but much more efficient with an exclusive role of food preparation. Kitchens today have evolved into centrally located cores of homes but still included its “room-of-its-own” status.

These new-generation kitchens have also been equipped with full sets of newly-invented utilities and appliances: electric juicer, toaster oven, food processor, dish washer, microwave, waffle maker, blender, coffee grinder, etc. So here the question arises: what does this equipment do? And why were they introduced into the modern kitchen?

Looking into the evolution of modern kitchens, it’s not hard to find out that these inventions were introduced as methods to increase cooking efficiency with the social change of women entering the job market and leaving behind their “just housewives” role. But what’s ironic is that these products are not really saving our time, but on the contrary, taking more time. According to Dolores Hayden’s book *Redesigning the American Dream: The Future of Housing, Work and Family Life*, “house hold standards have risen but women’s time has not been saved.”⁴ Women spend more time doing laundry with the auto-cycle washing machines than they were hand washing the family’s clothes. It is because we own more clothing, we consume more products, and we are much less careful about maintaining the appearance of our clothes. So the efficient super machines that we own at our homes now are not actually saving our time, but enabling us to consume more without paying attention to the amount of consumption.

Whether these appliance really efficiently assist us in our daily routines remains open to question, but the convenience these appliances have provided for homes have brought up new marketing opportunities: for example frozen and prepackaged food. Home kitchens have become a mid-way stop of food that is prepared in modern factories. Our meals are no longer cooked by our mothers, but by workers at these factories. Imagine a daily breakfast back in the days with pan-fried eggs with home made pancakes, to the modern breakfast of boxed cereal and serving-size containers of yogurt, what we eat now is no longer food itself, but actually edible commercial products. More than four cents of every dollar that we spend on food goes towards advertising. These commercial products are carefully placed in our paths in a sophisticated and devious manner: when you walk around the super-mart, there is always a certain kind of delicately packaged food that fits our lifestyle—low-fat milk for healthy dieters and whole milk for people who don't care about fat intake; the same products are placed at several different locations to make you see it over and over again and ultimately you want to buy it even if you did not plan to.

What follows the commercialization of food is the commercialization of kitchens. Kitchens have become the key selling point among builders and real-estate agents. Kitchens are overly glorified with some of the features not needed for families, and they no longer serve the needs of the families with the original idea—efficiency. As we are trying to equip our kitchens to look like the cover of a home decor magazine, we should always remember the priority of designing a kitchen: it should always suit the needs of the users, that it makes a match between home and the occupant. This does not only

apply to the kitchen, but also all the different parts of a home— who uses it? to what extent does this person use this part of the home?

To me, the reading evokes much more thought than just the design and organization of the kitchen. It raises the more profound idea of designing for the user, but not designing according to the most popular and generic way. As designers, we need to always put the occupant's needs first, design with the questions of how to make their lives easier, how to make their homes more efficient, how to improve their life quality with our designs. And I think for me, the larger question is, how do I, as a designer, come up with a design that empowers these young feminist nomads, how do I, as one of these young women, break through the social norms and express myself with design?

¹ Friedman, Avi. *Peeking through the keyhole: the evolution of North American homes*. McGill-Queen's University Press. 2002. Web. Page 14.

² Friedman, Avi. *Peeking through the keyhole: the evolution of North American homes*. McGill-Queen's University Press. 2002. Web. Page 25.

³ Friedman, Avi. *Peeking through the keyhole: the evolution of North American homes*. McGill-Queen's University Press. 2002. Web. Page 27.

⁴ Friedman, Avi. *Peeking through the keyhole: the evolution of North American homes*. McGill-Queen's University Press. 2002. Web. Page 36.

CHAPTER 3

CASE STUDIES

3.1 E1027 by Eileen Gray

Eileen Gray (1878-1976) was a female Irish architect, furniture designer, and a major feminist role in the Modern Movement in architecture. House E.1027 was Eileen Gray's first formal architecture work. Being a successful furniture designer, Gray wanted to challenge herself to the next level. The composition of the house can be easily recognized as a architectural interpretation of Gray's furniture designs. E1027 was named after Eileen Gray and Jean Badovici, her mentor and friend, E for Eileen, 10 for "J", 2 for "B", and 7 for "G", for both sharing the authorship and also their complicated personal relationship.

The reason I chose Eileen Gray's E1027 has three components: 1. The house was beautifully designed—obviously— but lacked recognition in the male dominated modernism movement as a lost legend—not to mention the “interesting” intrusion by Le Corbusier on this house; 2. The small scale residential housing fits my research interest and the idea that it differentiates itself from the mainstream “living machine” concept at the time is very intriguing to me; 3. The house was designed specifically for her and Jean Badovici, who is speculated to be her lover, with highly personalized details and furniture designs specifically for its intended occupants. The whole history and controversy behind this house and Eileen Gray's career in design are both so closely related to my search to define a path for the contemporary feminists, and for a design that will point a way for new mobile life style.



Figure 3.1. Eileen Grey Portrait

The design process of E1027 was extremely hard for Gray, “I had very little encouragement. I was strong and keen but often it was difficult and very hard to get one’s enthusiasm going.”¹ Badovici had played a very crucial role in the process of building this house, not only on the design part but to show her the enthusiasm she hardly got from all the other male architects in the field at that time. He would give her advice and encourage her to keep going— he suggested the spiral stair case and made sure there were not structural mistakes.

Before Gray started the design she had thoroughly studied the terrain “with its different levels and decided not to alter the topography, but to let the house embrace the nature.” She had also looked at the sun light and studied the wind on the site to make sure she took advantage of all the site elements.² The composition of the house develops around the central living room, extended by a terrace, and two bedrooms. The

small house was all about spaciousness— “Nowhere (in this house) did one get the feeling of smallness”,³ Gray integrated the inside and the outside as a whole, the site has become a part of the house, the terraces act as an extension of the house that connects the interior to the nature, and this could not have been achieved had she not done the thorough site study. The house was divided by flexible or light partition walls and all the furniture are either built in or customized by Gray. The structure consists of all prefabricated structural pieces, just like her furniture pieces, this house could easily be a prototype for later mass production.⁴ Gray demands that the the house is built from inside out, instead of from outside in, and that the house is built “to the human scale, and balanced in all its parts”⁵.



Figure 3.2. E1027 Site Integration

To a certain degree, Gray was both in and ahead of her time. She accepted a major tenant of the modern movement by implementing mass production, and “its idea of hygiene, purity and machine thinking”⁶, but she had never really practiced her design as

purely functional. "She always added a touch of humor and irony to her design"⁷. This is what distinguishes her from her "earnest male colleagues". She had found the right balance between the aesthetics and the practical. She believed that furniture is not added to architecture, but "that it is architecture"⁸. E1027 received very little recognition during Gray's life time, but for Gray, the recognition was not what she was looking for, "it was always simply a house she had built that in a very deep sense, corresponded to her character"⁹.

There is so much more to study about E1027. Not only the house itself, but also Eileen Gray's whole approach to this house is very admirable. In the hottest moment of Modernism and the machine age, she did not blindly follow the trend, she was not afraid to be different, but had built her designs upon her own understanding of modernism. She adapted to the trends but never lost her own identity as a designer. The house corresponds so much to her character that some say it is her own architectural portrait.

Now we are going to take a look at the second wave feminism within the academy, and examines issues of authorship, agency and authority using Eileen Gray's career path as a case study.

Since the 1970s, "the history of architecture has been investigated and rewritten from a feminist perspective, while lively, often fearless, debates have exposed the phallogocentric stance of architectural culture, questioning how architecture is practiced and the values of a male-dominated profession."¹⁰ In spite of two decades of feminist research and

writing in the 1970s-1980s, women's place in architecture during this time was still considered as an anomaly and usually remained on the "lower and middle rungs of the professional ladder"¹¹. Although this situation has improved in today's architectural field with the rise of a new generation female architects such as Zaha Hadid, Jeanne Gang, Kazuyo Sejima and Maya Lin, compared to the number of male architects that are leading the field, and considering the controversies over the Pritzker award on both Robert Venturi and Denise Scott Brown's case and Wan Shu and Lu Wenyu's case, these issues are still valid and needing our attention. It keeps us wondering, how would architecture evolve if half of the architect population were women? Would houses, hospitals, schools or all form of architecture be different if women had more recognition and louder voices in the field?

By the 21st century, Eileen Gray's status had never been higher— With the publication of Caroline Constant's book, and as the subject of a number of exhibitions, the price of her lacquered furniture work has been flying through the roof. And most importantly, her most representative architectural work E1027 has finally been declared a national monument of the highest importance by the French government, it has been bought and is being restored, after many years of neglect and intolerable vandalism. Most significantly, Gray's work is finally included as a matter of course in the curricula of academic architectural studies¹². But Walker questioned, "Have thirty years of feminist theorizing and rewriting the history of architecture lead only to Eileen Gray, the lone 'Exceptional Woman', the one outstanding woman, the exception that proves the rule that great architects are male?"¹³ which also applies to the easily countable number of

successful female architects in today's status quo. Walker has questioned the purpose of the recognition given to Eileen Gray as the token woman or the feminist icon that is a substitution of great male architect— "the female Le Corbusier". With her cutting edge modernist architecture and furniture works produced during 1920s-1930s, she had been a neglected pioneer of the modern movement with no recognition for the work she has done during this time. Her role was never recognized as a contemporary as modernist history was unfolding. She had always been "outside the select band of recognized 'masters' of modernism"¹⁴. She was unfairly seen as the "privileged" woman who gained fame from her male connections with Jean Badovici and Le Corbusier, and even taken as the secondary role for her most best known work E1027. When talking about the reason of the neglect in modernist history towards Eileen Gray, Reyner Banham declared, "Part of the trouble, I suspect, was stylistic. Her work never quite aligned with either the International Modern style or the tolerated additions like Expressionism... that, of course put it [Gray's work] beyond critical or historical attention for almost three decades."¹⁵ But here the case is, if Gray's work really contradicted the major theories of the modernism movement, it logically should have been the qualification for representation in history rather than the reason for dismissal. Although her architectural works were investigating issues of modernist architecture, her works had reflected, even went far beyond, the dominating modernist theory of the Five Points of architecture by Le Corbusier. However, her works were always seen by the modernist critics through the unfavored "decorative feminine" lens, and were identified as not fitting the agenda of modernism. Although the same critics portrayed a very different meaning to the "decorative card" while seeking causation for the decline of the "modernist genius"

Charles Rennie Mackintosh, it was never applied to Gray's case. The real reason behind this is perhaps the idea that women were not accepted by the general public or by architecture historians at the time as major figures in the field and they were seen as only capable of, staying within, "the domestic space, the interior, the home". This assumption was also depicted from the exhibition "Modern Architecture: International Exhibition" held at the Museum Of Modern Art in 1932, New York, curated by Henry-Russell Hitchcock and Philip Johnson—in this exhibition, Eileen Gray's E1027 was ignored, and the only work designed by a woman was a room at the Berlin Building exhibition of 1931, designed by Lilly Reich, only showing the interior of the work, captioned as, "Luxurious and feminine character achieved by combination of white materials of various textures."¹⁶ without the designer's name. Women were rejected by men at the time to be in this "more muscular" field. They refused to treat female designers equally, no matter the quality of the woman's work.

Gender discrimination during Eileen Gray's time did not only cause the neglect of her work, but also denied her access to architectural education. If Gray decided to stay at the University of London after her training at Slade, she would not have been allowed to take the professional courses that were only offered to men. At the age of 51, she had finally completed her first building. A part of a generation of women who had never had the opportunity to have a formal architectural training, she taught her self architecture — "by experiences she has had with lacquer work, by analyzing and studying other architectural works, by reading technical and theoretical books, by re-working earlier examples, by acquiring first hand experience, and by associating herself with non-

threatening, but knowledgeable professionals”¹⁷. This association with architects has ironically been a barrier for her on the road towards her architectural recognition. Her most influential and first architectural project, E1027, was constantly assigned to her mentor Jean Badovici. This familiar phenomenon is still common today as the women’s credit is often given to the woman’s male collaborator, partner or teacher, as in the case with Robert Venturi and Denise Scott Brown, and Wan Shu and Lu Wenyu’s. Cultural assumptions about women’s “auxiliary role and subservient nature”¹⁸ takes over when the exact role or contribution is unclear on a piece of design or art work. Eileen Gray’s generosity on the attribution of the authorship has given the modernist historians an opportunity to reinforce their judgement and assumptions towards female architects, and also to some degree, encouraged Badovici’s self promotion as a part of the project. What’s worse about E1027 was the notorious vandalism by Le Corbusier (Figure 3.3). Gray abandoned E1027 a few years after it was completed because of her personal issues with Badovici. Le Corbusier, one of the most recognized modern architectural masters, disgustingly vandalized E1027, painting eight large Picasso-style murals of female figures, some in sexual poses, mocking Gray’s gender and sexuality. When he illustrated the murals, he neglected to mention the name of the architect of the house. It was stated by one of Eileen’s biographers, that “it was almost as if Le Corbusier wanted the world to believe that the house was not built by her, but built by him”¹⁹. This horrific territory making was executed without Eileen Gray’s permission, the murals “cover her clear and consciously low-key house with overtly sexual, garish paintings which she considered an act of vandalism”. Le Corbusier, in this case, caused an “unforgivable desecration”. The lack of respect for another architect’s work and, “the

effacement of Gray as an architect” have become a “focal point for broader feminist critiques of masculinist modernism”²⁰.



Figure 3.3. Le Corbusier Vandalizing E1027

Women’s place in architectural history and our practice as architects have always been restricted by negative cultural assumptions and values. Examining Eileen Gray’s experience, and how the paths of female architects have slowly gotten wider through time (although still tougher than men), I truly believe that with strong determination and ambition, our feminine sensitivity to design deserves much more recognition in architecture, not in the sense of being compared to any equivalent male architects, but to establish a new system where maintaining our gender differences are no more the barrier that stops women from becoming architects but becomes the appreciated characteristics that outshines the traditional values of male domination in the field.

After examining Eileen Gray and E1027 in a general perspective and a feminist approach, my third reading on this project focuses on the stylistic arguments that have evolved from this project. Caroline Constant in her writing has fought for the value of E1027 in the modernist canon, and the unique way it has contributed to modernism without following the object qualities of the mainstream modernism.

In the book *Eileen Gray*, Constant has argued that, for Eileen Gray, the house was “not an object to be apprehended through intellectual detachment, but a flexible structure whose occupants would invest it with life”²¹. Gray has stated that “External architecture seems to have absorbed avant-garde architects at the expense of the interior. As if a house should be conceived for the pleasure of the eye more than for the well-being of its inhabitants.” This relates to her “atheoretical” stance as, “Theory is insufficient for life and does not respond to all its requirements.”²² She had always somewhat resisted theory, but she absolutely recognized “the need to transcend the intuitive limits of her work and ground it in the intellect—in a fertile combination of the sensual and the commonsensical”. It is my perspective that, Eileen Gray was not the best “student” in the modernist classroom. She was constantly challenging the authorities with her alternative understanding of what modernism was. Her approach was not wrong but was perhaps much more brilliant than the authoritative rules of the movement would suggest. In this process of learning, her “homework” have always stood out with her unique understanding of the subject matter— however, this challenge of the rules, at the time, was not accepted by her peers and thus her projects were underrated. The

modernist critics and masters, such as Le Corbusier, understood the value of her work, but out of jealousy and the idea that a woman cannot achieve such things, her outstanding work was buried in the modernist history.

Gray's collaboration with Jean Badovici was what pushed the house to have an explicit reference to the Corbusian "Five Points of a New Architecture". These new concepts however, were not taken blindly into the project, but allowed Gray to challenge the modernist principles by, "seek(ing) to overcome the supposedly cold and inhuman qualities of experience (of modern architecture)" and "incorporate reality within the abstraction"²³.

First of all, Gray had rejected the idea that the interior of the house should be an "incidental result of the facade", instead, the house should be conceived from the interior outward, connecting the modern individual's "need for an interior life and a place of retreat". She sought to integrate the human experience more than any of the other mainstream modernists who were prioritizing technical challenges brought in by industrialization at the time. In order to do so, Gray had adopted a drawing method from the 18th century English representations of domestic interiors in which, "each room as four sectional elevations 'fold out' from the plan". (Figure 3.4) This technique had articulated the, "principle of a total concept of design wherein wall and windows, furnishings, and floor and carpeting contribute equally to the creation of a complete and private milieu". The furnishings were no longer the after thought of a house design, but an extrusion of the walls, stressing the interdependence of of the elements and their,

“imperviousness to reduction as independent objects”. In this process, she had broken down the boundaries between architecture and furniture, which has always been the part of a house that is most involved with our daily activities, that are the most interactive elements. This breakdown corresponds to “the breakdown of the conventional notion of the room as a singular spatial entity, and amplified the ambiguities of modern spatial delimitation” and allows the house to evolve outward from the interior core.²⁴

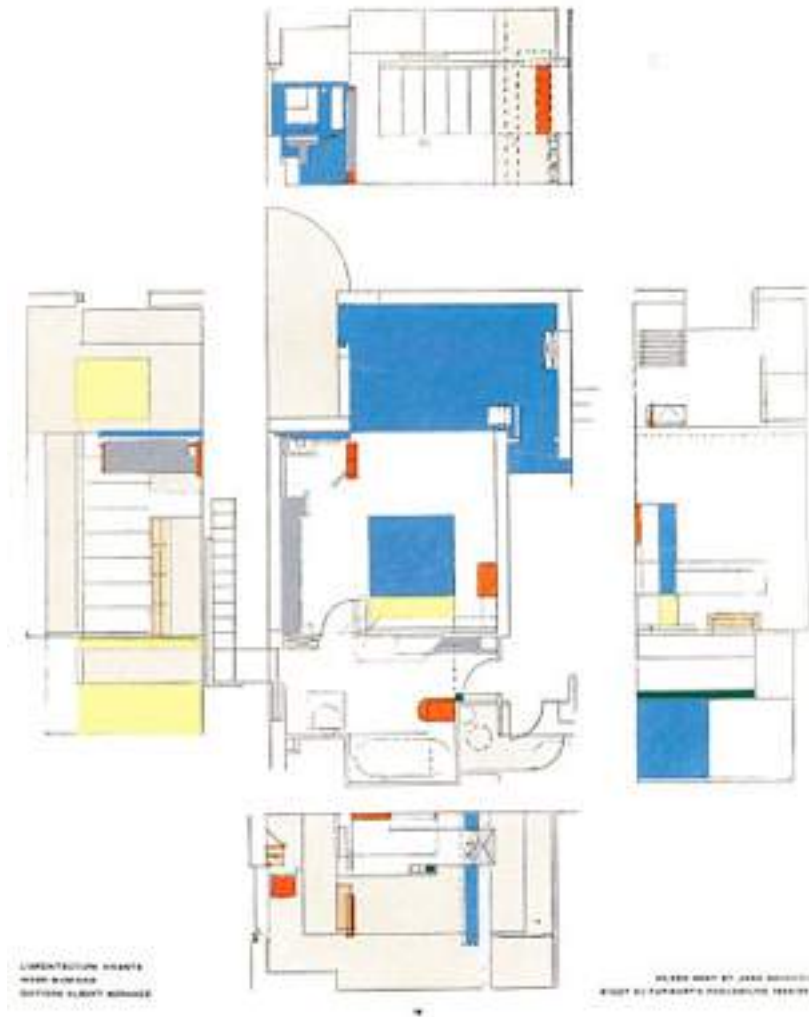


Figure 3.4. Plan and Section of E1027



Figure 3.5. Interior View of E1027



Figure 3.6. Exterior View of E1027

Secondly, Gray's objectives stood apart from the outlined modernist principles, stated as "House envisaged from a social point of view: minimum of space, maximum of comfort." Instead of evolving her design principles from the structural and technological possibilities provided by industrialization, she viewed the benefits of industrialization as a tool for achieving her objectives. She did not assume any of the styles or trends of the current major movement. The design of E1027 was all about her understanding of space and experience, concepts that she wanted to express through her architecture. She was confident enough with her own vision that she did not have to follow the trend. Even further, some of the approaches she had taken were critiques of the dominating Corbusian "machine for living" definition of a house. Gray believed that, "the art of the engineer is not sufficient, unless it is guided by human needs", that the house is, "not a machine to live in. It is the shell of a man, his extension, his release, his spiritual emanation. Not only its visual harmony but its entire organization, all the terms of the work, combine to render it human in the most profound sense."²⁵ Gray's design philosophy ran through every design detail of the house, whether it's the consideration of day light applied the window facing, or the intention behind the distinction of functional purpose, this spatial organization which was fully integrated with human bodies, allowed her to articulate the comfort and spaciousness that she sought within a small scale design.

Lastly, Gray had applied the choreographic concept that is drawn from the art of theater with, "its simultaneous engagement of music, dance, and decor" in search of the

“greater unity between art and life through forms facilitating immediate experience”. A plan diagram was created for the purpose of depicting internal circulation routes in relation to the sun path. (Figure 3.7) She used hatched shapes to represent the sun’s impact on the building, and differentiated the occupant’s circulation paths with solid lines, which originated from the spatial organization of the house, from the house keeper’s path (denoted in dotted lines), which circulates around the service stair. During the production of this drawing, the sensual and social aspects of plan making engages a series of issues: ventilation, lighting, acoustics, odor, and visual privacy. This diagram, demonstrates how the activities and interactions are staged through the usage of architectural elements, and suggested, “the possibility that architecture devoted to leisure can reawaken a natural- that is, a non-numerical- understanding of time” through the incorporation of the sun path²⁶.

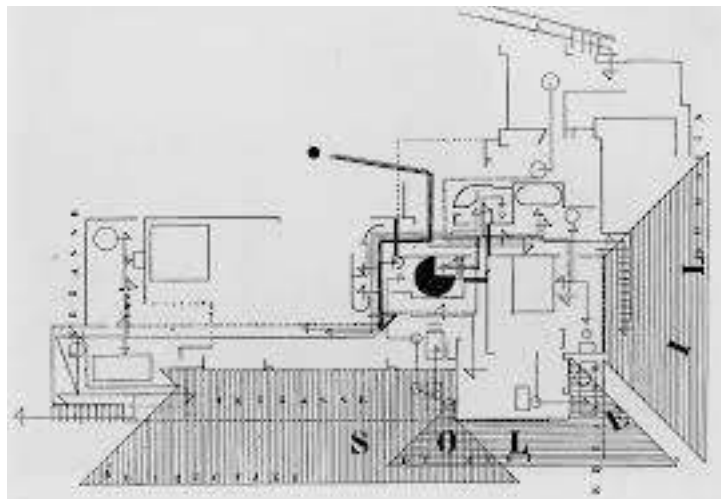


Figure 3.7. E 1027 Circulation Diagram

In conclusion, Eileen Gray's E1027 is an interesting case study because of its design philosophy, its social and historical impact, and beauty. It is a hidden gem of modernism that is too beautiful not to be discovered. It countered the leading modernist theories and continues to be an example of careful considered design. Eileen Gray was a true pioneer of her time, not only as a designer who stood her ground but also as a strong woman who stood alone and has carved out one of the first paths for women in design. She had shown us that the possibilities in design are not defined by the popular assumptions, but by the intuition of what design means to each one of us, that innovation comes from within and extends beyond theories.

¹ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 191.

² Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 192.

³ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 192.

⁴ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 193.

⁵ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 198.

⁶ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 210.

⁷ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 210.

⁸ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 212.

⁹ Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 220.

¹⁰ Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 87.

¹¹ Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 87.

¹² Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 89.

¹³ Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 89.

¹⁴ Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 91.

-
- 15 Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 92.
- 16 Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 93.
- 17 Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 99.
- 18 Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 99.
- 19 Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 101.
- 20 Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 102.
- 21 Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 93.
- 22 Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 93.
- 23 Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 94.
- 24 Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 105.
- 25 Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 114.
- 26 Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 115.

3.2 Case study: The Split Wall: Domestic Voyeurism Part 1. Adolf Loos

The article *The Split Wall* by Beatriz Colomina raised a lot of interesting and thought-provoking questions regarding the design philosophies of Adolf Loos and regarding the long existing gender issues within the architectural design field.

Colomina started the article with a quote from Walter Benjamin—“To live is to leave trace....The traces of the occupant also leave their impression on the interior”¹ The quote reminds us of that the traces that we leave are not only the scratches on a perfect table top, or water stains on a cutting board, but also stories behind these scratches and stains— it may be a story of a house warming party when a best friend of yours accidentally dropped a tool that she used to hang your favorite artwork on your coffee table. These traces are carved into the interior over time, whether you will think of them fondly in the future with a smile, or they may bring a bit of nostalgia into your mind.

But Colomina turned this statement into another direction— a direction towards these interiors leading to “a detective story of detection itself, of the controlling look, the look of control, the controlled look.”² And the origin of this detective story came from Adolf Loos’ work and his idea of the “theater box”— the idea of arranging the interior in a way which the occupants are watching the entire space within a un-lit or back-lit corner, whereas the guests or “intruders”, in this case, are led through the space by a series of furniture arrangements for the occupants to observe without noticing the gaze. In these

arrangements designed by Loos, the theater boxes are usually in small, tight, and dark spaces that are, as defined by Colomina, exist at, “the intersection between claustrophobia and agoraphobia”, and the comfort in this space is related to “intimacy and control”³ In these situations, Loos’ windows are not for views or framing, they are simply to let the light in, and the gaze is directed towards the interior, where security and comfort are provided by the, “look of control” that penetrates through the entire social space of the house.



Figure 3.8. Villa Müller Theater Box

These theater boxes, have provided the ease of shift for the occupants from “actors” to “spectators”, which resulted in the convolution of “the classical distinction between inside and outside, private and public, object and subject”.⁴ Yet, with the convoluted

definitions of inside and outside, private and public, object and subject, the gender roles of Loos' interiors are still as clear as they can be. These theater boxes are marked as "female", (whereas the libraries, are "male"), and placed at "the intersection of visible and invisible", which is read by Colomina as "women are placed as guardians of the unspeakable". This notion of women being the "unspeakable, private, interior, intimate" figure (while men being the "public, exterior, social")⁵ also represents the weakness of women that is perceived by Loos—in a sense, to Loos, women were seen as incapable of being in control of the public aspects of the household. A paragraph Loos wrote to describe the interior of a house as a "crime scene" where a dying young woman was committing suicide, to me, as disturbing as it is, conveys a sense of incapability of women handling any stress aside from their domestic responsibilities or being strong and responsible for their own lives.

It is interesting relating these design strategies of the theater box to that of the Josephine Baker house designed also by Adolf Loos. Both continued the common subject of Loos' architecture, as "the metropolitan individual, immersed in the abstract relationships of the city, as pains to assert the independence and individuality of his existence against the leveling power of society."⁶ These metropolitan individuals, both males and females, are portrayed, however, in two dramatically different ways within different projects of Loos'. Yes, both the male-oriented design and the female oriented design inherited his idea of the house being a stage for the domestic life, "the stage of the theater of the family, a place where people are born and live and die",⁷ but in the male oriented designs, the inhabitant, the man of the house, is intended to be the

subject that observes the object, which is the guest or the intruder. On the other hand, the female oriented design, the Josephine Baker house, focused on the inhabitant, the female artist, Josephine Baker, as the object that is being observed. The large top-lit, double-height swimming pool was described unexpectedly disrespectful as a “miniature entertainment center”⁸. In this “entertainment center”, the woman herself, attracts the gaze of her visitors, which has the underlying assumption of being male, as an “entertainment” tool or object. What is more disturbing is that the pool is staged in a way that she can see herself being observed with “a narcissistic gaze superimposed on a voyeuristic gaze”⁹. This inversion of the object and subject that seems to be so natural to Loos has again projected his male dominated discriminative views towards a “weak” woman and her body. Women, in either of the male oriented theme or the female oriented theme are trapped within Loos’ interiors as objects.

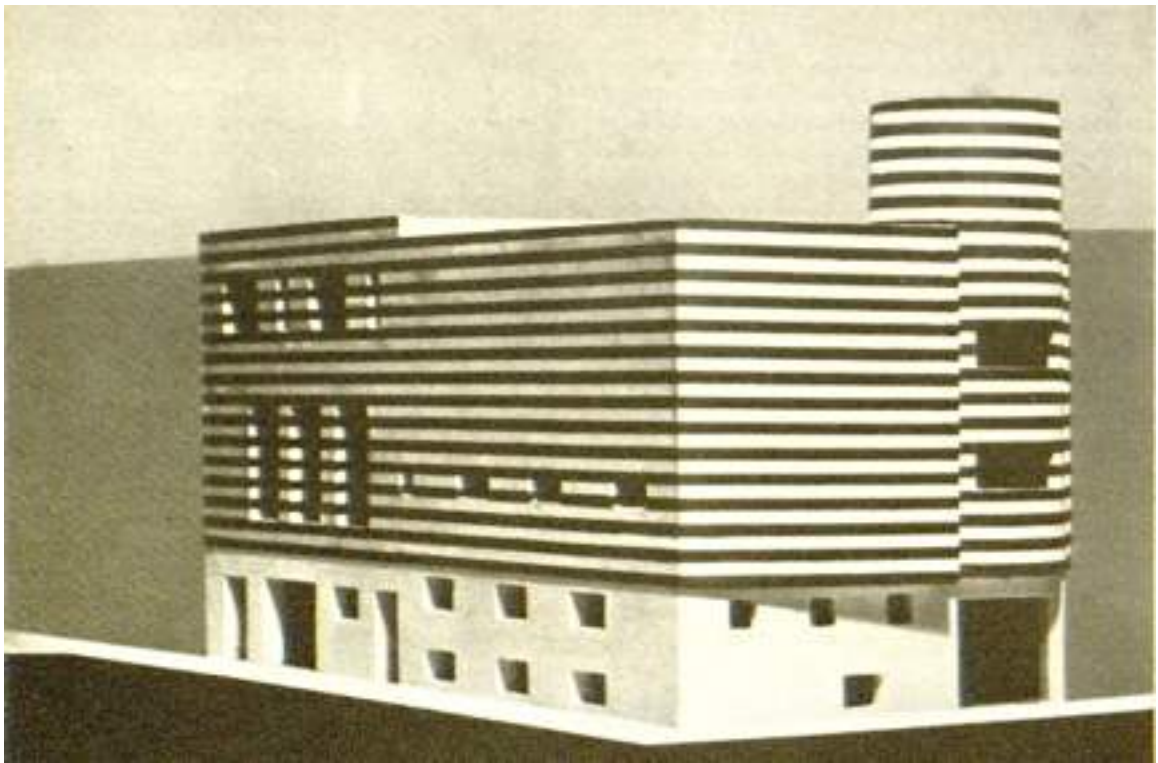


Figure 3.9. Adolf Loos, Josephine Baker House

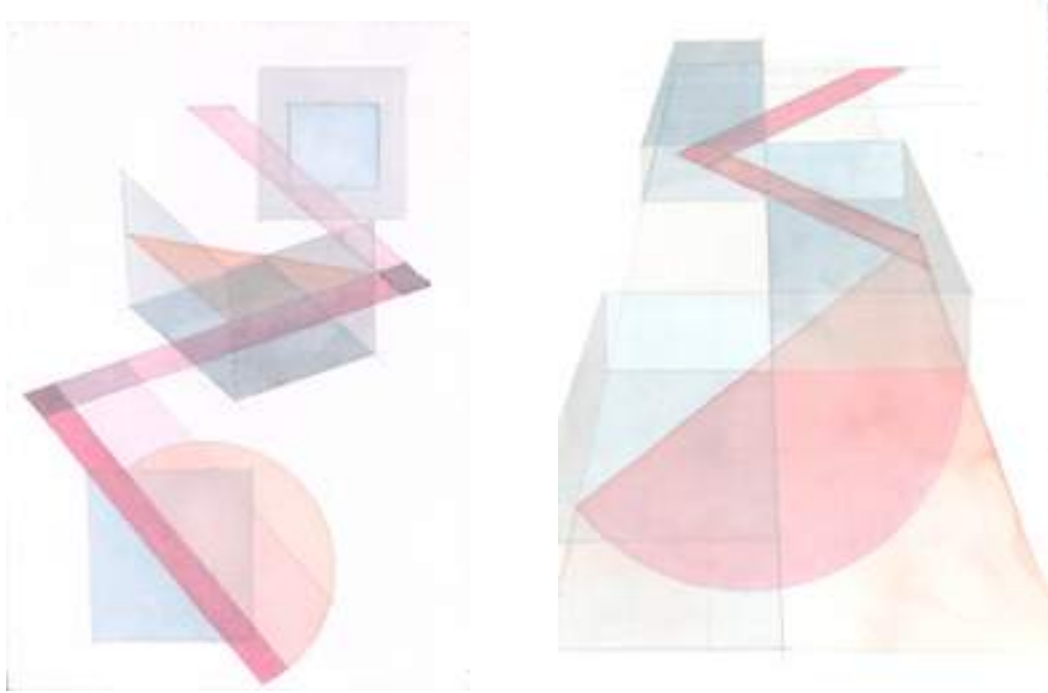


Figure 3.10. Water Color Composition Series 1

As a response of this case study, I generated a series of water color compositions and three dimensional compositions. The first series was based on the shift and development of women's roles in the household through history. The blue reflects the domestic settings and the red reflects women's status. Starting from the top of the compositions, tracing back in history, women's place in a household takes a very small portion, they are involved heavily in the housework, but are not involved at all in the decision making, and can barely expand their world outside of the domestic backdrop. In the second part of the compositions, which reflect the time of after the first wave feminist movement in the early 20th century and the second wave of feminist movement in the 1960s, women's equality has been raised on both the domestic and political, as they start to take on more responsibilities and are getting more involved in the decision making process. Women started expanding their horizons outside of the

house, but the opportunities available to them were still very limited. The third part reflects the current status of women, especially strong women who believe in gender equality in all of social, political, and cultural aspects. These women have expanded their lives outside of the household, taken on crucial leadership in the workplace, and they believe in themselves as a strong force in the world we live in. The compositions were later on translated into a three dimensional composition as shown below.

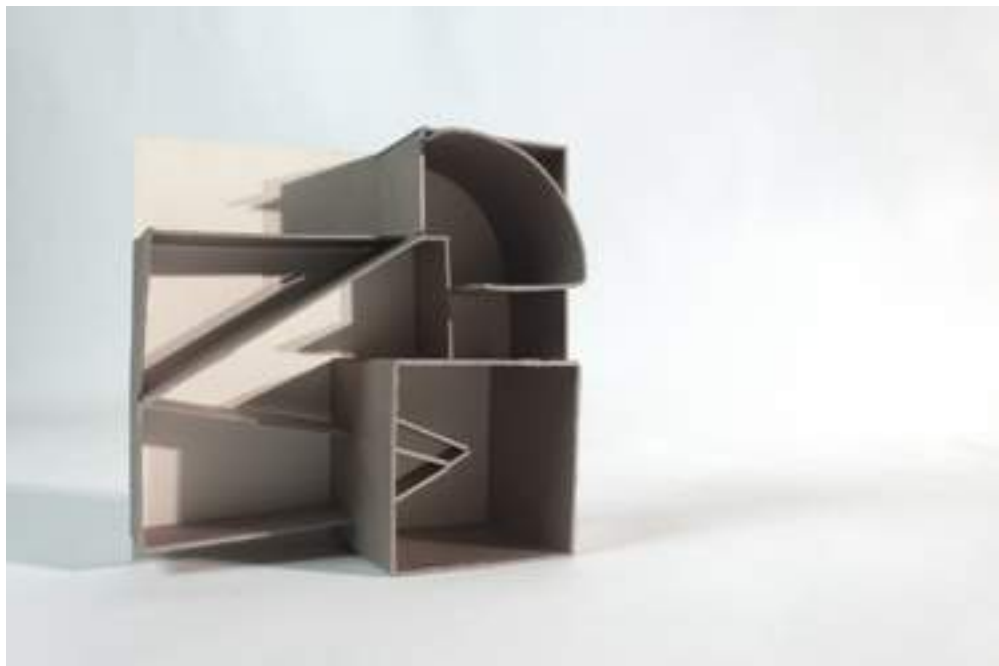


Figure 3.11. Three Dimensional Composition Series 1

Another set of two dimensional and three dimensional compositions were generated to reflect the ideas expressed by Adolf Loos' design of the Josephine Baker House. The red toned colors in the two dimensional compositions reflect the woman who is viewed as an object in the large swimming pool in the house, surrounded by the male gaze. The three dimensional composition elevates the concept by exhibiting the female as a fragile

soul that is trapped under the lurking shapes that represent the male gaze and the social gender discrimination expressed in Loos' work.

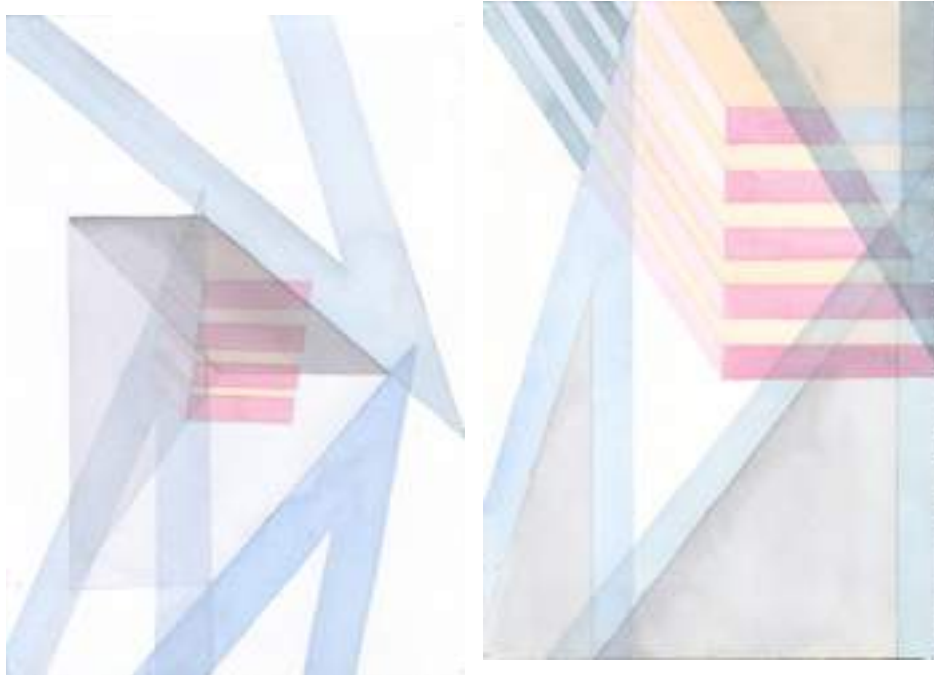


Figure 3.12. Watercolor Composition Series 2



Figure 3.13. Three Dimensional Composition Series 2

-
- ¹ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 74.
 - ² Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 74.
 - ³ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 76.
 - ⁴ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 80.
 - ⁵ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 82.
 - ⁶ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 93.
 - ⁷ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 85.
 - ⁸ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 88.
 - ⁹ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 92.

3.3 The Split Wall: Domestic Voyeurism Part 2. Le Corbusier

The article *The Split Wall* by Beatriz Colomina continues on to examine issues of gender in the domestic space within the designs of Le Corbusier, the iconic modernism pioneer who has influenced generations of modern architects. Colomina started with a comparison of the physical conditions of Loos' designs and those of Le Corbusier. The interior and exterior relationship was a total reverse of Loos in Le Corbusier's design theories. For example, in the Villa Savoye, the concept of the house is not an interior space to contain the view within the daily life, but rather a frame to direct the view to the exterior, the landscape, and the larger outside world. The Villa Savoye also embodies Le Corbusier's perception of motion in comparison with Loos' perception of stillness. Colomina describes this contrast as, "if the photographs of Loos' interiors give the impression that somebody is about to enter the room, in Le Corbusier's the impression is that somebody was just there, leaving as traces a coat and a hat lying on the table by the entrance of Villa Savoye...further suggesting the idea that we have just missed somebody."¹ This quote indicates that the Corbusian space is constantly being occupied by people, and there are always activities going on at some point of a day. So we, the intruders or the guests, instead of entering into a room having our every step being watched by the owner, are actually the ones watching the owners, following their steps through the house. In Le Corbusier's domestic space, the "look of a detective", or the "voyeuristic look"² comes from "you", the person who is looking at the image, the guest, or the intruder, instead of the occupant.

What is not contrary to Loos' designs, is the same and almost condescending tone of the portrayal of the female aspect of the house. Colomina presents us the evidence of this subtle expression of bias against women by making the comparison according to her observation of the film *L'Architecture d'Aujourd'hui* directed by Pierre Chenal, in which the man arrives at the house dressed up very formally, with carefully combed hair, holding a cigarette in his mouth, walks through the house while ignoring the women and children in the background as though they are just another piece of furniture in the house, precedes athletically up to the "lookout point" to contemplate the "bigger things"; whereas the woman starts her journey inside the house, indicating that she has/ is supposed to have little contact with the outside world, wearing informal clothing, walking up the "lookout point" with the assistance of the handrail, only to get up to the lookout point, which is protected by walls, to grab a chair to sit down facing the interior. During the woman's indoor journey, she has never once shown her face to the camera, as we, the intruders, literally followed, even stalked her through the house, with the "voyeuristic look". There are so many problems raised in this short description of the film, which makes me question: Why did the man start his journey from the outside, while the women inside? Why is the man dressed formally and the woman not? Why did the man go out to the terrace to look out while the woman only does so to look in? Why did the man "athletically" got up to the terrace while the woman climbed up holding the handrails? Why did the man ignore the woman and child in the scene who were clearly set there to represent his family members? It is interesting and disturbing at the same time that the underlying answers to these questions are so straight forward: Because according to the common biases of the time, the men are the ones who have the

“ability” or the privilege to take the responsibilities from the outside world; Because men play a more important role in the larger society than women; Because women are destined to the interior of the house, they are born to be inside, to be behind the men; Because women don’t have the ambition or capability to think about such complex things outside their “designated” housework; Because women are physically weak, just like they are emotionally weak; Because women and children are the same, they do not understand the larger things men are working on, so there is no need to communicate with them about what is going on outside of the domestic scene. It is not hard to depict Le Corbusier’s intentions while filming the movie, sure design is the most crucial part of the film, but at the same time, can we question that this is also about his presumptuous attempt to define his ideal social gender structure? He clearly has established an evaluation system based on gender alone, not to mention his jealousy and rage over the female architects— for example the infamous vandalism relating to Eileen Gray— when he thinks they intruded his “territory”. Le Corbusier’s ideal social gender structure can also be seen everywhere in his work— whether it is photography of his work that includes people in it, where the woman is always inside looking at the man, while the man is outside looking at the world; or the physical trap he sets up for women in his work, where all they can look at is either the wall or nothing.



Figure 3.14. Women Portrayed in L'Architecture d'Aujourd'hui

Le Corbusier established the sense of domination in a different way from Loos. Instead of dividing the house into male and female sectors by the function like Loos did, Le Corbusier made the simple and larger division of the female interior and the male exterior. Le Corbusier's windows, unlike Loos' theater boxes, are the tools for men to establish their position of domination in the house. The horizontal windows allows one to look out feeling that they have control over the world. The proportion, direction or limitation of these views are controlled and calculated in the design process to define Le Corbusier's version of domesticity instead of by creating a domestic space, sight has replaced site. Traces of habitation are left at the house as we had talked about to give the viewer the sense that we are following someone or just missed someone. These traces, however, are always from the male visitor and rarely from the "domestic", which is somehow unimportant, or intentionally ignored here.

Both Loos and Le Corbusier, whether intentional or not, have clearly established their own, definition of gender in their designs, whether it is the physical division or the

metaphorical division, the treatment towards gender is definitely not neutral. As Colomina concluded in her article, “Male fashion is uncomfortable but provides the bearer with ‘the gaze’, ‘the dominant sign’, women’s fashion is practical and turns her into the object of another gaze...A picture. She sees nothing. She is an attachment to a wall that is no longer simply there. Enclosed by a space whose limits are defined by a gaze.”³ (Colomina, 128)

As a part of the case study, a series of water color compositions and a three dimensional composition were generated to reflect the reading as a response. The red toned colors again reflects women’s role and the blue toned colors reflect men’s role. As represented in Le Corbusier’s designs, women were treated almost as an indoor object that lives in the shadow of men. With all the household tasks handled all by women, their place, however, does not reflect fairly who they are. The three-dimensional composition shows the number and value the tasks that are being handled by women, and contrarily, how little they were valued by society at the time.

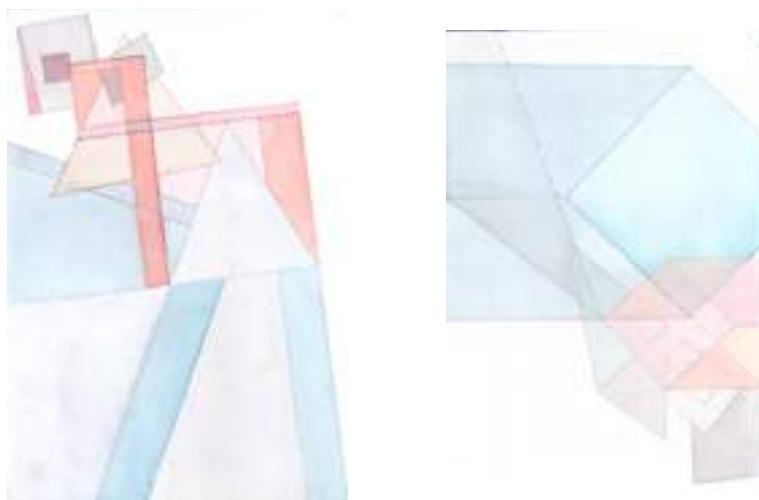


Figure 3.15. Watercolor Composition Series 3



Figure 3.16. Three Dimensional Composition Series 2

¹ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 99.

² Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 100.

³ Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 128.

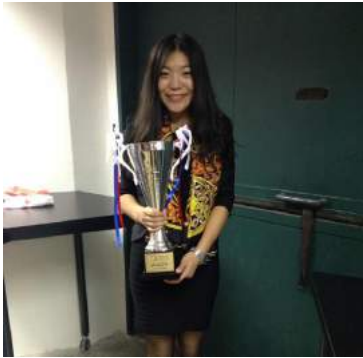
CHAPTER 4

CLIENT RESEARCH INTERVIEW REPORT

For the purpose of defining the project client group, 12 women with international travel and residency backgrounds were interviewed to define what home means to them. All interviews included a set of seventeen questions, some extended questions were included in the conversation with some interviewees.

The questions are listed below:

1. Your name:
2. Where you are from:
3. What countries other than your home country have you been to? How long? What did you do there?
4. How many times have you moved in your life? (on your own)
5. How many years have you been away from “home” (by home, i mean where you grew up)
6. How do you define home?
7. What reminds you of home (what makes you feel at home)? objects, experience?
8. How do you make yourself feel at home when you arrive at a new place?
9. What do you bring with you in a suitcase when you travel for 1 week? 1 month? 1 year? several years?
10. What’s the one thing you would bring with you when you travel?
11. How do you think your international travel/residency background have affected who you are?
12. Do you care about owning a property? why or why not?
13. Do you think being a woman has given you any resistance/trouble with your mobile international experience?
14. Do you like your mobile life style, why or why not?
15. How do you define stability?
16. What do you love and hate the most about your mobile life style?
17. What’s the percentage of time that you feel /not feel at home away from home?



Amy Yang

Hometown: Xi'an, China
Current City: Hong Kong

International Experience:
University of Manchester, 2 years
15+ cities in Europe, 1 year
Miami, 3 months



E Zhao

Hometown: Chengdu, China
Current City: New York

International Experience:
Hobart and William Smith Colleges, 4 years
France, 4 months
UK, 2 months
Columbia University, 1.5 years



Xiaochuang Zhao

Hometown: Chengdu, China
Current City: Tampa, FL

International Experience:
Hobart and William Smith Colleges, 4 years
Hungary, 4 months
University of Florida, 2 years



Xiaotong Li

Hometown: Inner Mongolia, China
Current City: Beijing, China

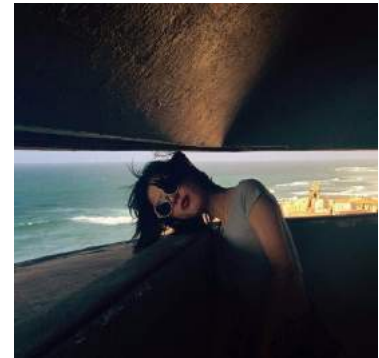
International Experience:
USA, 4 months
Korea, 3 weeks
Japan, 2 weeks



Minjie Gao

Hometown: Inner Mongolia, China
Current City: London, UK

International Experience:
Durham University, 1 year
London, 2 years



Feixia Huang

Hometown: Chengdu, China
Current City: Shanghai, China

International Experience:
Hobart and William Smith Colleges, 4 years
Columbia University, 1 year
Roma Italy, 4 months
Europe, 3 months
UK, 6 months

Figure 4.1. Interview Profile 1-6



Audrey Li

Hometown: Beijing, China
Current City: New Haven, CT

International Experience:
Hobart and William Smith
Colleges, 4 years
Denmark, 4 months
Yale University, 1.5 years



Bo Sun

Hometown: Inner Mongolia,
China
Current City: Rome, Italy

International Experience:
Rome, Italy, 3 years



Kelly Liu

Hometown: Chengdu, China
Current City: New York

International Experience:
Hobart and William Smith
Colleges, 4 years
Rhode Island School of Design,
2 years



Xiaozhe Zhang

Hometown: Inner Mongolia,
China
Current City: Tokyo, Japan

International Experience:
Japan, 4 years
Korea, 3 months



Snow Sun

Hometown: Inner Mongolia,
China
Current City: Beijing, China

International Experience:
UK, 1 year
USA, 1 month



Wenruo Wang

Hometown: Shenzhen, China
Current City: Geneva, NY

International Experience:
Hobart and William Smith
Colleges, 3.5 years
Germany, 4 months
London, 1 year
Hong Kong, 3 months

Figure 4.2. Interview Profile 7-12

Brief report on information collected over interview

What countries other than your home country have you been to? How long? What did you do there?

Most of the interviewees have been to at least 1 foreign country other than her home country. The duration ranges from 4 months to 8 years.

How many times have you moved in your life? (on your own)

All of the interviewees have moved at least 6 times, some have moved over 10 or 20 times on their own.

How many years have you been away from "home" (by home, i mean where you grew up)

Most of the interviewees have been away from home for over 6 years. the longest is 15 years.

How do you define home?

Most of the interviewees defined "home" as a place to relax, where her loved ones are, a place to truly be herself, a sense of belonging, and where she is financially stable.

What reminds you of home (what makes you feel at home)? objects, experience?

Objects include a comfortable bed, familiar pillows, food from hometown, a familiar smell, shades of lighting, objects that contain memories of home (dolls, old clothing), electronics (connection to home), photographs of family and friends, postcards sent by

friends, kitchen supplies, souvenirs collected over the years, bathtubs, speaker in the bathroom

How do you make yourself feel at home when you arrive at a new place?

Activities include rearranging furniture, putting out her own clothing, setting up sheets and blankets, putting her favorite food in the new fridge, setting up her own cleaning supplies in the bathroom, putting on her pajamas, changing the colors of walls, changing the lightbulbs to a warm color, hanging up photographs and artworks she has collected over the years, setting up a wifi password, rearranging the kitchen

Overall, a lot of these activities involve using the woman's own objects to occupy the new room/space.

What do you bring with you in a suitcase when you travel for 1 week? 1 month? 1 year? several years?

1 week: clothing, ID, cosmetics, electronics, emergency medication, mostly travel necessities

1 month: mostly the same as 1 week

1 year: other than the things they would bring for 1 week, most will bring notebooks, favorite books, their own pillow and beddings

several years: some answered the same as 1 year, some will prepare furnitures, but only furnitures that are crucial to them—example, desks, kitchen supplies, bookshelves

What's the one thing you would bring with you when you travel? (other than necessities)

Objects include diary, notebooks, sketchbooks. Almost half of the interviewees stated that they do not have an item that they always travel with because after years of traveling long distance and over long time intervals, they have developed the ability to not have attachment to objects. They have gotten used to the idea that things are always temporary in their lives, that they tend to not ascribe too much emotion on things, even people around them.

How do you think your international travel/residency background have affected who you are?

Respondents mentioned independence, more open minded, they find it easier to relate to people with diverse backgrounds, less politically sensitive, a broader world view, the experience opened up more opportunities for her to accept things in different ways, used to the idea of challenging herself, more constantly setting up new goals for herself, learned to better control their feelings and emotions (example, not getting attached to things, not getting emotional about events), used to the fact that her life shifts around and is always ready for it, learned to live in the moment and give everything her best, values materialism much less, universal understanding of different culture, more adaptive, much easier blending into a new culture, started enjoying being by herself, enjoying being alone, the international experiences don't only transform you, but also transforms the people around you, your family and friends

Do you care about owning a property? why or why not?

All of the interviewees except the one who is married said they do not care about owning a property. Because they did not want a property to tie them down, not having a property gives them more freedom, and raises the possibility of moving to new places and opens up more career opportunities for them, but at the same time, they do want a space to call their own.

The one interviewee that is married said she did not care about owning a property in her 20s for the same reason, but she is becoming a mother, and as a result, she wanted to be able to provide stability for her child.

Do you think being a woman has given you any resistance/trouble with your mobile international experience?

Not much other than security concerns. Especially in countries where they are serious sexual discrimination issues, example, Turkey, Japan, Russia.

Do you like your mobile life style, why or why not?

Mostly answered yes and no.

Yes, because they get to see more of the world, the experience expands their horizons, they get more mature with all these experiences, the mobile lifestyle gives them endless possibilities.

No, because sometimes they feel lonely being on the road and don't know where is home.

How do you define stability?

To these interviewees, most of them defined stability as more of a mentality and less of a physical status. Stability means more of a mental status of being satisfied about who they are and what they are doing, stability is more about having a stable role in an established network. They believe that stability is relative, instability is what defines stability, being challenged, and the satisfaction of challenging themselves make them feel stable. Stability is not objectified for these women, they do not care about being in a certain place, or being with a man, it is more about herself, and what she is looking for.

What do you love and hate the most about your mobile life style?

Love: the excitement of not knowing where she will be next, being able to develop friendships all over the world, the endless possibilities waiting around the corner

Hate: the process of moving, it is so exhausting. The sense of feeling insecure.

What's the percentage of time that you feel /not feel at home away from home?

Numbers vary. But all expressed that they do feel at home when they can be with or be connected to their loved ones.

CHAPTER 5

WHY MOBILE?

We are living in a new era in which mobility is valued more than stability among the young generation of the middle class. It is evident in the interview report from the previous chapter that this new generation of young, middle class women born in the 1980s and later with international backgrounds are not, at least not yet, looking for stability in their lives. In their personal life, their meaning of “home” developed beyond a specific geographic location, into a set of personal activities, memorable belongings, and intimate relationships. Home for them doesn't necessarily mean one town or city anymore, it could be the city in which they learned most of their life lessons or even all the cities they have lived through their lives. The meaning of home for them has shifted from a physical concept into more of a mental connection; In their work spaces, they are not limited to certain cubicles or desks, technology has allowed these young women to free themselves from the limit of space. The fast paced speed of global business has required them to be flexible and adaptive to new environments. They telecommute and travel all over the world for business (not to mention internet conferences), some may work in a foreign country far from home, some may be on the road 90% of the time for international projects; On their vacations, they pull up rental cars, hotel rooms, and flights right on their high-tech gadgets, skillfully pack their possessions into suitcases, and easily occupy hotel rooms with their own possessions to make them into short-term homes—Mobile living has become the new trend for these futurists, who possess the adventurous spirits that cannot be tied down by a specific place. This way of living is not

only shaped by the convenience provided by new technology, but is also built upon their deep desire of wanting to see more, and the free spirits that crave change. This generation of world travelers is called the New Nomads by Shonquis Moreno in her article *Going Global—Thoughts on the New Nomad Phenomenon* in the book *The New Nomads—Temporary Spaces and a Life on the Move*.

“We are the new nomads. Even in our railroad flats, studio apartments, and english basements, we are (re)turning to the life of the hunter-gatherer. We are merchants on the Silk Road trading ideas, herders grazing the higher slopes in midsummer. And to be mobile, we slough the burden of our stuff, our places, our habits. We want to think our way out of the proverbial box and into a yurt or sailboat instead. We are not following the seasons, or the food sources, or the exotic spices, or the straight path. We are following serendipity.”¹

It is true that Nomadism is not unfamiliar to human kind. We historically have been nomadic creatures since the beginning of human society. This history has fascinatingly unfolded as a circle. We lived as nomads to stay close to our food source when we didn't have the ability and convenience to build; then slowly we learned the set of skills to tame animals and grow plants so that we didn't have to choose between moving or starving. We settled and established villages, towns, and cities once we gained the knowledge of how to construct. As the expertise of construction advanced, and technology developed allowing food to be transported to any corner of the world, we started to find ourselves once again living or wishing to live the nomadic fashion. Each of these stages has the same goal—survival. And once survival has been made easier by

technology, we find ourselves looking for what was truly instinctive—the speculative in life, change, opportunities to explore, and to see the sights unseen—we are creatures of challenges.

In this fast-paced, exciting new time, flexible dwelling is returning to our lives. Research by Robert Kronenburg in the article *Modern Architecture and the Flexibility of Dwelling*, from the book *Living in Motion* edited by Mathias Schwartz-Claus, has identified that, historically, rooms in residential units have always been multi-functional until the last three centuries— “Consequently they were furnished with demountable tables (that also served as beds), stools and benches (that also served as beds), chests containing clothes that also served as seats (and beds!)”². So when and why did we abandon this incredible way of adaptive living? The answer is simple—“Once upon a time, our parents and grandparents held down a single job and owned a single house. Building a home bequeathed to the children was a testament to a family’s success.”³ Over time, status was equated to size, the bigger the house was, the higher one’s social standing. Homes in this sense have lost what they originally meant to us, they became more of a social capital than a family identity in this market economy.

Today, in these more dynamic times, mobile housing opens more doors than just the freedom to travel anywhere. Imagine moving to a new city without having to move into a new house. Imagine when everything is unfamiliar and everyone unacquainted, the most intimate connection we have with a space, which we call home, has not changed. The security and comfort that the notion of “feeling at home” brings us at an unfamiliar

place is essential for our well-being. In this process of identifying a home like place, the concepts of flexibility, adaptability, and mobility allows us to imagine a new kind of home that, unlike the traditional home which is fixed to a single location, moves with you. Physically, these homes can be shipped or hauled with you the moment you decide to be on the road without having to pack or unpack. In this process, both time and energy are saved, stress level lower than a traditional “move”. Consequently, it makes people more willing to move, opening up all the opportunities that we cannot get with a traditional house. Economically, “As real estate values and the likelihood of relocation creep ever upward, it’s a bonus to be able to take your custom-built, energy-efficient home with you to a new city— or resell it, eBay style, in a market that extends well beyond your neighborhood”⁴. Mobile units have opened up the real estate market of housing world wide. There is an environmental case to be made as well. Mobile units have made factory production of housing units possible, which as a result, reduce the waste of materials significantly, and boosts the efficiency of construction tremendously — “On a typical construction site (In the United States), 30 percent of materials get tossed in a dumpster, whereas in a factory 99 percent of those materials get used or recycled into a new project... Factory built homes centralize materials, processes, and tools from all over the world, speeding a high-quality, sustainable home to a site- a home that can often be relocated later. Mobility is writ large in every step of the movement.”⁵ explained Jennifer Siegal, in the book *More Mobile: Portable Architecture for Today*. So as “Technology has made the flow of communication constant, business global, and friendship virtual. It promises to free us from workplaces and lets us reinvent them; improves industrial production but makes a luxury of the handmade; lets us

micro-manage our relationships on-screen while making us appreciate a physical person across the table.”⁶ With all the possibilities and experiences await, why not go mobile?

¹ The New Nomads: Temporary Space and Life on the Move. Berlin, Gestalten Publishing, 2015. Page 3.

² Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 22.

³ Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 5.

⁴ Siegal, Jennifer. More Mobile: Portable Architecture for Today. , Princeton Architectural Press, 2008. Page 6.

⁵ Siegal, Jennifer. More Mobile: Portable Architecture for Today. , Princeton Architectural Press, 2008. Page 7.

⁶ The New Nomads: Temporary Space and Life on the Move. Berlin, Gestalten Publishing, 2015. Page 7.

CHAPTER 6

MOBILE ARCHITECTURE

Where does architecture—the concept and field that has developed based on stability, durability, and permanency—fit in the new trend of mobile living? “Perhaps mobile design’s richest irony is this: it deals as much with staying put as with movement...All (futurist mobile technology) achieve the triumph of self over the limits of space—without moving one bit. Constancy and rootedness in the midst of travel and change stand for something after all”,¹ concludes Jude Stewart, in the forward for Jennifer Siegal’s *More Mobile*. What’s clear here is that the physical mobility of architecture doesn’t necessarily change the permanent essence of architecture. Mobile architecture is a two-sided coin. It doesn’t only satisfy the new generation’s desire to be physically mobile, but also accommodates them the security and comfort of feeling constant and rooted in familiar surroundings despite an ever changing context. So in a sense, mobile architecture is more permanent metaphorically than traditional architecture, as it can more easily become a constant presence in one’s life time wherever they go. Mobile architecture satisfies the transition from the core idea of space to an idea of self-existence as the base condition of architecture. Architecture that is mobile reflects much more on the occupant than the spatial limits: they can be moved anywhere—to large empty farm lands, to the top of skyscrapers, or even dropped on sidewalks—in this process, architecture become so much more meaningful because mobility requires that architecture shifts its meaning when it is installed on different sites. With mobile architecture, what stays constant is not the site, but the people, unlike traditional houses in which occupants change over time as the property stays the same. So

therefore, mobile architecture is more expressive, more human, because it communicates our need for change of context while staying familiar on the interior to aid us with adjusting our pace in the new environment. It provides us the opportunity to have the outside environment extending the invitation of adjustment to us instead of solely having us adjusting to the new environment. It allows us the freedom of feeling at home at any geographic location in the world. It also allows homes to move freely so that it becomes easier to blur the social class gaps, making society shifts much more affordable and less stressful.

Mobility was introduced to modern architecture in the mid 20th century. In Kronenburg's article *Modern Architecture and the Flexibility of Dwelling*, Kronenburg mentioned mid 20 century movements such as the Japanese Metabolism which advocates organic growth in mega structures and the European Avant Garde Archigrams which stands against consumerism to create a new reality through futuristic projects. The idea of Plug-in City, developed by Peter Cook from the Archigram group back in 1964, expressed the concept of "prefabricated homes assembled into dense fluctuating urban patterns"². The design of the Plug-in City does not include any buildings, instead, frames are put in place for standardized dwelling units which can be plugged into these mega structures (Figure 6.1).

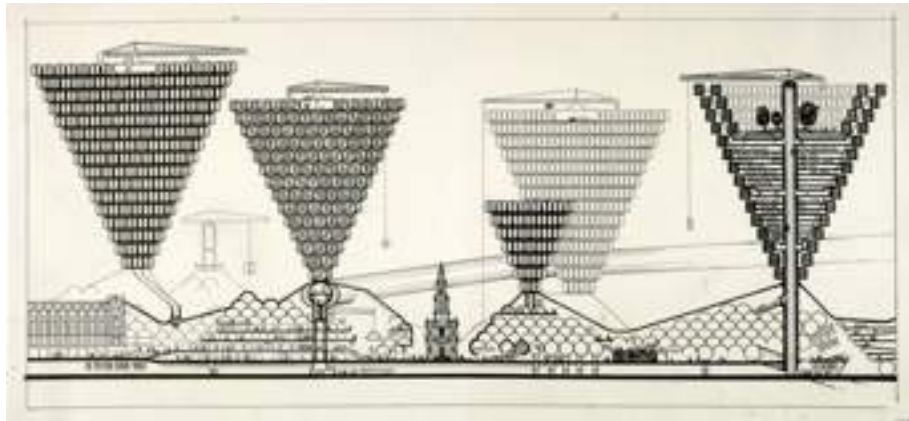


Figure 6.1. Plug-in City Conceptual Drawing from Archigram Archives



Figure 6.2. Nakagin Capsule Tower by Kisho Kurokawa

This idea of the Plug-in City was later on partially implemented by Japanese architect Kisho Kurokawa in the Metabolism movement. The Nakagin Capsule Tower (figure 6.2) in

Tokyo, erected in 1972 was completed in 30 days with the intention to house business men from outside of the city. The tower consists two large core structures that act as the “frame” for the capsule units to be plugged into. The building acts as a “prototype for architecture of sustainability and recycleability, as each module can be pugged in to the central core and replaced or exchanged when necessary”³. The building is flexible not just in terms of the stackable and removable units, but also the ability for different units to be connected together to form larger capsules as needed. All of the capsules were assembled in a factory in Shiga Prefecture and then transported to the core structure to be installed. Although the design has been seen as one of the classic failures in the history of modern architecture, no one can deny the exhilarating forward thinking. The concept was doomed by reality—ideally, according to the metabolists, constant maintenance was required for each unit and the two core structures, but as rental units, no residents took ownership of the building, it was never updated according to plan and could not be kept up. In my humble opinion, a few of the reasons why the Nakagin Capsule Tower failed are: 1. The business model of the capsule units did not compliment the designed constant maintenance for the building. 2. The structure only exists in Tokyo, so it has closed off the possibility for the capsule owners to transport these units anywhere else. In a sense, it is only mobile up to the point it was installed. From the installation on, these units are technically permanent unless it needs to be changed. 3. The units were designed to be flexible only with regards to their attachment to the core structure. The interiors of the capsules are still designed traditionally with built in furnitures that cannot be moved or removed. So in the day to day operations, these units are even more permanent than traditional housing because the tenants cannot

move or rearrange the interior at all. 4. These capsule units are manufactured with the intention that they cannot be modified by the occupant. They were constructed with steel trusses and panels which could only be replaced or updated by the manufacturer. It has failed from the inconsistency between its ambitious goal and poorly planned operating system for after the construction. 5. The idea of a community was never implemented in the capsule tower. Each individual unit was rented out by a development firm, isolated by the heavy concrete walls, and no one intended to spearhead any activities or facilities for people in this building to meet or socialize together. To conclude, the Capsule Tower failed because flexibility in this project was not carried all the way through, and in 1972, this futuristic concept was too underdeveloped for it to be realized.

Absorbing the stimulating concepts and learning from the past failures, contemporary mobile architecture has brought flexibility to another level. Adaptivity became much more heavily emphasized in contemporary mobile projects. These contemporary mobile architects act as “facilitator(s) in allowing them (the occupants) to create their own setting, which they can change frequently as they wish” instead of “creating a fixed setting for house occupants’ lives”⁴. Management and the system of upkeep are valued as heavily as the design and construction, and the approaches always started small instead of as megastructures. Two decades after the failure of the Capsule Tower, again in Japan, Shiguru Ban took another stab at mobility in architecture in a series of Furniture Houses, a private residence elegantly showcasing how the concepts of flexible space can be employed in contemporary architecture. One persistent theme in all of the

Furniture Houses is the idea of flexibility—the liberation from walls. It was not only the interior walls are movable, but also the exterior walls. The Curtain Wall House built in 1996 (Figure 6.3. & 6.4.), incorporated a large Japanese-style “curtain wall” that acts as the protecting mechanism and exterior wall of the house.⁵ This dramatic two-story fabric covers the sliding glass doors (which is the only enclosure in the building), and can turn the house into three completely different spaces—when the sliding doors are shut with the curtains closed, the house becomes completely private and secured; when the sliding doors are open with the curtains closed, the interior space becomes the exterior flooded with the busy Tokyo traffic noise, almost acting as a large scaled tent; when the sliding doors are shut with the curtains open, the interior visually blends into the urban landscape of Tokyo but technically closed off from the outside. This simple gesture of the curtain has amazingly accomplished, to some degree, much more than the movable mega structure of the Capsule Tower. By closing and opening the curtain, without much being changed, the expression of transformation is defined at its best.



Figure 6.3. & 6.4. Curtain Wall House by Shiguru Ban, Tokyo, Japan, 1996

In Ban's Furniture House 1 (Figure 6.5) , built in 1995 in Yamanashi, Japan, a series of factory produced storage shelves and wardrobes took over the role of walls. These pieces act as both structural elements and space-defining elements⁶. The interior space was defined by these storage units that are pre-fabricated, which significantly reduced the time of construction, and functional, which cleverly activated walls into occupiable spaces. The concept was elevated in his next project, the Naked House (Figure 6.6), built in 2000, which followed the client's request for a house that "provides the least privacy so that the family members are not secluded from one another, a house that gives everyone the freedom to have individual activities in a shared atmosphere, in the middle of a unified family"⁷. In this home, the four mobile rooms for family members become the furniture. These rooms can be pushed to different places in the house, whether to take advantage of the view toward a window, the warmth of a heating unit, or the breeze from air conditioning. The rooms can be pushed together to form larger rooms, or out to the terrace for the full use of the larger space. The interior of the house transforms from a large space where family members can gather, four single bedrooms when family members need privacy, or a few larger spaces when the individual rooms are connected together to form larger rooms.



Figure 6.5. Furniture House 1, Shiguru Ban, 1996



Figure 6.6. Naked House, Shiguru Ban, 2000

Shiguru Ban's success in these flexible housing unit experiments not only came from his profound understanding of space and and clever usage of flexibility, but also from the Japanese housing traditions that he had adopted. The traditional Japanese family homes

usually have at least one tatami room. Most if not all furniture and fittings in this room are “introduced, moved around and removed as required”⁸. These rooms are designed to transform between social spaces and private bedrooms. —“People sit on the floor on cushions, sometimes with back or arm rests; low tables are used for working or eating; futons are rolled out for sleeping. Stair/storage cupboards that are movable pieces of furniture connect floor levels.”⁹ (Figure 6.7) Ban’s concept of flexible space extracted the most essential part of the tatami rooms—the interaction between the occupants and the space itself. These engagement between the user and the room is far more meaningful than to walk in and lie down in a bed. The room transforms according to the activity and the people using it, it takes on the character of the occupant and the activity each time it is used. It is more connected to what’s happening in the room, the space intertwines with what’s inside the space instead of simply containing it.



Figure 6.7. Traditional Japanese Tatami Room

¹¹ Siegal, Jennifer. *More Mobile: Portable Architecture for Today*. , Princeton Architectural Press, 2008. Page 9.

²Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 45.

³ Sveiven, Megan. "AD Classics: Nakagin Capsule Tower / Kisho Kurokawa ." Archdaily.com, 9 Feb. 2011, www.archdaily.com/110745/ad-classics-nakagin-capsule-tower-kisho-kurokawa. Accessed 10 Jan. 2017.

⁴ Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 64.

⁵ Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 67.

⁶ Shiguru Ban Architects, http://www.shigerubanarchitects.com/works/1995_furniture-house-1/index.html

⁷ Shiguru Ban Architects, http://www.shigerubanarchitects.com/works/2000_naked-house/index.html

⁸Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 22.

⁹ Schwartz-Clauss, Mathias. Living in Motion--Design and Architecture for Flexible Dwelling. Weil Am Rhein, Ultra Design Museum, 2013. Page 22.

CHAPTER 7

DESIGN PROCESS

7.1 Overall Design Proposal and Branding

The research conducted in the previous seven chapters led me to a design that aims to pose questions such as, how could architecture free women from gender constraints? How could architecture help to construct the feminist nomads' identities? What forms of designs are the most suitable for this growing group of nomads? How do I as a designer compose a space or many spaces that fit the need of the feminist nomads? How do I innovate the concept of mobility? How does this design project not only provide physical support but also mental support for the feminist nomads?

To begin the design process that answers all of these questions, I have set the following goals to achieve for the client group— the feminist nomads:

1. Create a series of architectural and design products to support their mobile life style.
2. Make traveling and moving less stressful and more enjoyable.
3. Help the feminist nomads to remain independent, and free them from gender discrimination and oppression.
4. Give young women who are striving for success more freedom and flexibility to pursue their dreams.
5. Help to form supportive communities around the world to support the feminist nomads to adapt to foreign society more easily.

6. Create a sense of belonging and security in a new place.

After careful consideration, I decided that the project will take the form of a global business model that is operated for and by the feminist nomads. The business model will consist the following five scales shown in the diagram below as a Russian nesting doll. The five scales include Scale 1 as two suitcases, (one checked, one carry-on), Scale 2 as the moving cube, Scale 3 as the living unit, Scale 4 as the living community, and Scale 5 as the global business model. Each of these scales plugs into the next scale of models to form a integrated system of design.

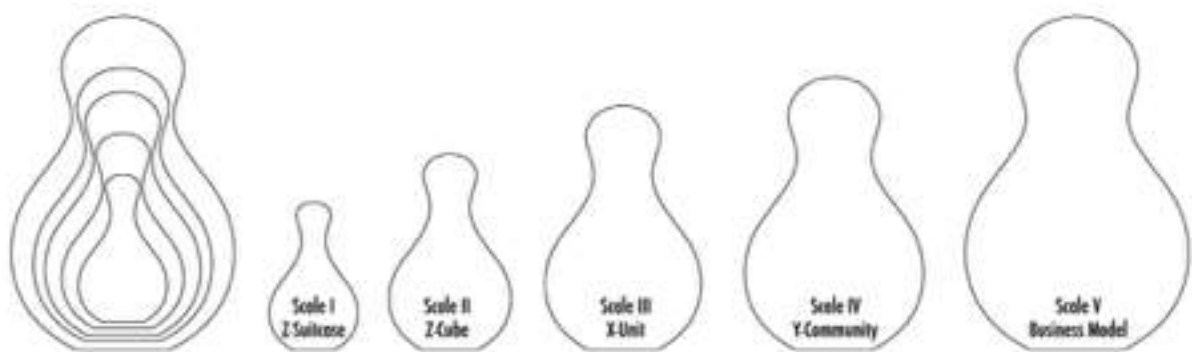


Figure 7.1. Nesting doll diagram of 5 different scales of design

The branding of the project reflects the simple and minimal concept of the relationship of a individual and a community. The business model is named Z-Cube, with each different scale of models starting with the letter Z, e.g. Z-Case, Z-Unit, Z-Community, etc. A logo (Figure 7.2.) representing the idea of the “plug-in” system of different scales, and the color red is used to express the individuality of each member of the community. The overall graphic vision of the business model is set on a black and white basis with the color red used to highlight the relationships involved in the shifts of different scales.

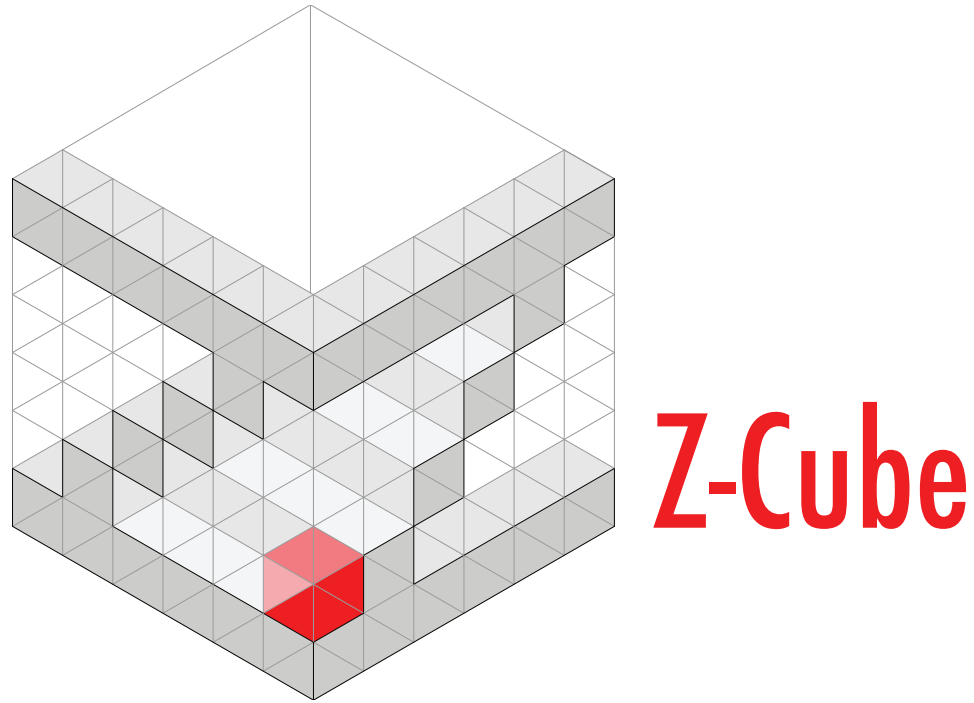


Figure 7.2. Z-Cube Logo

7.2 Scale 1 Z-Cases

Scale 1, the Z-Cases are the first part of the design process. An analysis (Figure 7.3.) of what is packed into these suitcases, informs the design of the suitcases. Z-Case 1, a carry-on suitcase sized 19"x13"x9" is designed to transform into a nightstand shown in Figure 8.2.2. The suitcase is constructed with leather and steel fixtures that get extracted from the structure of the suitcase and turn into supporting pieces of the night stand.

Scale 1:
 Carry-on Case
 Size: 19"x13"x9"
 Unfolds into Nightstand



Figure 7.3. Diagram of items in the Z-Carry-on Case

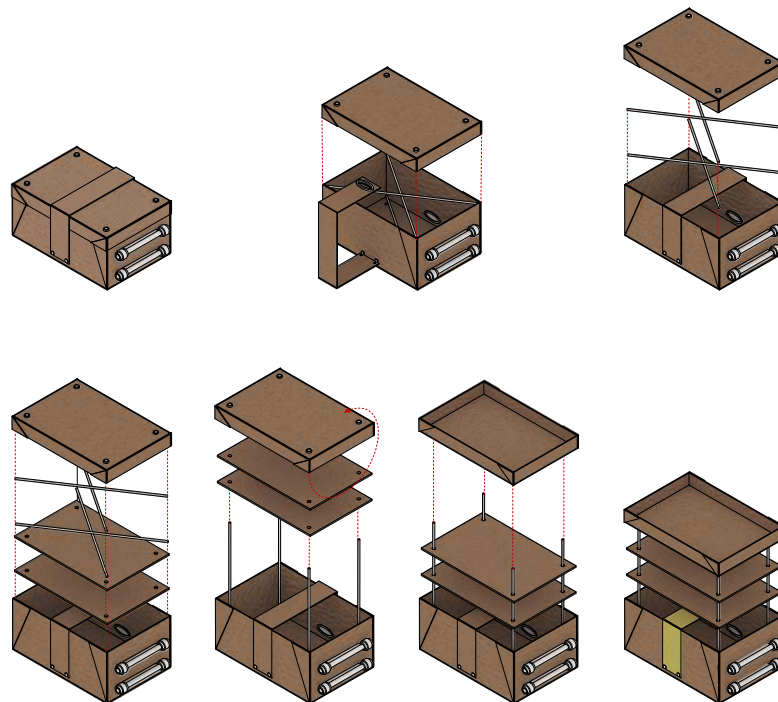


Figure 7.4. Drawing and transformation process of Z-Carry-on Case

The second suitcase—the Z-Checked Case follows the same process as the Z-Carry-on Case. Starting with an analysis of what is packed into these suitcases (Figure 7.5.), which again informs the transformation of the suitcases. Z-Case 2 (Figure 7.6), a checked suitcase sized 30”x19”x11” is designed to transform into a shoe rack shown below. The suitcase is constructed with polycarbonate pieces that get extracted from the main structure of the suitcase and turn into supporting pieces of the shoe rack.



Figure 7.5. Diagram of items in the Z-Checked Case

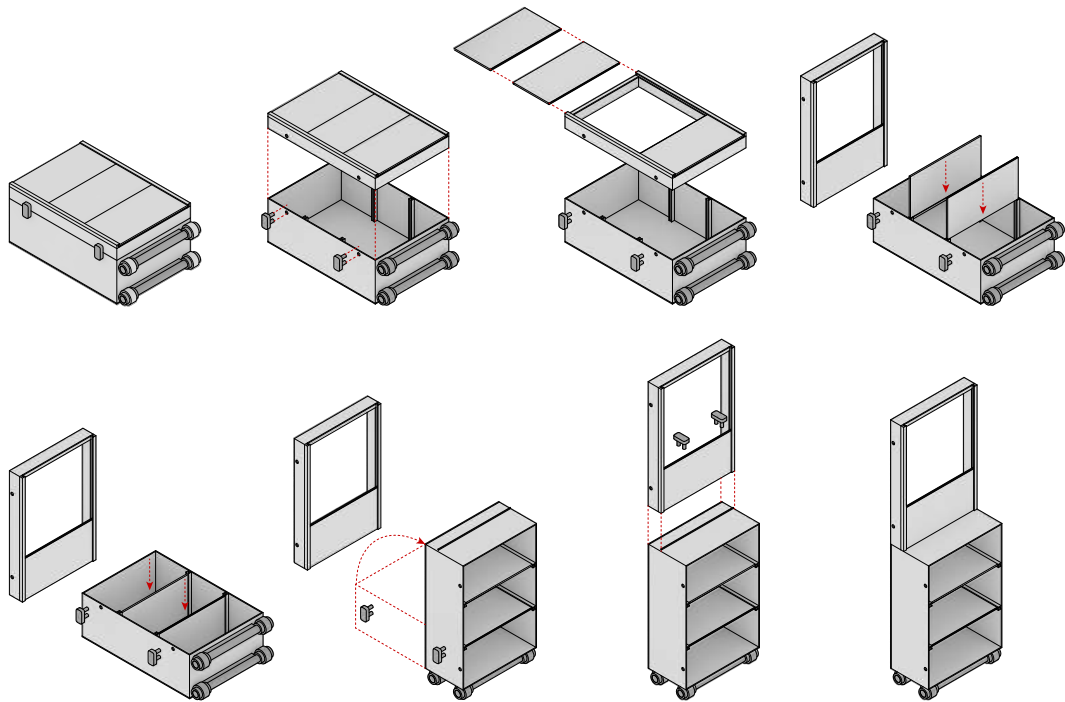


Figure 7.6. Drawing and transformation process of Z-Checked Case

7.3 Scale 2 Z-Cube

The second scale is the Z-Cube, which is a mobile cube that contains all of the client's household belongings. The Z-Cubes consists three different parts— a kitchen component, a study component, and a bedroom component, each sized 7'x7'x2'. The Cubes are designed with plug-in systems for the Z-Cases, and for each cube section as shown in the diagram in Figure 7.7. The three different components of the cube gets attached security to each other during the moving process, and is easily transported by the Z-Cube company to the next destination. Each section includes wheels for easy transportation during the moving process.

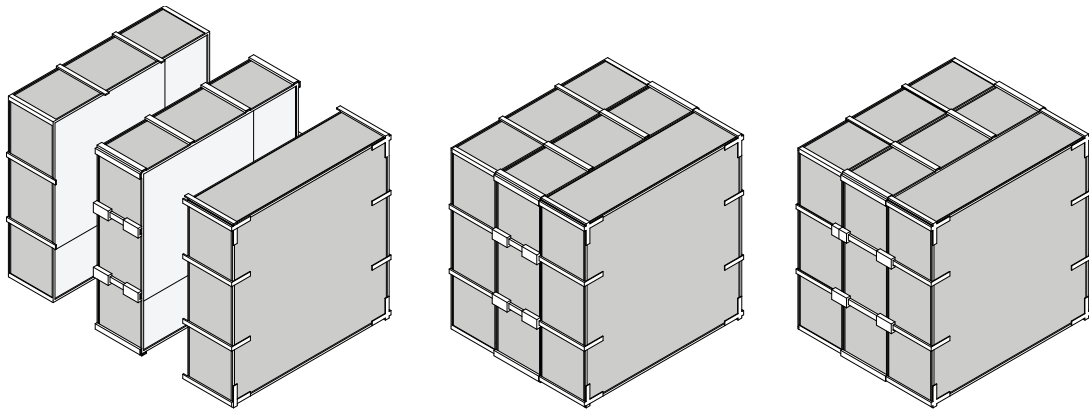


Figure 7.7. Diagram of the Z-Cube Section Plug-in system

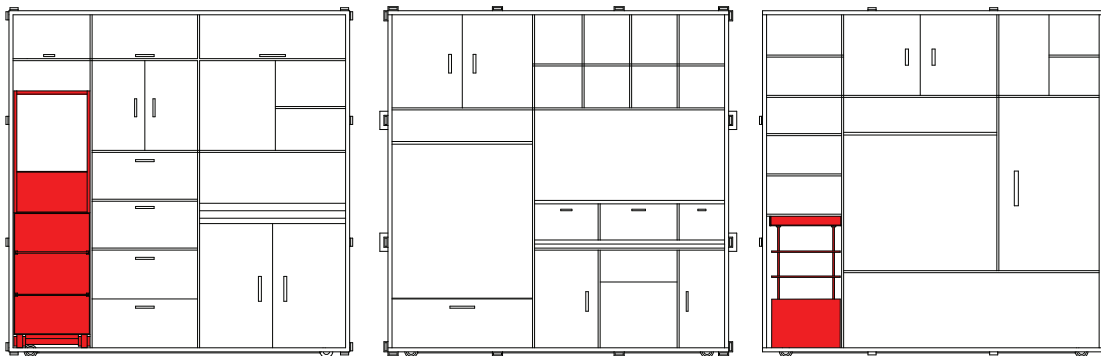


Figure 7.8. Elevation Drawing of the Cube composition and plug-in of the Z-Cases

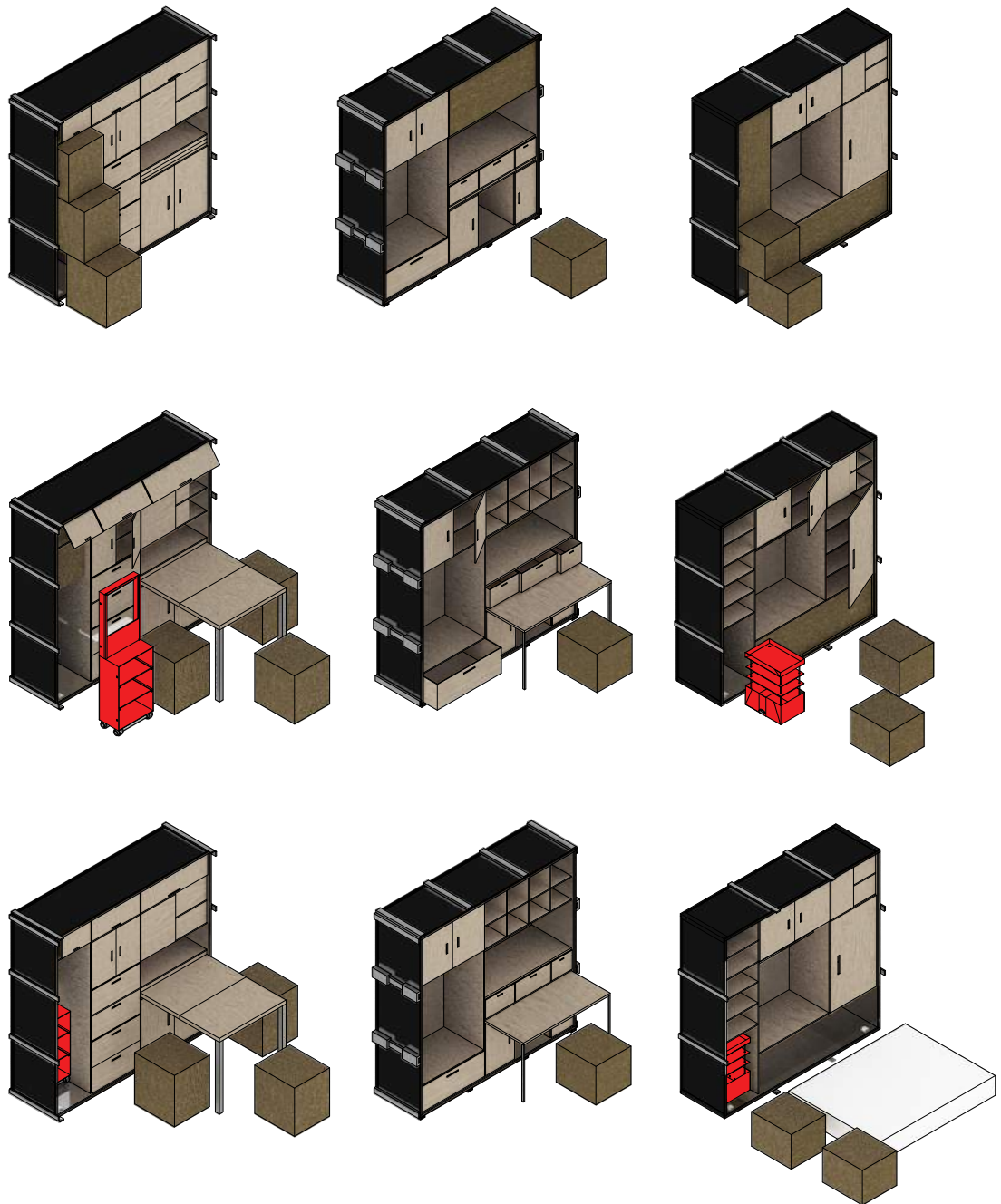


Figure 7.9. Drawing of the unfolding process of the 3 sections of the Cubes

The 3 sections of the Z-Cube get separated once arriving at the new destination and deployed in different sections of the space. These pieces are designed with shelves and storage spaces for the client's personal belongings such as books, beddings, kitchen utensils, mementos, clothing, and etc. The first part, the kitchen piece includes 3 leather storage seating units, a pull-out dining table, and several shelves and drawers. Z-Checked Case gets plugged into the space where the leather seating units were located. The the study section, includes 1 leather storage seating unit, a pull-out desk, several shelves and drawers, and one wardrobe. The the bedroom piece, includes 2 leather storage seating units that can also be grouped together and used as a small coffee table, several shelves and drawers, and a folding mattress that gets utilized in the next scale of design. Z-Carry-on Case gets plugged into this piece of the cube.

The Z-Cube is constructed with a steel outer shell, that has steel attachment pieces welded on the outside, and bamboo lumber shelving on the interior of each section of the cubes. The usage of materials considers durability by using steel outer shells to ensure safety in transportation, sustainability by using bamboo lumber which has a much shorter growth period than wood and easily recyclable, quality, and aesthetics.

7.4 Scale 3 Z-Unit

Scale 3, the Z-Unit is a 40'x15' individual interior unit that is designed for Scale 2 to be plugged in to form a fully functional apartment. The design of the Z-Unit considers the international background of the feminist nomads, and was designed with the idea that the space challenges western cultural assumptions of what a “home” should look like. The design is inspired by both Eastern and Western cultural influences to form a unique, fluid, and comfortable living unit. The Z-Unit took Eastern cultural influences such as the Japanese Tatami room doors (Figure 7.10) and the traditional north-eastern Chinese multi function bed “Kang” (Figure 7.11), which was popular among northeastern Chinese families before the industrial revolution, to construct multi functional spaces, to satisfy the unique passion for change and free transformation of the feminist nomads. The spaces leaves the freedom for the clients to define what they want each section of the units to be instead of designating any specific function of any part of the design. All of the layouts shown are only suggested by the designer as an example, and the client has the liberty to decide how exactly she wants the space to function.



Figure 7.10. Japanese Tatami Room



Figure 7.11. Northeastern Chinese Kang



Figure 7.12. Plan and Section of the Z-Unit

The Z-Unit (Figure 7.12) is constructed with an elevated bamboo lumber platform, polished concrete flooring, steel structural members, and bamboo lumber interior walls to keep a clean, simple, and polished visual image. Kitchen appliances, bathroom fixtures, and a bathtub are built into the unit. The bamboo lumber platform includes a slot for the Z-Cube bedroom component which allows for the insertion of the folded mattress and an open bathtub. The platform is designed as the “private” sector of the unit, which left large spaces for intimate and private activities. A tatami room sliding door is located between the kitchen and the bathroom, dividing the private and public zones. A large glass sliding door is placed as the entrance of the Z-Unit, accompanied by a curtain, which simply and profoundly shifts the relationship of the kitchen space to the shared community spaces outside the unit. The kitchen space can easily be transformed into a semi-public activity space, for all the neighboring feminist nomads to hang out. The Z-Cube gets delivered into the Z-Unit as are designed to be wheeled into its desired location in the Z-Unit by the client.

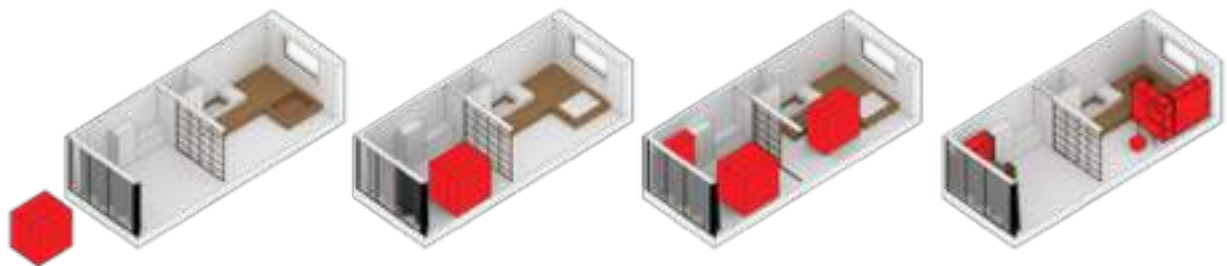


Figure 7.13. Diagram of Plug-in Process of Z-Cube Figure



7.14. Diagram of Transformation of Public and Private Space

7.5 Scale 4 Z-Community

Scale 4 of the design, Z-Community aims to foster the culture of adaptive reuse and the revitalization of old industrial buildings in cities around the world. The design works on a location-by-location basis, and each building selected will be specifically designed based on the size, infrastructure, features, the structural system of the building, and the local culture. For the purpose of showing examples, I have picked three buildings with different sizes and shapes to demonstrate examples of how the communities will be composed. Building 1 is the New Lab in Brooklyn, New York, located in the Brooklyn Navy Yard (Figure 7.15.), (sized 135' x 350'), Building 2 is the East London Warehouse located in London, UK, (sized 120' x 195'), and Building 3 is the Waterhouse Factory located in Shanghai, China, (sized 330' x 120'). Out of the three buildings only The New Lab building in Brooklyn is developed more in detail due to time constraint.

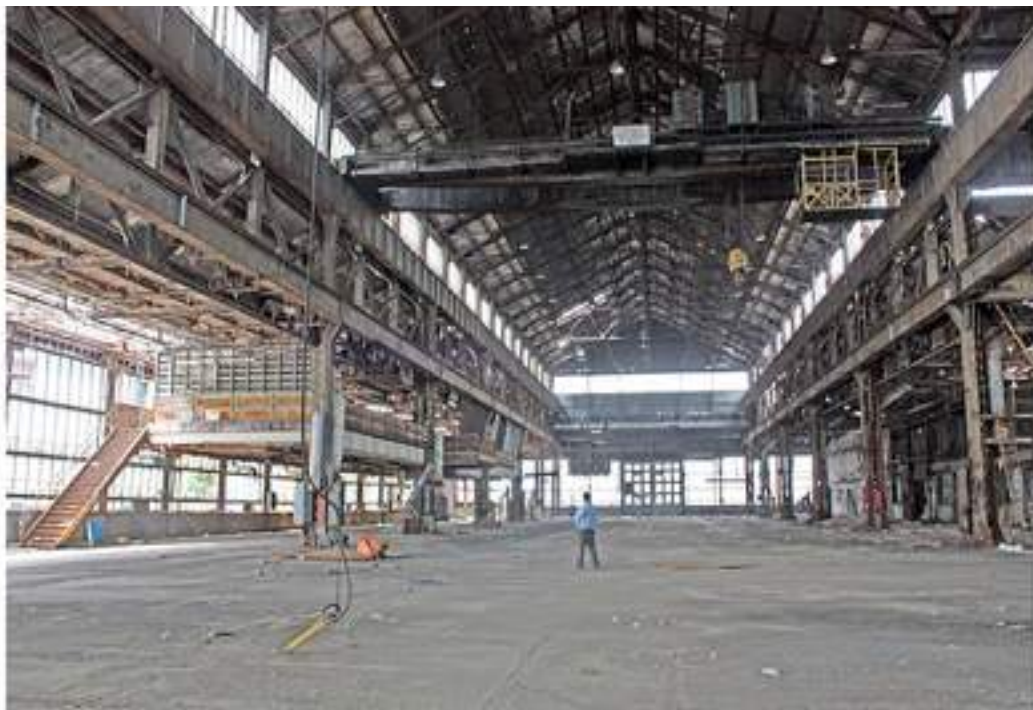


Figure 7.15. Image of the New Lab Factory Building before renovation

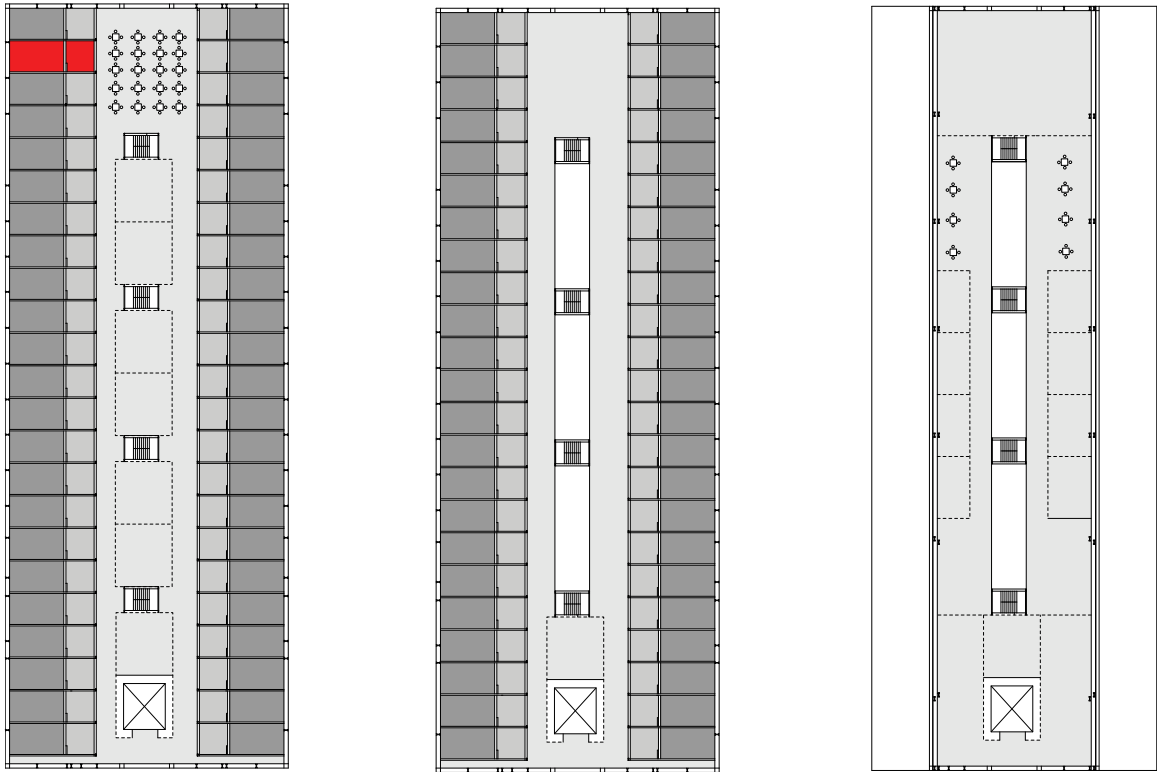


Figure 7.16. Proposed Floor Plan of Z-Community at New Lab, Brooklyn

The proposed floor plan of the Z-Community at the New Lab building in Brooklyn, New York (Figure 7.16.) arranges all of the Z-Units along the exterior wall on the east and west side of the building to ensure each unit's access to a window that directly faces a street to meet the New York building and fire code. The center spaces (Figure 7.17) of the building are all designated to facilitate an organically grown community space that will include different shops, cooperatives, social spaces, libraries, offices, cafeterias, and large gathering spaces. There are no walls constructed in the large community space (Figure 7.18.), for the purpose of keeping the community space inclusive, open, and multi-functional. The third floor space is entirely designated to community usage. Four enclosed egress stairs are located along the center volume of the building to meet New

York building and fire codes. A large industrial elevator is located on the southern end of the building for the transportation of the Z-Cubes.



Figure 7.17. Section Perspective of the proposed New Lab Building in Brooklyn, NY



7.18. Perspective Rendering of the Open Community Space in the New Lab Building

In addition to the New Lab Building in Brooklyn, New York, two additional buildings were developed in plan to assure the versatility of the concept.

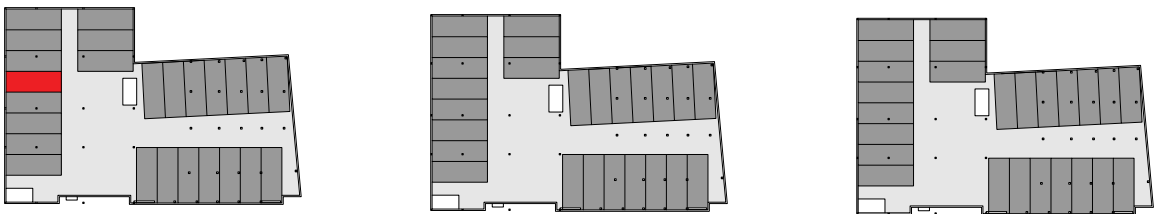


Figure 7.19. East London Warehouse Diagrammatic Floor Plan 120' x 195'

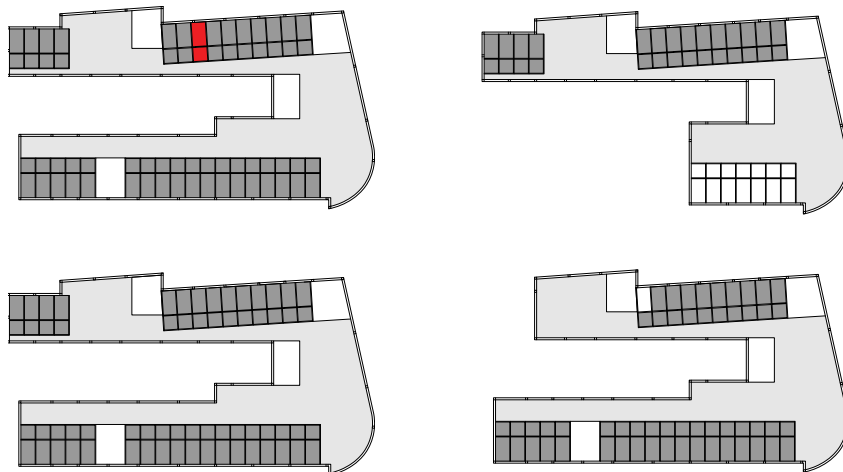


Figure 7.20. Shanghai Waterhouse Factory Diagrammatic Floor Plan 330' x 120'

7.6 Scale 5 Global Business Model

Scale 5 is the Global Business Model designed to operate the system of Scales 1-4. The business model works on a subscription basis, in which a client registers as a member of the Z-Cube community, pays a monthly subscription fee that is established by the different factors of the current real-estate market. The subscriber receives a shipment of the Z-Cube, which gets shipped with her belongings by the Z-Cube company, and she travels to her next destination with the Z-Cases. (Figure 7.21) A mobile device application (Figure 7.22) will be developed as a main tool for the subscribers to navigate through the local and global Z-communities. The application delivers the sign up process that includes the following steps: Identification Verification (to assure the safety and integrity of the communities)—Subscription Fee Payment—Location Selection—Personality Assessment (to help place the subscriber into a small sector of the selected community)—Community and Unit Selection—Delivery of the Z-Cube—Move In! The application will also list social functions such as local and global community gatherings, job fairs, job and networking opportunities, Z-Cube Company employment opportunities, Online chatting functions for Q&As, event planning and posting, idea sharing, ride share, clothing swap...etc (any community activities that the subscribers see fit).

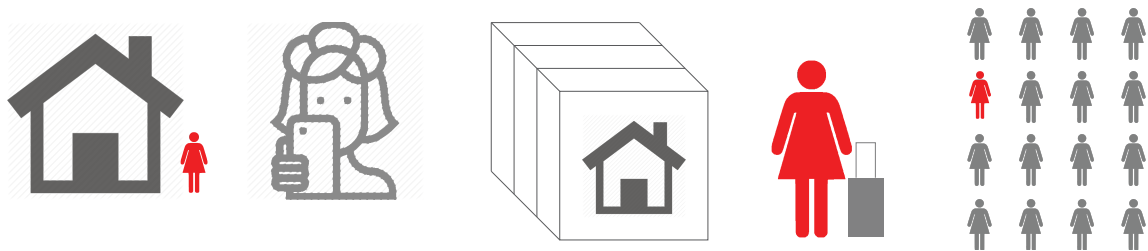


Figure 7.21. Diagram of the Sign-up Process

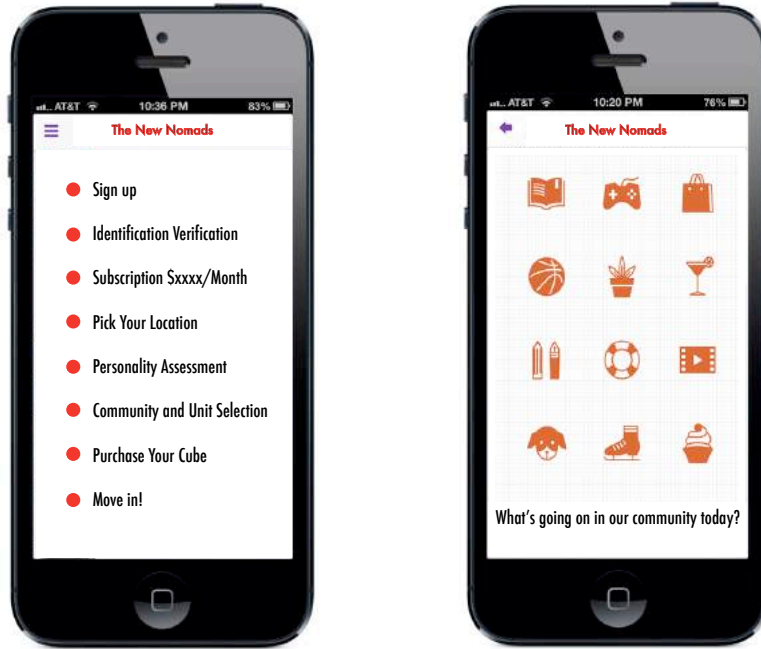


Figure 7.22. Mobile App Diagram



Figure 7.23. Diagram of Community Benefits

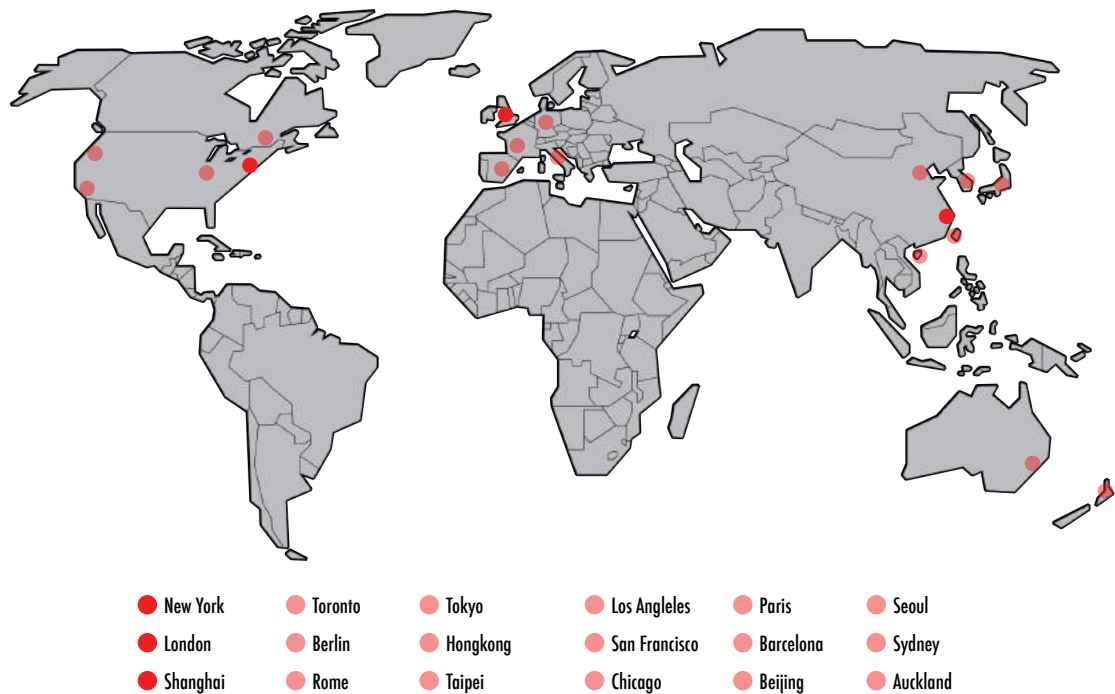


Figure 7.24. Diagram of Global Communities

The larger goal of Scale 5 is to develop hubs of the Z-Community in large cities all over the world to help foster a large international community of feminist nomads. In addition to the three proposed communities in New York, London, and Shanghai, potential hubs can be located in the 15 cities shown in the above diagram. These cities are derived from the interviews with the 12 Feminist Nomads (See Chapter 5), they are the cities these women either have lived in or have travelled to.

A schematic financial analysis was conducted to test the feasibility and affordability of the business model, including research on the cost of domestic moving pod rate, international air freight rate, rent analysis for the Brooklyn, New York, cost of buying

cheapest Ikea furniture pieces needed to furnish a 1 bedroom/studio apartment each time moved, and a revenue analysis for the Brooklyn Z-Community.

	Door to Door	Terminal to Terminal
5 Feet of Trailer Space	\$2571	\$1680
1 ReloCube (6'x7'x8')	\$2046	\$1596

Figure 7.25 Cost Analysis of Domestic shipping, New York to Los Angeles

	Value	Amount
Freight (Household Goods)	20' Container	\$695
Bunker Adjustment Factor	20' Container	\$60
Warfage	0.45 MT	\$0.50
Bill of Lading		\$50
Terminal Handling Charges		\$150
Surcharge for Personal Effects		\$150
Drayage to Loading Area	1-10 Miles	\$485
Fuel Surcharge		\$145.50
Customs Brokerage Fee		\$0
Delivery Charges	11-50 Miles	\$0
Insurance Charges	value \$2000 x 1.5%	\$45
Total		\$1781

(Subject to measurement limit of 1,161 cubic feet or 32.9 cubic meters & weight limit of 38,000 Pounds or 17,236 Kg. per Container)

Figure 7.26 Cost Analysis of International Air Freight, New York-London

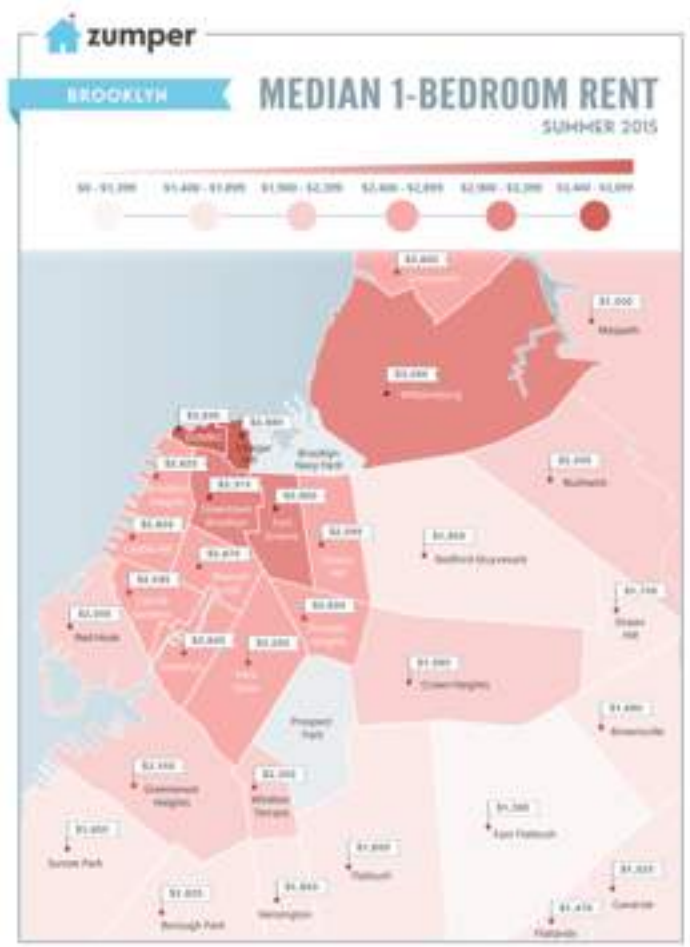
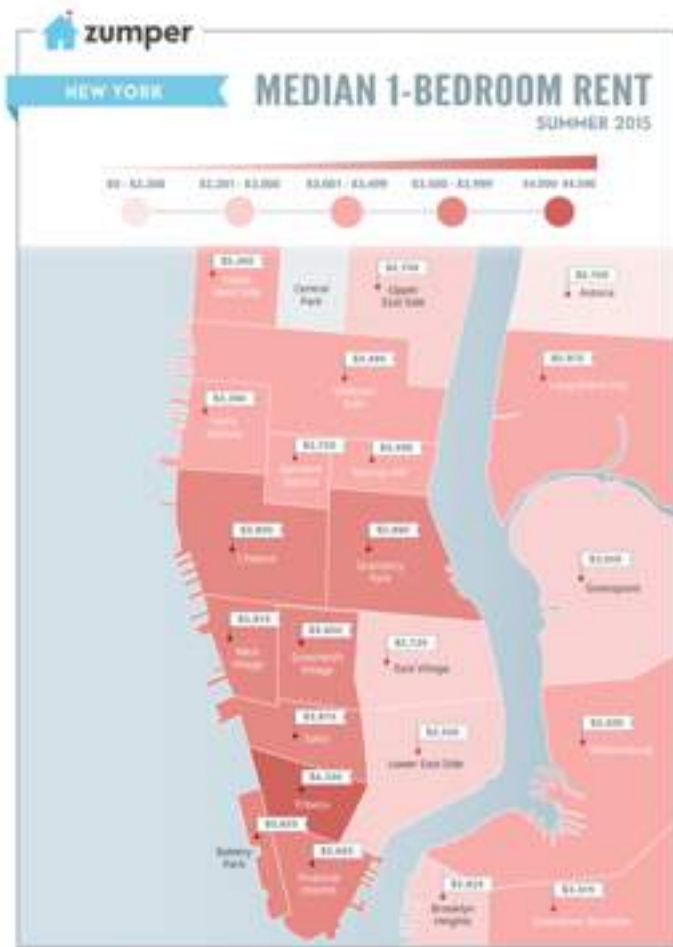


Figure 7.27 New York City Rent Analysis

*diagrams from Zumper Realestate

<https://www.timeout.com/newyork/blog/map-of-average-rent-by-nyc-neighborhood-is-as-depressing-as-you-d-expect-082115>

Item	Ikea Item #	Cost
Bed	KOPARDAL BED	\$179
Mattress	MEISTERVIK FOAM MATTRESS	\$149
Desk	MICKE DESK	\$79.99
Desk Lamp	FORSA LAMP	\$22.99
Floor Lamp	LERSTA FLOOR LAMP	\$19.99
Night Stand	KULLEN 2-DRAWER CHEST	\$29.99
Dresser	KULLEN 6-DRAWER DRESSER	\$79.99
Wardrobe/Clothing Hanger	ELVARLI 2-SECTION SHELVING UNIT	\$292.5
Mirror	MINDE MIRROR	\$9.99
Bookshelf	KALLAX 8-SHELF UNIT	\$64.99
Couch	BALKARP SLEEPER SOFA	\$109
Coffee Table	LACK COFFEE TABLE	\$24.99
TV Stand	LACK TV UNIT	\$14.99
Living Room Lamp	LERSTA FLOOR LAMP	\$19.99
Dining Table	TARENDO DINIGN TABLE	\$39
Dining Chairs x 2	LERHAMN CHAIR	\$35x2=\$70
Shoe Rack	LUSTIFIK SHOE RACK	\$5.99
Total		\$1212.39

Figure 7.28 Cost of buying cheapest Ikea furniture pieces needed to furnish a 1 bedroom/studio apartment each time moved

*All pricing from ikea.com

From the financial analysis, I have concluded that the subscription fee of \$2000 each client is not only profitable, but also very attractive financially to the feminist nomads comparing to renting a one bedroom apartment or studio (similar or smaller sizes than the Z-Unit) and furnishing the apartment by themselves.

Revenue Analysis

Number of Units: 46 units/floor x 2 floors =	92 units
Total Income: (\$2000/unit/month) x 92 units =	\$184,000/Month
Building Lease: (130ft x 350 ft) x \$20/sqft =	\$91,000/month
Monthly Revenue:	\$93,000/month
Number of staff 4 staff x 4,500 =	\$18,000/month
Equipment rental/investment ~	\$10,000/month
Maintenance of building ~	\$ 5,000-10,000/month
Monthly Income:	\$60,000-55,000/Month

Figure 7.29 Revenue Analysis of Z-Cube Business Model

CHAPTER 8

CONCLUSION

Having been in the United States for 8 years, I have grown from a young girl who was taught by traditional Eastern culture to “grow up and marry a good man, and become a good wife”, into the strong, independent feminist I am today, who does not align myself with the traditional values of the conservative gender assumptions, who identifies myself as a global citizen, who is independent and brave enough to be proud as the women I am, and who is working hard as an individual to get to where I want to be as a young professional feminist nomad.

This new feminist nomadic community is growing everyday and each and every one of us is making inspiring moves that contribute to the larger climate of globalization and gender equalization. I really hope this project can inspire young women, especially from cultures that are more conservative and male dominated, to expand their horizons, in doing so they will contribute to the new era of gender equality and to this new global community. I am hoping to using this project to inspire the next generation of young women to bravely march with the group of the feminist nomads to chase their dreams, and never again be objectified and contained by traditional expectations.

I am looking forward to connecting with more feminist nomads like myself to make this business model come true, in the very near future, in which women are equal and stronger as a community.

BIBLIOGRAPHY

1. Friedman, Avi. *Peeking through the keyhole: the evolution of North American homes*. McGill-Queen's University Press. 2002. Web. Page 14-36.
2. Adam, Peter. *Eileen Gray: Architect & Designer*. New York: Harry N. Abrams Inc. 2000. Print. Page 191-220.
3. Martin, Brenda, and Penny Sparke. *Women's places : architecture and design 1860-1960*. London: Routledge, 2003. Print. Page 87-102.
4. Constant, Caroline. *Eileen Gray*. London: Phaidon Press. 2000. Print. Page 93-115.
5. Colomina, Beatriz. *Sexuality & Space*. 4th ed., Princeton, Princeton Architectural Press, 1996. Page 74-92.
6. Schwartz-Clauss, Mathias. *Living in Motion--Design and Architecture for Flexible Dwelling*. Weil Am Rhein, Ultra Design Museum, 2013. Page 5-22.
7. *The New Nomads: Temporary Space and Life on the Move*. Berlin, Gestalten Publishing, 2015. Page 3-22.
8. Schwartz-Clauss, Mathias. *Living in Motion--Design and Architecture for Flexible Dwelling*. Weil Am Rhein, Ultra Design Museum, 2013. Page 5-78.
9. Siegal, Jennifer. *More Mobile: Portable Architecture for Today*. , Princeton Architectural Press, 2008.
10. Sveiven, Megan. "AD Classics: Nakagin Capsule Tower / Kisho Kurokawa ." Archdaily.com, 9 Feb. 2011, www.archdaily.com/110745/ad-classics-nakagin-capsule-tower-kisho-kurokawa. Accessed 10 Jan. 2017.

11. Shiguru Ban Architects, http://www.shigerubanarchitects.com/works/1995_furniture-house-1/index.html