ToL

IoT

Perhaps we will cling longest to the symbol of "house" as we have known it, or perhapse we will realize that in accommodating ourselves to a new world the most important step in avoiding retrogression into the old, is a willingness to understand and to accept contemporary ideas in the creation of environment that is responsible for shaping the largest part of our living and thinking.--A good result of all this then, would, among other things, be a practical point of view based on available facts that can lead to a measurement of the average man's living standards in terms of the house he will be able to build when restrictions are lifted.--We of course assume that the shape and form of post war licing is of primary importance to a great many Americans, and that is our reason for attempting to find at least enough of an answer to give some direction to current thinking on the matter. Whether that answer is to be the "miracle" house remains to be seen, but it is our guess that after all of the witches have stirred up the broth, the house that will come out of the vapors will be conceived

within the spirit of our time, using as far as is practicable, many war-born techniques and materials best suited to the expression of man's life in the modern world.-- What man has learned about himself in the last five years will, we are sure, express itself in tohe way in which he will want to be housed in the future. Only one thing will stop the realization of that wish and that is the tenacity with which man clings to old forms because he does not yet understnad the new.-- It becomes the obligation of all those who serve and profit through man's wish to live well, to take the mysteries and the black magic out of the hard facts that go into building of "house".-- This can be and, to the best of our ability, will be an attempt to perform some part of that service. But this program is not being undertaken in the spirit of the "neatest trick of the week." We hope it will be understood and accepted as a sincere attempt not merely to preview, but to assist in giving some direction to the creative thinking on houseing being done by good architects and good manufacturers whose joint objective is good housing.

Theater of Life

A Design Thesis submitted to the
Department of Architecture and Landscape Architecture of
North Dakota State University

By

Jacob Hasse

In Partial Fulfillment of the Requirements
for the degree of
Master of Architecture

_____
Primary Thesis Advisor

_____
Thesis Committee Chair

May 2019
Fargo, North Dakota

01

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O3

THESIS ABSTRACT

The purpose of this thesis is to propose an integrated model for intentional living and participatory design. Theater of Life seeks to expand the potential of housing in a dense urban environment with blank canvas units for custom turn-key renovators to thrifty minimalists to live-work artisans.
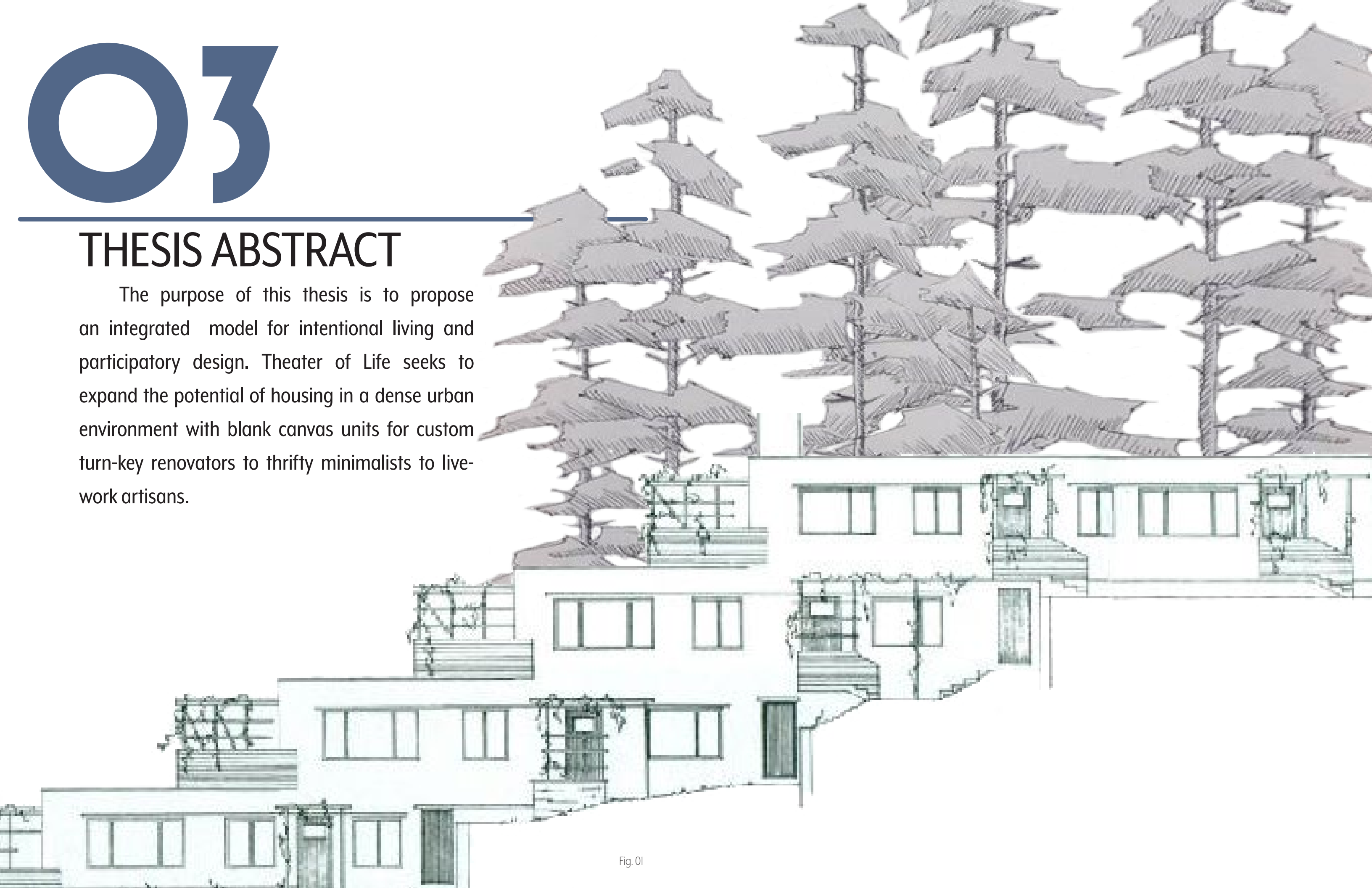
Fig. 01

05

THEORETICAL ASPECT NARRATIVE

My grandpa Bud raised my mom and her sisters as a pastor in rural North Dakota. Every 5-6 years, the family would move to a new parsonage when Bud would receive a new call to service.

Because of their semi-transience, they never really felt like they could call a place home. So in 1960, they set out to buy a plot of land and build a permanent cabin for a place of their own. Over the course of my mom's childhood, they slowly built the cabin utilizing lumber from old barns, windows from an old school house and furniture from an old bed and breakfast.

The cabin is still in the family and continues to bind my family as a place of our own but the consequences of inexperienced building fifty years ago, with reused lumber, means upkeep is a constant, downhill battle. Never the less, this cabin gives me an appreciation for the quality of my environment and an awareness for intentional spaces in my life that I believe my grandpa and many other people share.
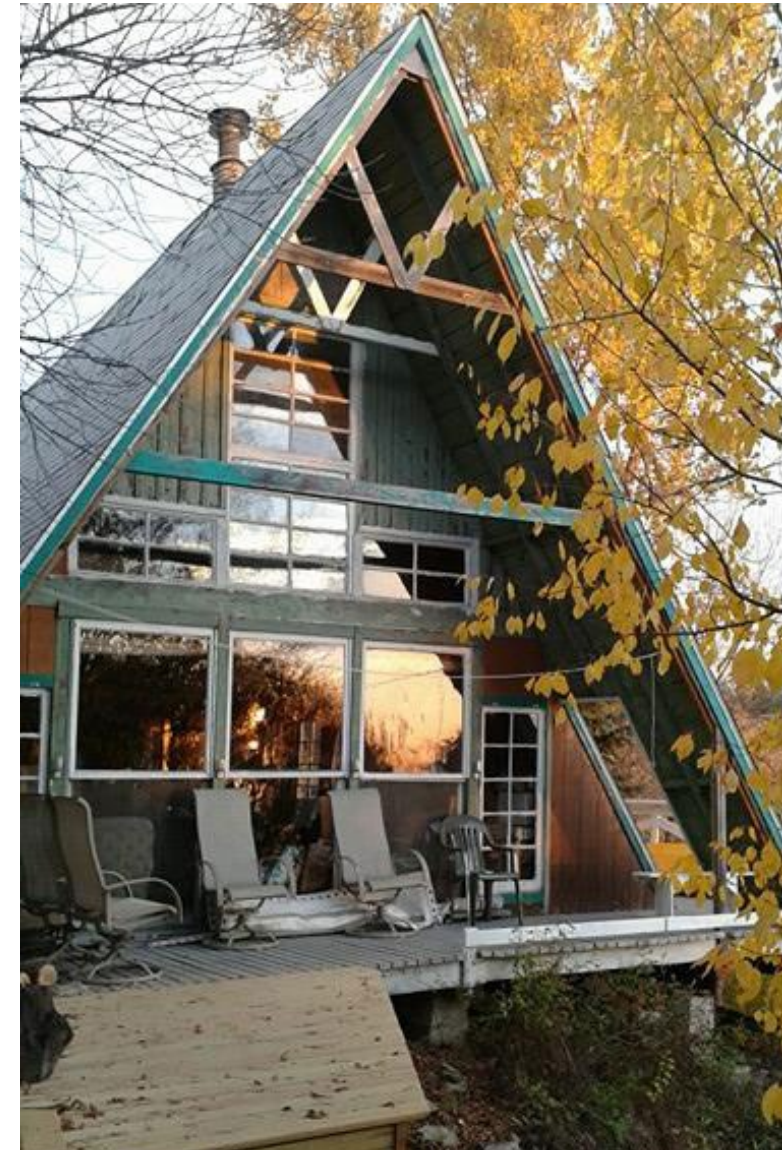
Fig. 02

Fig. 03

06

TYPOLOGY

The scope of this project will culminate in a low-rise, high-density housing development. The main focus of the project is on an adaptable model for manipulation of interior living spaces and systems. Social housing initiatives over the years have been a valuable resource for the interpretation of life within architecture. The most significant and contemporary example being the work done by Elemental.

Fig. 04

O8

TYPOLOGICAL AND APPLICABLE RESEARCH

O1. Elemental Incremental Housing and Participatory
Design Manual
-Quinta Monroy, '*Half-a-Good-House*', Iquique
Chile

O2. Centre Village, Winnipeg Canada (2010)
5468796 Architects

O3. Alexandra Road Camden estate, London UK
Neave Brown

O4. Lego and Minecraft world building

O5. Arts & Architecture magazine
Case Study House Program

O6. *A Place of My Own*
Michael Pollan

O7. No-Boundary Community
Guangzhou, China

Fig. 05

ELEMENTAL Incremental

Housing and participatory design manual

This review covers the origin and development of Elemental as covered in Elemental Incremental Housing and Participatory Design Manual. The book serves as a chronological account and process for Elemental's work starting as an "academic initiative" for social housing moving into a "do tank" for social architecture reform. My own inspirations and diversions sparked by Elemental's work have had a significant impact in refining my thesis. The contextual development of Elemental is followed by a reflection and conclusion.

From 2001-2006, Chile made many changes to its housing policy including a limitation on new social housing complexes to not exceed 300 units while also rolling back available funding. This was created in an effort to limit large neighborhoods of repeated, monotonous architecture. Unfortunately, the industry was mostly comprised of large developers that wouldn't commit to such small projects and the smaller companies that would take them didn't have the resources to remain a stable source of development.

At about the same time, three graduate students; Andres Iacobelli, Pablo Allard, and Alejandro Aravena were attending a dinner party when Iacobelli asked:

"Looks like Chilean architecture is going through a very good moment, getting a lot of international attention and recognition. If it's true that Chilean architecture is so good, then why is the social housing so bad?"

From then on, the three of them started developing what would become Elemental. Their initial conditions were:

A.   Scale; social housing proven at the scale of a full housing complex.
B.   It had to be built to confront the skepticism of academic work.
C.   It had to follow market rules to be repeatable within acceptable limiting frameworks.
D.   It had to survey and formulate the right question, not invent it.

These aspirations also came with an ambitious paradigm. Reduced to a sixty second pitch to David Rockefeller in 2003;

"There have been two important moments in the history of social housing: the first, in 1927 in Germany, when the best architects of the time got together and built a model neighborhood near Stuttgart. The second in the seventies in Peru, when the most important architects of the moment for the last time got together and built a model neighborhood outside of Lima. Elemental wants to write the third chapter of this story and bring the best architects in the world back to build social housing."

Recognizing the limited resources of social housing, the students felt that responding with a lack of options was casting a negative shadow on the realm of social architecture. Instead of "elementary" as the obvious or simple responses to limitations, they sought the elemental. "The Elemental is that which cannot be broken down further, a basic irreducible unit. Social housing could be considered as such, a privileged opportunity to operate at the limit of the architectural discipline." Architecture has taught me to not shy away from challenges and instead view restrictions as a design opportunity; "To create an Elemental architecture is a business of intellectual merit, requiring professional capacity and experience as well as practical intelligence of the highest level; professional quality more than professional charity."

The three Harvard students were working with a unique motivation of ignorance. They took on a student seminar at Harvard Graduate School of Design with collaborative help from Universidad Catolica de Chile learning along with their students. Their ignorance allowed them to explore what could be done instead of struggling with what couldn't be done.

By 2003, Elemental had developed a working hypothesis; "focused on an architectural typology permitting high density (to pay for land), avoiding overcrowding while incorporating expansion processes and self-construction,

all within the same building." With this idea, the national director of infrastructure of Programa Chile Barrio hired Elemental to address the Quinta Monroy shantytown community in the center of Iquique. Through a rigorous study of available market typologies, resident priorities, and a pragmatic limiting framework, Elemental proposed the following operating within the limiting framework,

$$x = 100 \text{ families} \times \$7{,}500 \times 30m2 / 0.5 \text{ ha}$$

A. Establishment of the families in a consolidated urban area.

B. Incremental construction without neighborhood deterioration.

C. Safety and economy of expansions..

D. Design with community participation.

Elemental's dedication to pragmatism and community is laudable and their ambition to restore the face of social architecture is admirable. Unfortunately, social programs have had a poor history in the United States. The Pruitt-Igoe development in St. Louis Missouri is one of the most famous examples of social housing failing to live up to steep expectations. The architecture wasn't really the root cause of Pruitt-Igoes fall but none-the-less, social and political stigma

weigh heavily on the prospect of social housing in the United States.

The good news, Elemental has dedicated considerable time and effort into the applicability and adaptability of their process for wider use. This approach to architecture draws parallels to open-source concepts finding footholds in the tech industry and even other parts of architecture. Wiki House is an online, open source house construction centered on simple concepts like:
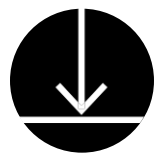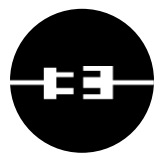
Design to lower thresholds
> Lower barriers of time, cost, skill, energy and resources

Superpower the users
> 'Give power to the fine tuners' – Cedric Price. Afford as much power as possible to the end users, from procurement to privacy to electricity. Democracy is a design diagram.

Mistake proof
> Make it impossible to get wrong, or not matter if you do.
> (Japanese call this 'Poka-Yoke')

If you can't mend it, you don't own it.
> Try to avoid 'black box' products. Try to make it easy for the user to learn how it works.

Typical U.S. homes tend to be delivered as 'black box' systems that require specialists and contractors to service. This system is very useful for quality control and consistency but hired specialists are an unnecessary barrier for something as elementally necessary as housing. The prospect of open source architecture offers the ability to troubleshoot through community iterations. Ideally, such a system could be as intuitive and accessible as LEGO. LEGO is an elegant embodiment of Poka-Yoke. There is no need for a construction manual to understand the basic idea behind LEGO and putting two blocks together can hardly be messed up.

The Elemental concept of Half-a-Good-House, participatory design and construction paired with the open source, user-empowered architecture of WikiHouse has promise for application in the capitalist market of the U.S.

Fig. 06-09

Quinta Monroy

Typology study Iquique, Chile

O1. The Detached House

Typically the most sought after typology due to its expandability and utility of the lot. For half a hectare however, only thirty units would fit preventing financial feasibility.

1 house = 1 lot
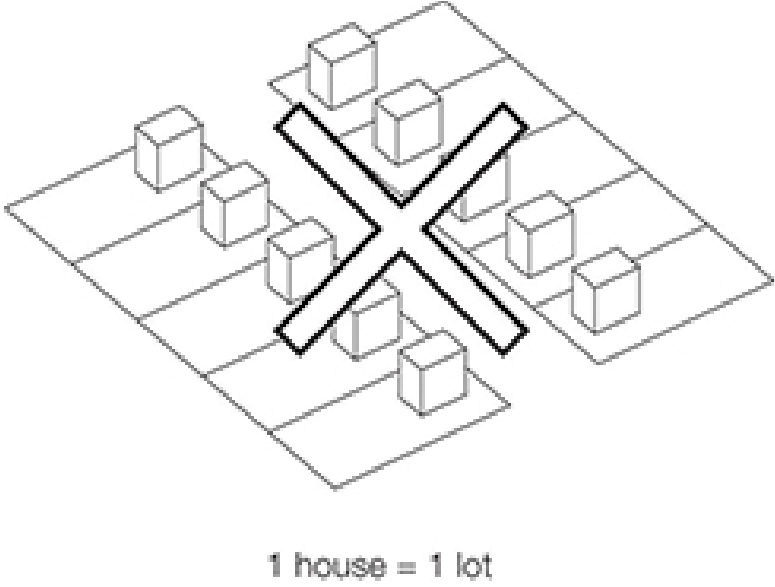
Fig. 10

Fig. 11

O2. The Row House

A more dense option allowing for sixty units within the site. Building expansions would leave encased rooms within creating ventilation issues and ultimately leading to overcrowding and less efficiency.

a = b
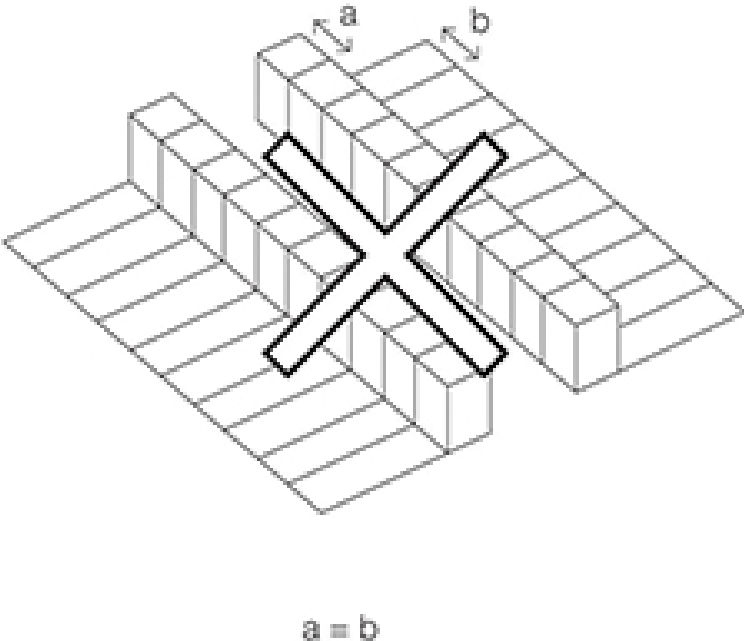
O3. The Multistory Block

The most land efficient option, easily accommodating every family. However, no expansion opportunities for units above the ground floor defeating the purpose of 'half a good house'. Also, this option was met with considerable opposition from residents.

h > 2

Fig. 12

Fig. 13
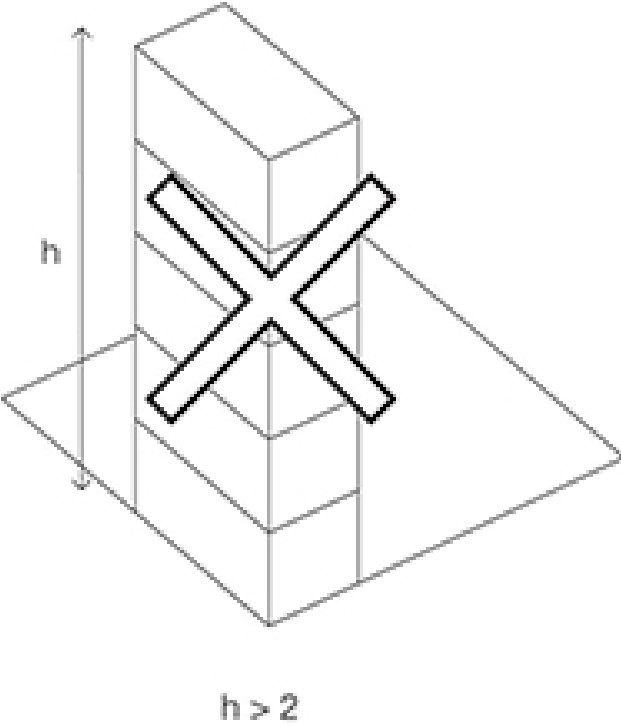
CENTRE VILLAGE 5468796 Architects

Winnipeg, Canada (2010)

Centre village is located in the heart of Winnipeg's Exchange district, one of the most diverse urban areas in the city. Toward regenerative development, the project was designed as a 25 unit "micro village"(ArchDaily) in which public space was a high priority. With public space and intentionally small units, people cross paths more often and create stronger bonds to the broader community. This design has been met with some harsh criticism and controversy but there are has been positive feedback from residents and the design rests on solid precedent.

Fig. 14

ORIGINAL SITE – 6 HOUSE LOTS   REQUIRED DENSITY – 25 UNITS   CENTRE VILLAGE
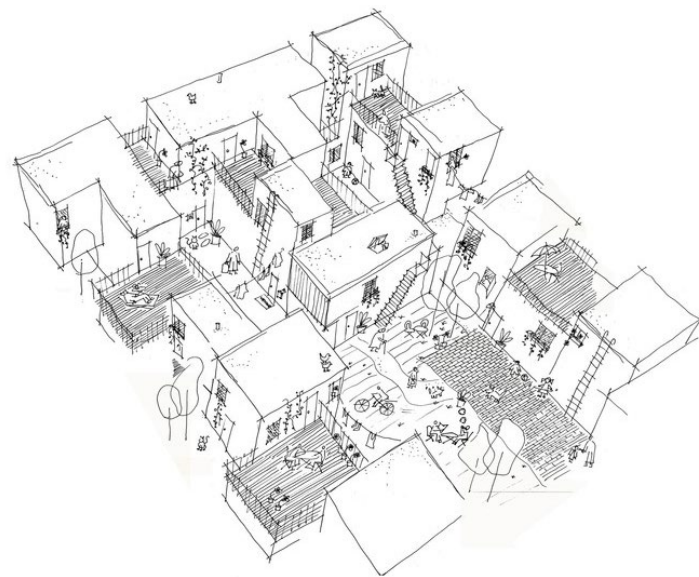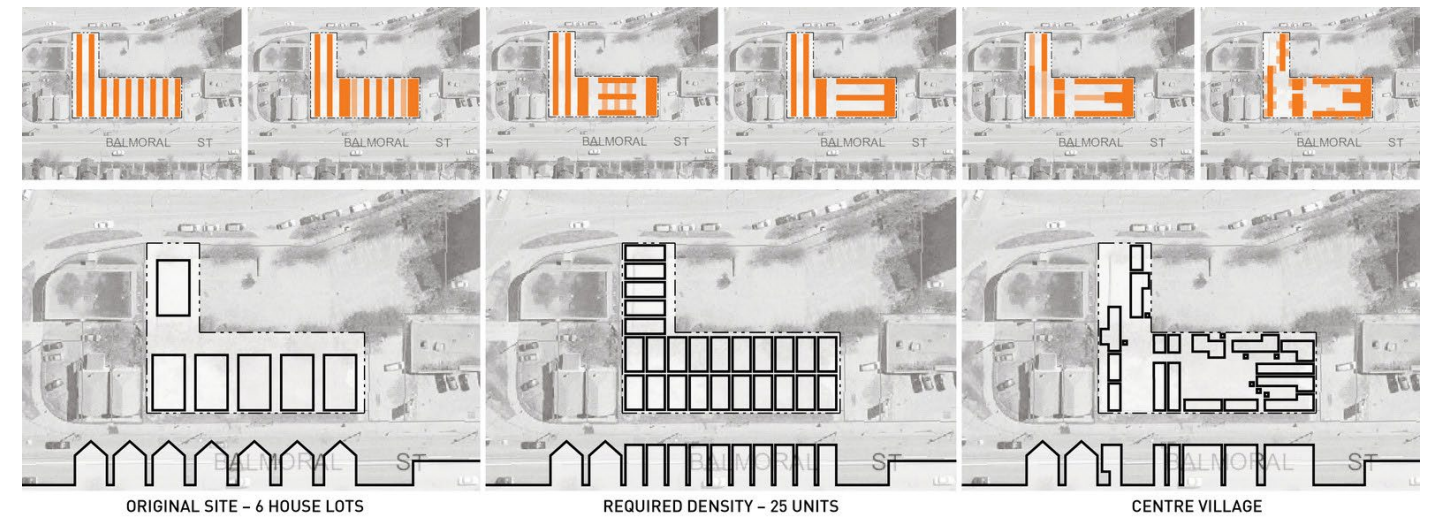
Fig. 15

For example, the density diagram above follows a similar iterative site layout process investigated by the team at Quinta Monroy. Existing typologies were investigated, determined to not be feasible and modified into a group of buildings forming intentional spaces around them. Two details between Elemental's project and Centre Village could explain some disparity of perceived success.

One, 5468796 wasn't working directly with existing residents. Centre Village was designed and built more typically as a development to be rented or managed through a co-op who would find tenants. Elemental had the privilege to cater directly to those that would be living there. This is an important distinction because the need to supply housing is too vast to be able to cater to communities in that way. If a housing shortage is going to be addressed in any meaningful way, it will likely need to be broadly applicable and not custom built.

Fig. 16

Two, Centre Village is a more conventional project in scope. The final product is the end of it past maintenance and management. Quinta Monroy is a project meant to grow and develop through the individuality of the residents. Centre Village is a vision of the architect and, to a certain extend, belonged to 5468796. In order for the idea behind building a community through architecture to work, people need to have some autonomy over their environment to feel as if it is theirs'.

Fortunately, the ideas and forethought behind Centre Village are strong enough that I believe it will generate some form of its designed intent. Societal changes often have an impact on the success of architecture from one generation to the next so maybe Centre Village is just ahead of the curve.

Fig. 17

ALEXANDRA ROAD   Neave Brown

Camden, London UK (1977)

I was taken by the work of Neave Brown when I read a quote of his from an interview in Social Housing (Karakusevic) regarding his time working committee design in the sixties and seventies;

Fig. 18

"At our Fleet Road project, our planners had initially suggested a scheme which had 'strategic walkways' all around it and a high-rise rectangular block in the middle. I explained to Sydney Cook that this was a high-density scheme, but that I could achieve the same housing numbers with a low-rise building."
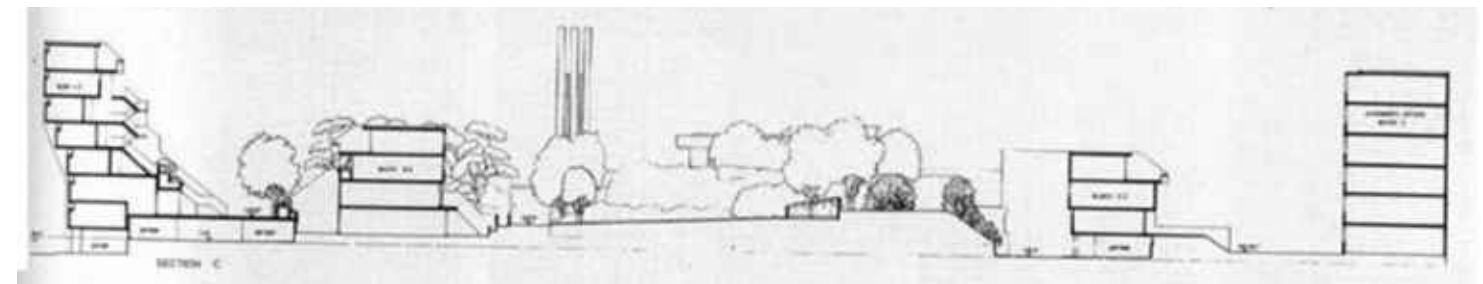
Fig. 19

The housing sector at the time was very dynamic because the architectural community viewed social housing design as a privilege. Neave Brown reasons that dynamic was due to "the youthfulness and energy of the people involved, and also because the various figures of authority in the Council were relatively young and inexperienced." (Municipal Dreams). Despite youth and inexperience, many of the committee estates were relatively successful and share some key characteristics with the work of Elemental and Centre Village.

As Brown was reasoning about the Fleet Road estate, high-rise rectangular blocks have some critical disadvantages being applied to housing. Community building and development are quite difficult if the units don't open directly onto positive public space. In Elemental's collaboration with Quinta Monroy residents, the idea behind a high-rise block was unacceptable because it creates a surplus of community space
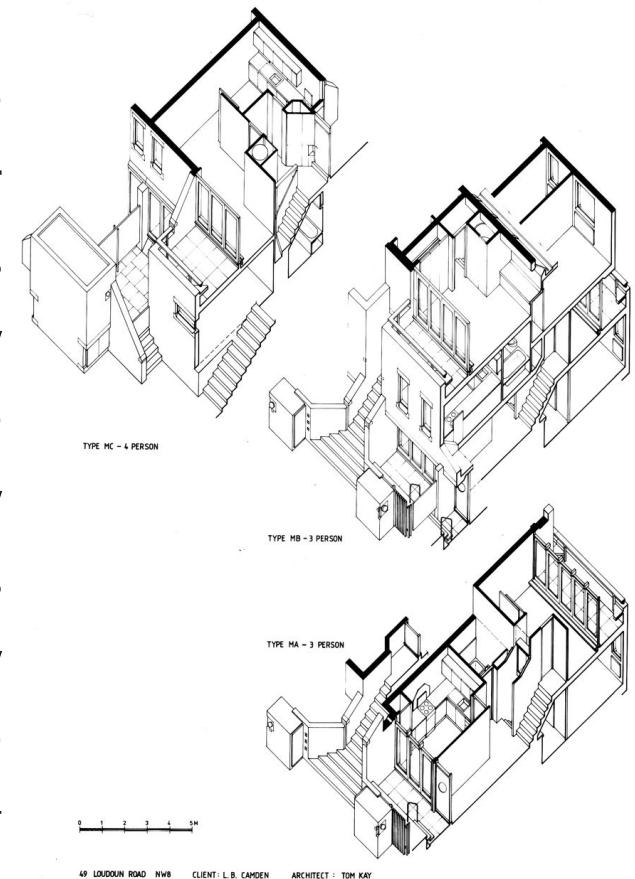
Fig. 20

that no one feels ownership over. Lack of ownership leads to disrepair and regression to slum standards.

In my impression of Brown's housing, a key strategy for aesthetics and function is terracing. Terracing limits the monolithic potential of a 5-7 story building by creating multiple layers of entry. Circulation becomes implied urban space instead of stairwells and hallways.

Two compelling cases of terraced architecture are Machu Picchu and Mesa Verde in the Americas. Their scale is reasonably similar to modern dense housing projects but they were built to function as urban centers. It is important to recognize that terracing in both cases, Machu Picchu in particular, are a response to terrain and not necessarily in an effort to maximize urban density. But, the interactions of the structures and collection of open community spaces are important aspects to consider.

Fig. 21
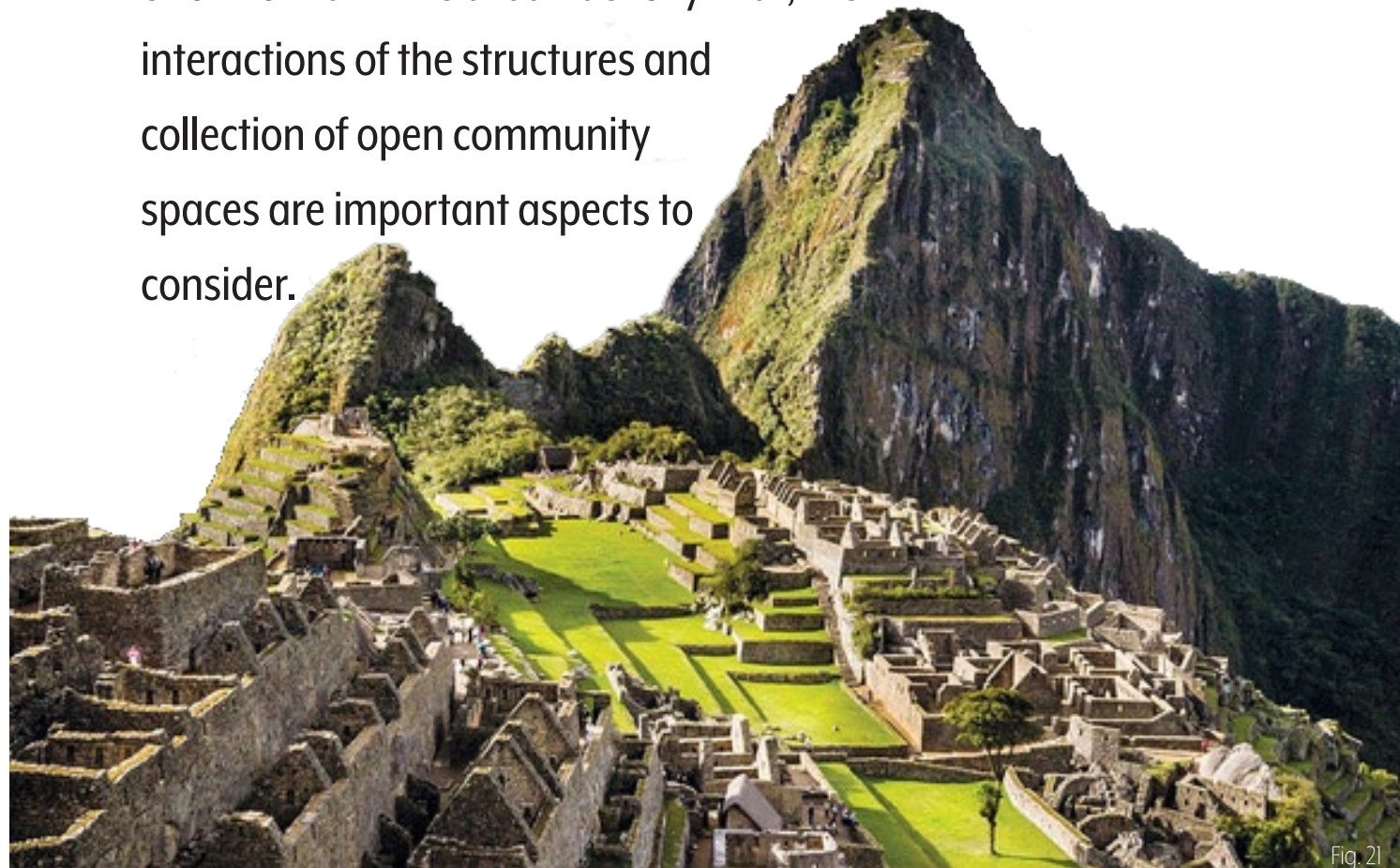
Alexandra Road primarily consists of two parallel repetitions of row houses that frame a pedestrian corridor onto which front doors access through private gardens. Brown used row houses to systematize construction and

Fig. 22

design which means that, as Elemental determined, the feasibility of expansion is restrained to interior adaptability. This potential wasn't overlooked by Brown. A Partition system creates a fluid definition of space that can change through the day and per activity.

As affordable social housing, Alexandra Road has not faired too poorly. Maintenance requirements and a brief

Fig. 23
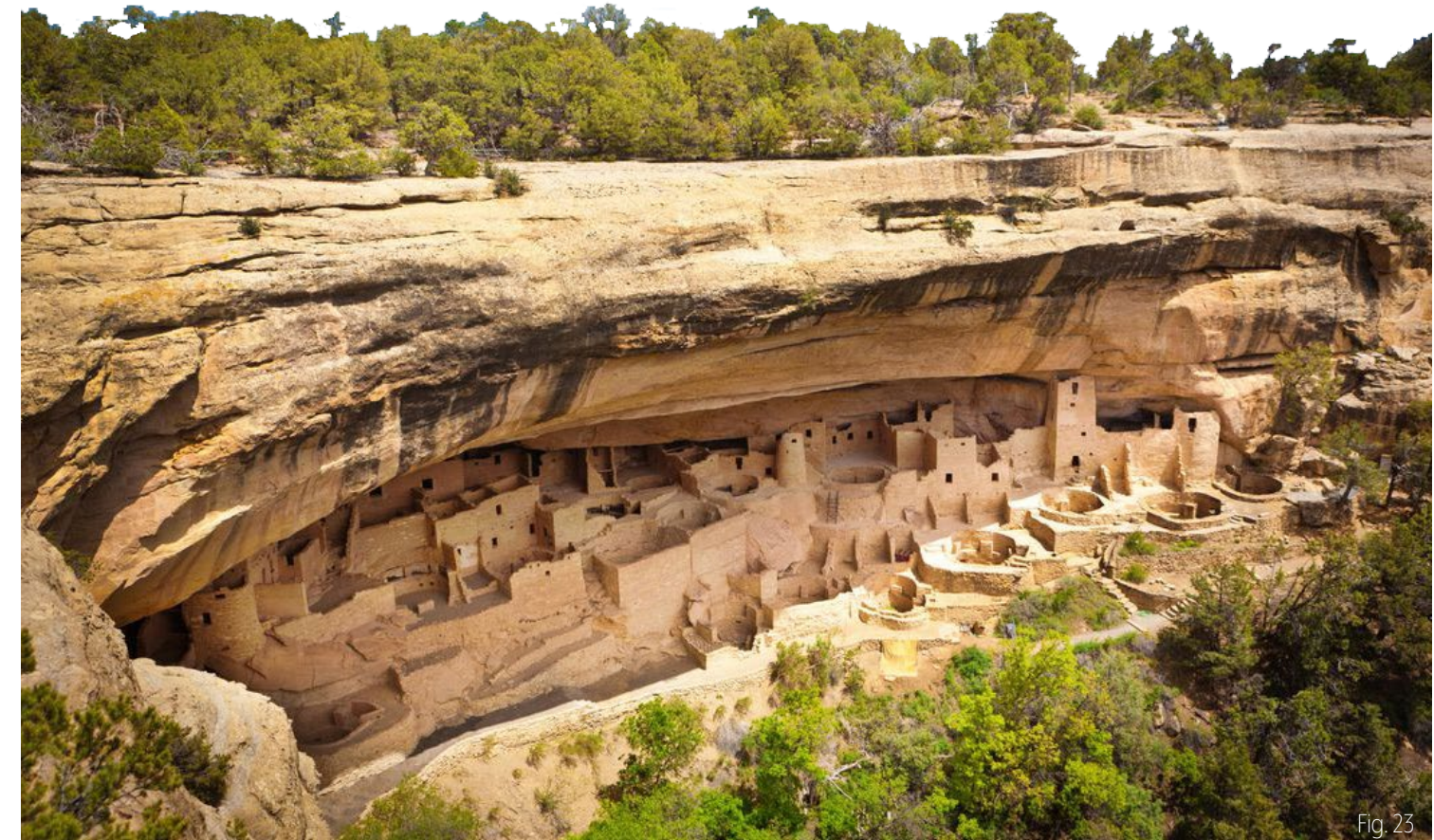
spike in crime made the management and popularity of the estate suffer for a time. More recent scarcity of housing and reorganization of management have reasserted Alexandra Road as an esteemed piece of architecture. In 1993, Alexandra Road was awarded a 2-star grade by English Heritage putting it in league with a select few post-war housing projects.

Fig. 24
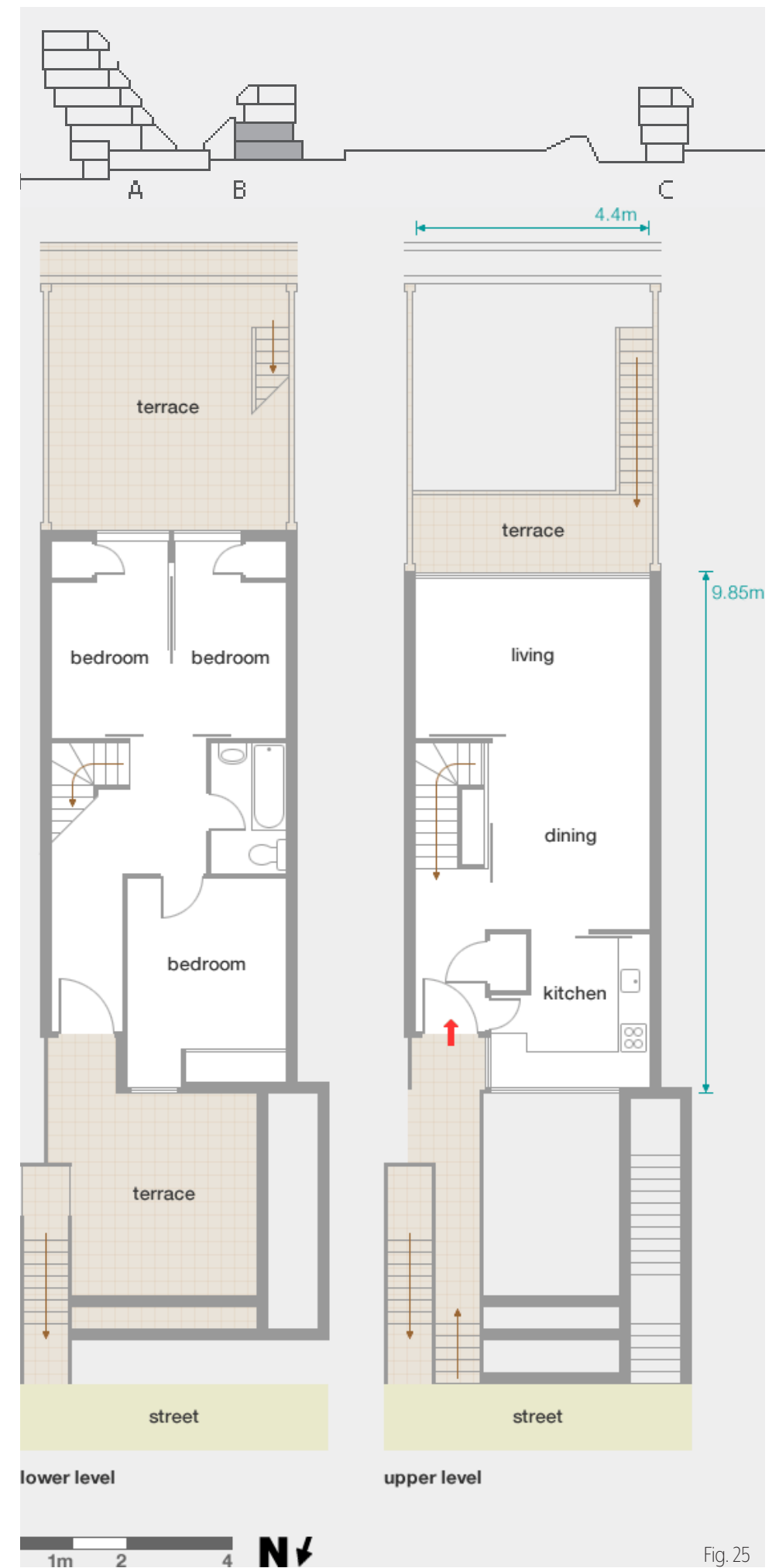
Fig. 25

Lego and Minecraft

I typically hesitate to include references or evidence from pop-culture because of its relative ephemeral nature. This case however, I felt is strong enough personally and speculatively for the future that I couldn't help talking about it.

"Toys like Lego help us play at being architects."
Tom Dyckhoff

Fig. 26

Just after World War I, Ole Kirk Christiansen started Lego with the first productions of small, plastic molded bricks. Ever since, Lego has had a significant impact on architecture and the design process. This is all well documented and likely not a surprising revelation to anyone. There is however, a less recognized new-comer, Minecraft.

Bjarke Ingels' recognizes Minecraft in his story telling video, *Worldcraft* advocating for the interpretation of architecture as the realization of fiction as fact. Despite Ingels' sometimes avant garde approach to architecture, I appreciate his clear vision of active forces in the world of design.

Minecraft is largely successful because of the massive audience it gained in children and teens simply as a video game. It has some story elements and guided play but at its core is an open world for creative expression and exploration. Like Lego, Minecraft offers a simple system for building and interpreting form, space, and order without

Fig. 27

deliberately forcing precepts of design. Minecraft however delivers a whole world in which context and immersive interaction fuel creativity.

Both Lego and Minecraft encourage great design as an integrated part of everyday life at earlier ages than ever before. I believe that this will have an incredible effect on future generations' relationship to the built environment.

Minecraft has been utilized directly by some groups as a collaborative space building platform. At the Swedish Center for Architecture and Design in Stockholm, they are creating a city from scratch called *Blockholm.* The project is meant to serve as a medium for dialogue about urban planning where concepts of age, status, and education are completely stripped away.

The U.N. collaborated with Mojang in 2012 for a three year collaboration called, *Block-By-Block* in which youths in Kibera, Nairobi were invited to improve their settlement through collaborative building workshops with a model of the town built in Minecraft.

Fig. 29

The Minecraft models are used to influence architectural and planning designs and finally the construction itself.

Fig. 30

Fig. 28

the case study house program

Because most opinion, both profound and light-headed, in terms of post war housing is nothing but speculation in the form of talk and reams of paper, it occurs to us that it might be a good idea to get down to cases and at least make a beginning in the gathering of that mass of material that must eventually result in what we know as "house—post war".

Agreeing that the whole matter is surrounded by conditions over which few of us have any control, certainly we can develop a point of view and do some organized thinking which might come to a practical end. It is with that in mind that we now announce the project we have called THE "CASE STUDY" HOUSE PROGRAM.

The magazine has undertaken to supply an answer insofar as it is possible to correlate the facts and point them in the direction of an end result. We are, within the limits of uncontrollable factors, proposing to begin immediately the study, planning, actual design and construction of eight houses, each to fulfil the specifications of a special living problem in the Southern California area. Eight nationally known architects, chosen not only for their obvious talents, but for their ability to evaluate realistically housing in terms of need, have been commissioned to take a plot of God's green earth and create "good" living conditions for eight American families. They will be free to choose or reject, on a merit basis, the products of national manufacturers offering either old or new materials considered best for the purpose by each architect in his attempt to create contemporary dwelling units. We are quite aware that the meaning of "contemporary" changes by the minute and it is conceivable that each architect might wish to change his idea or a part of his idea when time for actual building arrives. In that case he will, within reason, be permitted to do so. (Incidentally, the eight men have been chosen for, among other things, reasonableness, which they have consistently maintained at a very high level.)

We will try and arrange the over-all plan so that it will make

It is important that the best materials available be used in the best possible way in order to arrive at a "good" solution of each problem, which in the over-all program will be general enough to be of practical assistance to the average American in search of a home in which he can afford to live.

We can only promise our best efforts in the midst of the confusions and contradictions that confront every man who is now thinking about his post war home. We expect to report as honestly and directly as we know how the conclusions which must inevitably be drawn from the mass of material that these very words will loose about our heads. Therefore, while the objective is very firm, the means and the methods must of necessity remain fluid in order that the general plan can be accommodated to changing conditions and conceptions.

Fig. 31

Perhaps we will cling longest to the symbol of "house" as we have known it, or perhaps we will realize that in accommodating ourselves to a new world the most important step in avoiding retrogression into the old, is a willingness to understand and to accept contemporary ideas in the creation of environment that is responsible for shaping the largest part of our living and thinking.

It becomes the obligation of all those who serve and profit through man's wish to live well, to take the mysteries and the black magic out of the hard facts that go into the building of "house".

In the 1945 issue of Arts and Architecture magazine, in a letter from the editor, a commission was announced to explore and establish a contemporary language of the concept of a house. The Case study house program enlisted major architects of the day. Richard Neutra designed a home with rooms defined more by the roof than the walls around them. Ralph Rapson imagined a house catering to a futuresque, Jetson-ville. And Charles and Ray Eames expanded their floor plan with glass and steel.

Although the case study houses are intuitive and expressive, they still employed an architect to interpret the clients character. And that's something that few people can satisfiably afford.

"To build a house in the first person, a place as much one's own as a second skin, would require an exploration of self and place –and work itself– that simply could not be delegated to somebody else. The meaning of such a place was in its making."

Michael Pollan, A Place of My Own

Fig. 32

No-Boundary Community
Guangzhou, China

· Urban living as a village aligned vertically along a mountain road.

· "The Building is like a stage where the curtain never falls."

· "Façade like an antique shelf showcasing scenes of life."

Fig. 33

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PROJECT ELEMENTS

Develop a series of installations and details of an apartment unit. Focusing on the elemental features of an apartment to create a flexible, adaptable system for resident manipulation. Apartment elements will strive to embody the concept of Poka-Yoke which roughly translates to mistake-proof. The simplicity of an object to efficiently communicate and facilitate function. Inherent simplicity serves as a function of accessibility. In order to encourage customization and experimentation, the process needs as few barriers as possible.

"While most homes' interior spaces are defined by a single function and by the existing physical boundaries (like walls) between spaces, the FNS Apartments are far more open to interpretation. Residents can simply redefine spaces as needed or desired, "floating" the boundaries in whatever way seems appropriate at that moment."
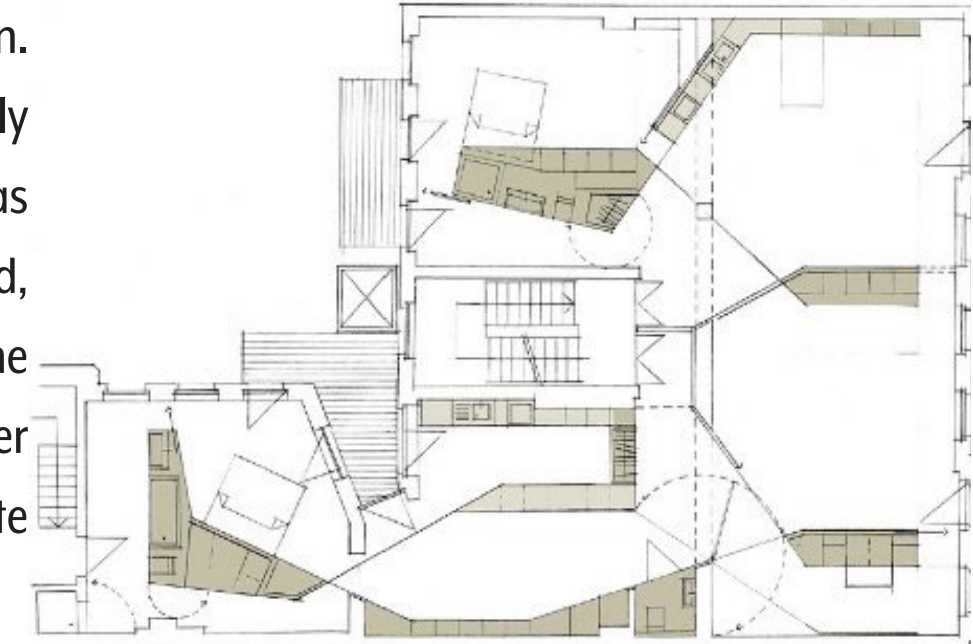
Fig. 34

"Gary Chang, an architect from Hong Kong figured it was time to bring a little change to the design scene in China. His apartment was the first to suffer a major transformation. How many rooms can fit in a 30 sq meters apartment? One? Ok, maybe two, if you count the hallway. Well, prepare to get shocked: Gary managed to fit 24 rooms in such a place and each and everyone of them has its unique personality."
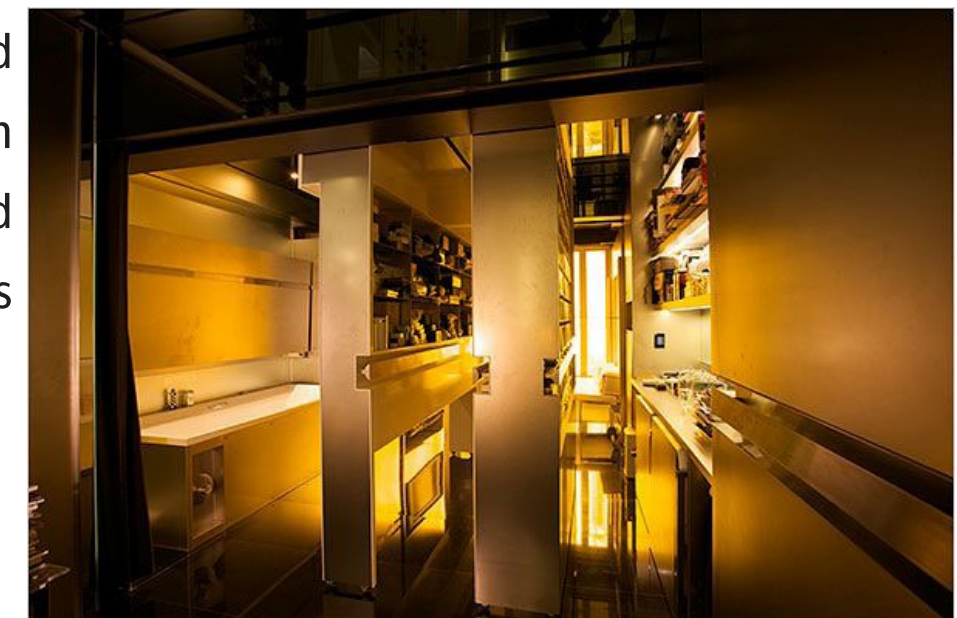
Fig. 35

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CLIENT

For the purpose of applying detail concepts outside of their isolated context, a housing development utilizing aspects from Elemental's work in Chile will be developed. Attention to community within and around the development places design emphasis on residents but general ownership will be held by a single managing entity.

DESIGN PROCESS AND DOCUMENTATION

The tactility and interaction of components are an integral part of the 'stage of daily life'. For this reason, my primary study format is through modeling and testing with experimentation. Rapid iterating for some aspects are controlled through a limiting framework like a standard unit or grid for example.

As many models as can be physically accommodated and are significant are saved as they are. Every iteration is photographed and filed chronologically to illustrate a process of design and experimentation. Over the course of the semester, as iterations become more refined, scale is increased toward a full scale, interact-able feature.

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EMPHASIS

The emphasis of this thesis is individual autonomy over one's own environment as an integrated system of an apartment. The system is meant to strip the 'black box' aspect of daily life functions. The 'black box' effect is a structure where an output is received from a known input filtered through an unknown process (Johnson, J.). Graphically, it would look something like this:

Input → **BLACK BOX** → Output

Fig. 36
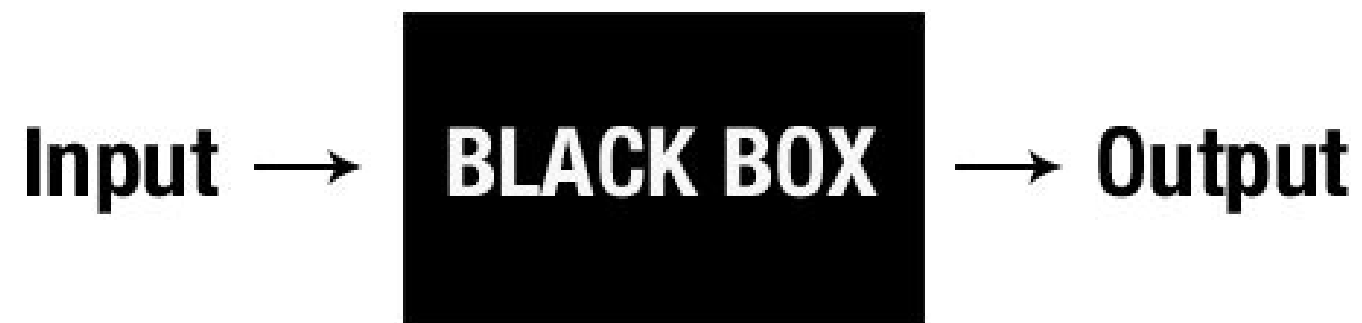
In Elemental Incremental Housing and Participatory Design Manual, architect and professor at UC School of Architecture, Rodrigo Perez de Arce unified Elemental's ambition:

"...we only want for the most simple and modest of dwellings, to recover a quality in accordance with its mission: to be an Elemental piece of the city and the stage of daily life."

PROJECT GOALS

Academic goals:

Encourage the potential for learning and experiencing design as a way of life. A large portion of exploring architecture is learning to assess a client's needs and interests. This could be a valuable model for determining a large, self-developing group of case studies.

Professional goals:

Housing today is made by developers whose most common interests are capital gains. Housing should be for the people that will actually live there. The problem with this is that addressing everyone's needs individually is impractically prohibitive.

Personal goals:

I grew up making and adapting my environment and probably the biggest reason that I do it is to be able to share it with everyone. I have struggled with the idea that not everyone is interested in the things I'm interested in but I believe that if presented with a simple system for altering one's environment, a better connection and investment to the community can be developed.

Site

I selected a site in the Cedar/Riverside community of Minneapolis to take advantage of a redevelopment plan from 2010. This acted as a framing device for establishing a scale and scope of my building in relation to its setting and also aligned perfectly with my intentions for diverse transportation and a greater community boundary. The site sits at a dynamic intersection between an expanding U of M campus, the I-35 corridor and a predominantly East African immigrant community. I was also inspired by the historic residential interpretations of the Riverside Plaza designed by Ralph Rapson.
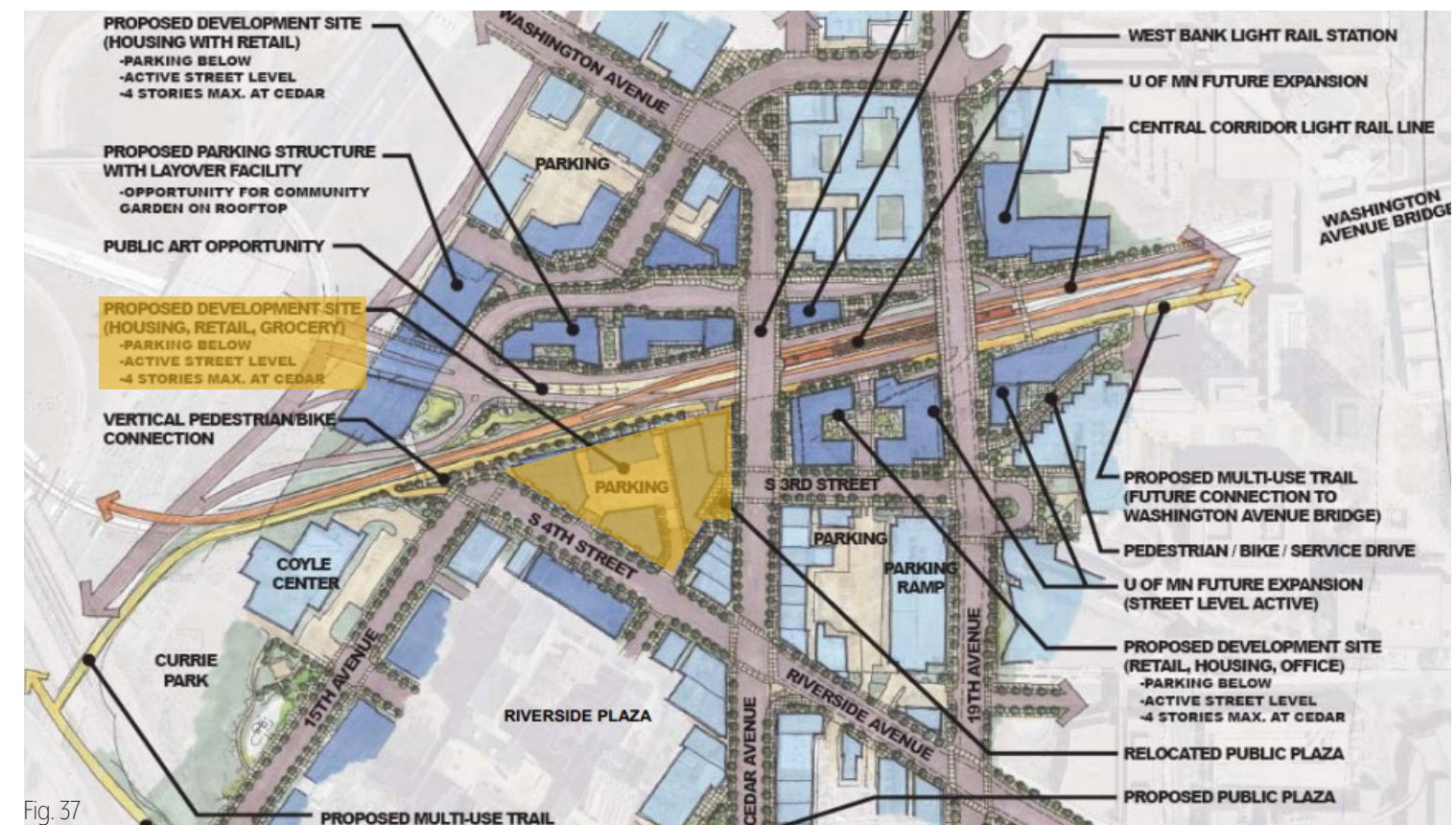
Fig. 37
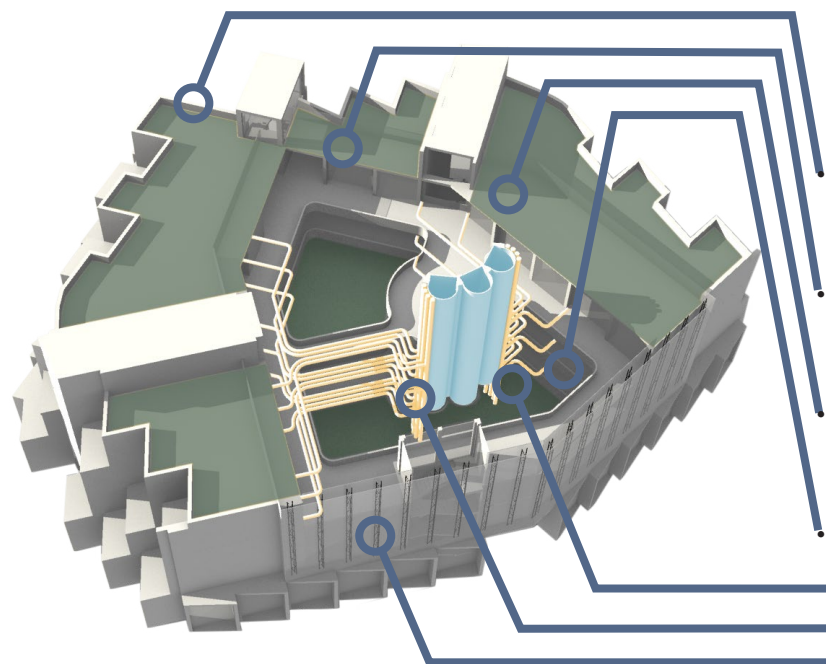
Greenroof outdoor community space

Resident community atrium

Ribbon windows regulate direct light

Greater community atrium

Secure access elevators

Exposed systems tree

Expansive double-glazed north wall
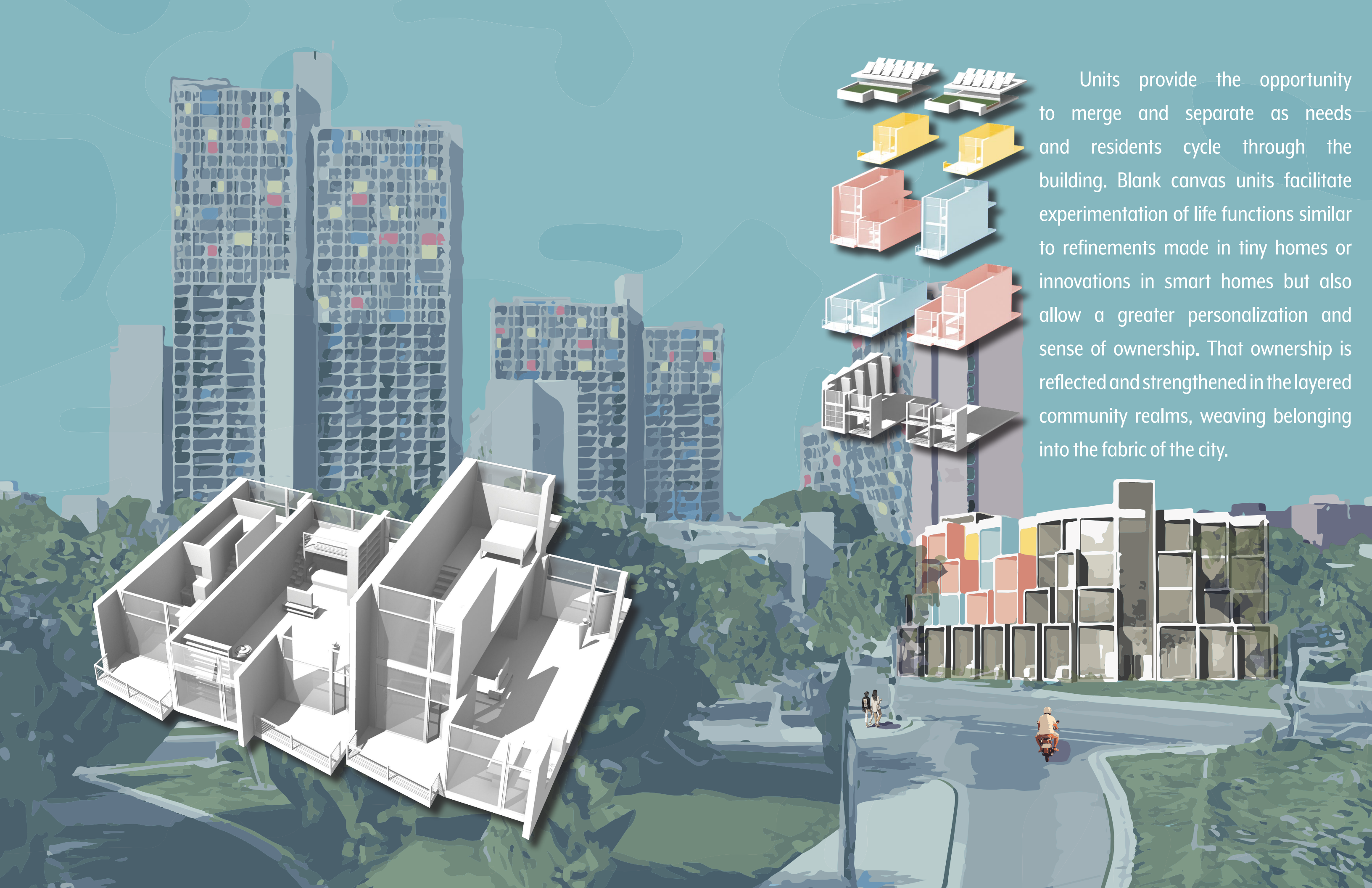
Units provide the opportunity to merge and separate as needs and residents cycle through the building. Blank canvas units facilitate experimentation of life functions similar to refinements made in tiny homes or innovations in smart homes but also allow a greater personalization and sense of ownership. That ownership is reflected and strengthened in the layered community realms, weaving belonging into the fabric of the city.

63
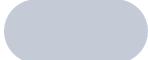
SCHEDULE
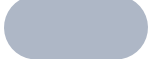
JANUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

○ No class, Martin Luther King Jr. Day

● Progress documentation

Week **1**
- Section studies
- Adaptability model/sketch iterations

Week **2**
- Section studies
- Adaptability model/sketch iterations

Week **3**
- Plan studies w/ Sections
- Adaptability model/sketch iterations

Week **4**
- Section and Plan
- Adaptability model/sketch iterations

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FEBRUARY

S	M	T	W	T	F	S
					1	2
2	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		
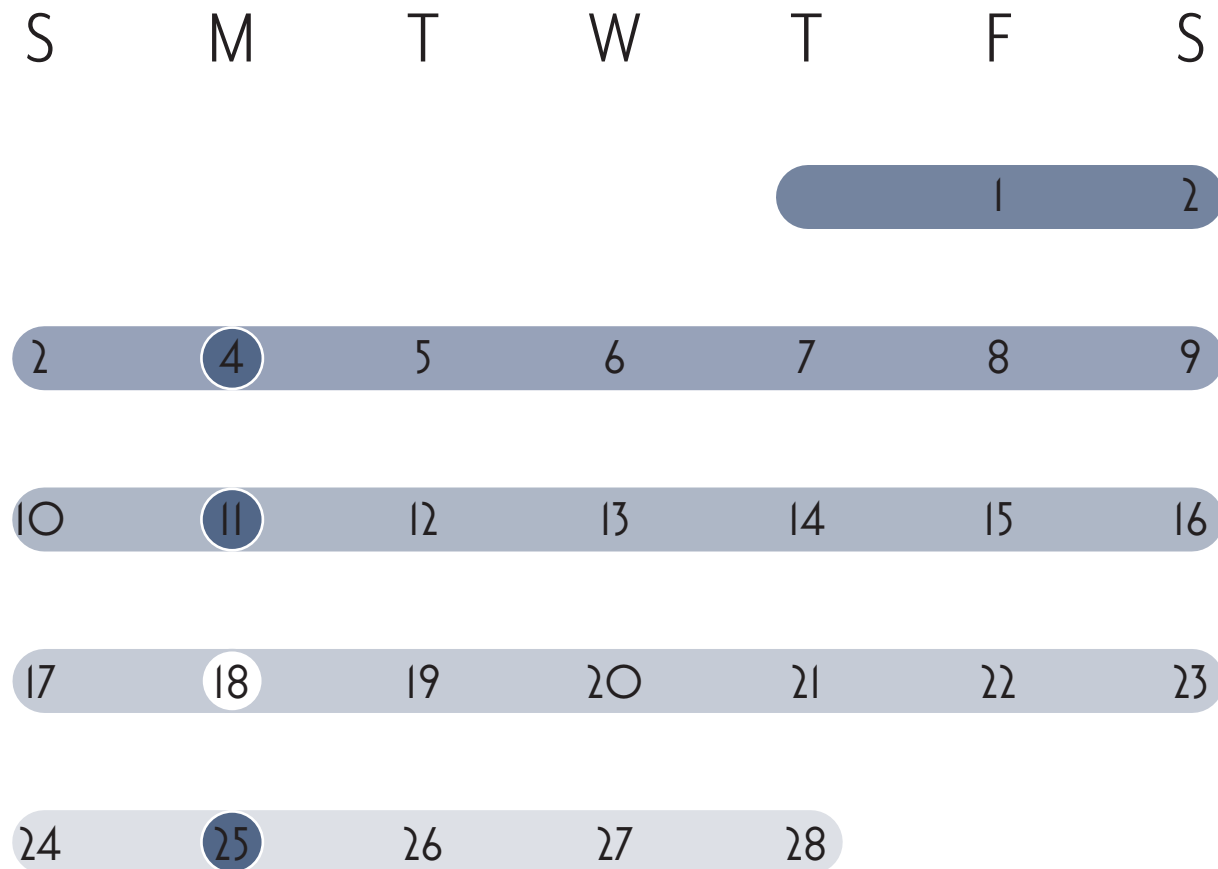
○ No Class, Presidents' Day

● Progress documentation

Week 4
- Section and Plan
- Adaptability model/sketch iterations

Week 5
- Mass modeling & space organization
- Adaptability model/sketch iterations

Week 6
- Site Development with space organization
- Adaptability model/sketch iterations

Week 7
- Mass, section, plan, and site
- Adaptability model/sketch iterations

Week 8
- Reflect and gather work for midterm review
- Adaptability model/sketch iterations

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MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						
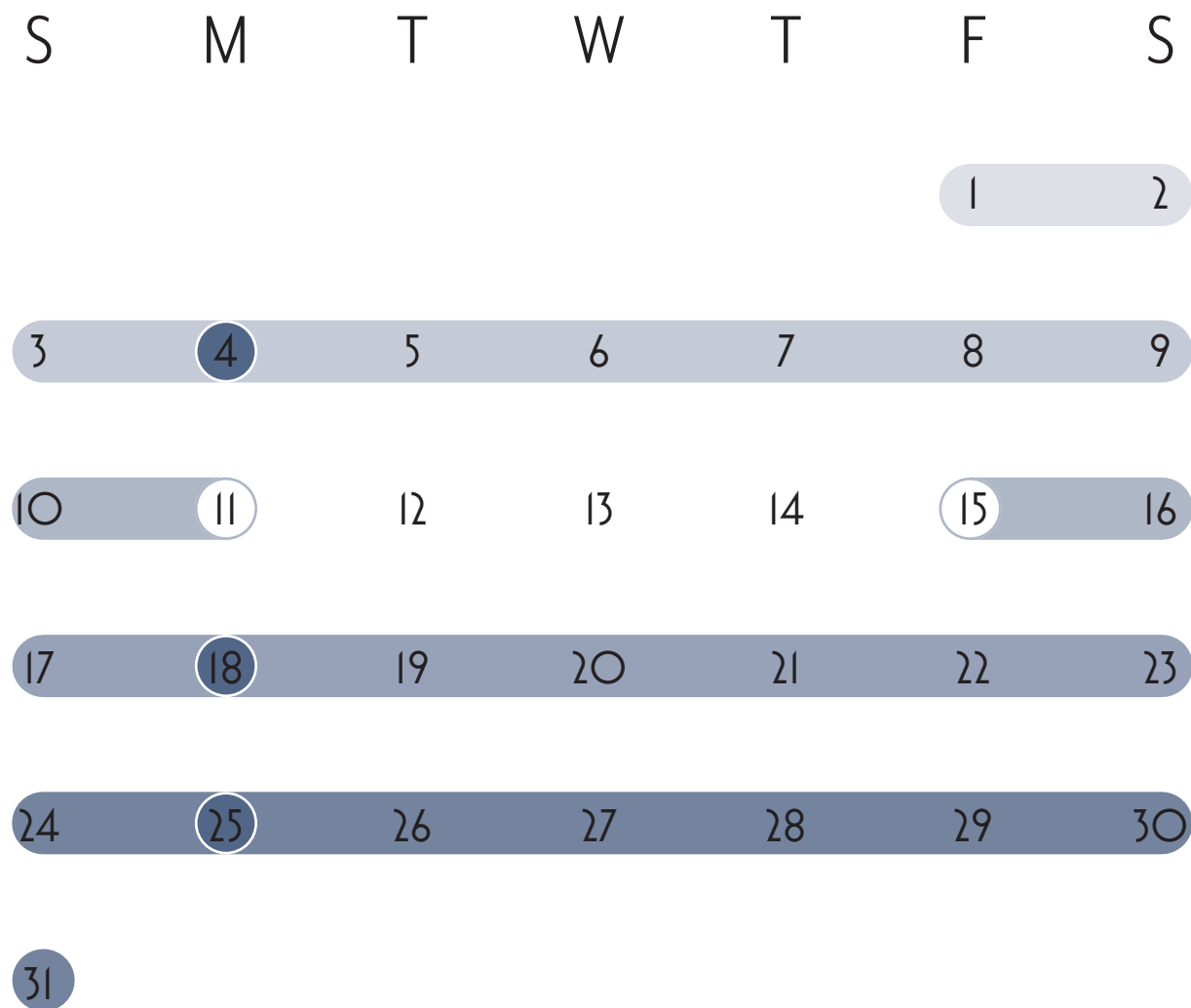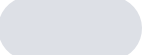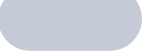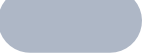
◯ No Class, Spring break / Spring recess

● Progress documentation

Week **8**
- Reflect and gather work for midterm review
- Adaptability model/sketch iterations

Week **9**
- Midterm review
- Adaptability model/sketch iterations

Week **10**
- Spring break
- Adaptability model/sketch iterations`

Week **11**

Week **12**

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APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				
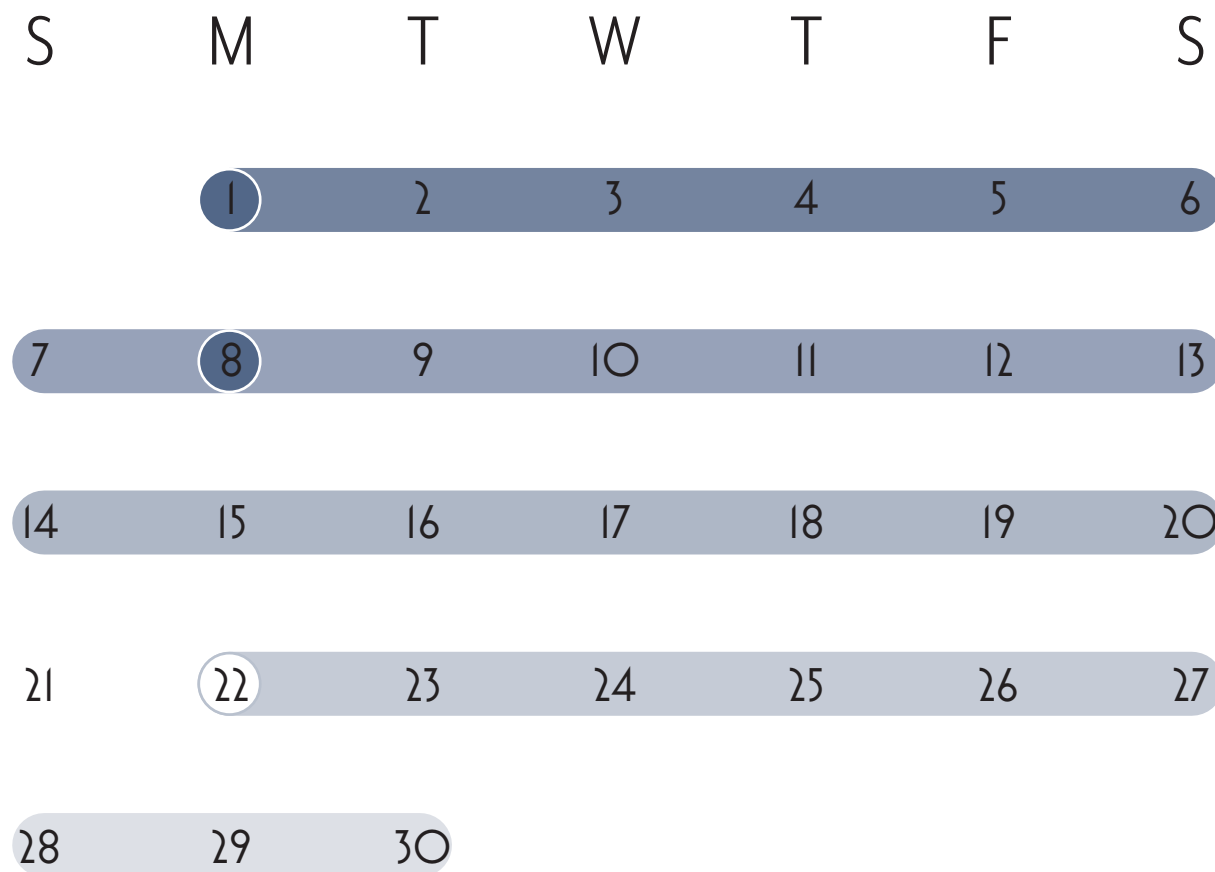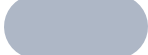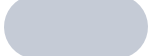
○ No Class, Spring recess
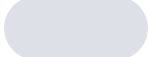
● Progress documentation

Week **13**

Week **14**

Week **15**
- Final production

Week **16**
- Final production

Week **17**
- Final presentations

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May

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Week **17**
- Final presentations

Week **18**
- Final book edits and project upload

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Figures

Biography of author

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"Tools are quintessentially human so to use them is to connect to history personally and globally. I find that connection especially powerful with woodworking where I can transfer the utility of a tool into a useful object for every day life. Woodworking is also one of the most direct applications of Vitruvius's "Firmitas, Utilitas, Venustas" which is so often sought after while arguably sparse in design."

Design Studio Experience

01. Fall 2014, Cindy Urness

Tea House

Boat House

Dwelling

02. Spring 2015, Joan Vorderbrugen

Montessori School

Birdhouse

03. Fall 2015, Ron Ramsey

Cat Mausoleum

Shaker Barn concert chamber

04. Spring 2016, Reagan Schwaen

Concrete, Nakoma Missile radar

Steel, Bakery

05. Fall 2016, Bakr Aly Ahmed

Comprehensive High-rise

06. Spring 2017, Paul Gleye

Term Abroad

Lebanese Student design charrette

Urban Redevelopment, Brussels

JAKE HASSE