House(Craft): Mobile Housing for a New Generation

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

MOBILE HOUSING FOR A NEW GENERATION

We have been called the "entitled" generation. We want to be your boss before we've stepped through the door. We grew up in the Internet Age; being told we were special, unique, and capable of anything we wanted. We are between 20 and 30 years old, highly educated and underemployed. We want to buy houses but we can't afford them. We are the Millennials.

The current housing market is out of reach for first time home buyers. Beyond the price tag, it is not well suited to the mobility of a Millennial lifestyle. The design, aggregation, and mobility of dwellings is a reflection of the cultural circumstances in which they are built. The suburbs were built for a different generation. The last generation was financially able to commute, and was willing to sacrifice time in order to afford a large suburban home. The Millennials face a different cultural context. Millennials would rather live smaller and more economically in order to live closer to where they work, study, and play. Also, the desire to remain in a viable job market, or to advance their education, requires Millennials to relocate frequently. Therefore, the investment in a static house is further delayed due to the requirement to "settle down". According to a survey by Fanny-Mae 90% of Millennials still do aspire to own a house.[1] However a house suited to Millennials will differ from its suburban predecessors.

Millennials would rather relocate than commute

and herein lies an opportunity. Due to the shifting needs of Millennials – primarily economy, mobility and proximity to an urban center, a small, urban, mobile dwelling could better provide access to home ownership. Micro houses could slowly take over unoccupied territories such as those which were previously occupied by the cars of the commuter generation. Surface parking lots could be transformed to create house-parking lots resulting in a denser and more vibrant urban fabric.

Municipal laws around mobile, micro dwellings are complex and highly regional. From their introduction, prefabricated mobile dwellings have been considered a blight due to their relationship to poverty. City zoning officials have relegated them to the edge of the city through exclusionary zoning laws. An increasing number of urban squatters in mobile "tiny houses" are putting pressure on these laws. These early adapters represent a growing desire for a new housing typology and relationship to the city.

My thesis explores the opportunities provided by this concept of ownership and mobility. Individual units could become highly tuned to the person(s) occupying them – morphing each unit into an indispensable platform from which users occupy a city. This new concept of home would allow an increasingly mobile population to resituate with ease – finally reconstituting home with our wandering lifestyle.

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1. Fannie Mae, Fannie Mae National Housing Survey(tm): Millennials Look to Income Imporvements as Key to Unlocking Homeownership, report, August 2015, accessed November 18, 2015, http://www.fanniemae.com/resources/file/research/housingsurvey/pdf/082115-topicanalysis.pdf.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF FIGURES

PERSONAL ESSAY

When I'm explaining my thesis to my friends, I just jump in. Because they get it, implicitly.

"I'm making Urban Trailer Parks, with small scale units that you could transport with you as you move from place to place."

The usual reaction I get is, "Where can I get one." or "That would be nice." And then a sigh, and a gesture around their current living space and through time to the next move which is always readily on the horizon.

It can be hard to describe why this idea can be so readily appealing. Trailer parks fell out of fashion nearly 70 years ago.

For me and my friends I think it's the "follow your dreams" polemic that hounds us. Our hunger for success, to "make it", is a source of continual frustration. The pressure to pursue higher education which places you into the highly competitive and fickle knowledge economy can leave you strapped with debt, underemployed, and in need of retraining. Throughout this process, you must somehow house yourself in a housing stock designed for the nuclear family which you don't have because you're busy "pursuing your dreams". Your retraining, or new job, requires you to move again, and you're faced with the problem of how to move all of your detritus from one place to the next. With all of your clothing stuffed into garbage bags, you debate throwing them all away or renting a Uhaul.

At the new place, somehow beige on every surface, you assemble cheap puzzle-like flat-pack furniture, the same stuff you buy and throw away at every place, think about hanging a poster, but then don't because you'll just have to take it down again anyway. It's not necessarily the white picket fence you dream of. It's just a place you can leave your stuff, permanently, and maybe paint the colour you want.

At 26, I'm just so tired of moving. But it's not that I want to stop going to new places. I love living in new cities. I just want my own space in the city, a space I own. But I don't want that space to be tied down to the city. Because what I just don't understand is in a culture so obsessed with mobility, why I can't move my place of residence from city to city. I can rent a moving truck, bigger than my apartment and move my stuff to another city. But I can't move my house. Why can't the moving truck just be my house or move my house? Why can't I just put my house on the back of a truck?

That's the way I felt when my parents rented a PODS container after I moved back home to save for grad school. The PODS container was an 8 by 20 foot container. It was filled with all the furniture of my previous life in undergrad school. My parent's called it "the Katie house". And it kind of was. It held my life inside of it represented by the possessions I had collected in four years of being away from home. It was roughly the size of a one-bedroom apartment. All it needed was insulation, water, sewage, electrical. But the shell was there. I wish it could have been my house. Even living on the driveway would have given me a better sense of independence than moving into my childhood bedroom. The container represented everything I needed to get rid of. My parent's house was full, no place to store my life, so piece by piece I sold off my possessions. Learning that until my life was settled, until I had a house like an adult, I couldn't collect the "stuff" that I thought made a life.

FIGURE 1 Trappings of Undergrad Life
The "stuff" I had to get rid of in order to fit back into
my parents home.

INTRODUCTION

SOFT ZONES IN THE URBAN FABRIC

Instability and the 21ˢᵗ Century City

Mobility is integral to the city. It provides a distribution system for goods, information, and people. Yet, mobility is only accepted as a form of transportation and not as a way of living. One can take their car with them from city to city, but they cannot take their house. The city is comprised of an agglomeration of static buildings. The excessive material energy that goes into constructing these forms limits their malleability. But a city is more dynamic than its built forms. A city is composed of a constant flux of people, relationships, goods, industry, and economy.

Andrea Branzi contemplates the instability of the city as an entity in his book *Weak and Diffuse Modernity.* He argues that more than ever before, cities have become liquid in form; changing rapidly due to the multitude of pressures acting in the age of globalization.[1] In this context immaterial conditions serve to instigate these changes and architecture lags behind. As Branzi puts it, "This urban condition is made up of services, information technologies networks, product systems, environmental componential practice, microclimates, commercial information, and above all perceptive structures that produce systems of sensorial and intelligent tunnels that are contained within architecture, but cannot be represented by architecture's figurative codes."[2]

Architects find themselves in a context where the lengthy process of designing and constructing buildings cannot quickly adapt to the constantly changing conditions. In the time it takes to build a new apartment building, condo, or residential subdivision - the housing needs of a particular city could already have changed. So how can architects manage this instability?

Utilizing Branzi's concepts of weakness, perhaps one response is to insert spaces designed to host temporary programs within the permanent built fabric. *Soft zones* would constitute spaces consciously left blank. This blankness does not mean that these spaces are left empty; the infrastructure of these spaces would take the form of scaffolding as their final realized form.

Millennial Migration

The fickle nature of the job market for young professionals in recent years has left a displaced generation in its wake. The generation known as the Millennials, (for the purposes of this thesis those currently 13-32 years-old), is the cohort just entering adult life. This generation is hesitant to buy a home due to frequent pressures to move. These pressures include moving for specialized training, and moving more frequently to find work. These conditions paired with educational debt, high housing costs and delay in marriage have resulted in unusual living patterns. Many people live in ad hoc collaborations, eking out affordable accommodation from a housing stock designed for nuclear families.

Mobile dwellings are one possible way that migrating

1. Andrea Branzi, *Weak and Diffuse Modernity: The World of Projects at the Beginning of the 21st Century* (Milan, Italy: Skira, 2006), pg. 9.
2. Ibid.

Millennials could invest in a house. Factory fabricated housing, of which mobile homes (trailers) are only a subset, hold a potential that has gone unutilized. The mobile home has been very successful as an affordable housing typology. However its relationship to poverty and poor design has led to its perception as a blight. City zoning laws in many cases have pushed mobile homes to the periphery of the city or isolated neighbourhoods.[3] Architects need to take back this typology and reimagine its form and deployment. It is time for a relocatable dwelling which can acceptably be absorbed into any city. A home that can be transported with the user. A home that utilizes fewer resources because it is smaller and more efficient. And a home which can be integrated into a changeable aggregation.

Temporary Trailer Parks

A dwelling typology of mobility reflects the networked and transient society in which many people now live. Millennials have grown up with the maturation of the Internet Age. Millennials have been the early adopters and creators of many interactive platforms. One type of interactive platform, sharing economies, exploits resource inefficiency by tapping into the potentials of networked data. Airbnb can connect a user with an extra bedroom with a user looking to stay in that area. The extra bedroom was always there, it was the connection that was missing.

Like a Sharing Economy, a peer-to-peer network could be utilized to quickly mobilize a new transitory neighbourhood typology. By adopting the Sharing Economy paradigm, of exploiting under used assets, it could be built out of space already existing within the city. This could become a networked trailer park system where not only the user and their trailer are transient, but the trailer park as well. The sites for the trailer parks could be underdeveloped land with in the city such as: undeveloped property, vacant property, and parking lots. This land is often dormant because it is in a period of transition. Developers could make use of this transition period by temporarily programming it as a trailer park. The amount of investment in the site scaffolding would be dependent on how quickly the land owner expects the site to be developed. A low investment site would recieve lower rents, but would be more relocatable, a high investment site would recieve higher rents but

3. Colin Davies, The Prefabricated Home (London, UK: Reaktion Books, 2005), pg. 75.

FIGURE 2 Soft Zones, Temporary Infrastructure
This mobile beer store located temporarily in the parking-lot of the previous store is an example of weak urbanism. The store fulfills a transient need while utilizing a vacant space.

FIGURE 3 Image from Atlantic article: "The Cheapest Generation"
This is an image taken from an article discussing why Millennials are choosing not to buy houses or cars. It outlines some of the factors that are changing buying patterns such as delayed family life, increased housing cost, and desire to live in walkable neighbourhoods.

FIGURE 4 Trailer Park as Blight
Trailer parks are often relegated to less desirable parts of the city. The affordability of trailers leads to their adoption by low-income individuals leading to their association with crime, and visible poverty. However this is an issue for all low-income housing and should not rule-out mobile dwellings as a typology.

would be less mobile. The amount of site investment will allow each neighbourhood to have a different atmosphere, offering many different lifestyles to transitional occupants.

Output

This thesis speculates that allowing economical mobile homes into urban areas could provide an avenue into home ownership which has been largely blocked for the Millennials. Through my argument I will explore several key ideas that have led me to this conclusion:

- Information communication technologies (ICTs) have changed the way that cities are occupied and used.
- ICTs are allowing for new planning typologies that allow for a more temporary occupation of spaces.
- ICTs have created an economic climate of constant instability resulting in a nomadic class of young displaced professionals who move every three to five years.
- Affordable housing shortages, seen throughout North America, particularly affect renters and first time home-buyers.
- Mobile homes have been used as a solution to housing shortages in the past, but are not often used to solve housing shortages in urban areas.
- Currently municipal regulations limit how mobile dwellings occupy urban centers.
- Perhaps a housing solution for displaced professionals is a housing typology which is as mobile and networked as they are.

This research will result in the development of a mobile dwelling network which will consider three distinct scales. The first scale is the unit, a customizable micro-dwelling. The second scale is a neighbourhood, an Urban Trailer Park which takes over under-utilized land and legally occupies the city. The final scale is the network, an informal peer based platform which connects unit owners with available spaces in parks.
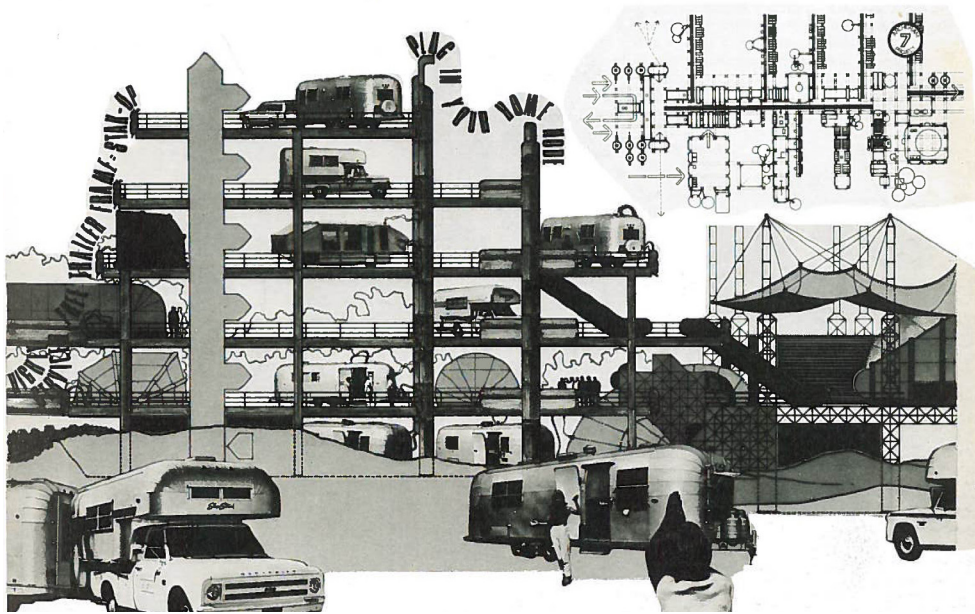
FIGURE 5 Freetime node: Trailer Cage 1967
A speculative proposal by Rod Herron of Archigram depicts the idea of combining mobile dwellings with a service infrastructure to create a new neighbourhood type. The idea of "plugging-in" has been particularly inspirational to this thesis which explores how the increasing pressure to be mobile could result in an infrastructure reminiscent of, but less extreme, than Archigram's examples.
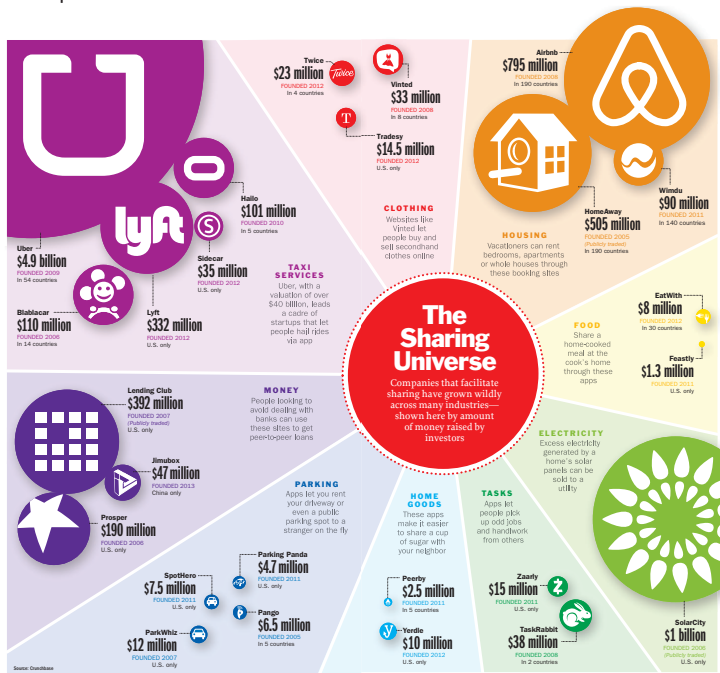
FIGURE 6 The Sharing Universe
This diagram has been taken from a TIME article on the sharing economy. It depicts how the sharing economy has become a powerful economic force in certain markets, such as hotels and taxi service, over a short period of time. This thesis attempts to tie the ubiquitous nature of the sharing economy to a new housing model designed for Millennials.

THE IMPACT OF ICT ON SOCIETY

"Every ounce of logic says technology should have whipped geography by now—flattening the world, in Thomas Friedman's lexicon, by allowing people to live anywhere and still engage in the global economy. If technology was living up to its promise, more and more people should be moving out of cities to telework from charming small towns and lakeside cottages."[1]

The quote above addresses the complex relationship between Information Communication Technologies, known as ICTs, and dwelling patterns manifested in the physical world. In the 1990's theorists speculated that tele-work, working remotely and commuting to work via ICT, would come to replace working in a physical office space.[2] Tele-work would remove the necessity to occupy cities, and workers could escape into the bucolic countryside.

Instead, the importance of cities has increased. The fidelity of face-to-face communication is still unparalleled by ICT. This fidelity is paired with a global economic shift to scientific, creative, and technical modes of production termed the knowledge economy. Powell and Snellman, sociologists with Stanford University, define the *knowledge economy* as, "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well

as rapid obsolescence."[3] As economic modes of production move away from natural resources and labour, interaction between highly educated workers becomes the mode of production. Therefore dense nodes of human occupation, i.e. cities, become "instruments of communication" that are vital to a knowledge economy.[4]

Cities are important to individuals, as well as the knowledge economy, due to the motilities that they provide. Kaufmann, a professor of sociology, defines *motility* as one's aptitude for navigating a field of possibilities.[5] The *field of possibilities* could include employment, communication networks, platforms for material exchange, transportation networks, and social networks.[6] The city continues to attract people because it presents a dense and vital field of possibilities. In order to illustrate Kaufmann's concept of motility I will use the example of an urban apartment dweller. The apartment dweller wakes up on a Saturday morning. They don't have a car, so wherever they go for breakfast it will have to be within an easy walk. In their downtown location they have ten different breakfast places within that distance, and that constitutes their motility – they

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1. Kevin Maney, "Why Millennials Still Move to Cities; Millennials Are Bucking the Traditional Pull of Suburbia and Clinging to the Jobs and Joys Offered by Cities," *Newsweek*, April 10, 2015, accessed November 18, 2015, Canadian Periodicals Index Quarterly.
2. Vincent Kaufmann, *Rethinking the City: Urban Dynamics and Motility* (Milton Park, Abingdon, Oxon: Routledge, 2011), pg. 13.

3. Walter W. Powell and Kaisa Snellman, "The Knowledge Economy," *Annual Review of Sociology* 30 (January 01, 2004): pg. 199, accessed November 18, 2015, http://www.jstor.org/stable/10.2307/29737691?ref=search-gateway:48978834e9fec1fa41d1a2bf3dee2c1d.
4. Martin Pawley, *Terminal Architecture* (London: Reaktion Books, 1998), pg. 9.
5. Kaufmann, *Rethinking the City*, 36.
6. Ibid.
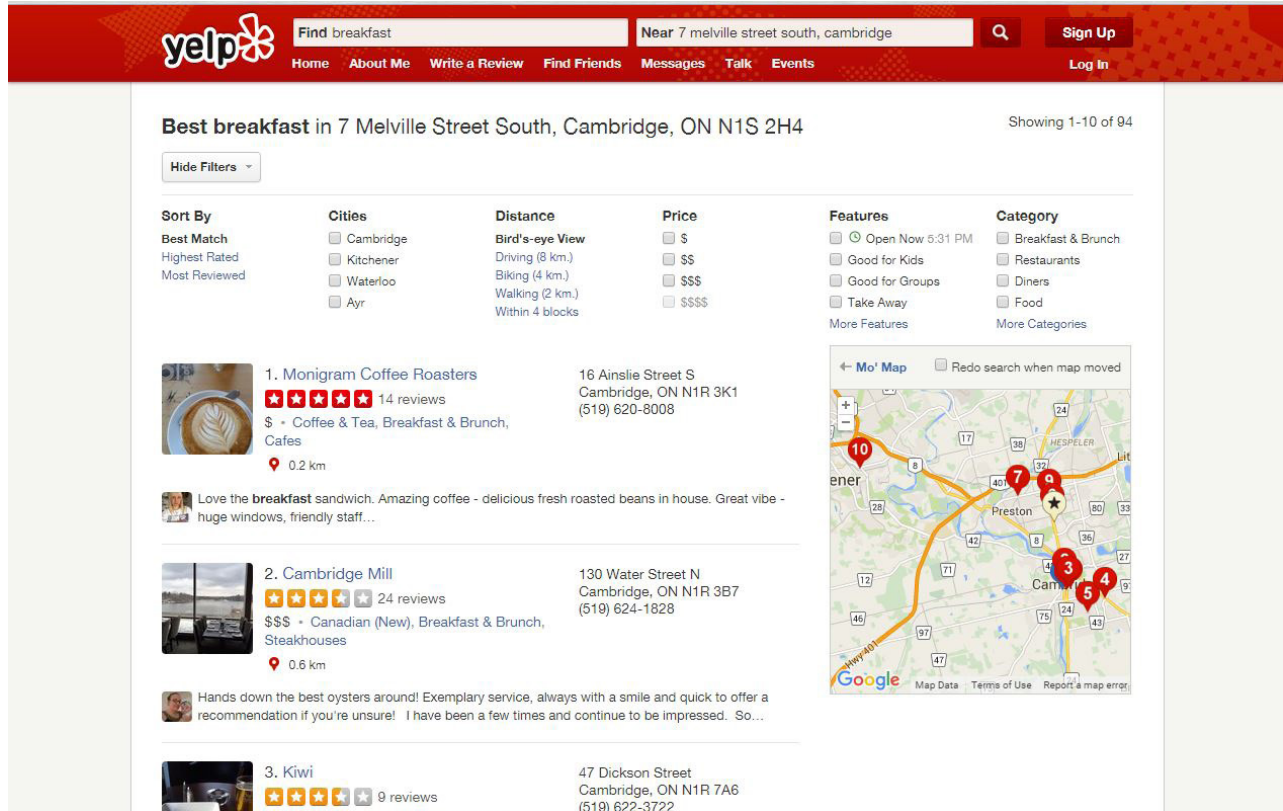
FIGURE 7 Motility Illustrated through Yelp search
A screen-grab of a Yelp search for breakfast places in Cambridge illustrates the concept of *motility.* Based on one's proximity to breakfast places one is presented with a variety options which can be further refined by one's mode of tranportation. Many ICT-based services such as Yelp reveal motilities, but also increase them by making them easier to access.

have ten options given their means of mobility, walking, and their location, downtown.

Motility

ICTs have changed societal expectations for motility. Mobile devices, especially smartphones, allow people to instantaneously coordinate interaction – increasing motility. These interactions include a broad range of activities – from getting a date to hailing a cab. What many architects and urban planners have been late to realize is that these activities constitute a form of urban design. Dan Hill, a designer and urbanist investigating the future of the city, thinks that this ability to program the city an inevitable evolution of design. As he puts it, cities in the west are already highly complete. Buildings do continue to change function, but the investment in the act of building will not be the same as it was in the past century.[7] Therefore architects will have to change their approach if they want to remain vital to the design of the cityscape. ICTs have spawned a new type of designer who can deeply influence the way that we utilize, experience, and transverse the city without changing the built fabric in any way. These designers are software developers. With the hardware, or buildings, mostly completed, they can take over where architects have left off, to develop robust systems out of the spare parts that are lying around. Hill calls these softwares *urban parasites*. Urban parasites take advantage of existing city infrastructures, making them more efficient by creating an online platform that allows a user to connect with them.[8] These parasitic systems, also known as sharing economies, include services like Airbnb, Uber, and Toronto Bike Share.

The sharing economy prioritizes access over ownership. It's a mode of consumption whereby two or more people share an item or service in order to get the most economical value. There is an enormous variety in the markets and services that sharing economies have taken on. But all of these models have two common factors as defined by Russell Belk, a professor of marketing who studies sharing economies. 1) The, "use of temporary access non-ownership models of utilizing consumer goods and services," and 2) The use of the internet as a

networking technology; especially using websites which allow users to exchange content.[9] Sharing economies require users to opt-in to a network that has assembled based on their collective interest in a specific exchange. Users can opt into networks which will algorithmically connect them to a service / service provider. The Uber software connects a user in need of a ride with a nearby driver.

The proliferation of parasitic systems within cities has been maddeningly fast. So, what can architecture learn from system design? The first lesson is that architecture can no longer be exclusively thought of as the making of cultural monument.[10] To think of architecture in this way is to stagnate the function of a building to the creation of a beautiful object. Martin Pawley, an influential architectural theorist, suggests that architects begin to think of buildings as terminals.[11] Terminals act as the end points where the output, exchange, and redistributions of a network take place. Buildings, and in the broader scope cities, act as mediums of interaction within the larger global network. Buildings should either become reprogrammable, or portable so that they can keep up to the changing conditions of a network culture.

The second lesson is that these terminals can be organized into swarms to create highly productive systems based on a unification of interest. In intelligent swarms, "[e]ach agent understands itself not as a part of the mass, but as an individual cooperating with others through centerless networks."[12] ICTs allow users to efficiently form swarms. By generating an opt-in structure, users can search out swarms that suit their individual needs and interests. When a user enters the system, the swarm adjusts to accept them. Swarm architecture is continually evolving because users have the ability to opt into or out of a system. The formation, and individual members of a swarm may change, but the central idea will remain with the swarm until all members have left. In their chapter on Quartzsite, Robert Sumrell and Kazys Varnelis discuss the phenomenon of swarm architecture generated by RV

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7. Dan Hill, "Urban Parasites, Data-Driven Urbanism, and the Case for Architecture," *Architecture and Urbanism*, no. 530 (November 2014): pg. 6.
8. Ibid.

9. Russell Belk, "You Are What You Can Access: Sharing and Collaborative Consumption Online," *Journal of Business Research* 67, no. 8 (October 16, 2013): pg. 1598, doi:10.1016/j.jbusres.2013.10.001.
10. Pawley, *Terminal Architecture,* 7.
11. Ibid.
12. Robert Sumrell and Kazys Varnelis, *Blue Monday: Stories of Absurd Realities and Natural Philosophies* (Barcelona: Actar Editorial, 2007), pg. 145.
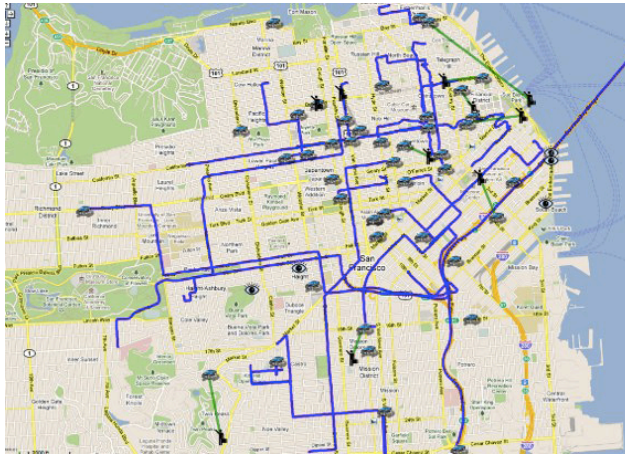
FIGURE 8 Uber, San Francisco, God View
This diagram illustrates all of the active Uber cars in San Fransisco in one particular moment in time. The development of *urban parasites* such as Uber has changed the way that people are using the city. The pervasiveness of Uber may cause people to opt out of municipal transportation and is therefore an act of informal urban planning.

1. hail a "cab"

2. "cab" accepts the fare

3. Uber tracks the ride to the destination

4. Uber's GPS tracking recognizes the ride is complete, and Uber preforms the financial transaction.

5. Rider and driver rate each other.
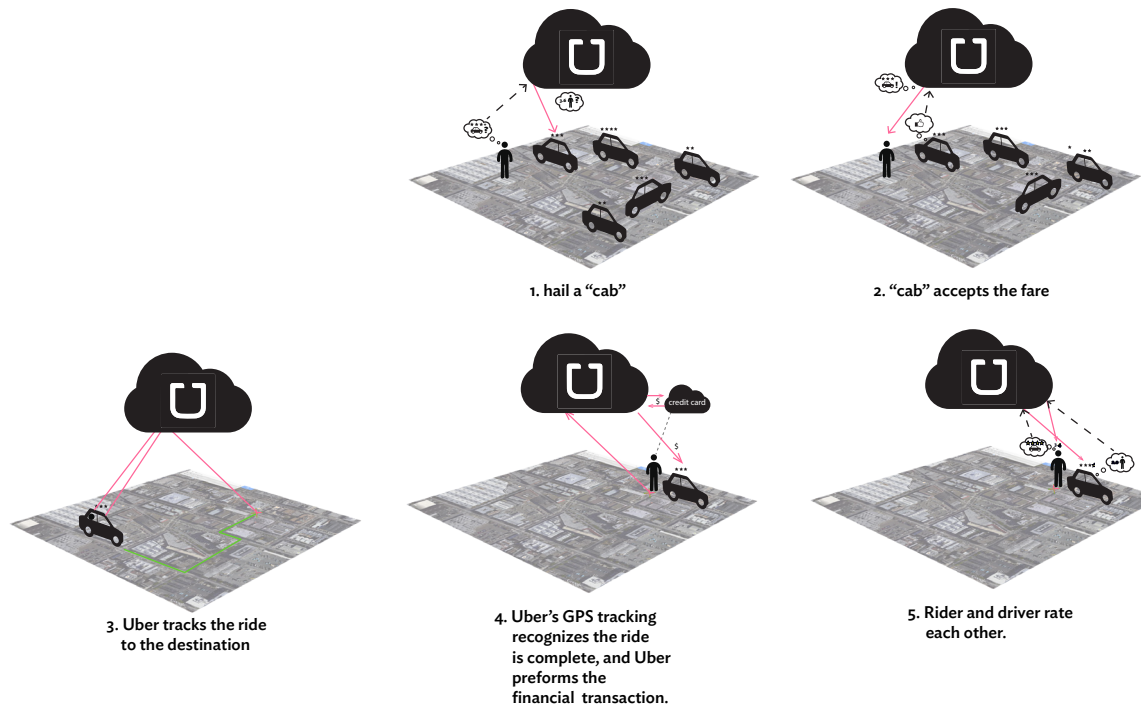
FIGURE 9 Diagram of an Uber Ride
An Uber X driver is part of an intelligent swarm. When he/she wants to make money by acting as a cab, they opt into the intelligent swarm of Uber drivers. The drivers are coordinated by the Uber cloud which assigns riders to them based on GPS location. When they have finished working, they opt ouf of the swarm.

owners in Quartzsite Arizona:

> Out in the desert users are allowed to camp without a permit for up to two weeks every summer. The RVers assemble themselves into groups based on shared interest. These interests are incredibly diverse and include, "Knappers (individuals skilled in striking pieces of flint with other pieces of flint to make primitive tools and ornaments), HAM radio buffs, Christians, computer fans, Disney lovers, singles, diabetics, full-timers, social nudists, pet lovers, and the Rainbow children (attracted to the freedom of Quratzsite as they wander the country re-creating the hippy lifestyle of the early 1970s)."[13]

Each swarm can determine its ideological and physical configuration allowing users the freedom to collectively define their mode of living. In an ephemeral way, software developers are encoding this logic into the "real world". Sharing economies are essentially swarms which assemble themselves loosely via a network connection.

All of these ICT technologies have come together to generate new cultural and economic models which can be instituted without a major investment of physical resources. Mostly they are weak, but intelligent systems which gather strength through people's decisions to make use of them. These systems are so robust that they can come to challenge existing economies in a short period of time. ICTs are changing the way that people utilize cities through the interventions of computer programmers. But weak and diffuse modernity has far greater potential than is currently recognized. Can architects also tap into the robust capabilities of a networked system? Ideally the output of this would be as Branzi puts it, a "reversible, evolving, provisory models that correspond directly to the changing necessities of a reformist society…"[14] In other words, an architecture designed for the constant change of the Internet Age. The issue with ICT culture becoming architecturally physicalized, is that it requires real space. A temporary or changeable architecture must somehow occupy a place, but where can it be located within a highly complete building fabric? Somehow architects must eke out unused and unexplored territory present within the city. Van Oenen suggests that these physical temporary / mobile architecture could begin to take over areas of the city in a state of transition.[15]

He argues that abandoned territory is prime real-estate to begin testing alternative modes of dwelling, or utopias, standing in defiance to the regulating principals of government.[16] Whether or not these sites are overtaken as an act of protest, or borrowed in collaboration with their owner, vacant sites offer fertile ground for transitory architecture.

FIGURE 10 Dekalb Market in Brooklyn, NY
Dekalb Market in Brooklyn was a temporary market made out of repurposed shipping containers on vacant site where construction had been delayed. The market was comprised of work/sell units for small-scale entrepreneurial businesses. The arrangement and design of containers was by Thomas Kosbau. Dekalb Market is an example of a temporary use of a transitional territory.

13. Sumrell and Varnelis, *Blue Monday,* 162.
14. Branzi, *Weak and Diffuse Modernity,* 10.
15. Gijs Van Oenen, "The Art of Unsettling: Mobile Architecture and Its Political Surplus Value," in Parasite Paradise: A Manifesto

for Temporary Architecture and Flexible Urbanism, by Liesbeth Melis (Rotterdam: NAi Publishers/SKOR, 2003), pg. 18.
16. Ibid, 18-19.

FIGURE 11 Quartzsite, "Swarm Intelligence"
This photograph of RV's informally camping in Quartzsite
illustrates swarm intelligence. Without a governing hierarchy
the users determine their placement within the swarm based on
common interests or desire. This autonomous horde could serve
to inform the organization of a mobile dwelling typology.

FIGURE 12 Leroy Morris, lives in Walmart parking lots
This photograph is from an article by Business Insider on the
subset of people who live in RVs and other mobile dwellings in
Walmart parking lots across the United States. Walmart permits
overnight parking in the gigantic parking lots in front of their
stores. This area constitutes a transitory zone where mobile
dwellers can live rent-free.

ICTS & MILLENNIALS

Much of the type of change now being seen in cities is due to a generational changing of the guard. A new cohort, known as the Millennials, made up of 13-32 year-olds (according to a National Chamber Foundation study), are reaching adulthood, completing education, and taking on the job market.[1] In general they are highly educated, underemployed and strapped with student debt. The Millennials have received many nick-names because of the circumstances they find themselves in. They are known as the "Peter Pan Generation" (they never grow up) because they are statistically delaying marriage, having children, and buying homes. They are also known as the "Boomerang Generation" because when they run into financial difficulties they move back in with their parents. But Millennials also know how to make the best of adversity. Their value set is slightly shifted from previous generations. Their priority is access before ownership as well as the mobility to get there.[2] They are willing to move to find better employment or improve their education.[3] And once they get to where they want to settle down for a while, they are willing to live smaller – with less space, and less stuff – in order to live closer to where they work and play.[4] They would rather relocate than commute. In essence – as a generation they prioritize high motility**.**

The defining trait of this cohort is that they grew up with the internet. This single factor has helped to define many characteristics of the Millennial. And not only have they been users of these technologies, but they have been the early adopters and even creators of these new platforms of communication. As David Burstein, author of *Fast Future: How the Millennial Generation is Shaping Our World,* puts it:

> The Millennial Generation and digital technology, like two good friends, have been there at all the important moments for each other. When we needed a last-minute solution late on the night before a school paper was due, Google was there to save us. When we graduated, we uploaded our graduation pictures to Facebook; when we met a new girlfriend or boyfriend, we texted our friends to tell them. From text messaging to Twitter, from the music revolution of the iPod to the app revolution on the iPhone, from Google to Wikipedia, from Instagram to Facebook, from YouTube to Pinterest, and from Tumblr to Groupon, Millennials have truly dominated the creation, early adoption, and proliferation of the majority of the most important digital technologies of the last decade.[5]

Because of this special relationship Millennials have with technology they have been the forerunners of

1. National Chamber Foundation, Sally Sappanen, and Wendy Gualtieri. *The Millennial Generation: Research Review*. Report. Edited by Michael Hendrix and Andrea Bitely. 2012. Pg. 2. Accessed November 18, 2015. https://www.uschamberfoundation.org/Millennial-generation-research-review.
2. Joel Stein, "Baby, You Can Drive My Car," TIME, February 9, 2015, pg. 35.
3. National Chamber Foundation, *The Millennial Generation*, 26.
4. Derek ThompsonJordan Weissmann, "The Cheapest Generation," The Atlantic, August 22, 2012, accessed November 18, 2015, http://www.theatlantic.com/magazine/archive/2012/09/the-cheapest-generation/309060/.
5. David D. Burstein, *Fast Future: How the Millennial Generation Is Shaping Our World* (Boston: Beacon Press, 2013), pg. 53.

many entrepreneurial fields in this sector. Millennials have proliferated the use of sharing economies. Tightly stretched dollars, smartphone access, as well as an optimistic desire to participate in these new models have allowed Millennials to turn many industries on their head, seemingly overnight – they bypass cabs with Uber, bypass cable with Netflix, bypass CD's with Soundcloud or GooglePlay or Spotify or Songza, bypass garage sales with Kajiji,

bypass the bar with Tindr, bypass hotels with Airbnb and so on, and so forth. All of these services augment and are dependent on the city. These services paired with the motilities already offered by the city makes urban centers irresistible to the Millennial.

Millennials were born between 1985-1995

Are willing to relocate for job opportunities. With a highly competitive job market millennials are willing to move to get a better job.

$1000/yr
on their cell phone bill alone. The tech savy generation spends a large portion of the pay check on technology.

24.0
42.3
30.8

42.3% Live with parents
30.8 % are married or common law
24 % live with roomates
More Canadian 20-29 year olds live with their parents or live with roomates than ever before according to the 2011 Census.

27.6%
single person households are on the rise
In the 2011 Candian census there were more single person households than any other family type.

Sharing Economy
Millennials harness sharing economies. Sharing economies utilize networking capabilities to generate a collaborative peer to peer economy through the sharing of reasources. This values access over ownership for items such as cars.

car-sharing

Want to live smaller and more cheaply & **maintain connections.**

Millennials are willing to actively contribute to environmental conservation efforts.

Want to live in **walkable** communities close to public transportation.

Value **mobility** and convenience. Currently renting is the best option for these factors.

9/10
Want to own a home
According to a survey by Fanny-Mae. 36% of Americans under 35 own a home.

$500, 000
the average cost of a home in Canada.

Tiny House Movement
Due to many of these factors this enterprising generation has created a new housing typology through the grassroots "tiny house movement". Tiny houses are 100-400 square foot houses built on top of a trailer bed.

FIGURE 13 Characteristics of the Millennial Generation
This diagram illustrates a summary of the characteristics of Millennials as determined by this research.

MOTILITY AND HOUSING COSTS

Motility is especially relevant to the location of one's dwelling within an urban area. When one dwells in the city, they have to make trade-offs between high motility, higher cost housing and low motility, lower cost housing. This decision involves weighing access to amenities, access to transit, commute times, (the) scale of dwelling as well as affordability. One may choose a low-motility neighbourhood, live in a larger dwelling, but therefore spend two hours commuting per day.

Over the past decade, dwelling costs in major cities have skyrocketed. In Vancouver housing costs are causing young professionals to leave the city.[1] In that city a household must make $123,000 annually to afford the average mortgage on a house that will cost on average $905,000.[2] Although Vancouver is the most expensive this trend is consistent across major cities in Canada. The average cost of a house across Canada is currently $450,000.[3] The high housing costs in cities is putting greater strain on rental markets. High housing costs force more people into the rental market which in turn increases market rates.[4] In many places people are turning to alternative dwelling patterns in order to eke out an existence. Some of these patterns include: basement apartments, rooming houses, and living with roommates or one's parents well into adulthood. Adults are dwelling together in living scenarios that contradict what the housing stock was built for, the nuclear family. It is time to reassess the way that we design urban dwelling spaces – understanding that the demographics have changed.

Beyond the expense, there is one other major obstacle to home ownership and that is its anchorage to a place. Buying a home means "putting down roots", something that many young professionals just aren't able to do. Job instability means that Millennials have to be able to uproot quickly. According to a Future Workplace survey, which took into account 150 managers and 1,189 employees, Millennials expect that they will be changing jobs within 3.3 years.[5] Mobility is a major factor in Millennials' lives. As an American study of "Age-Specific Migration Rates" shows, 20-30 year-olds are the most highly mobile demographic of all age groups, by a significant margin.[6]

1. CBC News, "Affordable Housing Issue 'abandoned' by Federal Government, Says Vancouver Mayor," *CBC News, British Columbia*, May 22, 2015, accessed November 18, 2015, http://www.cbc.ca/news/canada/british-columbia/affordable-housing-issue-abandoned-by-federal-government-says-vancouver-mayor-1.3084602.
2. Ibid.
3. The Canadian Real Estate Association, "National Average Price Map," National Average Price Map, November 25, 2015, accessed November 25, 2015, http://crea.ca/content/national-average-price-map.

4. Kiran Rana, "Vancouver Renters Share the Pain of High Housing Prices," The Globe and Mail, June 15, 2015, accessed November 18, 2015, http://www.theglobeandmail.com/report-on-business/vancouver-renters-share-the-pain-of-high-housing-prices/article24959365/.
5. Future Workplace, *Multiple Generations @ Work*, Infographic, 2012, accessed November 18, 2015, http://futureworkplace.com/wp-content/uploads/MultipleGenAtWork_infographic.pdf.
6. Richard Florida, "Where Millennials Are Moving Now," The
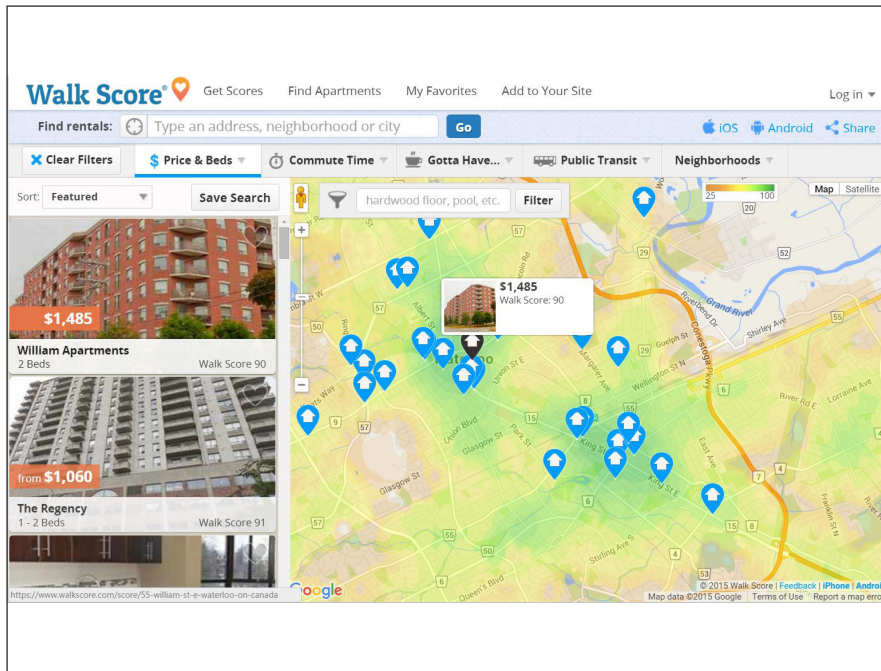
FIGURE 14 Kitchener Walk Score Heatmap
This screen-grab shows the Walk Score web service which allows apartment hunters to analyse the amenities close to their future home. A high Walk Score, shown in green, is an area with a lot of amentities within easy walking distance. This is a tool that Millennials use to guage the motility of an area.

FIGURE 15 Ikea PS 2014 On the Move Infographic
The swedish furniture company, Ikea, completed a survey on the living patterns of 18-29 year-olds in major cities throughout the world. They found that many people are living in smaller accomodation, sharing with roomates, and moving more frequently.

FIGURE 16 Ikea PS furniture collection
Ikea used the information gleaned from the survey to design a furniture collection. The new collection focused on the Millennial values of small scale, multi-functional, portable, and economical. Many of these traits could be imbued into a housing typology for Millennials.

Dwelling is more than a localized problem. Increasingly individual cities act as the nodes of a larger network, and while housing may be solved in one city, it must be solved in all cities in order to support individuals which dwell within the whole network. One possible solution to this is that homes move with their owners from city to city. In Terminal 2098, Martin Pawley's fictional meditation he envisions the house as a terminal. "'Houses? Houses is a bad word,' he frowned. 'We don't say house any more, we say terminals. Ter-min-als. Houses is a shit word these days.'"[7] The dwellings in Pawley's fiction are vehicles that have been hacked into dwellings, which scatter through an empty landscape. The owners have no set piece of land, but stop where they are when they desire to rest. The concept of house has eroded to the point where dwellings are merely an extension of a person's connection to the network – like a cell phone. They act as nodes of communication between the individual the collective entity. Increasingly individuals are acting like terminals, they move throughout the network for work, school, or lifestyle. Mobility, has been accepted as a way of life. Because they are mobile they are denied access to a consistent place to call home. They must shed their dwelling, and a considerable amount of their belongings. Only to regroup again in their final destination. Urban parasites such as Uber, or Airbnb have an emergent quality which housing seems to lack. They can appear and disappear within cities as usership demands. If housing could embrace this power, utilizing network connectivity and peer-to-peer systems to create an emergent housing typology, it could mitigate some of these mobility issues.

FIGURE 17 Room in a Box - The 30 minute Move
Designed by recent university graduates who were frustrated with furnishing student apartments term-by-term this cardboard furniture set was designed for easy moving. This lightweight demountable furniture is one example of how Millennials are coping with a mobile lifestyle.

Atlantic City Lab, March 26, 2015, accessed November 18, 2015, http://www.citylab.com/housing/2015/03/where-Millennials-are-moving-now/388748/.
7. Pawley, *Terminal Architecture*, 12.
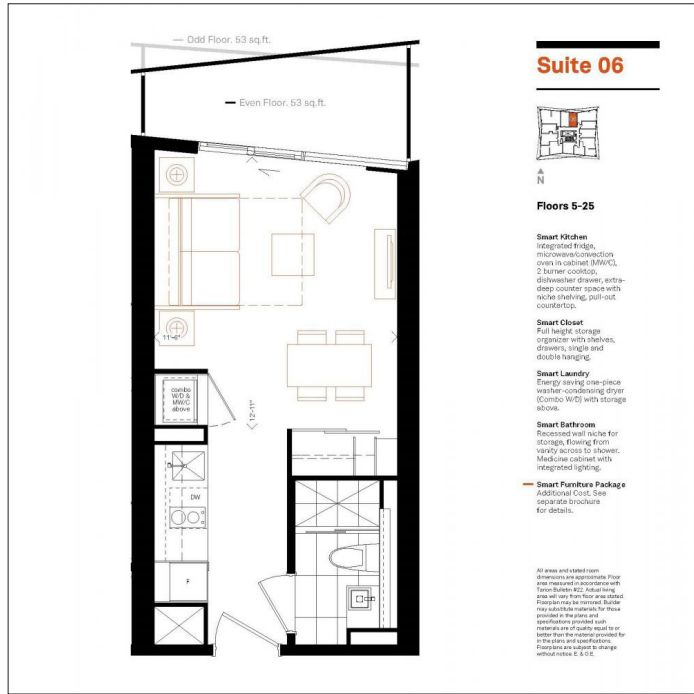
FIGURE 18 Smart House Toronto
FIGURE 19 Smart House Toronto Plan
Smart House Toronto is an example of the new micro-condo typology that is begninning to emerge in major urban centers. The micro-condo is a space designed to be affordable for a single-professional. This typology is responding to the changing needs of city dwellers - smaller spaces for those delaying family life.

ARCHITECTURAL PRECEDENTS

FOR AFFORDABLE, FLEXIBLE AND MOBILE LIFESTYLES

With the hyper-mobility of modern life brought about by the Internet and a globalized economy, it seems logical that homes would again become mobile – following individuals throughout their lives. But, mobile homes have never found a foothold as an acceptable form of accommodation within North American cities. They hold associations with concepts like "trailer trash" because of their adoption by poorer demographics. Mobile homes were rejected before they had a chance for acceptance. During the Second World War, manufactured homes housed thousands of displaced factory workers and soldiers.[1] Massive reorganizations of people required a rapidly re-deployable solution – which the manufactured home was able to provide. However by the 1950's, post-war conservatism held site-built homes as the centerpiece of family values.[2] Trailers, which had been adopted by low-income families were relegated, via restrictive zoning laws, to the outlying areas of cities. Today, Americans can vacation in mobile dwellings, however placing them within urban centers remains difficult.[3] Mobile housing seems like a viable solution to the housing shortages many major cities are facing. Factory manufacturing allows mobile housing to be completed more quickly and economically than site built homes, and when the housing shortage diminishes they can be moved to new sites.

Mobile housing began in North America with the interest of utilizing the newly minted highway system, and manufacturing industry, to create a new system of dwelling. Two major typologies emerged, where they diverged was in duration of use. The first type of mobile home is the Recreational Vehicle (RV), which was designed for easy highway mobility, and short stays on specialized camping sites. The second type of mobile home is the manufactured home, or trailer, which was designed for longer term dwelling.

Recreation Vehicles combine the amenities of a dwelling with the mobility of a motor-vehicle. Conventionally, RVs are used for leisure – becoming a mobile hotel room for the occupants. Their origins stretch back to the 1920's and 30's with the development of automotive culture.[4] Manufacturers and individuals began constructing hybrid shelters that ranged from tent-car hybrids to fully equipped trailers. The RV extended the freedom provided by the open road. The RV spurred a series of sub-cultures which utilized the hyper-portability of the dwelling to support their lifestyle. For example, some RV users are snowbirds, who travel to warmer places during the winter months, only to return to their place of residence in the spring.

 The RV is often situated in specialized parks. These parks consist of a highly programmed parking space; with electrical and water outlets to plug the dwelling into, a level space of compacted earth for the RV

1. Allan D. Wallis, "House Trailers: Innovation and Accommodation in Vernacular Housing," *Perspectives in Vernacular Architecture* 3 (January 1, 1989): pg. 36.
2. Ibid.
3. Casey J. Dawkins and C. Theodore Koebel, "Overcoming Barriers to Placing Manufactured Housing in Metropolitan Communities," *Journal of the American Planning Association* 76, no. 1 (2010): pg. 73.

4. Wallis, "House Trailers,"31.

FIGURE 20 Fernbrook RV Park, Longview, Texas
Fernbrook RV Park is an example of the RV park typology. Each site consists of a parking spot for the unit, utility hookups, and a small lawn to the right of the unit. Essentially it is a parking lot for houses.

FIGURE 21 Silver Streak Postcard
An example of an early recreational vehicle which provided access to nature for the middle class via the new highway system.

FIGURE 22 Utility Hook-Ups
RVs are designed to be self-sufficient for short periods of time. But, for longer stays they can be plugged in to standard domestic utilities. In this image the RV is connected to water, sewer, and electrical.

to situate itself on, and a smattering of trees to suggest natural surroundings. RV parks normalize and distort nature forming a rugged extension of urban structures; the hybrid of a suburb and a parking lot. What they do provide, is a relief from the fixed relationships of urban life. This can spur social interaction and a feeling of connectivity with one's neighbours who are also "escaping". The temporary nature of the camp is what makes it exciting.

Manufactured homes emerged out of the desire to create transportable dwellings that a user could reside in permanently. This resulted in homes that are much larger than their RV counterparts, but subject to stricter building codes. Manufactured homes have their own set of national building codes, known as the HUD code in the US.[1] Developing a code for the manufactured home was essential for it to be placed within cities. Before that many units were found to be in violation of local building codes because of their mobile foundations.[2] Their seeming mobility meant that they could not be classified as buildings. The HUD code requires that manufactured homes be built on top of a permanent chassis but affords the unit exemption from local building codes.[3] However, the placement of units continues to be held up by other zoning laws which stipulate strict rules on the aesthetics, dimensions, and location of manufactured housing.[4] The manufactured home's duel nature as both mobile and stationary makes it hard to integrate into a city's built fabric. Where they have been allowed, it is expected that they hide their mobility. When the state of Colorado passed legislation in 1985 on the siting of manufactured homes, it was not an unbiased acceptance. Here, a manufactured home must be at least 24 x 36 feet (two units sandwiched together), placed on a permanent foundation, have a pitched roof, and appear to be made out of brick or wood.[5] In essence, the manufactured home had to look like a "normal house". But this requirement neglects the features of the mobile home which make it a vital stepping-stone in affordable housing. The small scale, and lack of ornamentation, of a single-wide trailer allows it to be cost-effective.

The lack of aesthetic design of manufactured homes has kept them perpetually unfashionable. Nearly 50 years ago, Vernon D. Swaback lamented the trailers' confused expression of mobility and fixity.[6] He felt that manufactured homes had an amazing typological potential, but that designers should break up their box-like form because, "A house should not be a box and never a container."[7] For the most part, manufactured homes have remained box-like. Some manufacturers have added artificial aesthetic touches, like fake shutters or dormers. But largely the focus of the design seems to be on economy. While this has kept them cheaper, it has contributed to the lack of acceptance in cities.

Cities and manufactured homes have a tense history. During, and immediately following World War II, mobile homes were tolerated in cities because of the housing shortages. But soon after, their presence became associated with poverty and crime. As a reporter put it, "Trailer camp slums are a very real, if as yet unrecognized, menace to our American way of life."[8] The solution was to ban trailers from residential areas, allowing them only in the most unwanted parts of the city – such as industrial areas. To this day, manufactured homes have not achieved wide spread acceptance in urban centers. The majority of manufactured homes have been relegated to purpose-built parks.

Trailer parks, like manufactured homes, are again a hybrid of typologies.[9] Trailer parks are privately owned, and developed, interpretations of urban neighbourhoods. The requirements of unit placement on site mean that homes are often placed perpendicular to the street, and the front yard is eliminated. Park owners can determine their own amount of site-investment – landscaping, unit skirting, hitch camouflage, etc. Homeowners can plug in additional elements to increase the functionality of their home. These can include additions like car-ports, patios, and awnings.

In terms of ownership models, trailer parks are again a variation on the typical. Homeowners lease their space from the park landlord, and rather than renting a house, they rent the land. This is one way that trailer parks enable low-income individuals to own

1. Colin Davies, *The Prefabricated Home* (London, UK: Reaktion Books, 2005), pg. 77.
2. Ibid.
3. Ibid.
4. Dawkins and Koebel, "Overcoming Barriers to Placing Manufactured Housing," 75.
5. Wallis, "House Trailers," 42.

6. Vernon D. Swaback, "Production Dwellings: An Opportunity for Excellence," *Land Economics* 47, no. 4 (1971): pg. 323.
7. Ibid, 334.
8. Wallis, "House Trailers," 36.
9. Ibid, 38.

FIGURE 23 Trailer Park Encroaches Upon the Boundaries of the Everglades National Park
Trailer parks often neglect urban design elements that help to humanize traditional neighbourhoods. Sidewalks, street lights, front lawns, and social spaces seem to be missing from this example of a trailer park.

FIGURE 24 Paradise RV Resort
This RV/Trailer Park in Phoenix Arizona is a popular model for retirees and snow birds. The upscale, 55+ neighbourhood presents a more promising model of the trailer park.

homes faster. With land scarcity in cities the majority of the cost of a house can be the land beneath it.[10]

Despite the development of RV and Trailer parks, society is still uncomfortable with the instability of transient communities. Contradictory to this is the fact that people are moving more and more often. Over the past century architects have speculated on what an itinerant urban condition would look like. Architects have envisioned "Plug in" cities, vertical harbours, Metabolist towers, etc. Archigram's experiments in the 1960's piggy-backed upon the new age of automotive mobility and the increasing connectivity of globalization. Their experiments included: a house becoming a capsule, a home unfolding out of a car, clothes that inflate into a house, multi-storey parking garages for mobile homes, and the house as an autonomous pod – reminiscent of the Apollo moon lander. These were all important explorations which opened up the discussion of what a house could be. One could be critical of the impossibility of their proposals, but many of the pressures their projects were addressing are coming to pass. As David Greene put it in 1972, "It is likely that under the impact of the second machine age the need for a house (in the form of a permanent static container) as a part of man's psychological make-up will disappear."[11] With people moving more frequently than ever before, and houses becoming imperatively expensive, static houses can no longer serve as the benchmark for success. The typology needs to be redefined based on the forces that individuals are facing. For many, the nuclear family may not be their endgame or it may be a lifestyle that is prohibitively expensive. Either way, more and more people are living in single-person households, or with roommates.[12]

Plug in Capsule Home by Warren Chalk envisions an apartment for this new reality. Chalk invented a tower of one room apartments serviced by the most minimal and highest tech appliances. In a sense, the entire space is an appliance for living – rejecting furniture and décor for mobility and efficiency. The unit can be retrofitted and eventually replaced; much

like an automobile. The standardization of parts would allow manufacturers to compete with each other for components, a "Ford floor tray could be traded in for a Chrysler floor tray."[13] Capsule owners can foreseeably move their unit from tower to tower garnering access to the cities and urban conditions as they desire. However this heavily infrastructure dependent project seems to ignore the difficult realization and operation of such a structure.

In contrast to Warren Chalk's Capsule Tower, Lot-ek used a ready-made industry and transportation system for their MDU (Mobile Dwelling Unit).[14] The MDU repurposes a shipping container into a transportable dwelling. World-wide shipping is a standardized system which utilizes the shipping container to transport goods by rail, road, and sea. Transitional spaces in this system such as rail yards and ports have the equipment to stack, store, and reposition containers. The MDU neighbourhood plugs into this system. Houses are stacked into vertical harbours located near shipping centers in major cities around the globe. A primitive scaffold would hold the houses in place while a vertical shaft would connect the units to elevators, and carry utilities. Houses could be added, removed, and shuffled using standard container equipment. This is another argument for how mobile dwelling could be integrated into the city. But, it prioritizes a mobility infrastructure over a convincing mode of living. This design solves the manufacturing and mobility issues, but does not convincingly occupy the city. The harbour's scale and dependence on transportation systems requires it to occupy industrial territory. This paired with the lack of social space makes them seem unlivable.

The question of how mobile dwellings can occupy cities is a difficult one. There's no lack of innovative unit design within architecture. Every day on design websites a new, and more fantastic mobile dwelling appears. The issue is coming up with a system for how mobile dwellings can negotiate space in cities where dwelling is expected to be static. A growing grass-roots movement, known as the Tiny House Movement, is re-popularizing mobile dwelling. Tiny houses are built on trailer chassis that can be hauled with a domestic vehicle. Millennials and retirees are

10. Dawkins and Koebel, "Overcoming Barriers to Placing Manufactured Housing," 74.

11. Peter Cook, ed., *Archigram* (London: Studio Vista, 1972), pg. 52.

12. Statistics Canada, *Census in Brief:Living Arrangements of Young Adults Aged 20-29,* report no. 98-312-X2011003 (Statistics Canada, 2011), pg. 6.

13. Cook, *Archigram*, 44.

14. Christopher Scoates, *LOT-EK: Mobile Dwelling Unit* (New York, NY: Distributed Art Publishers, 2003).
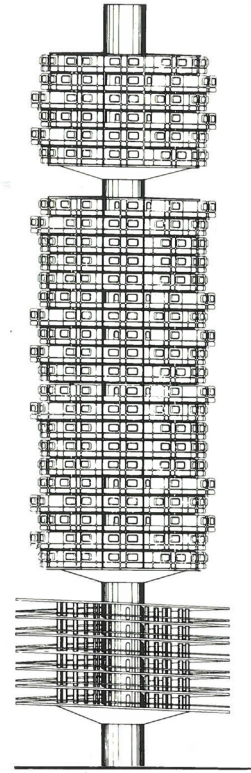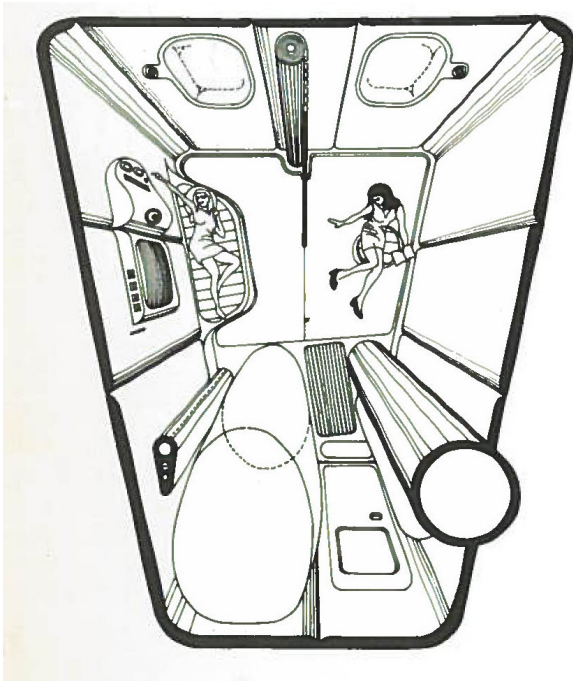
FIGURE 25 Warren Chalk's Plug in Capsule Homes (Above)
The tiny capsule aparments were designed as machines for living, containing only the essentials for living.

FIGURE 26 Mobile Dwelling Unit Interior
The interior of the MDU shows the living space unfolded in the converted shipping container. The programatic components of the dwelling have been placed in push-outs which unpack and leave an interior corridor.
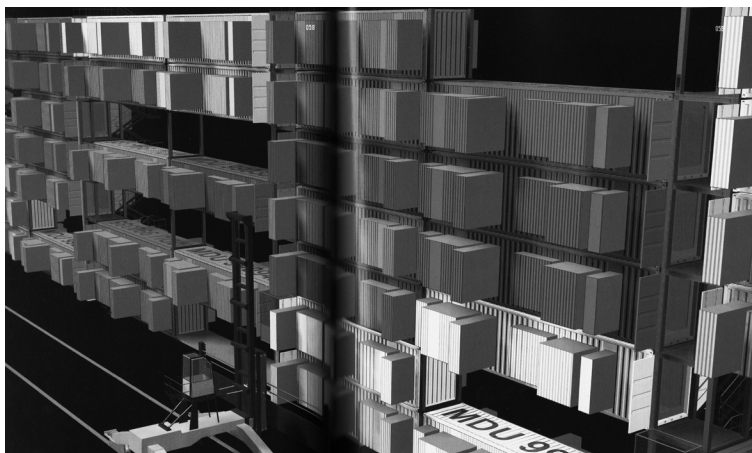
FIGURE 27 MDU Harbour
The MDU harbour is a series of stacked MDU units which are rearranged as units arrive and depart. The harbours leave little room for public stpace, and are heavily dependent on infrastructure for their placement.

using tiny houses as a way to avoid mortgage costs. At $60,000 - $100,000 tiny homes are a fifth of the cost of the average home. The Tiny House Movement is putting pressure on what a house can be, in the legal sense, within the city. Tiny homeowners are squatting illegally on residential lots – because in many places a house that is less than 400 square feet or on mobile foundations, cannot legally be classified as a dwelling.[15] Tiny home supporters are calling for the development of villages or lots for legal dwelling. Some tiny home manufacturers have achieved legal status by being classified and regulated as RV's. This status allows them to park in RV parks – but this still does not allow a tiny home to be classified as a full-time dwelling. North American cities must expand their acceptance of alternative forms of dwelling. Accepting mobile dwellings into urban centers will require a robust overhaul of the current policy model. A system that allows for mobile dwellings to reside in cities will have to include laws, new systems of ownership, as well as a set of typological standards which will allow sites, units, and the transportation between them to function seamlessly.

FIGURE 28 Boneyard Studios' tiny house demonstration lot, Washington
The tiny-house lot was for demonstration purposes only - as it would be illegal to dwell in.

FIGURE 29 The American Dream Is Alive - and It's Really Really Tiny
An interview on Atlantic.com tiny-home owners where they describe their reasons for bypassing traditional housing. This couple talks about economic freedom, and how many houses are larger than people need. The renewed interest in mobile dwelling has been instrumental to this thesis argument.

15. Jay Shafer. "Jay Shafer: The Politics of Tiny Houses." Interview by Curiously Local. YouTube. March 22, 2011. Accessed February 05, 2015. https://www.youtube.com/watch?v=hq9xf0OhaVI.

Mobile Dwelling / RV Classification

Sited Mobile Dwelling

Relocatable Dwelling
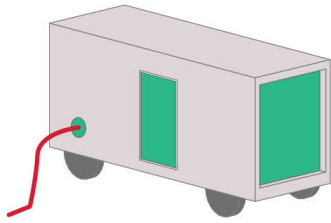
static	mobile

Moves seasonally.
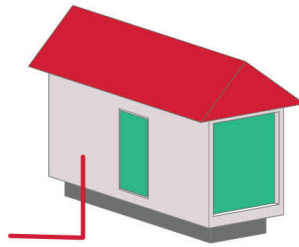
static

Moves maybe once after placement.
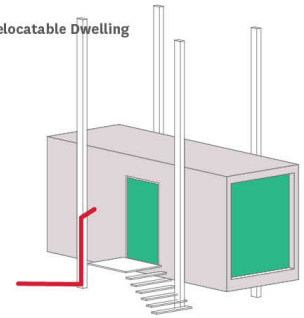
static	mobile

Moves every one to five years.
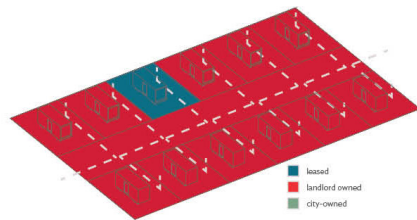
leased
landlord owned
city-owned
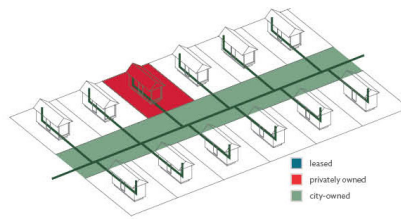
leased
privately owned
city-owned
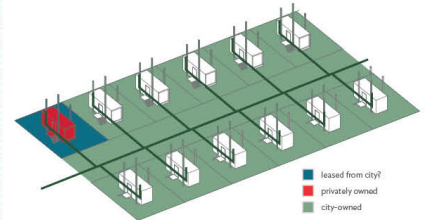
leased from city?
privately owned
city-owned

FIGURE 30 Ownership Models
This diagram compares ownership models for two different types
of mobile dwellings and proposes a third. Leasing land rather
than owning it often makes it more affordable, and allows for
greater mobility.

CASE STUDIES

A series of case studies were undertaken to investigate various types of mobile dwellings. Two types are commonly used mobile dwellings which have not been designed by architects — recreational vehicles and manufactured homes. The second two types are mobile dwelling typologies that have been designed by architects — MDU by Lot-ek and M-CH by Richard Horden. These four typologies were investigated to determine their "timeline of mobility." The timeline illustrates three common states of portable architecture: transporting, transforming, and dwelling. Along the top of each case study is a timeline which illustrates the duration of each activity. This aids in the analysis of each design in its relationship to mobility. After the timeline of mobility is a brief investigation of how each unit type aggregates with other units of a similar type.

The next case study section investigates the static dwellings that milllennials are living in. The timeline of mobility therefore studies the process of moving one's stuff from one place to another.
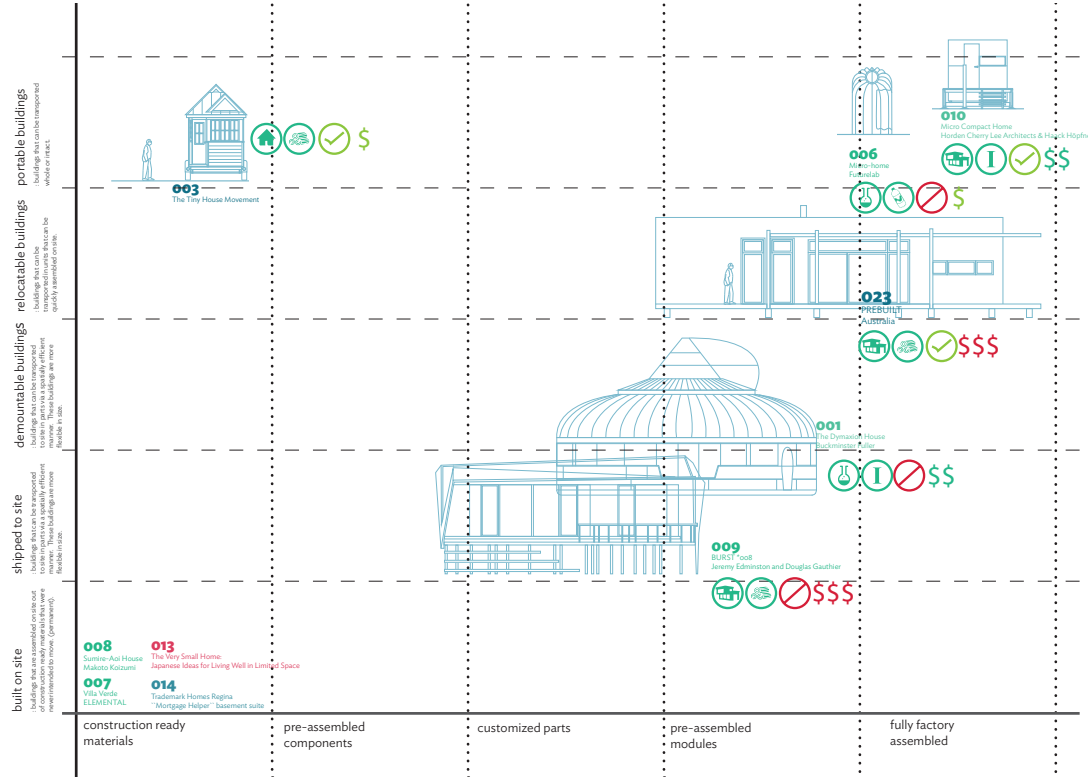
FIGURE 31 Mobility vs. Fabrication
This chart compares the ability of a dwelling to be relocated vs. its method of manufacture and its scale. This study, which was completed early on in the thesis, created a way of analyzing pre-fabricated housing types. The small scale of the most mobile dwellings became a focus of study.

CASE STUDY

MELBOURNE MOTORHOME
JAYCO RVS
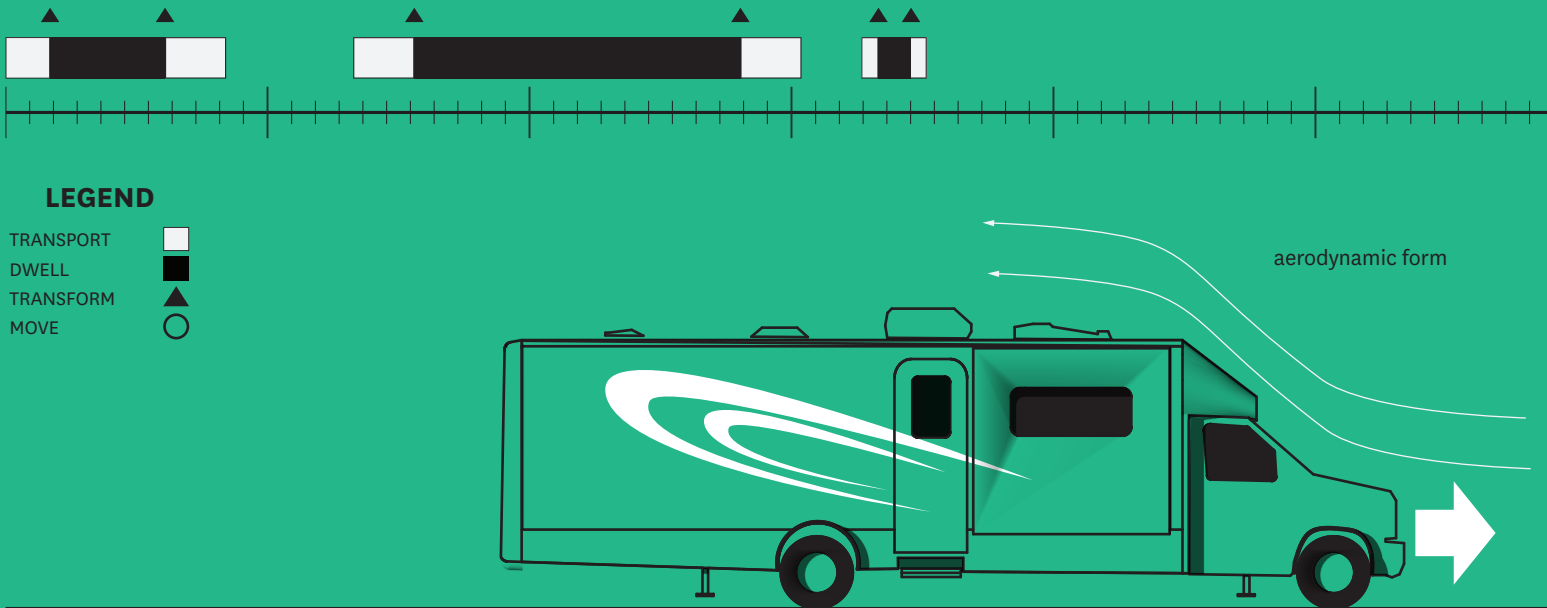
LEGEND

TRANSPORT ▢
DWELL ■
TRANSFORM ▲
MOVE ○

aerodynamic form

TRANSPORT

- A motor home combines a dwelling built on top of a chassis and a motorvehicle for transport.
- Flowing graphics make the trailer appear aerodynamic & sporty.
- 2.5 m width allows it to travel on North American highways without a special permit.

FIGURE 33 Timeline of Mobility
A timeline depicting the transformation process of a mobile dwelling between mobile and dwelling states.

FIGURE 32 Melbourne Plan
The RV's living plan takes advantage of push-outs to create a comfortable dwelling experience.

S
OHC
SHELVES
QUEEN BED
MICRO
OHC
COMFORT LOUNGE
STORAGE
OHC
SOFA TABLE
TV
WARD TV WARD
SHOWER FRIDGE
STEP
DINETTE
STORAGE
S S OHC
16' AWNING
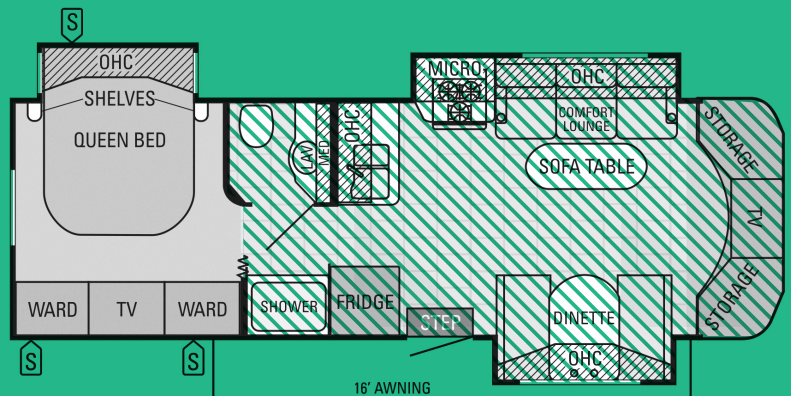
Motorhomes have been used since the early 20th century. They combine the functions of an automobile and a dwelling, but each function is compromised by its attachment to the other.

The automobile is limited to transporting the dwelling from point-to-point, because of the overall structure's bulkiness. One is also required to break camp in order to move the vehicle.

The dwelling's function is also compromised. The layout of the dwelling is restricted by highway transport laws, allowing it to be no wider than 2.6m. This mobility also means that the dwelling is made out of lightweight materials, in order for the automobile to efficiently tow it. This means that the wall system, in the case of this model, is poorly insulated.

The motorhome is the most mobile structure of the dwellings studied here. The cycle of transport, transformation, and dwelling can occur with the most ease. This is achieved by: its connection to its means of transport; its size, which conforms to highway bylaws; the ability to perform self-sufficiently; the foundation and push-out system; and the use of fixed furniture which does not need to be removed prior to transport.

electrical and water
provided on site

septic tank

water storage

pushouts

7.0 m

2.5 m
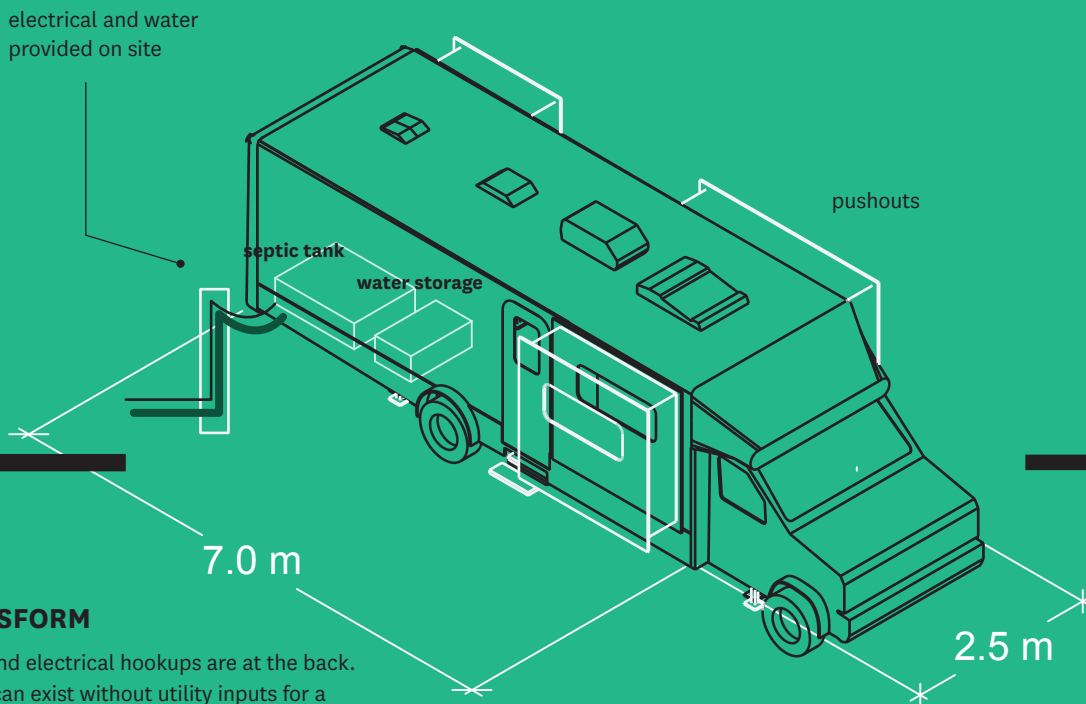
TRANSFORM

- Water and electrical hookups are at the back.
- The RV can exist without utility inputs for a period oftime utilizing its: house battery, propane generator, water storage tank, and sewage storage tank.
- When the RV arrives on site, it transforms by lowering stabilizing feet.
- Once the feet are lowered, motorized push-outs extend the interior living space.
- Each time the door is opened, the stairs into the RV extend outward.
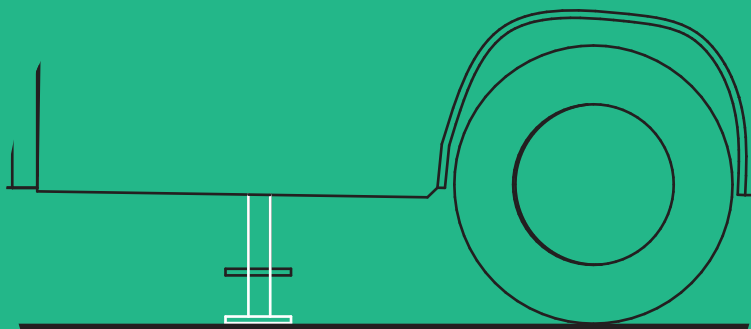
FIGURE 34 Terry Oaks, RV & Golf Resort
The Terry Oaks RV Resort demonstrates a deterministic method of RV organization. Users park their RV in a designated spot with utility hookups provided.

DWELL

- A shading device extends from the shell of the vehicle to extend the outdoor living space. Its location on only one side of the vehicle does not provide for effective passive solar protection.
- The RV is typically used for short stays (weeks to months).
- It is illegal for someone to occupy an RV full-time, because it is not classified as a dwelling.
- Some people spend entire seasons in RV parks. "Snowbirds" live in RV parks in warm places during the winter months.

ROOF
- · Fiberglass roof
- · 5" aluminium roof trusses
- · fiberglass insulation
- · vinyl ceiling

WALL
- · Fiberglass exterior sheathing
- · Aluminium framing
- · fiberglass insulation
- · vinyl interior

FLOOR
- · vinyl flooring & underlay
- · OSB sheathing
- · high-density foam insulation
- · aluminum joists
- · Sheathing
- · Steel chassis
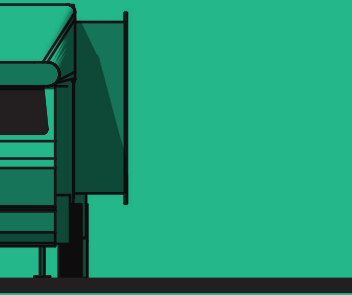
FIGURE 35 Quartzsite
This aggregation of RVs which takes place outside of the town of Quartzsite, Arizona, demonstrates a flexible formation. The RV is able to take on this formation because its foundation system, a combination of wheels and stabilizers, enable it to park anywhere on reasonably level terrain.

CASE STUDY

COTTAGE ESCAPE MANUFACTURED HOME
NORTHLANDER INDUSTRIES

LEGEND

TRANSPORT
DWELL
TRANSFORM
MOVE
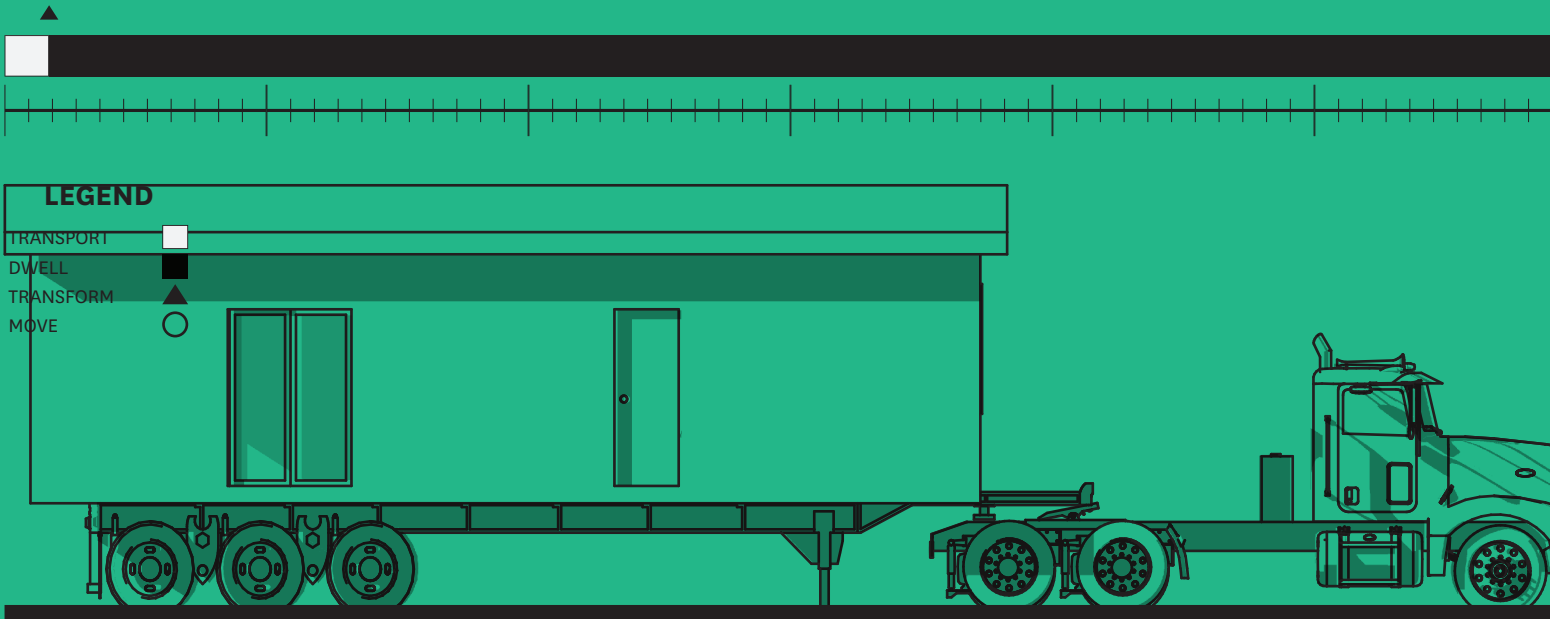
TRANSPORT

- A semi delivers the house on site. This move is typically from the factory where it was built, to a specialized manufactured-home park.
- The dwelling's more substantial size requires that it be hauled by a semi-truck with special highway permissions. Single-wide trailers can be 10 to 14 feet (3.0-4.3 m) wide.
- The house is built onto a permanent chassis and has a highly reinforced floor so that it can withstand the stresses of travel.
- The house is transported with some built-in furniture, but is not designed to travel in live-in condition. The owner's "stuff" must be transported separately from the house.

FIGURE 37 Timeline of Mobility
A timeline depicting the transformation process of a mobile dwelling between mobile and dwelling states.

FIGURE 36 Northlander Cottager Escape
This floor plan is for a single-wide "park model" manufactured home.

SHARED
PRIVATE
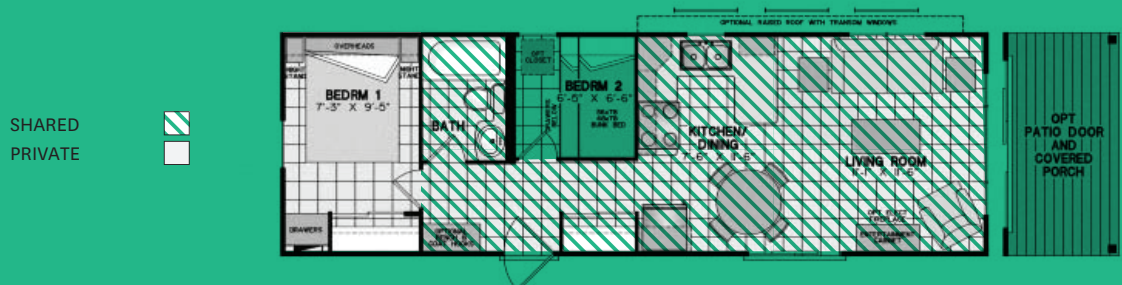
15-4506-2   38'x12' Cottager Escape (456sq.ft.)

Manufactured homes, or trailers, are houses built in factories on top of permanent chassis. These chassis allow the house to be hauled to site. The permanent fixture of wheels to the foundation allow this housing typology to follow a different set of building codes than site-built homes. Site-built homes must comply with regional laws, whereas manufactured homes, through necessity, have an exemption to these laws.

Manufactured homes are wider than RVs because they are moved by professional semitrailer drivers with special highway permissions. In the late 1950's, the first 10-foot-wide mobile homes entered the market, drastically increasing their popularity.[1]

Although manufactured homes are moved at least once within their life cycle, they are not highly mobile. Most homes move between one and three times. The popularity of these homes is tied to their affordability. Factory efficiency, paired with the modest scale of these homes, allows them to be more economical than suburban homes. Unfortunately their low-cost has associated manufactured homes with poverty and crime.

1   Allan D. Wallis, "House Trailers: Innovation and Accommodation in Vernacular Housing," Perspectives in Vernacular Architecture 3 (January 1, 1989): pg. 37.

electrical connection

water connection

burried sewage tank

11.0 m

3.4 m

concrete blocks for stabilization
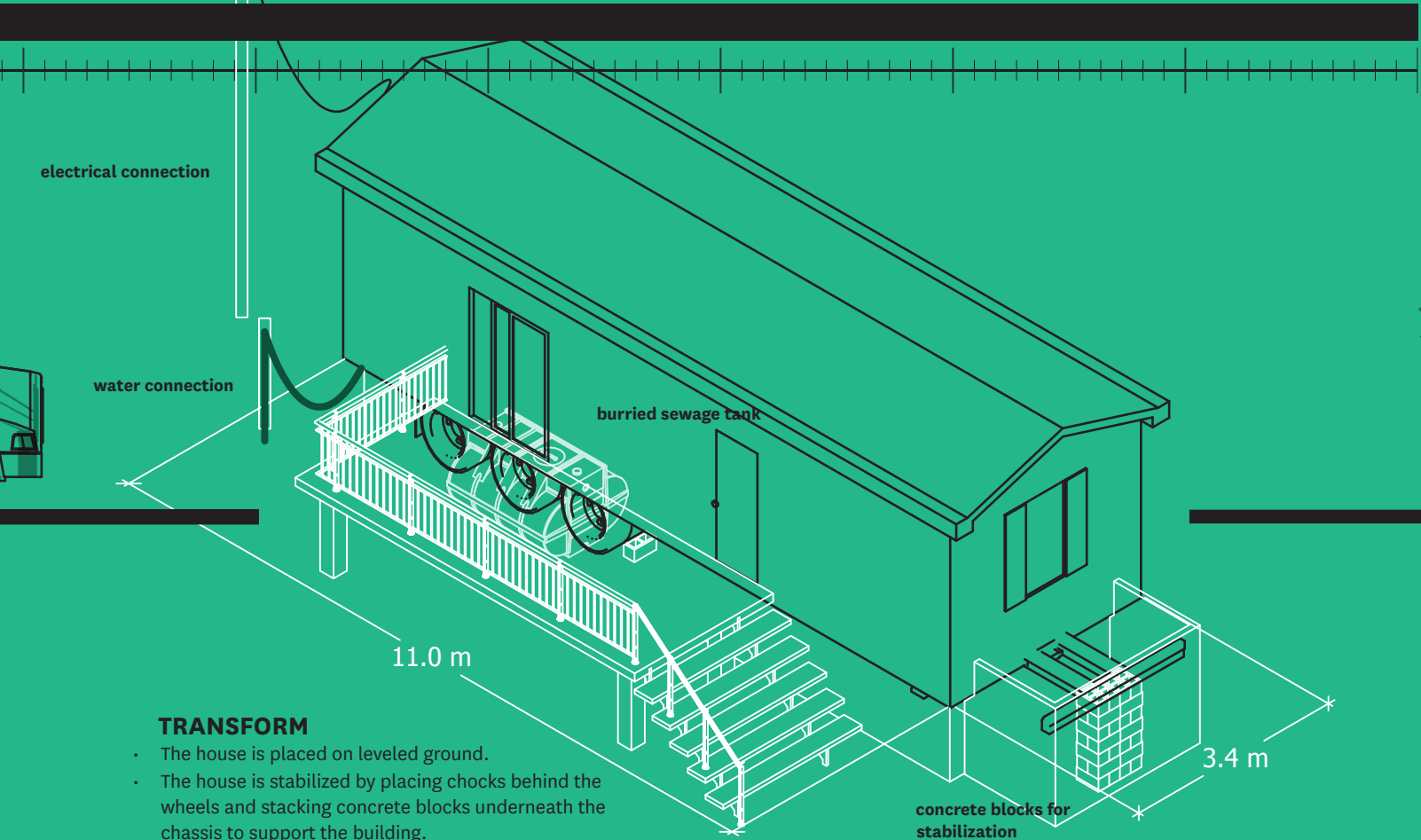
TRANSFORM
- The house is placed on leveled ground.
- The house is stabilized by placing chocks behind the wheels and stacking concrete blocks underneath the chassis to support the building.
- The house is hooked up to: sewer, water, telephone, and electrical. Unlike the RV, it is not designed to function off-grid.
- The trailer park may have a septic system, or the sewage may be drained into a storage tank buried beneath the house.

FIGURE 38 Trailer Park in Florida
This trailer park circa 1970 depicts an exceptionally banal community organization. Units are arranged into rigid rows. From the photograph no common social areas or greenspace can be seen.
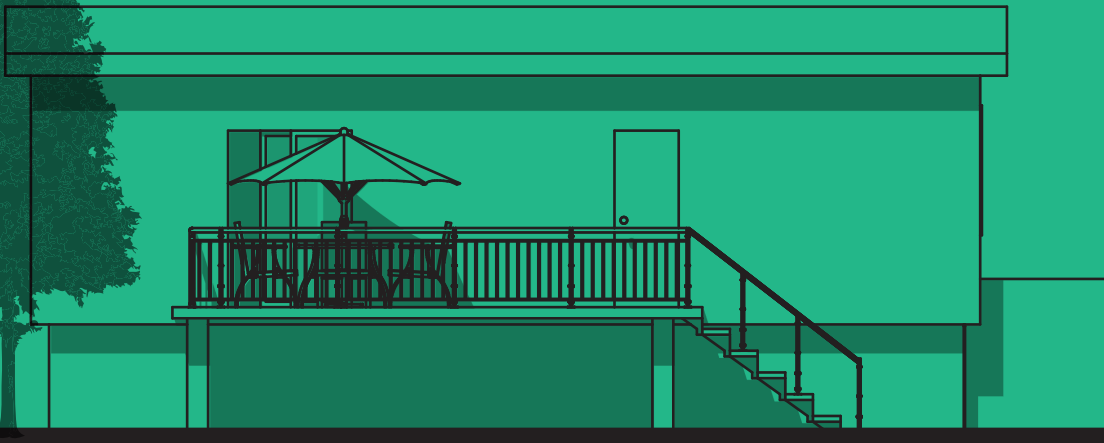
DWELL

- Manufactured homes are typically found in specially designed and zoned parks.
- These parks often have a single land owner.
- The home owner leases their plot from the park owner.
- Each park will have its own set of rules for community organization.

FIGURE 39 Palma Nova Trailer Park
Palma Nova, in Davie Florida, is an abandoned trailer park
which was organized into concentric circles. The trailer park
once housed over 3000 individuals.

CASE STUDY

MOBILE DWELLING UNIT
LOT-EK

LEGEND

TRANSPORT	☐
DWELL	■
TRANSFORM	▲
MOVE	○
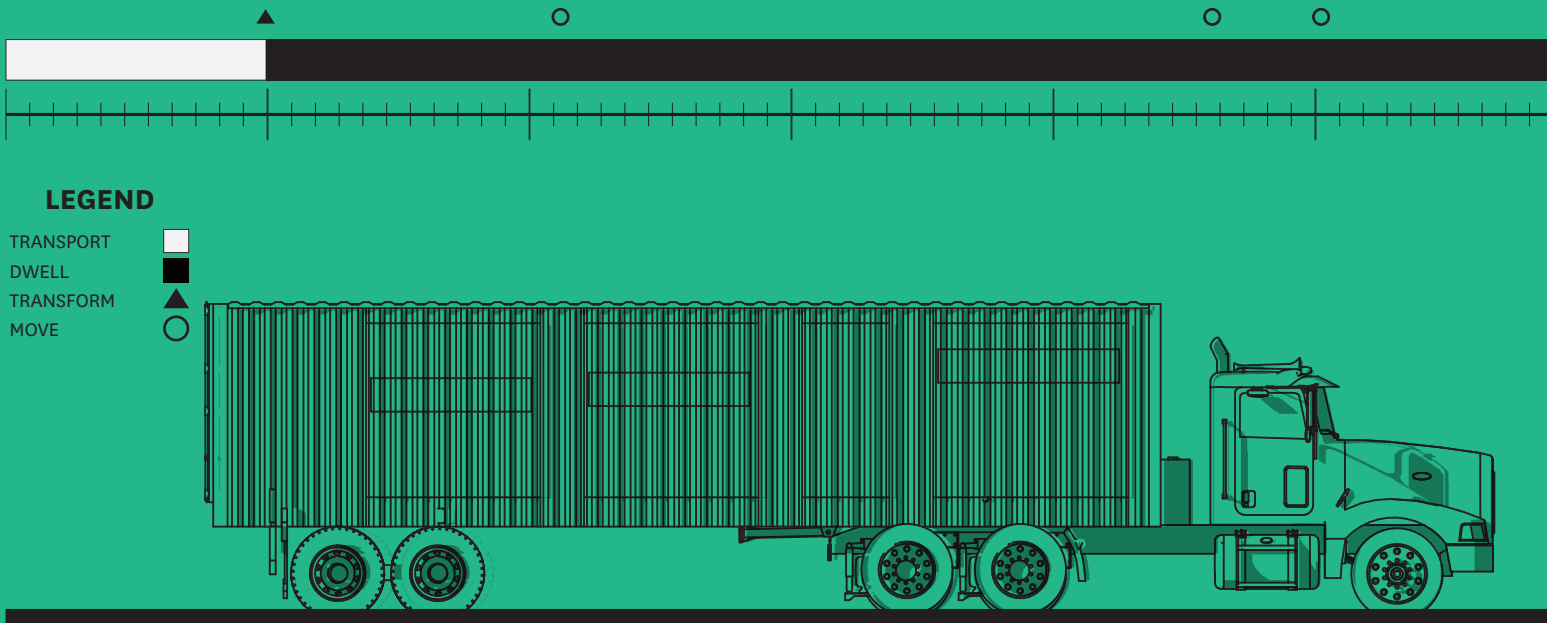
TRANSPORT

- The MDU is made out of a shipping container, and therefore can be shipped using any conventional shipping methods.
- Shipping a container overseas would cost around $10,000 Canadian.
- The MDU is designed to be moved in liveable condition. The furniture is fixed so that it does not have to be removed from the dwelling before it is transported.

FIGURE 40 Timeline of Mobility
A timeline depicting the transformation process of a mobile dwelling between mobile and dwelling states.

FIGURE 41 Mobile Dwelling Unit Plan
The MDU floor plan depicts a shipping container with push-outs that contain the utility functions of the dwelling.

SHARED	▨
PRIVATE	☐
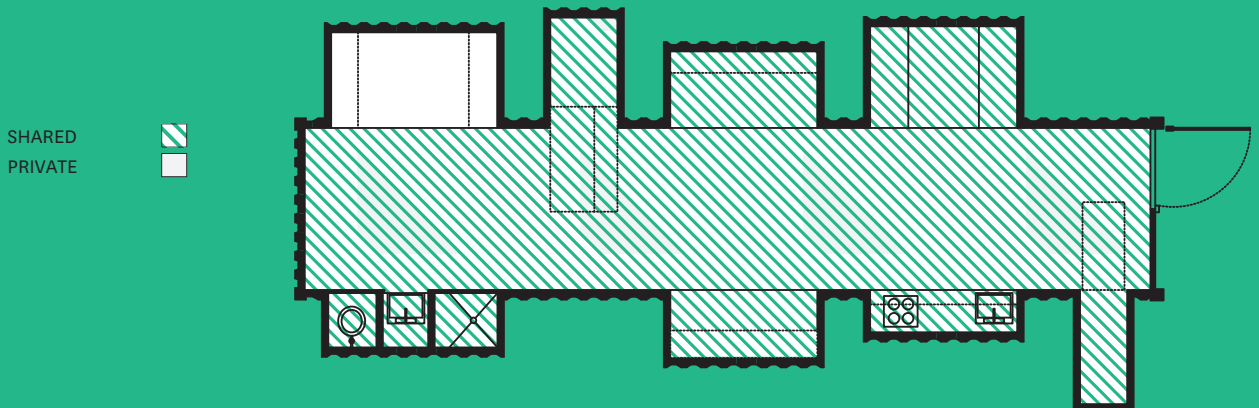
The Mobile Dwelling Unit appears to be the ideological hybrid of a manufactured home and an RV. Unlike the manufactured home it is designed for semi-frequent mobility. The furniture is part of the fixed structure, which means that it does not need to be secured for travel.

The most ingenious part of the design is the fact the functional elements of the dwelling are packed into push-outs, while the living space emerges out of the negative space of the volume, revealed by the extension of the push-outs. The livings space expands the programmed wall-extensions into rooms, and functions as a room unto itself.

The MDU is a ready-made structure, assembled out of a shipping container. This allows it to take advantage of the existing world-wide shipping transportation network. However, for a single occupant, the dimensions afforded by the shipping container are excessive – especially if the owner's primary interest is mobility.

Lo-tek proposes that the MDUs could collect in vertical harbours. People with the shared interest of mobility could live in a vertical neighbourhood. The renderings of these proposed harbours seem to neglect shared public space and rely on the overly complex infrastructure of a stacking mechanism.

sun shades

programmed push-outs

11.0 m

2.6 m

2.3 m
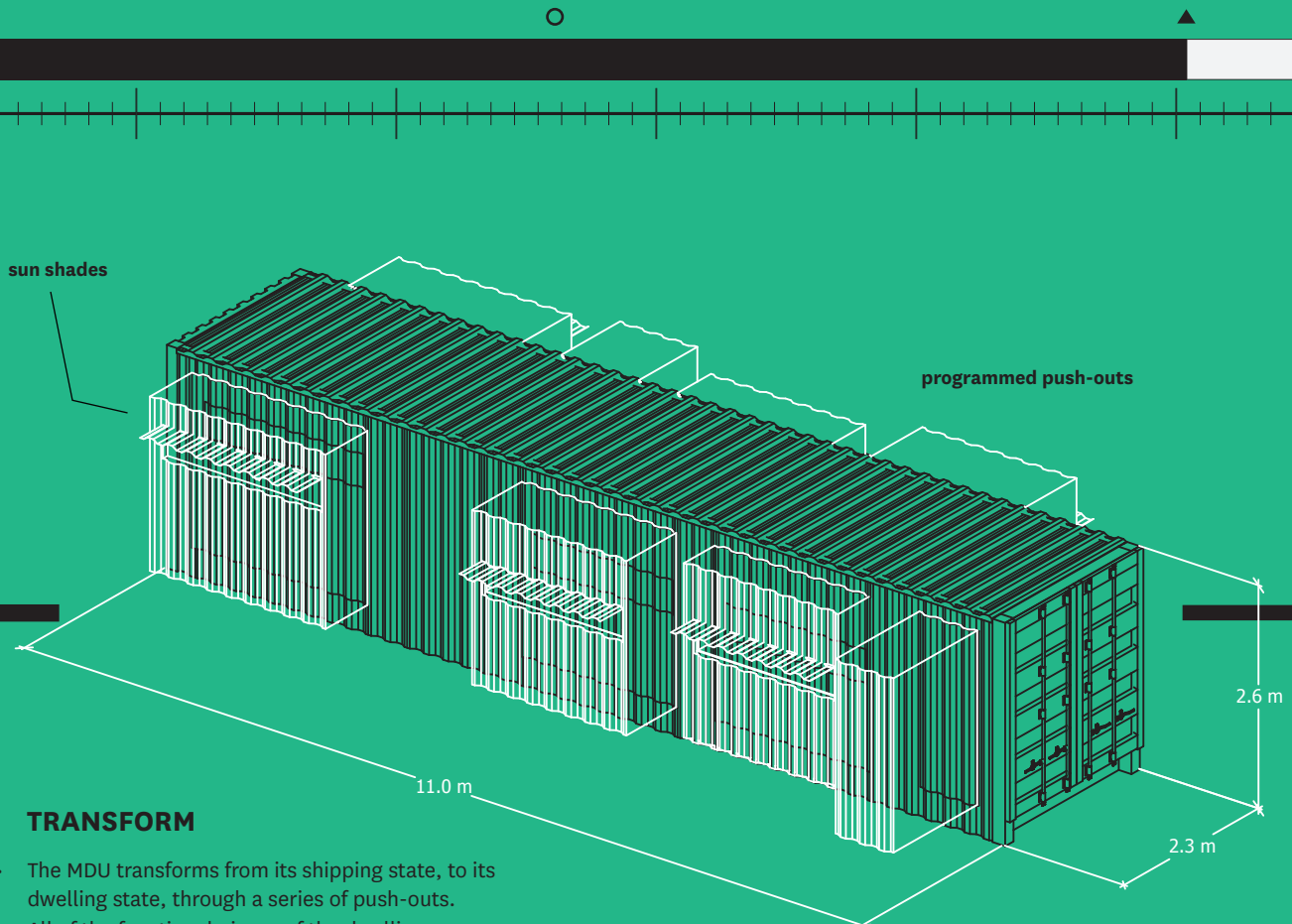
TRANSFORM

- The MDU transforms from its shipping state, to its dwelling state, through a series of push-outs.
- All of the functional pieces of the dwelling program are found in the push-outs, this creates a free space within the volume of the container.
- This free space acts as a hallway connecting programmatic elements, and as an extension of those spaces.
- This organization seems more streamlined than the motorhome's use of push-outs.
- A useful addition to the MDU could be folding doors, which would allow for users to enclose individual program elements into rooms.

DWELL

- The MDUs are designed to be stacked into vertical harbours. These harbours are constantly changing neighbourhoods of mobile individuals.
- A crane would change the placement of the MDUs, as the individual occupant desired, within the framework of the MDU harbour.
- These vertical harbours would ruin the social aspect of a camp-like condition because they do not provide a plane for common interaction. Interaction will be limited to the stairwells than connect units vertically.

FIGURE 42 MDU Harbour
The MDUs are stored in vertical harbours along
transportation corridors.

CASE STUDY

MICRO COMPACT HOUSE
RICHARD HORDEN

HOUSE (CRAFT)

LEGEND

TRANSPORT	☐
DWELL	■
TRANSFORM	▲
MOVE	○
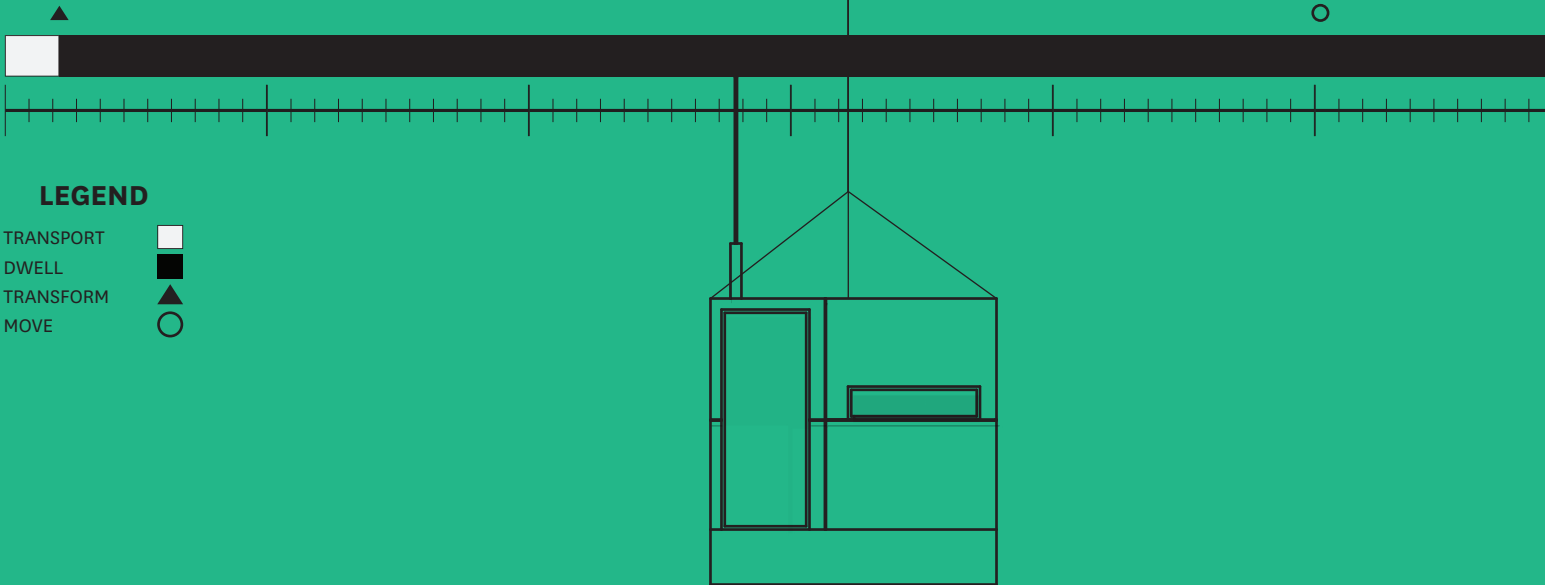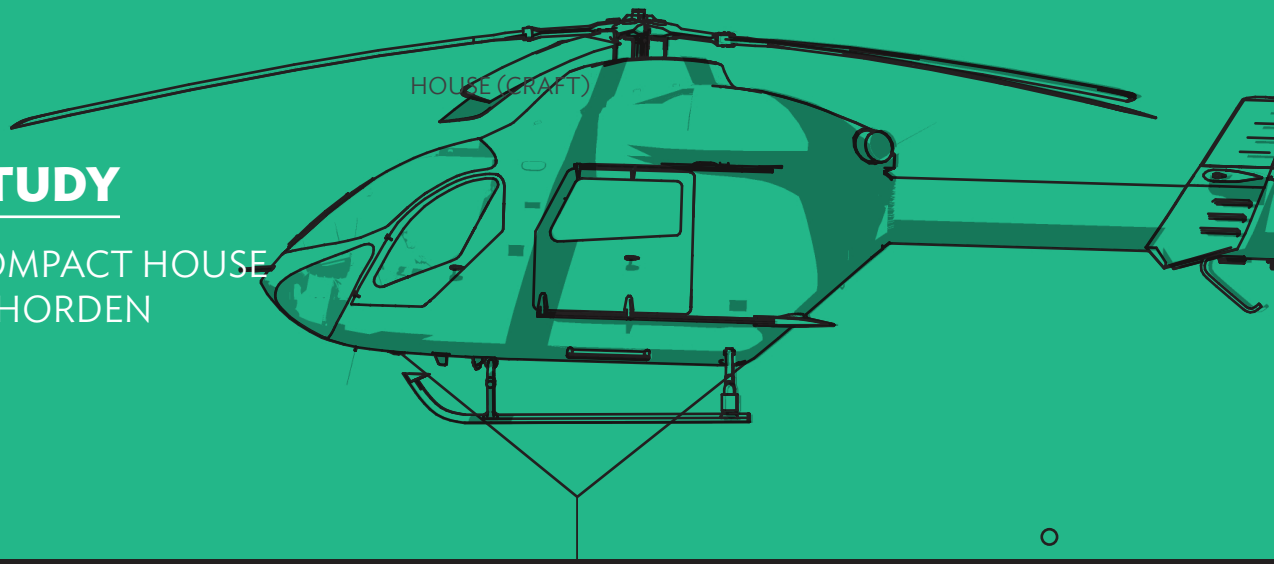
TRANSPORT

- The Micro Compact House's (M-CH's) small scale, and lightweight structure, allow it to be easily transported.
- A super-lightweight version can even be placed by a helicopter.
- The furniture in the design is fixed, so that it is easy to move.

FIGURE 44 Timeline of Mobility
A timeline depicting the transformation process of a mobile dwelling between mobile and dwelling states.

FIGURE 43 M-CH plan

SHARED	▨
PRIVATE	☐
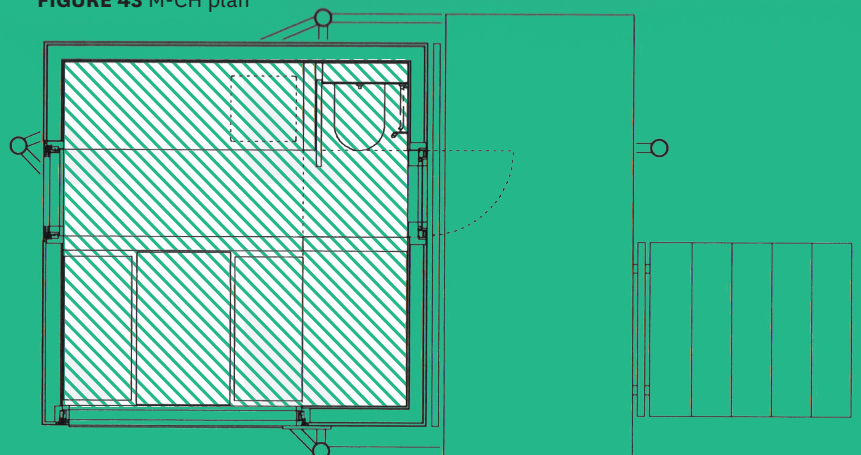
The Micro Compact Home (M-CH) is a 2.6m cube designed for mobility. The lightweight, minimalist dwelling, has a wide range of applications: it can be used to provide temporary shelter in remote locations, and it can be used to provide long-term housing for students or other individuals.

The design streamlines the use of space. The user has only a limited volume to store their items in. And each programmed space, is carefully nestled into the highly functional box. For example, the table takes up part of the floor section to allow leg room, and then the table then folds down to become a bed.

The M-CH is an inspired study in minimal living, but for long-term use, may prove overly compact. The highly programmed space does not leave any free-space for the occupant to use as they choose. There is not enough space to entertain guests comfortably or to practice yoga. The M-CH could provide a useful temporary dwelling, but is too small for full-time use.

2.6 m

2.6 m
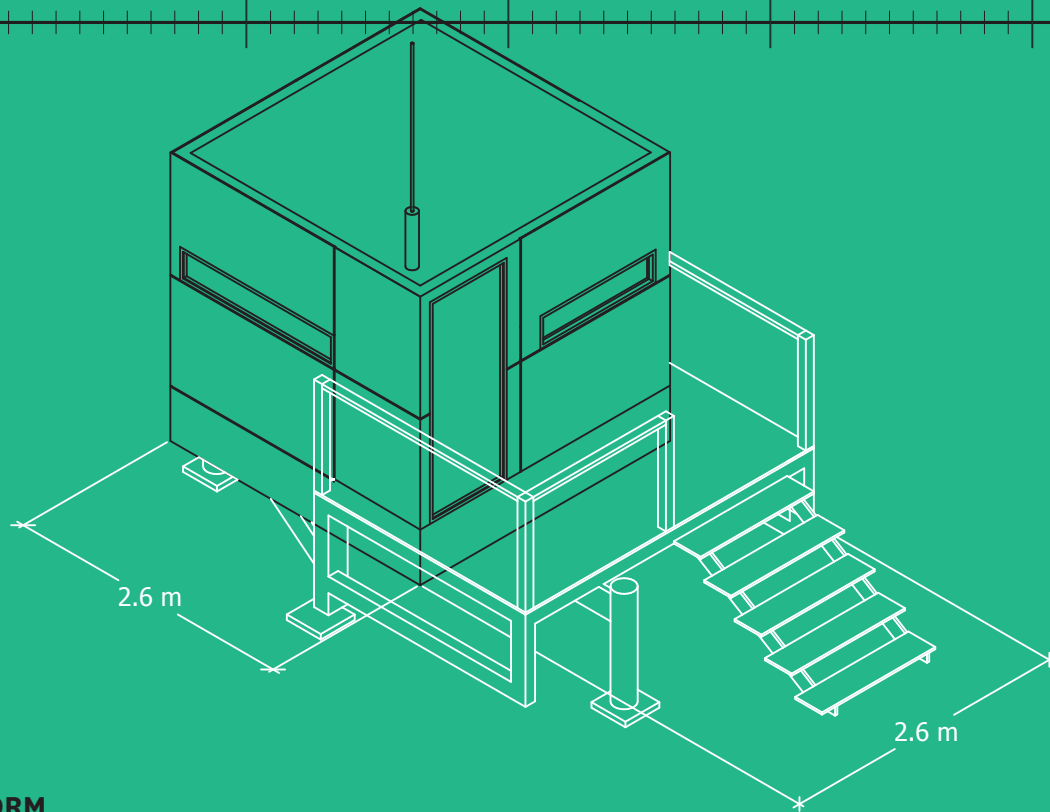
TRANSFORM

- The M-CH cube can integrate with a wide variety of structures to situate the dwelling on site.
- Here it is shown docking on a four-point foundation system, with an attached balcony.
- This docking system allows the same unit to integrate into a cluster of modules or to stand on its own.
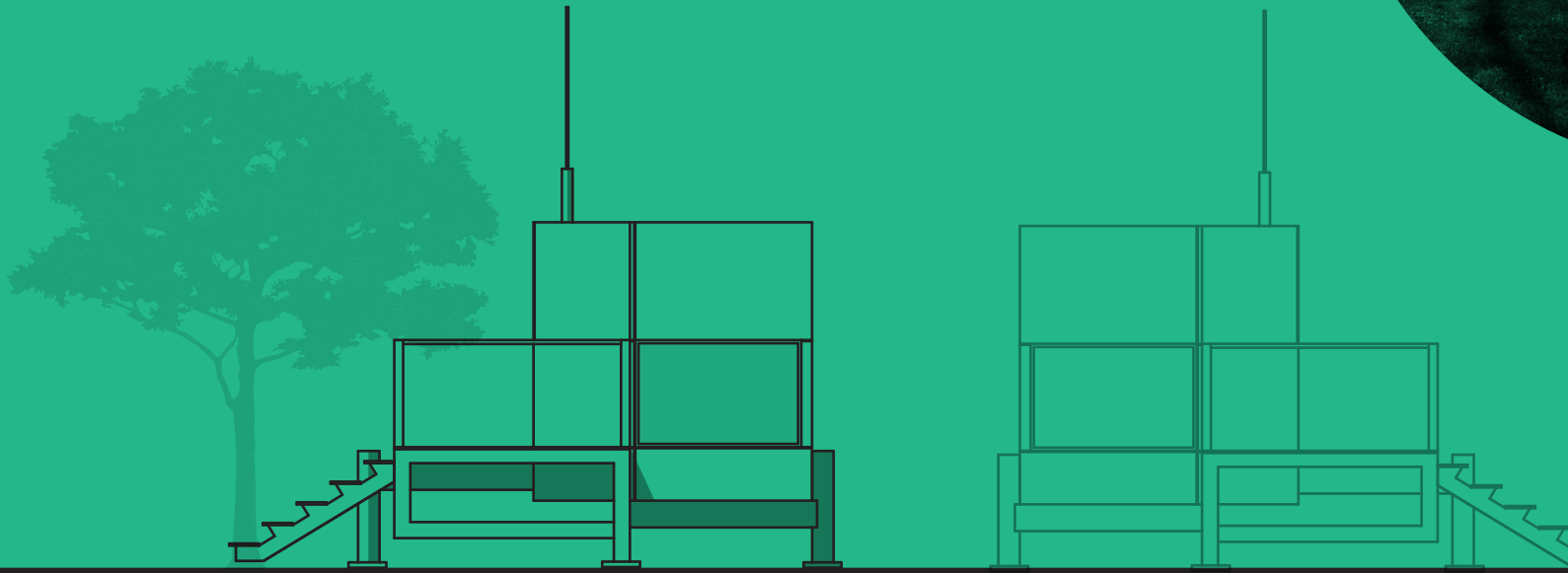
DWELL

- Because of their small size, special planning permissions would be required to place the M-CH on a site.
- M-CH are more portable than manufactured homes, and less portable than recreation vehicles. This is a segment of mobility that has not been explored by popular mobile home typologies.

FIGURE 45 Tree Village
The M-CH has many different conceptualized aggregations. The lightweight cube structure allows it to adapt to many different systems.

FIGURE 46 Student Village
The M-CH was used for student housing at a university in
Germany.
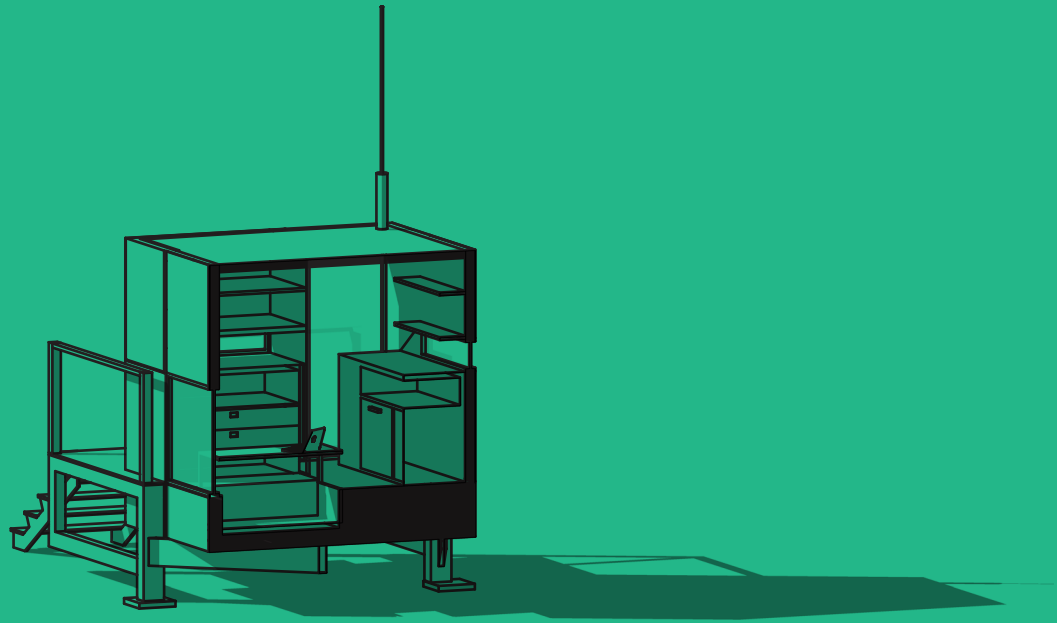
CASE STUDY

MILLENNIALS
MOVING & DWELLING

LEGEND

TRANSPORT	☐
DWELL	■
TRANSFORM	▲
MOVE	○

TRANSPORT

- In order to move to a new dwelling items must be packaged to fit into a vehicle.
- Depending on the number of items to be transported different vehicles can be used.
- A car for people without furniture.
- A truck for people with some furniture.
- A moving truck for those with enough furniture to furnish a complete apartment.

FIGURE 47 Timeline of Mobility
A timeline depicting the transformation process of a millennial mo

Living in a two bedroom apartment with a roommate is a common living scenario for Millennials. Splitting a two bedroom apartment is often cheaper than renting a bachelor or one bedroom to oneself. While living with a roommate can be a positive experience, it   forces people to negotiate the living habits of another person. If someone is messy, loud, or inconsiderate living with a roommate can be very stressful.
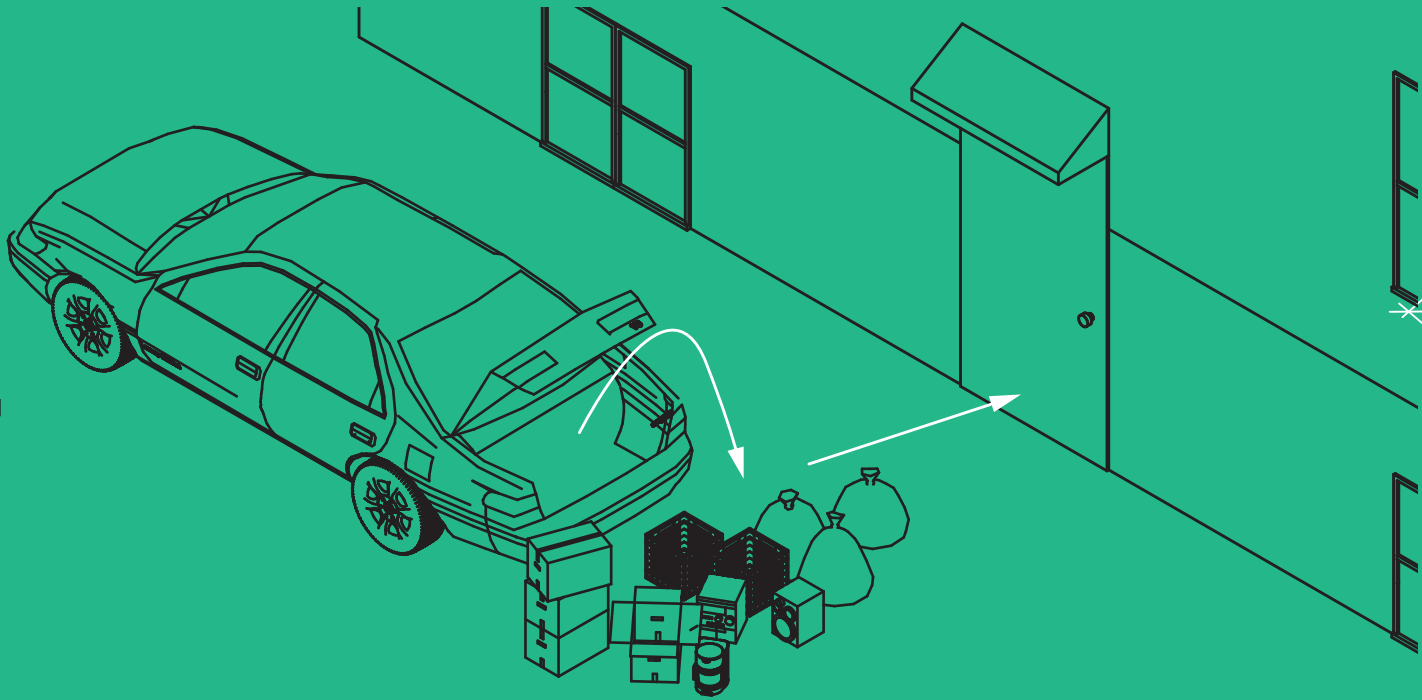
TRANSFORM

·   In order to inhabit a dwelling, items must be removed from the vehicle and hauled into the building.

TRANSFORM

- After the items have been brought into the dwelling they must be arranged to suit the individual's inhabitation patterns.

11 m

7 m
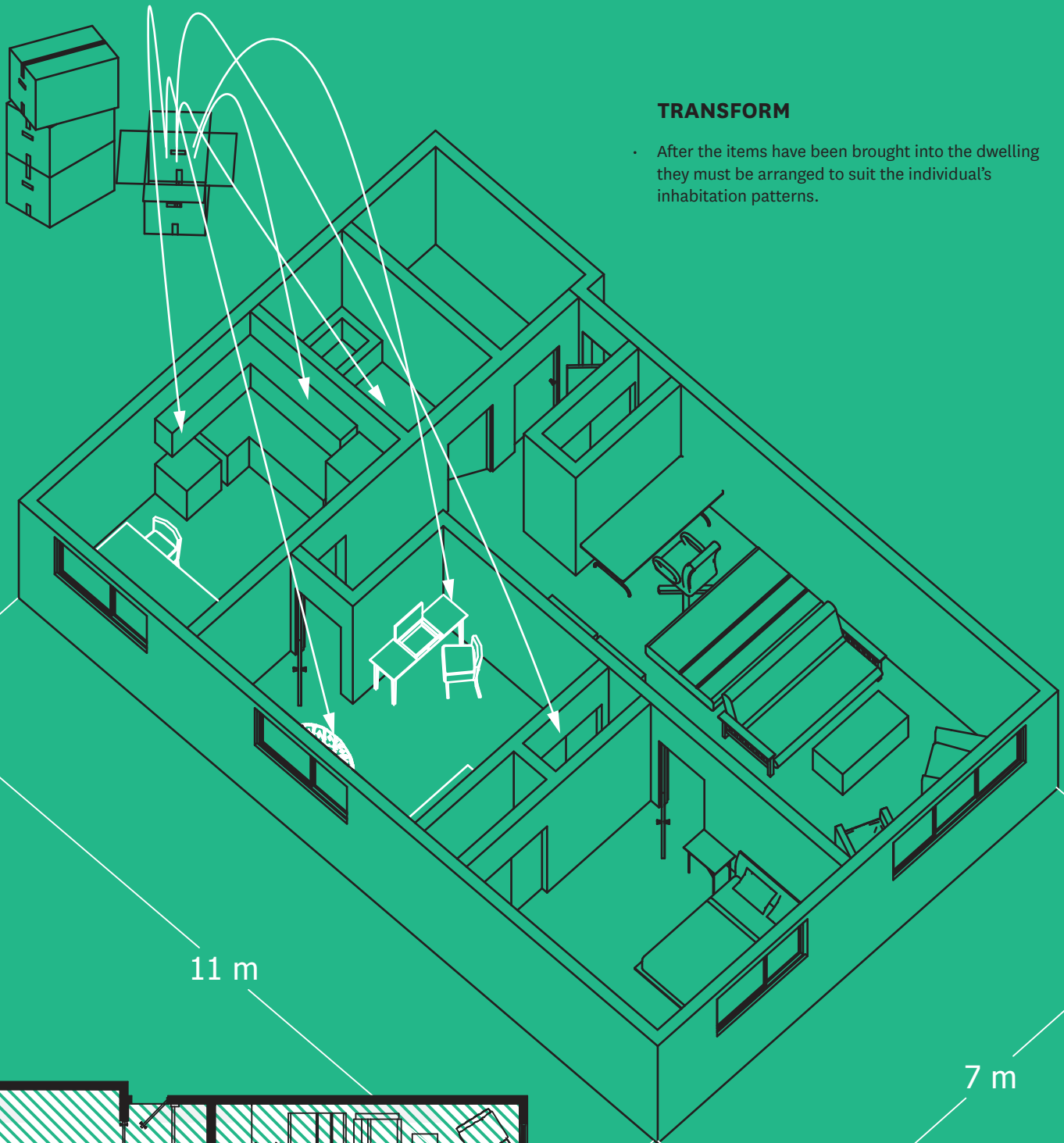
FIGURE 48 Basement Apartment Plan
A standard 2-bedroom apartment in a 3 storey walk-up. This unit has a large amount of shared space.

SHARED
PRIVATE
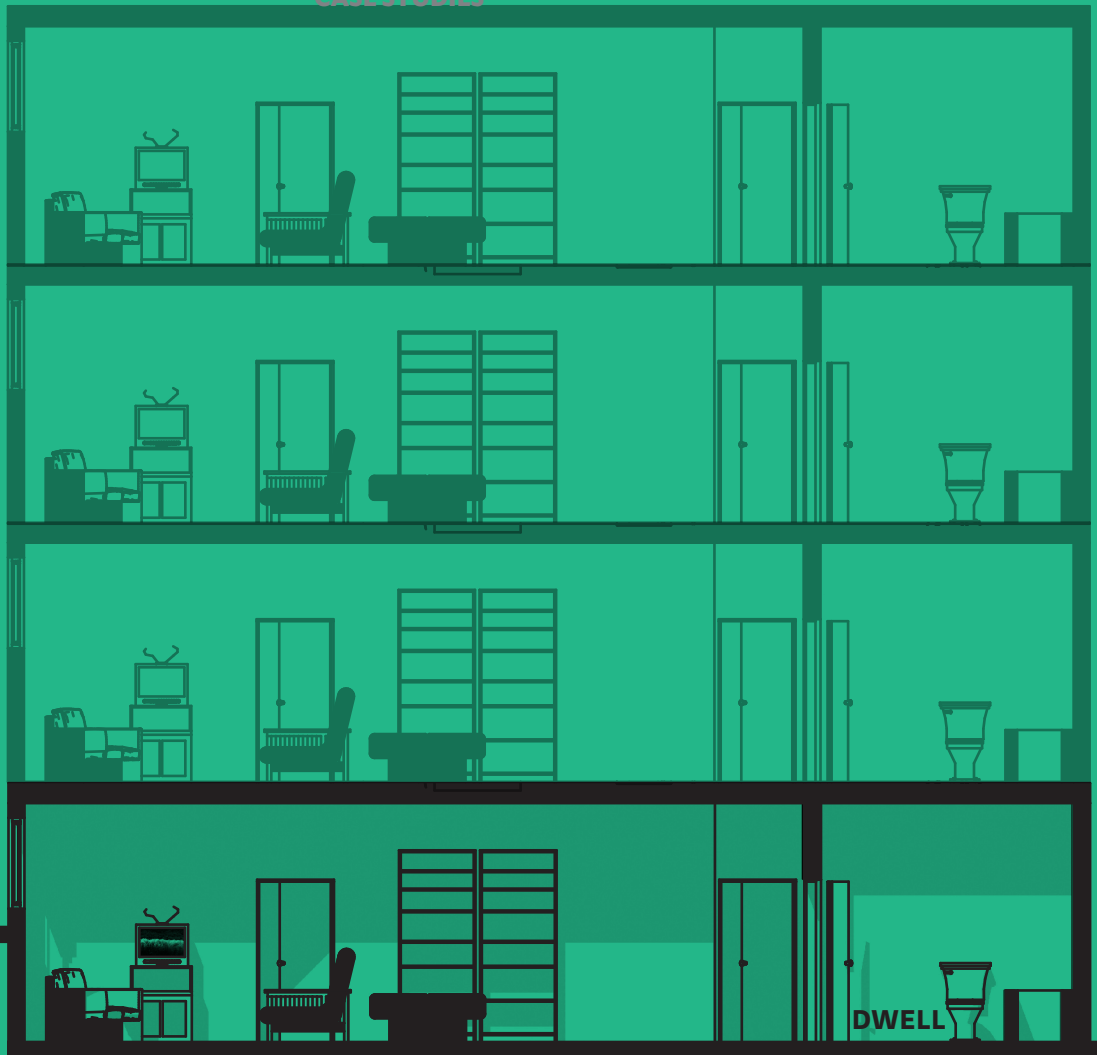
DWELL

DWELL

- · The static dwelling has a fixed relatiionship to its site. If an occupant changes their job within the city, the dwelling cannot be moved closer to work. Instead, the occupant must change their daily mobility patterns throughout the city.
- · Apartments typically do not have built-in furniture so occupants must provide the furniture.

FIGURE 49 3-Storey Walk-Ups
A series of 3-Storey Walk-Ups in Regina, Saskatchewan.

SMART HOUSE TORONTO MICRO LOFT

- Micro-lofts are designed for the single city-dweller. The compact spaces use convertable furniture in order to get maximum function out of small spaces. These small spaces may be more affordable for a Millennial looking to invest in a home than standard condos.
- Micro-lofts still require buyers to settle into one location.
- Often located in condo towers these units can be very cut-off from street life.

7.5 m

4 m

SHARED
PRIVATE
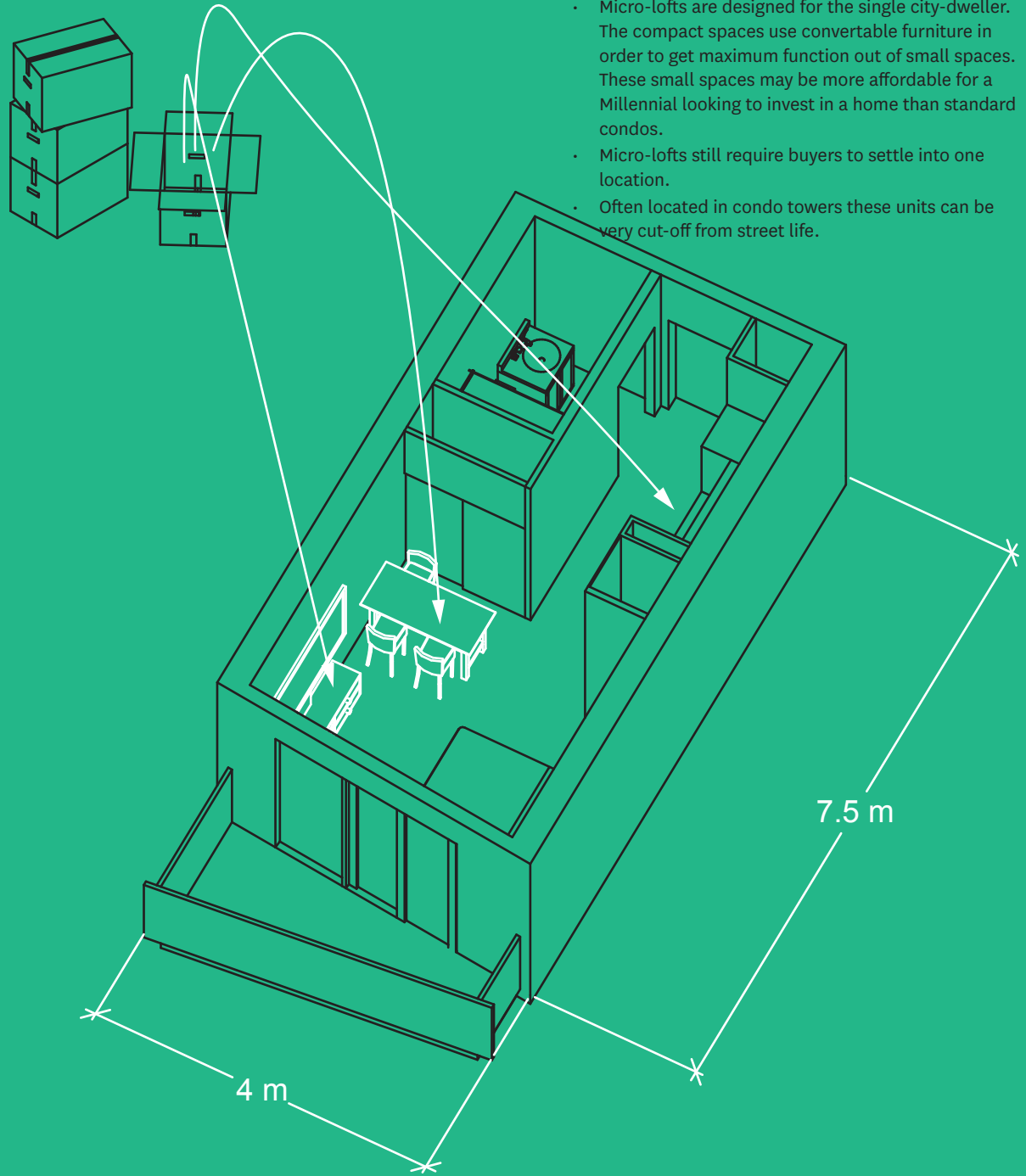
FIGURE 50 Smart House Toronto Unit Plan
This unit prioritizes spatial efficiency. It combines the sleeping and entertaining area. The kitchen is incorporated into the entry corridor.

CONCLUSION

This collection of studies on mobile dwellings has helped me to begin to understand some common design methodologies. First of all the scale of the dwelling has a relationship to the degree of mobility. The most mobile units, those designed for frequent highway transport take on standard shipping dimensions (2.6m wide x 2.6m tall x 6m or 12.2m long). Highly mobile dwellings (those designed to be relocated frequently) have a greater degree of transformation "ie" unfolding upon arrival. The building unpacks itself rather than a user having to unpack items. For buildings which are relocated less frequently, there is additional infrastructure (such as decks and awnings) that help them to integrate into their site. Those that "unpacked" were capable of creating a more architecturally interesting space.

In terms of aggregation MDU and M-CH utilize complex vertical stacking. RVs and manufactured homes depend on horizontal aggregations achieving density via small scale and close proximity.

Millennial Mobilities

The generally small spaces which are affordable to Millennials closely resemble shipping dimensions. New micro-loft units, such as Smart House Toronto, are 4m by 7.5m, a half shipping container is not much smaller at 2.6 by 6m.

Moving from place-to-place is very inefficient. It involves moving all of one's stuff out of a dwelling, packing it into some sort of vehicle for transportation, then removing the stuff from the vehicle and placing it into a new dwelling. In comparison to moving with an RV, MDU or M-CH this is an inefficient process.

LIFE IN THE NETWORK

Based on my research I identified a set of parameters for suitable Millennial housing. These parameters included portability, scale, economy, the consideration of a single-person household, proximity to high motility areas, and a networked relationship of sites.

Taking all of these things into consideration I set out to contemplate a new typology for housing which could work within the restrictions of a Millennial lifestyle. The research resulted in the development of a mobile dwelling network which considers three distinct scales. The first scale is the unit, a customizable micro-dwelling. The second scale is a neighbourhood, an Urban Trailer Park (UTP) which takes over under-utilized land and legally occupies the city. The final scale is the network, an informal peer based platform which connects unit owners with available spaces in developer owned trailer parks.

The small scale unit is designed for mobility and urban occupation. It takes on the scale of highway transportation in order to comply with shipping regulations. The small scale also allows it to cluster into dense urban neighbourhoods.

The UTP sites attempt to eke out new zones of occupation for mobile homes. This thesis rejects trailer parks located in undesirable locations, and rural areas as the only acceptable place for unconventional mobile dwellings. Instead it attempts to hijack transitional spaces which already exist in cities. Land owners could use UTPs to transform parking lots, and vacant sites into a more lucrative business. And because of the transitional nature of the units occupying the UTP, the parks could be temporary as well. Each park will be serviced by portable utility provision systems, foundations, and landscaping components. The parks will be located in highly motile regions of the city in order to attract the target demographic, Millennials.

The Urban Trailer Parks are managed by an online network. The network organizes developers, listing their properties, and trailer owners, looking for a place to stay. These factors could converge into a sort of AirBnB for Urban Trailer Parks where users can experience their future neighbourhood digitally before ever going there. Like AirBnB, the UTP system would be an online network without physical assets.

In the following sections the unit, site infrastructure options, and the network will be explored in greater detail.

FIGURE 51 Transporting Units
This image illustrates highway transport. The half-container sized units proposed in this thesis could be transported via truck or rail. As *portable* units the dwellings could be transported whole without being dismantled.

USER COMPONENTS

In the Urban Trailer Park (UTP) system the user selects and purchases their own portable home or house-craft. This home travels with them as they move throughout the network. The house-craft can be highly customized and personalized.

Along with the basic module of the unit, the house-craft can be further customized by making use of its docking system. Because the unit has been designed to have an opening available on either side, one opening can become an extension of the living space, or a docking ring can connect another unit to the first one.

The house-craft could be made by a variety of manufacturers adhering to a universal code. The house-craft utilizes the dimensions of a 20 foot shipping container so that it can be transported internationally without rail or highway restrictions. The relationship to the foundation supports, and the placement of the door at the side of the dwelling are universal standards.
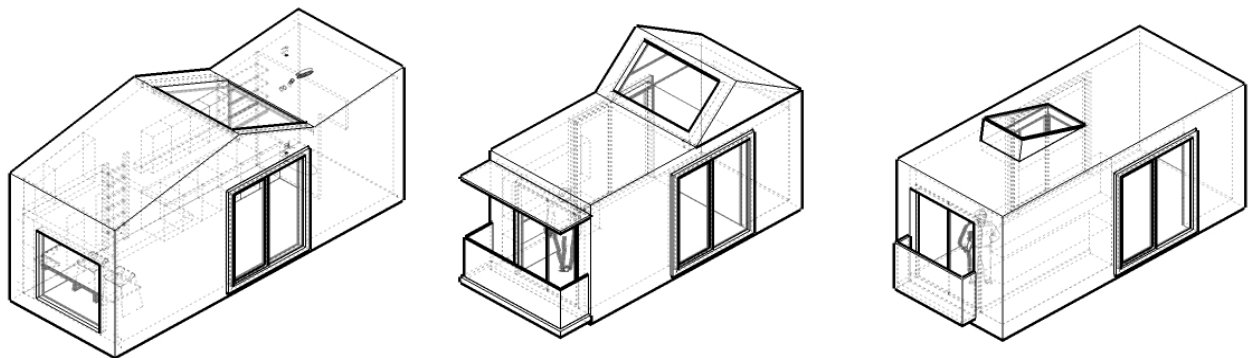
FIGURE 52 3 potential house-craft unit types
Three half-container sized units were created to illustrate flexibility within the Urban Trailer Park system. Various designs were explored that contained consistent side openings, allowing the units to integrate with each other.

WINDOW SELECTION

BASIC DWELLING MODULE

FRONT OPENING OPTIONS

PIVOT WINDOW SEAT SELECTED
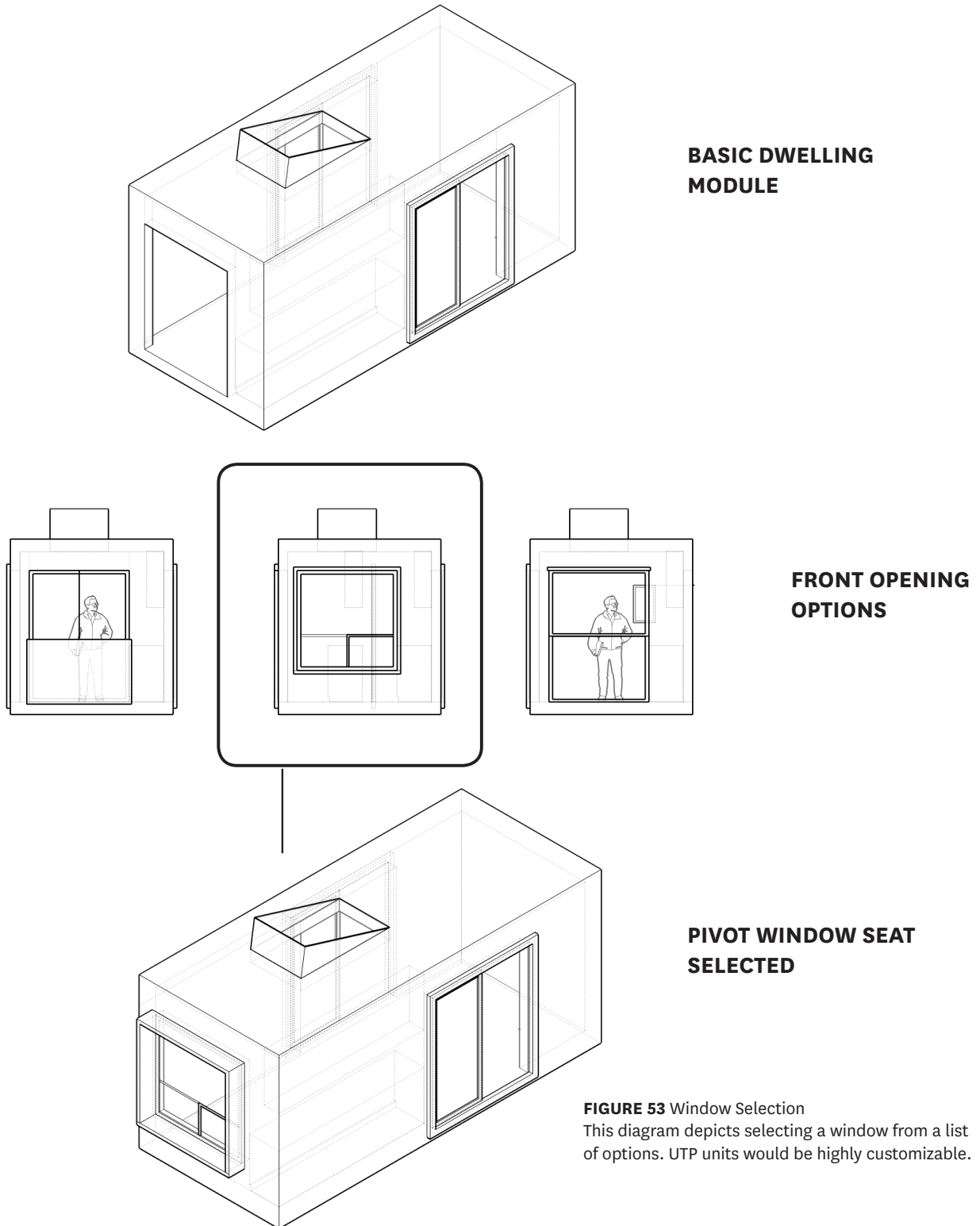
FIGURE 53 Window Selection
This diagram depicts selecting a window from a list of options. UTP units would be highly customizable.

FIGURE 54 Cladding Selection
A user can select a cladding type of their choice to
customize their unit.
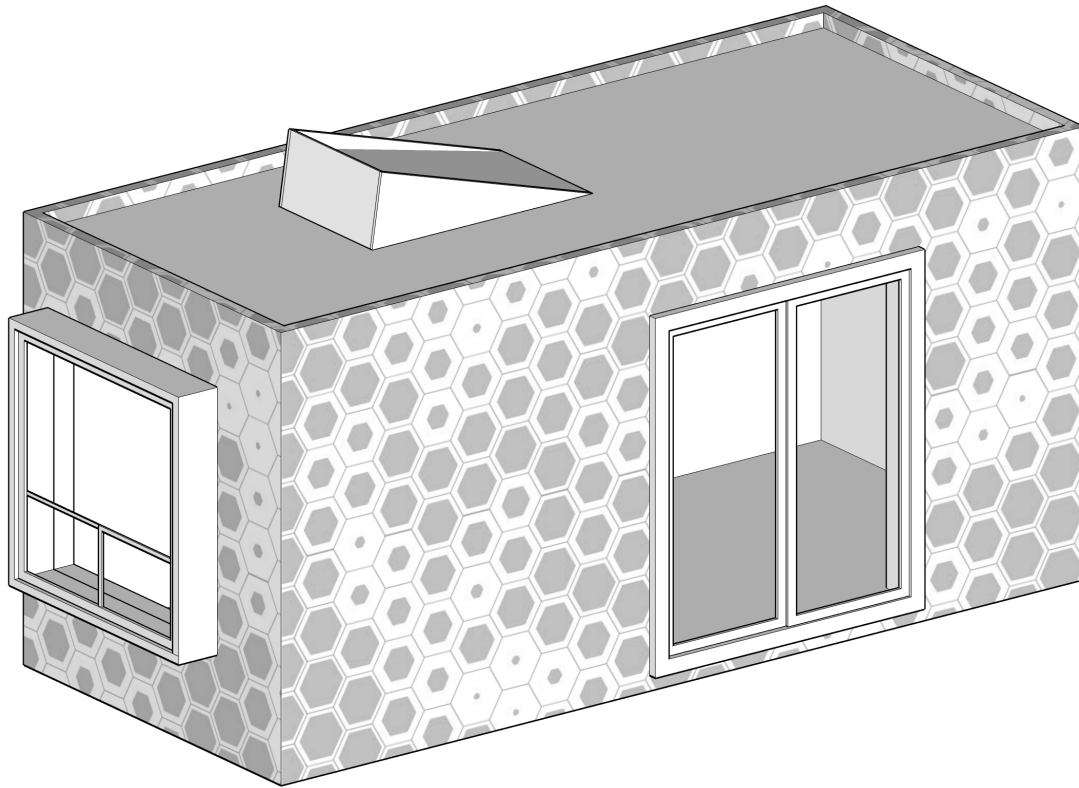
| WOOD PANNELLING | WOOD PANNELLING | CONCRETE COMPOSITE | **ALUMINUM TILE** | ALUMINUM PANEL |
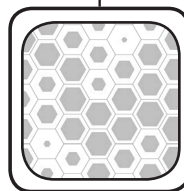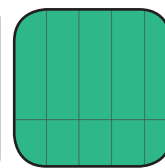
FIGURE 55 Possible Extenstions

The openings on either side of the unit allow for several configurations. It allows the entry stairs to be mounted on either side of the unit. It also allows for the addition of a small pop-out which extends the living space of the unit. Finally a docking ring can be placed between two units allowing them to join.
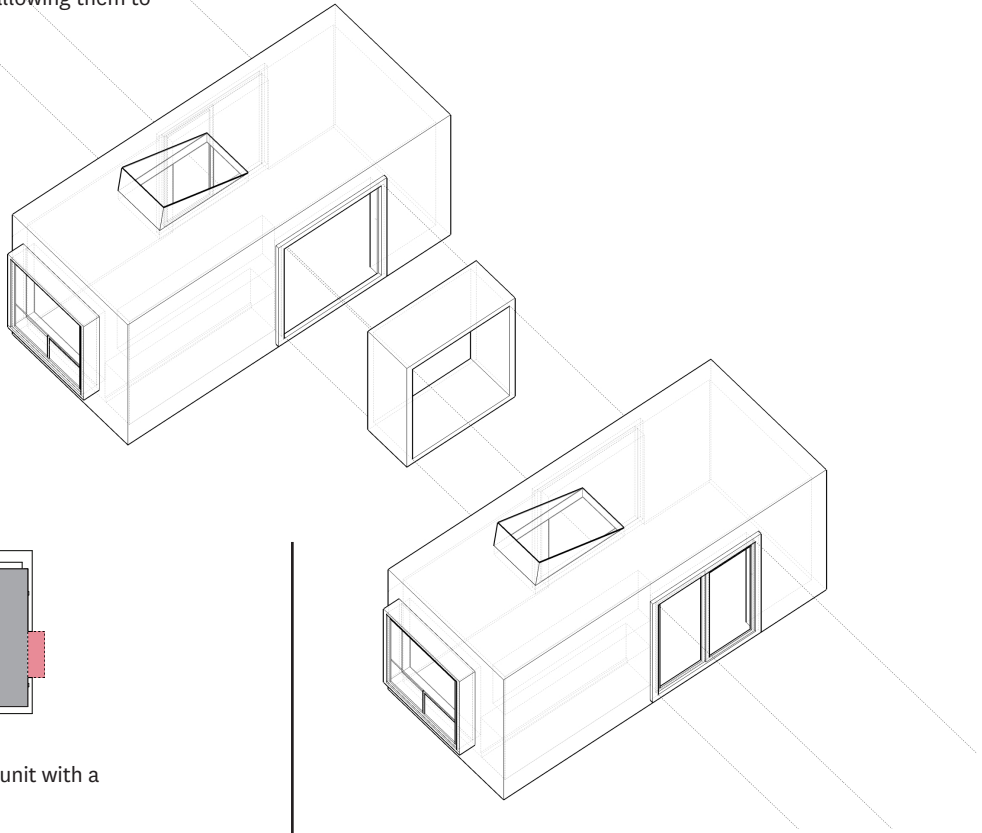
POSSIBLE DOCKING CONFIGURATIONS

OR
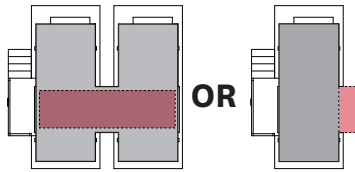
Two units joined together or one unit with a furniture extension.

DOCKING OPTIONS

FURNITURE

DOCKING RING

SECTION

POP-UP SKYLIGHT

OCCUPIABLE WINDOW SEAT

SEPTIC TANK
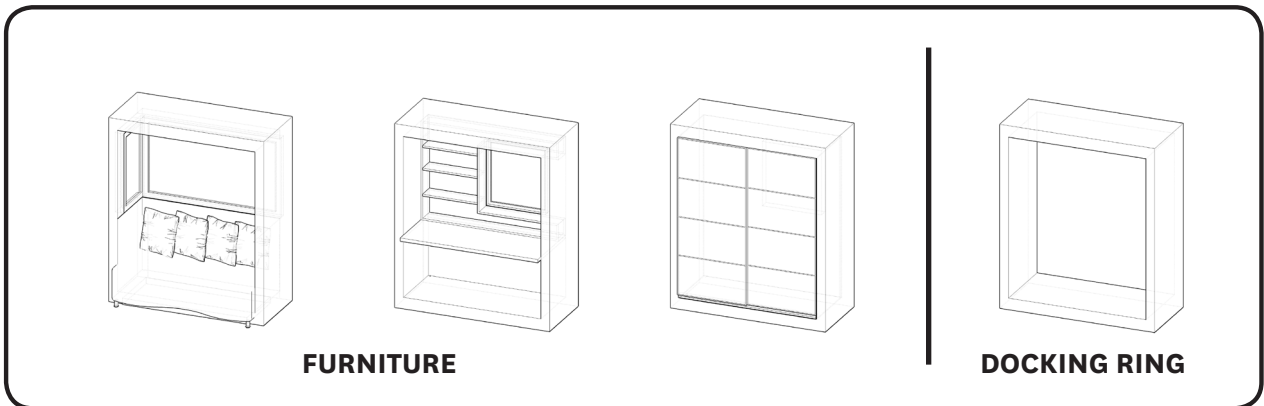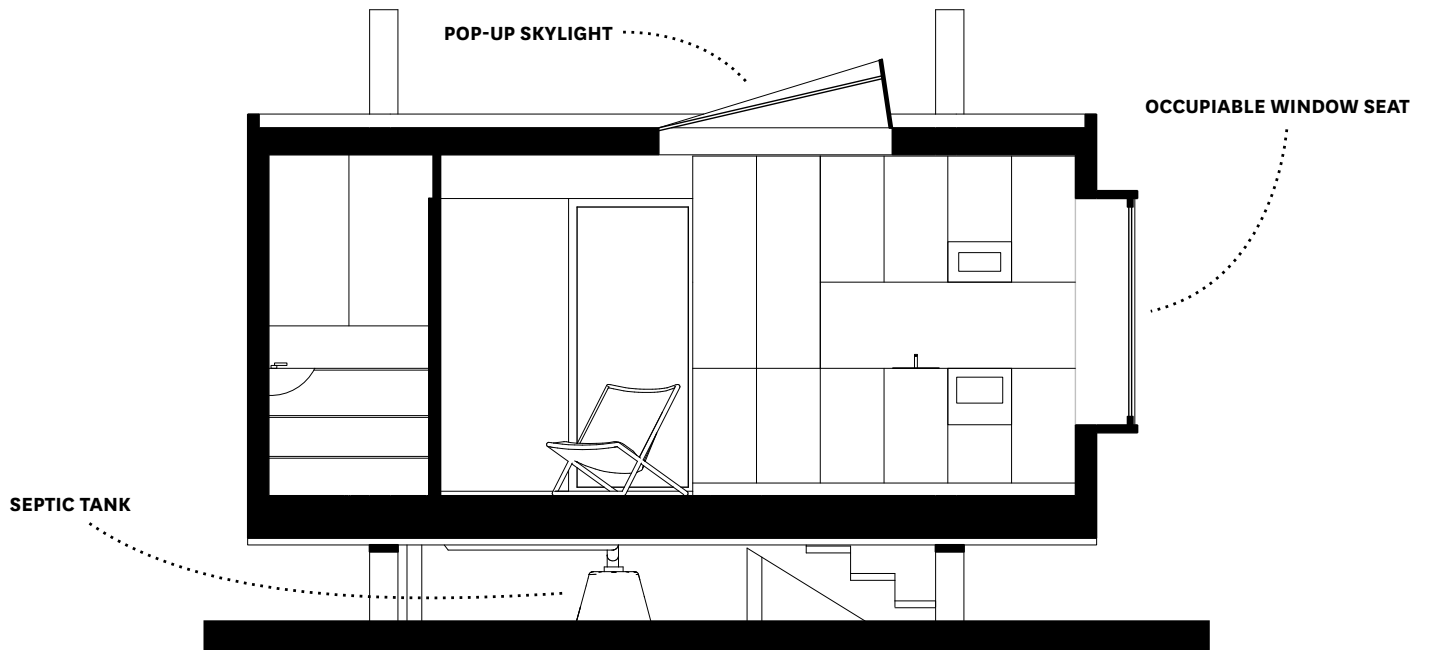
FIGURE 56 Section
A section through the unit shows its relationship to
the ground. The unit provides many openings for
light.

PLAN

WARDROBE

PIVOT WINDOW

DESK POP-OUT

MURPHY BED
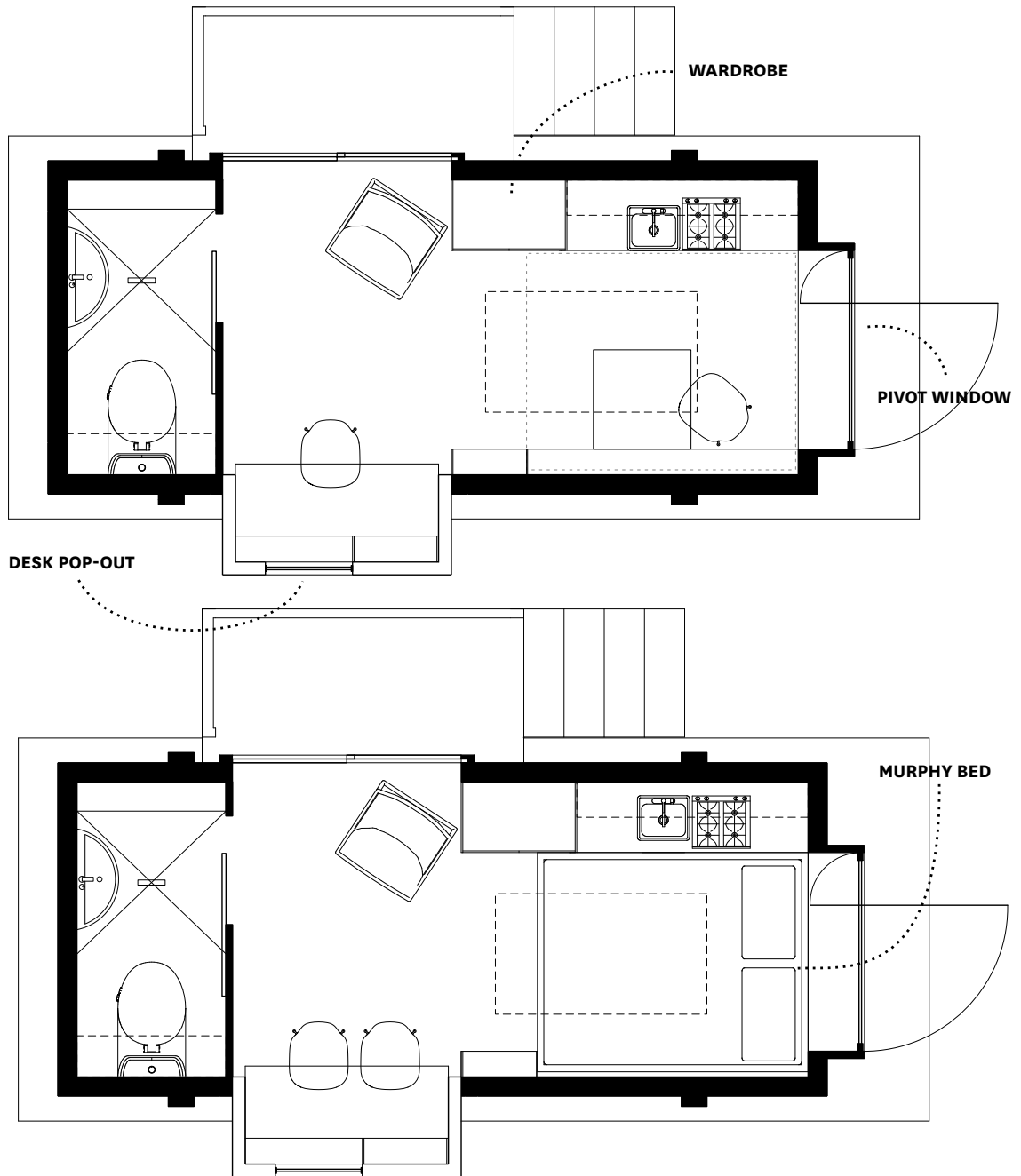
FIGURE 57 Plan
A plan of the unit with a desk pop-out. The interior of the unit could take on many different configurations depending on the users' desires. In this particular configuration the bed is a murphy-style fold out. This provides the most clear floor space during the day without having to place the bed in a loft.

DELIVERY

When a user has ordered their house-craft unit it will be delivered to the site of their choice. Using the UTP app the user will be able to track their unit's delivery progress.

Any time a user wants to move their unit they simply log into the UTP network and request a move. The delivery model for the house-craft is based upon the PODS' delivery system. The PODS' delivery mechanism allows them to unload their storage containers without tipping them.

FIGURE 58 On-Site Delivery
In this drawing a house-craft is being delivered to site. In the foreground the user confirms the delivery on their smart-phone. Two workers load the house onto a skid-style foundation.
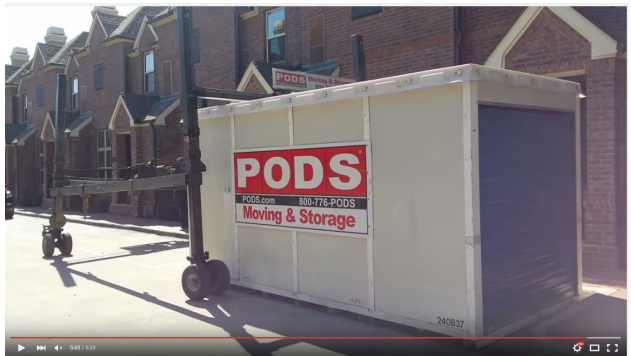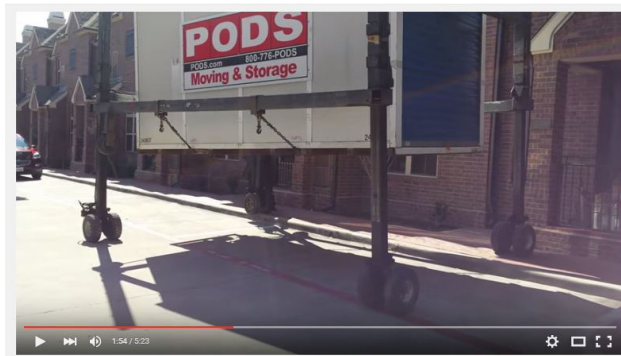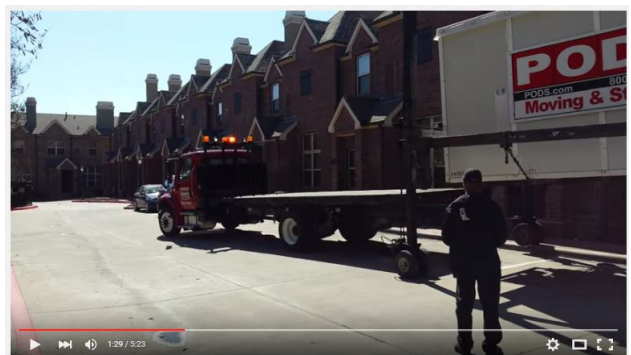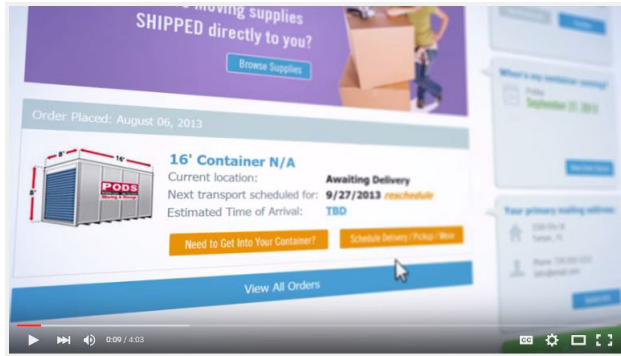
FIGURE 59 PODS Storage box delivery system
These images are taken from a youTUBE video that shows the
delivery system for PODS containers. The wheeled scaffolding pieces
is able to lift the box from the truck and place it, without tipping
it, into a precise location. Both the PODS container, and this lifting
mechanism were inspirational to the housing typology explored in
this thesis.

DEVELOPER COMPONENTS

Owners of a transitional urban site can rent or purchase developer components in order to create trailer parks. These components consist of foundations, utility provisions, and landscaping elements.

The developer can select a package of components based on the predicted availability of a site. The three package types offered are: portable, demountable, and permanent.

Each package type balances adaptability and amenity quality. A summary of these traits can be found in the table "Infrastructure Types". The portable package is economical, can easily be relocated to a new location, but its lower quality amenities will draw lower rents. The demountable package is highly functional once installed. It offers flexibility in unit organization and streamlined utility provision. However, the demountable package takes longer to remove and reinstall. Finally the permanent package provides the highest quality amenities, which will draw the highest rents, but it sacrifices relocatability.

Foundation types, provided by the developer, serve to modify the house-craft's relationship to each site. The foundations provide a consistent relationship to the ground, and to other units which is unique to each component package. By separating the foundation from the unit, the developer can optimize the unit's relationship to site conditions, and other units.

Three foundation types have been investigated: adjustable, store-front, and integrated. A summary of these traits can be found in the table Foundation Types, right. The adjustable foundation allows units to be located at two different heights. The lower setting positions the unit at a more public height, while the higher setting provides more privacy. The store-front foundation arranges the unit at a height that provides a store-front space to be slid underneath. And finally the integrated unit allows units to congregate side by side and connect via communal walkways.

INFRASTRUCTURE TYPES

INFRASTRUCTURE TYPE	START-UP COST	EXPECTED RENT	DENSITY	PORTABILITY	AMENITIES	CONTINGENCY
			Occupants / m²	Ability to relocate the infrastructure	Quality of the landscape elements	When the UTP is not completely filled
PORTABLE	lowest	$-$$	IIII	●	*	parking
DEMOUNTABLE	mid	$$-$$$$	III	○	**	parking
PERMANENT	highest	$$$-$$$$	II		****	urban/event space

INFRASTRUCTURE TYPE	ELECTRICAL/ INTERNET	WATER	SEWER
PORTABLE	●	●	
DEMOUNTABLE	●	●	●
PERMANENT	●	●	●

FOUNDATION TYPES

FOUNDATION TYPE	PORTABLE	DEMOUNTABLE	PERMANENT	ADJUSTABLE HEIGHT	PEER CONNECTION	FULL CONNECTION
	Integration with infrastructure types				Units connected by open platform	Units connected by enclosed connector
ADJUSTABLE	●		●	●		●
STORE-FRONT	●		●			
INTEGRATED		●			●	●

The two tables above outline the various qualities of the overall park infrastructure types, and the foundations that can occupy them. The idea was to provide a range of investment costs, and permanence to investigate how that would alter the design of each trailer park typology.

INFRASTRUCTURE TYPES

PORTABLE

FIGURE 60 Portable Components

The portable trailer park system is designed to be quickly relocated. It is intended to economically occupy highly transient sites. All of the site objects emulate the existing typologies of temporary infrastructures, such as the pylon, concrete barricade, and rubber mat. Cheap, but cheerful, this system makes the most of minimal interventions.

COMPONENTS
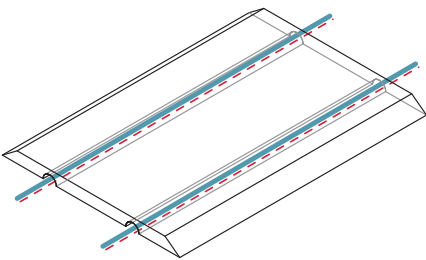
UTILITY PATHWAY
Utility pathway matts delineate pathways in the trailer park, while providing protection to water and electrical cables running to the units.
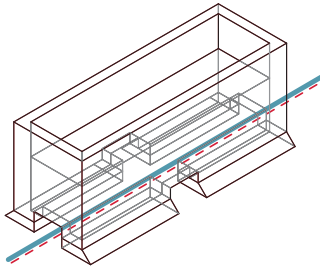
CONCRETE PLANTER/BARRICADE
A concrete planter barricade helps to define the edges of the site differentiating the trailer park from the surrounding parking lots. The barricade has openings to disguise utility lines running underneath them.
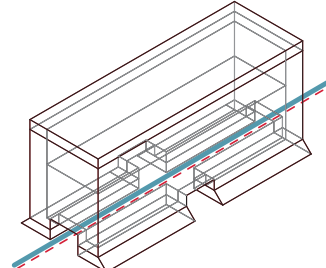
CONCRETE BENCH/BARRICADE
With the addition of a simple wooden cap the concrete planter becomes a bench.
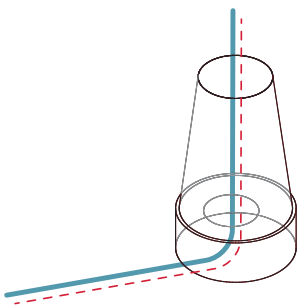
UTILITY ACCESS PYLON
At the intersections of the utility pathway a utility access pylon is provided. Units can plug into any available utility access pylon to receive water and electricity. The pylons also help to delineate the trailer park's pathways, and light up at night.
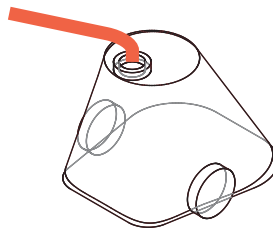
ROLLING BLACK WATER CONTAINER
In order to keep the site as economical as possible underground sewage has not been provided. Instead each unit has been supplied with a black water container that must be emptied weekly.

DEMOUNTABLE

FIGURE 61 Demountable Components

The demountable trailer park system is a raised access floor that is overlaid on top of an existing site. The raised access floor provides a discrete way to route utilities without preforming extensive site work. This system can be transported from site-to-site, however removal and installation does take more time.

COMPONENTS

UTILITY ACCESS FLOOR
The raised access floor consists of a base plate with four corner pylons. The top plate is supported by these pylons. Several top plates can be placed onto the base plate to program the access floor. Top plate types include: artificial turf, textured walking surface, and utility access plate. The structural pylons are designed to integrate with the foundation system. When the structural pylons are not in use they are capped with LED pucks.

CO-WORKING BENCH / PLANTER
The co-working bench provides a landscaping element which engages with the transition between street level, and the raised access floor. With electrical outlets provided these co-working benches offer a full-service outdoor working environment.

PERMANENT

FIGURE 62 Permanent Components

The permanent trailer park system is designed to provide the most refined amenities. Although the system is not portable, it continues to be transformable. Plug-and-play features allow the park to be reprogrammed as necessary. Utility walls provide discrete connections for house-craft that disappear when not in use, and removable lighting fixtures allow the site to host a variety of urban events.

COMPONENTS

PLUG IN LIGHT FIXTURE
The plug in light fixture can be inserted/removed into a grid of electrified sockets arrayed through the site.

UTILITY WALL
A thickened landscape wall disguises utility access points so that they can disappear when not in use.
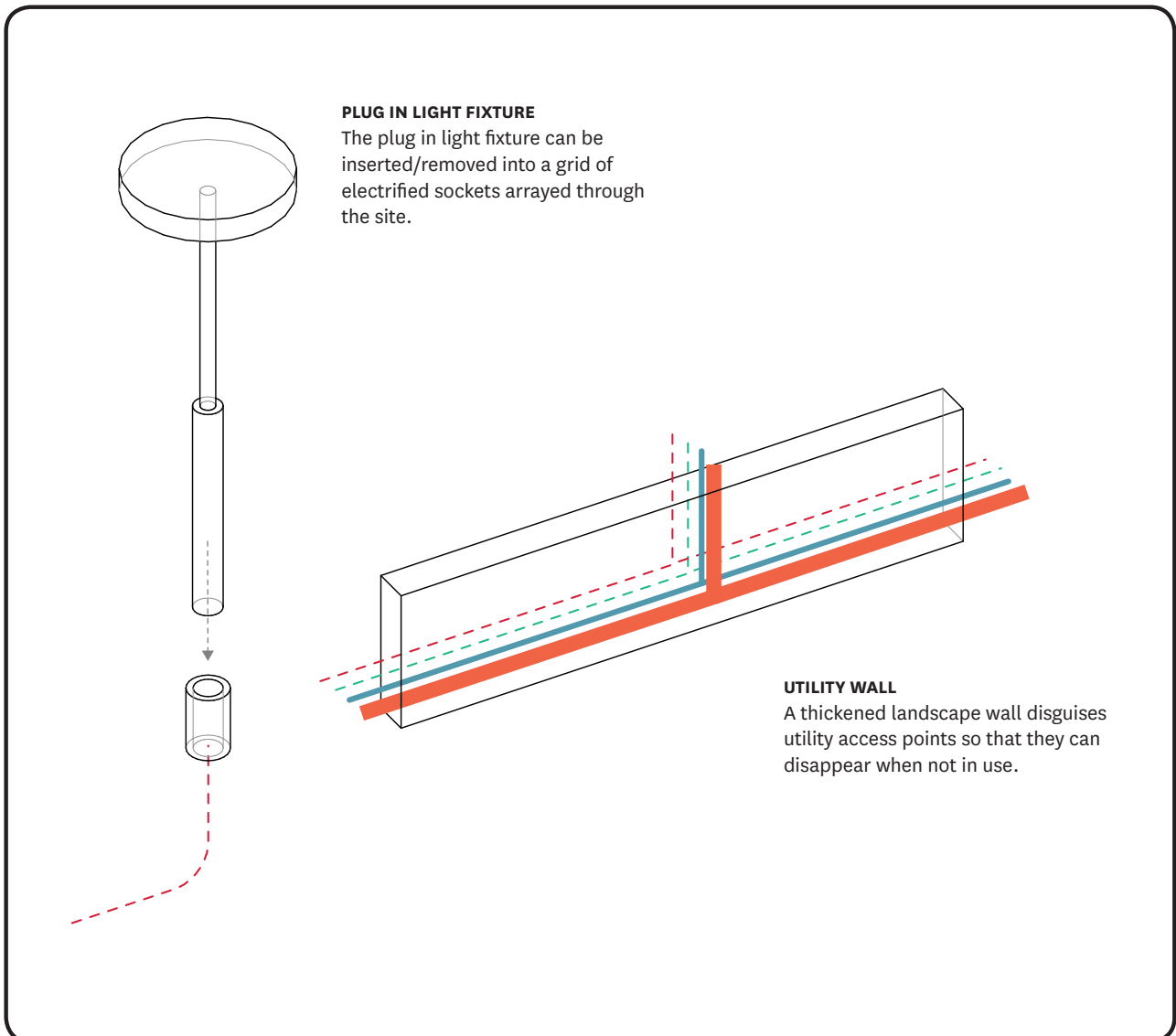
FOUNDATION TYPES

ADJUSTABLE

FIGURE 63 Adjustable Components
The basic foundation system consists of a skid with four support columns. The house craft is loaded onto the horizontal skis, which are lifted to the appropriate height. The adjustable foundation allows users to alter the height of their unit. By adjusting the height a user can change the amount of privacy, and/or storage available to them.

PORTABLE	DEMOUNTABLE	PERMANENT	ADJUSTABLE HEIGHT	PEER CONNECTION	FULL CONNECTION
●		●	●		●
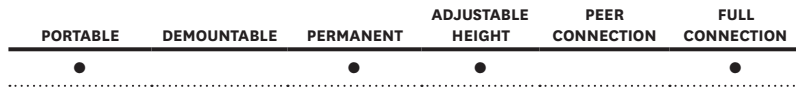
COMPONENTS
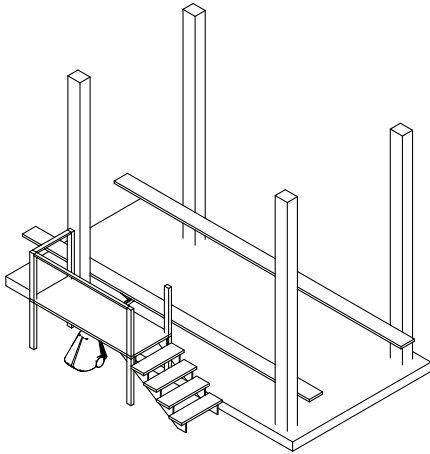
SKID FOUNDATION AT 1.0 M
The foundation is comprised of four vertical supports on a skid which provides stabilization without being embedded into the ground. Skids can be dragged into their desired location.
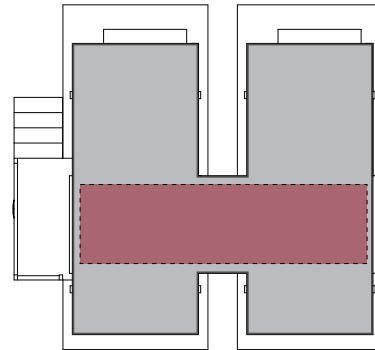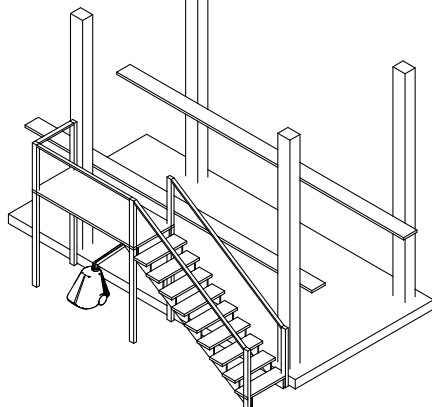
FULL CONNECTION
Adjustable foundations can provide a full connection coupling between two units.

AUXILLARY

FIGURE 64 Auxiliary Components
The storefront foundation allows for a small entrepreneurial pod to be slid underneath the unit, after the unit has been loaded onto the foundation. This ground-level storefront space could provide the ideal suite for many start-up enterprises from a micro-restaurant to an Etsy storefront.

PORTABLE	DEMOUNTABLE	PERMANENT	ADJUSTABLE HEIGHT	PEER CONNECTION	FULL CONNECTION
●		●			

COMPONENTS

ENTREPRENEURIAL POD
A small pod can be slid underneath the unit in this foundation design.
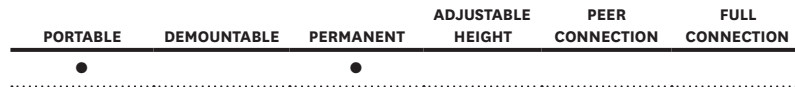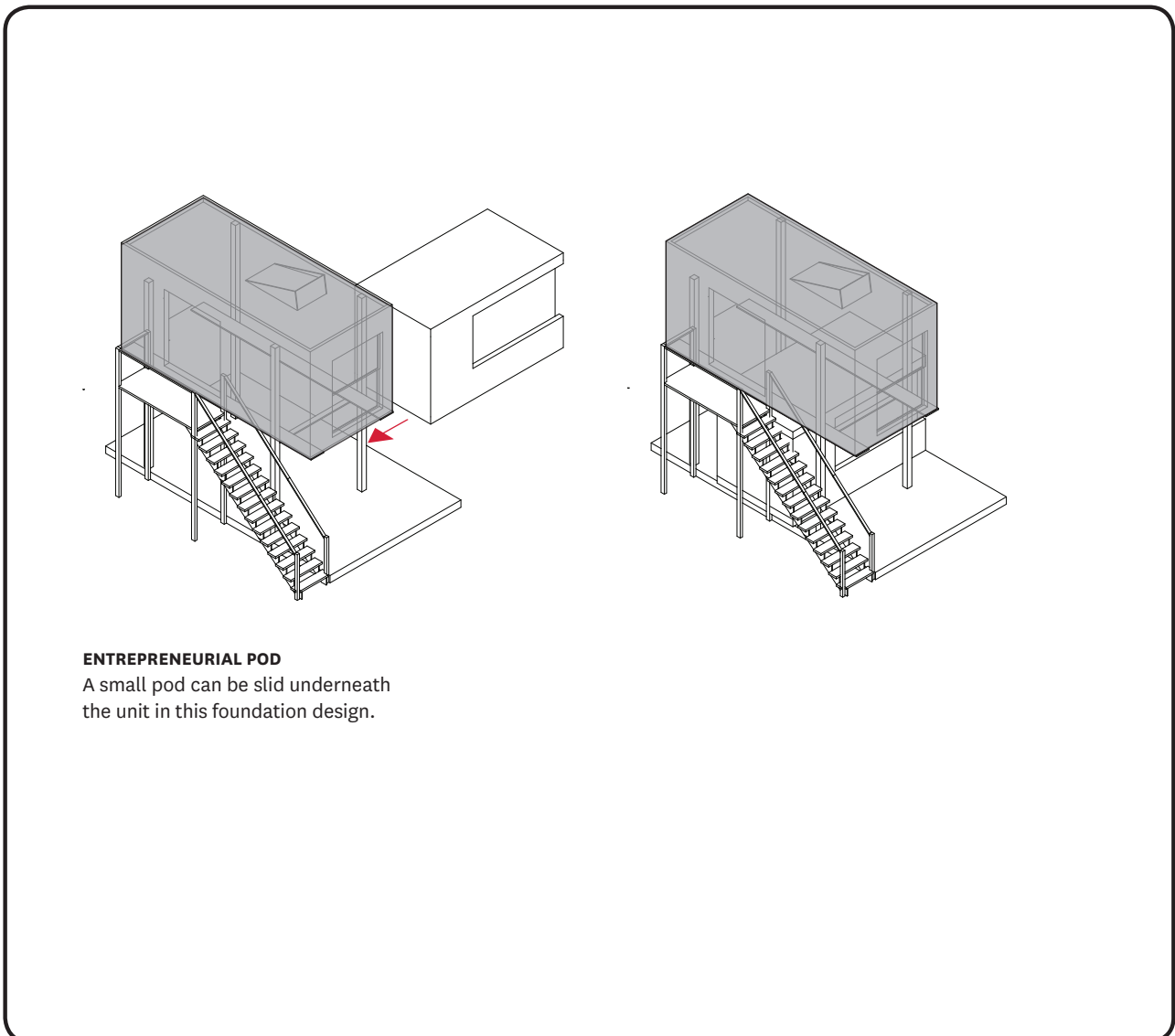
INTEGRATED

FIGURE 65 Integrated Foundation
The integrated foundation interfaces with the raised access floor of the demountable infrastructure package. The vertical supports slot into the corner pylons of the floor. The integrated foundation is designed to allow for the aggregation of multiple units. Two or more units can be assembled together to create a peer connection. The peer connection joins units via a shared walkway. This type of assemblage may be useful to Millennials starting a business together. The peer connection allows for close collaboration in a live/work environment.

PORTABLE	DEMOUNTABLE	PERMANENT	ADJUSTABLE HEIGHT	PEER CONNECTION	FULL CONNECTION
			●	●	●
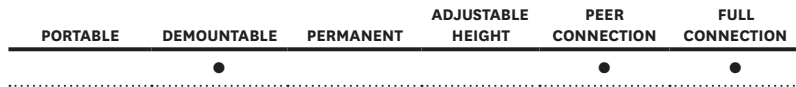
COMPONENTS
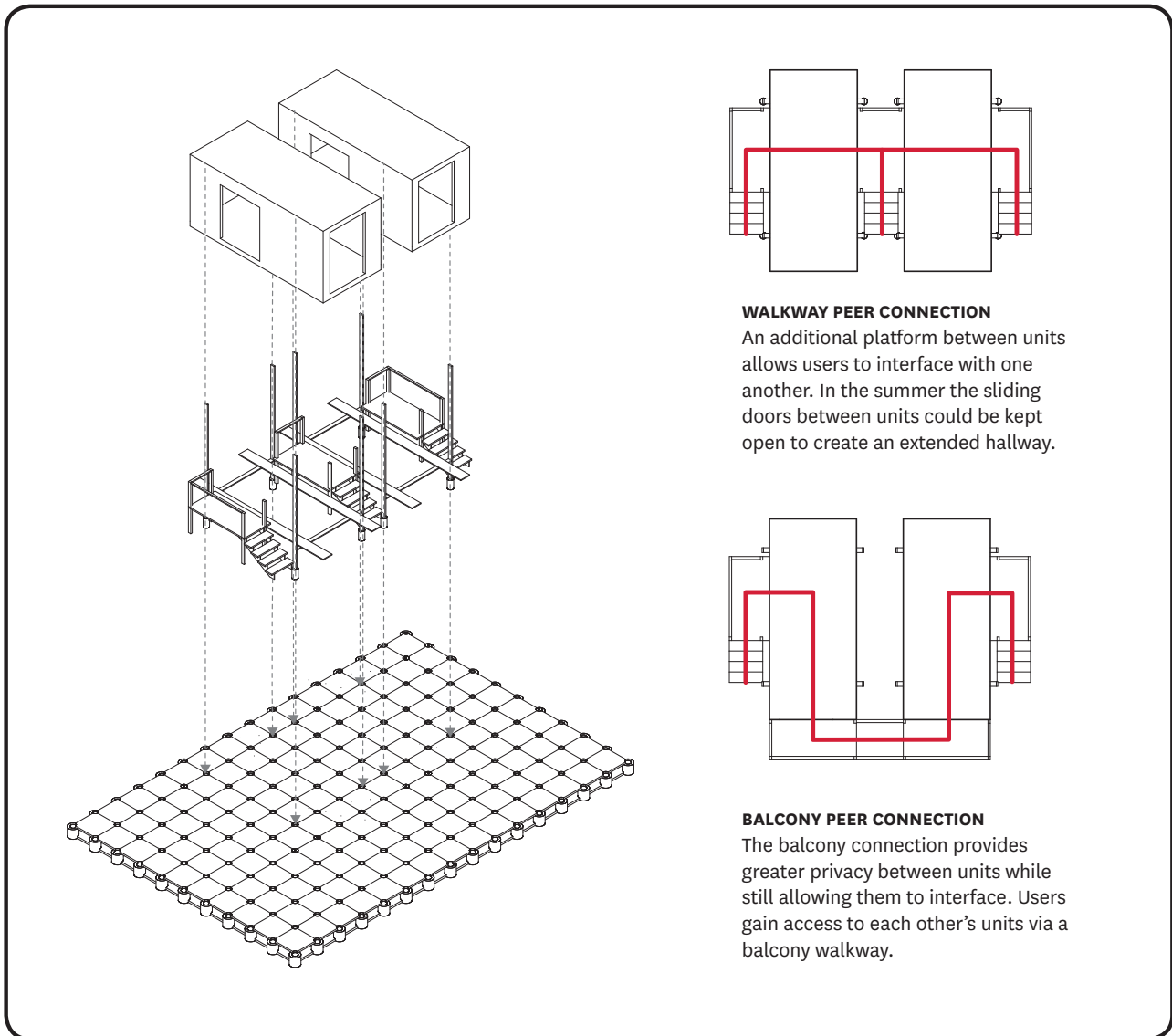
WALKWAY PEER CONNECTION
An additional platform between units allows users to interface with one another. In the summer the sliding doors between units could be kept open to create an extended hallway.

BALCONY PEER CONNECTION
The balcony connection provides greater privacy between units while still allowing them to interface. Users gain access to each other's units via a balcony walkway.

ONLINE NETWORK

THE ORGANIZATION OF AN INTERNATIONAL TRAILER PARK SYSTEM

The UTP system would be organized by an online application. This application would allow developers to list their properties and allow trailer park users to view and apply to live in them.

Like many sharing economy networks the UTP application would not own any of the physical infrastructure and would be dependent on developers and users opting in to the system.

The network would provide a consistent framework for the listing, and ranking of trailer parks. Trailer park owners, as well as users would be able to rank each other providing a credible review of each park and each user.

Finally the application would also serve to organize bookings, the transportation of units, and track vacancies.
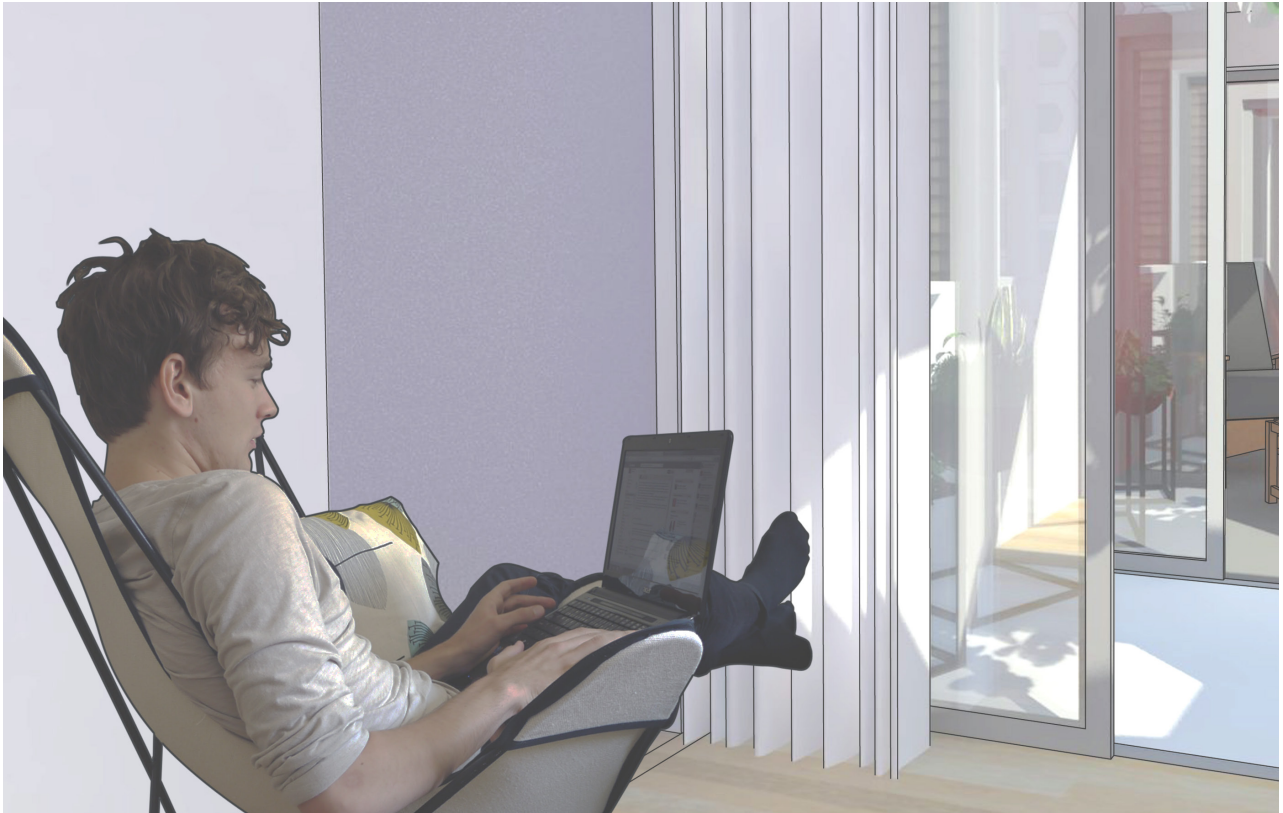
FIGURE 66 Online Network
An Urban Trailer Park user interacts with the online
network.

FIGURE 67 Visualizing the Network
This diagram depicts the journey of three users in the UTP network. The diagram also illustrates the emergence of trailer parks over time. As parks regroup there is a small break in the line while they are transported to the next transient site.

2019
2020
2021
2022

ENTREPRENEUR'S PARK

ECO PARK

ECO PARK

ECO PARK 2

STUDENT VILLAGE

EXPERIMENTAL VILLAGE

NETWORK VILLAGE 2

UP PARK

START-UP PARK

GOOGLE VILLAGE

GE

A young restaurateur who wants to start his own falafel truck

ENTAL VILLAGE 2

TINY-VILLE

EXPERIMENTAL VILLAGE 2

DESIGN TESTS

THREE POTENTIAL SITES ARE TESTED

The design portion of the thesis imagined three of a multitude of neighbourhood possibilities exploring a variety of attractors, site investments, land turn-over times, and urban contexts. Each was a test to mitigate the given factors of a site in relation to utility provision, dwelling pattern, site proximities, economy, and site access. Each one acted as an individual test of a unique site infrastructure and the resultant dwelling pattern.

The three sites address a variety of factors. The first site, located next to a faculty of architecture and future design school, is situated within an empty plot near a struggling outlet center, anticipating a strong student population the UTP is tuned to prioritize economy above all else. The second site, located next to a key loci for tech start-ups, prioritizes team culture and outdoor working spaces. The third site, located next to a trendy neighbourhood activates a transitional zone in the downtown area, and provides market space for creative individuals to manufacture and sell their wares.

FIGURE 68 Three Potential Sites

	SITE 1	SITE 2	SITE 3
LOCATION	**Cambridge, Ontario**	**Kitchener, Ontario**	**Winnipeg Manitoba**
PARK NAME	Economy Park	Start-Up Park	Entrepreneur's Park
OWNER	The City of Cambridge & Fantastic Development Corp	Google Canada	Urban Nomad Collective
EXPECTED TRANSITION TIME	16 months	30 months	119 months
INVESTMENT LEVEL	low	medium	high
INFRASTRUCTURE TYPE	Portable	Demountable	Permanent
FOUNDATION TYPE	Adjustable	Integrated	Store-Front
CONTEXT	The site is a vacant lot located within a complex of outlet stores. The commercial sector is sluggish, therefore this site may not be developed for a while. The City of Cambridge subsidizes the park as a potential model to alleviate pressure for affordable housing. This first site will act mainly as student housing for the school of architecture, as well as a future design school in downtown Cambridge.	An international tech company (Google) experiments with a UTP close to its Kitchener office. The park is designed to attract young employees and create a campus-like culture. The park is also near two University of Waterloo start-up incubators, free office space for young software developers starting their own businesses. The park could act as a logical extension to the incubators - providing affordable housing downtown in close proximity.	An urban development collective procures a piece of under-utilized land in Winnipeg via a crowd-funding venture and partnership with the City of Winnipeg. The piece of land is located in a transitional area between a bohemian neighbourhood of creative business and a more generic, office tower district. Urban Nomad Collective is interested in creating a hybrid urban space, that creates space for the public, as well as creating a market comprised of micro live/work units.

CAMBRIDGE

ECONOMY PARK

This site aims to capitalize on the presence of a design school in the downtown core of a low-density city. As the population of the school grows, affordable housing is becoming increasingly hard to find. The UTP could offer a dorm-like setting by offering affordable housing for students.

Due to the expected user-group the UTP could use the most economical site objects to construct a temporary trailer park which would offer low rents. The trailer park could help to activate the sleepy warehouse retail district that it occupies while offering relief from the difficult ad hoc housing currently available in the city.

The Cambridge Economy Park is constructed like a temporary event venue. Water and electrical lines run underneath pathway mats. The utility connection hub is contained within a pylon, which provides site lighting, and marks the edge of individual plots. The house foundation is on a skid, which allows it flexibility in site orientation.

The flexibility of this site allows for freedom in occupation with plenty of space to place outdoor furniture, plants, 1:1 school projects, etc.

SITE MOTILITIES

Millennials often use Internet services such as Walkscore to analyze a neighbourhood they are moving into. Walkscore generates a score out of 100 based on how close the site is to transit, walking paths, and amenities. This is an excellent test of motility. The Cambridge site has scored a respectable 84 on the Walkscore meter, therefore it can be easily navigated without a car.

FIGURE 69 Cambridge Motilities (Right)

LEGEND

ATTRACTOR
TRANSIT
WALKING PATH
UTP SITE
5 MIN WALKING

Scores for 24 Cedar Street

Walk Score **84**   Transit Score **51**

Walk Score | Transit Score | Bike Score

Score Details | What is Walk Score

The Walk Score for 24 Cedar Street is based on the following categories.

Dining & Drinking, Groceries, Shopping, Errands, Parks, Schools, En...

Methodology

Close

What's Nearby

Restaurants:
The Wired Up Pugs Cafe Bistro   .1km

Coffee:
Grand Cafe   .5km

Bars:
Rivers End Bar And Grill   .4km

Groceries:
Dee's Bakery   .3km

Parks:
St. Andrew's Park   .2km

Schools:
Waterloo Region District Schoo...   .2km

Shopping:
Southworks Outlet Mall   .08km

Entertainment:
Fashion History Museum   .08km

Errands:
The Prescription Shoppe   .4km

Search Nearby:

R = 5 min

Map data ©2015 Google   Terms of Use   Report a map error

Something missing? Add a place

CAMBRIDE ECONOMY PARK UTP PAGE

The image at right illustrates what an Airbnb-style UTP page might look like. Each trailer park advertises their amenities, park rules, user ranking, user reviews, and monthly rent. The Cambridge Economy Park is only ranked three stars because it does not have many amenities, but the rent is low to compensate.

FIGURE 70 Cambridge UTP Page (Right)

UTP | where are you going?
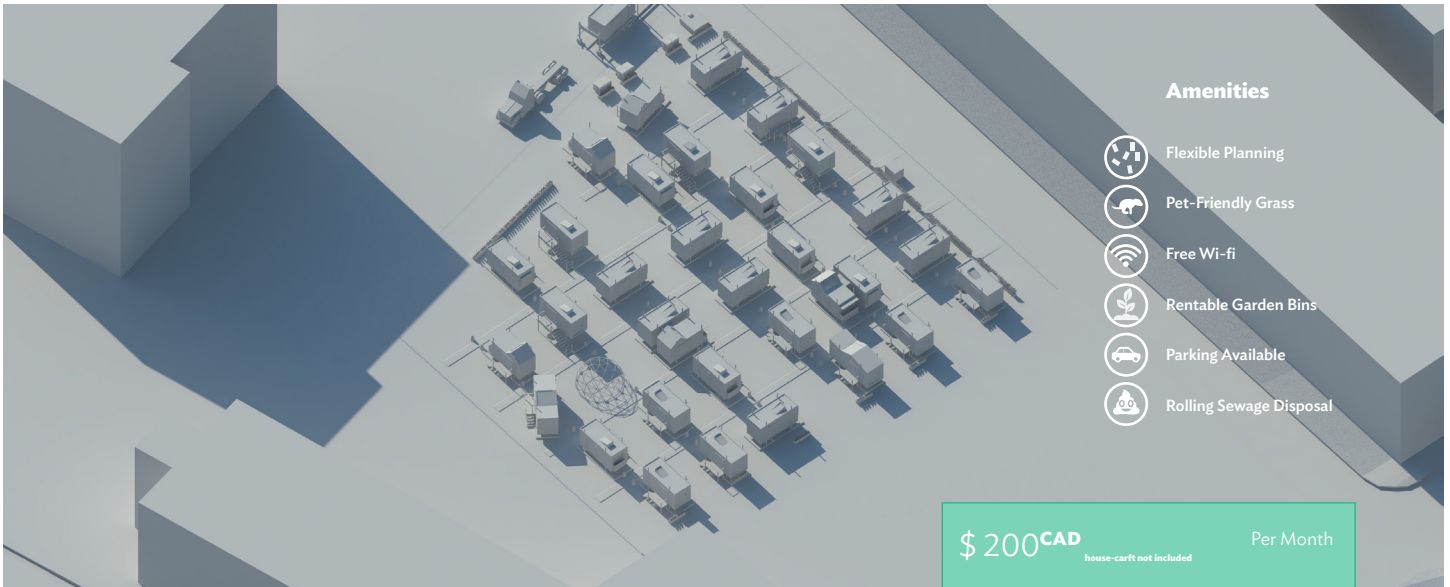
Amenities

- Flexible Planning
- Pet-Friendly Grass
- Free Wi-fi
- Rentable Garden Bins
- Parking Available
- Rolling Sewage Disposal

$ 200 **CAD** house-carft not included   Per Month

Move Date   Pick Up Location   Pods
dd.mm.yyyy   pod's origin point?   1

**Enter dates for accurate prices and availability

Request to Book

Book a Viewing

Louis
Property Manager

Economy Park Near School of Architecture
Cambridge, ON, Canada ★★★☆☆ (14)

About this park

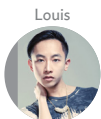The city has subsidized the building of a UTP as a way to alleviate pressure for affordable housing. Located close to the University of Waterloo Faculty of Architecture this is a popular place for students to stay. The rent is cheap, and it's close to all the important stuff.

Owner: **City of Cambridge & Fantastic Development Corp**
Expected Transition Period: **16 months (option for renewal)**

Prices	Site installation fee: $100 or free with a 6 month lease On site pod relocate: $60 Double pod connection: $60 Parking: $30 /month
Park Rules	-pets allowed - please clean up after them -smoke only in your own unit or designated areas -experimental architecture projects must have approval of park manager -follow local sound regulations -"guests" staying longer than 1 week must be registered
Availability	**4 month** minimum stay View Calendar

Visit us on Instagram @CambridgeEconoPark

14 Reviews ★★★☆☆

Summary

Manni

I spent 16 months in Cambridge working on my Master's Thesis at the School of Architecture. The Economy Park was a great place to stay.

There was a bit of a hiccup getting my pod to Cambridge, it got held up in Quebec because of a scheduling mix-up. But, one of the other students at the park allowed me to bunk with them the first night. It was a great place to make friends, like a trailer park dormitory. Just wish there were more places to socialize during the winter - especially pods only fit like 4 people comfortably.

September 2016, 16 months

Larissa

I stayed here when I moved back to Cambridge to be closer to my parents after losing my job in Hamilton.

There`s a lot of young people here so it can be a bit noisy on the weekends.

If you`re looking for a cheap place, you could do worse.

August 2016, 10 months

EXISTING SITE
The site is currently made up of gravel with a 5 metre grass border on the street side.
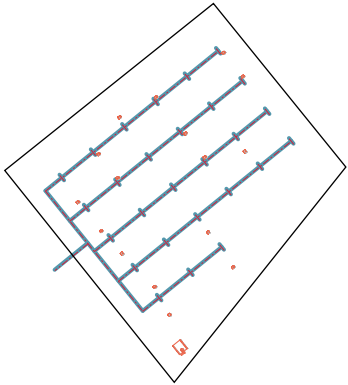
UTILITIES
This trailer park utilizes the most portable and economical model of utility provision. Water, electrical, and Internet are routed underneath pathway matts. Sewage is taken care of by mobile storage units that are dumped weekly.
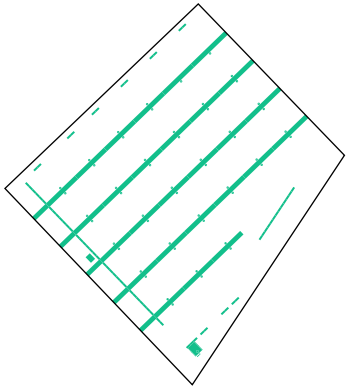
SITE OBJECTS
The utility pathways break the units into individual plots. Concrete dividers provide a border of temporary planters and benches. The connection pylons offer site lighting at night.
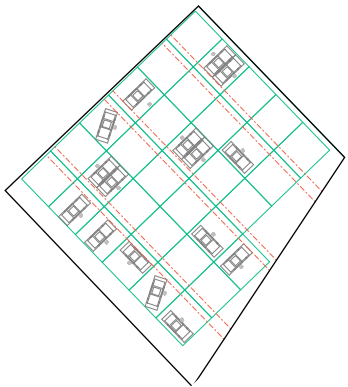
DWELLING PATTERN
The resultant dwelling pattern dictated by the utilitiy provisions and foundation type allows users to orient their units however they desire.
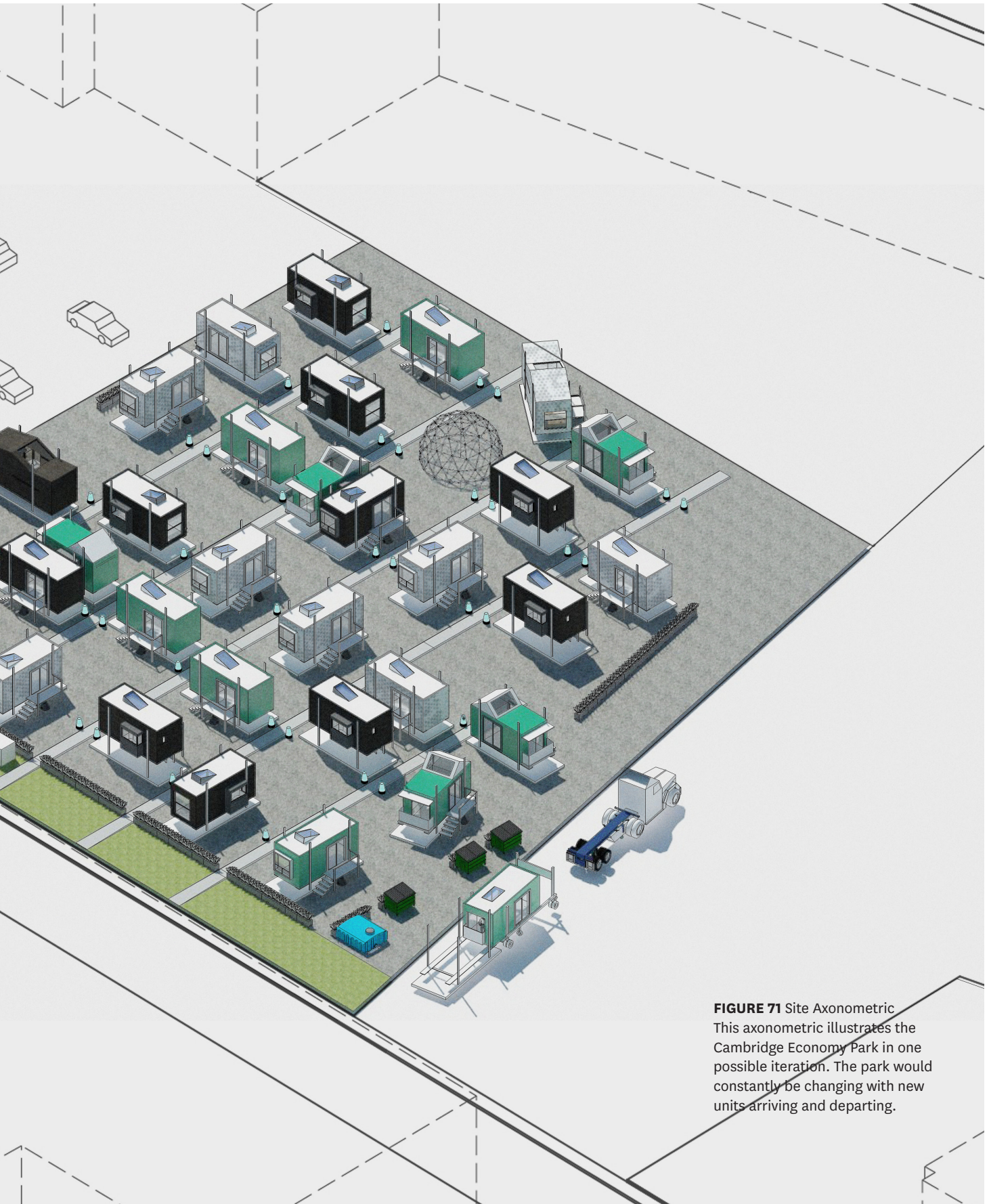
FIGURE 71 Site Axonometric
This axonometric illustrates the
Cambridge Economy Park in one
possible iteration. The park would
constantly be changing with new
units arriving and departing.
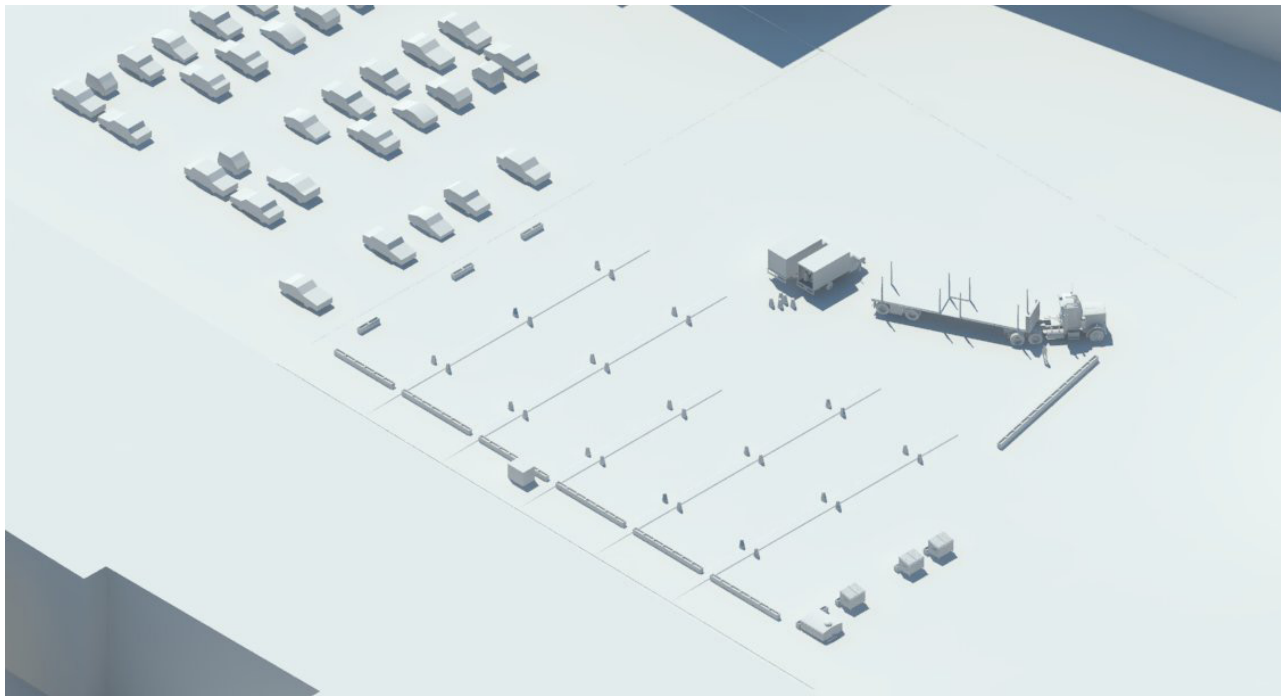
FIGURE 72 Site Setup (Top)
Half of the site is set-up with the UTP infrastructure.
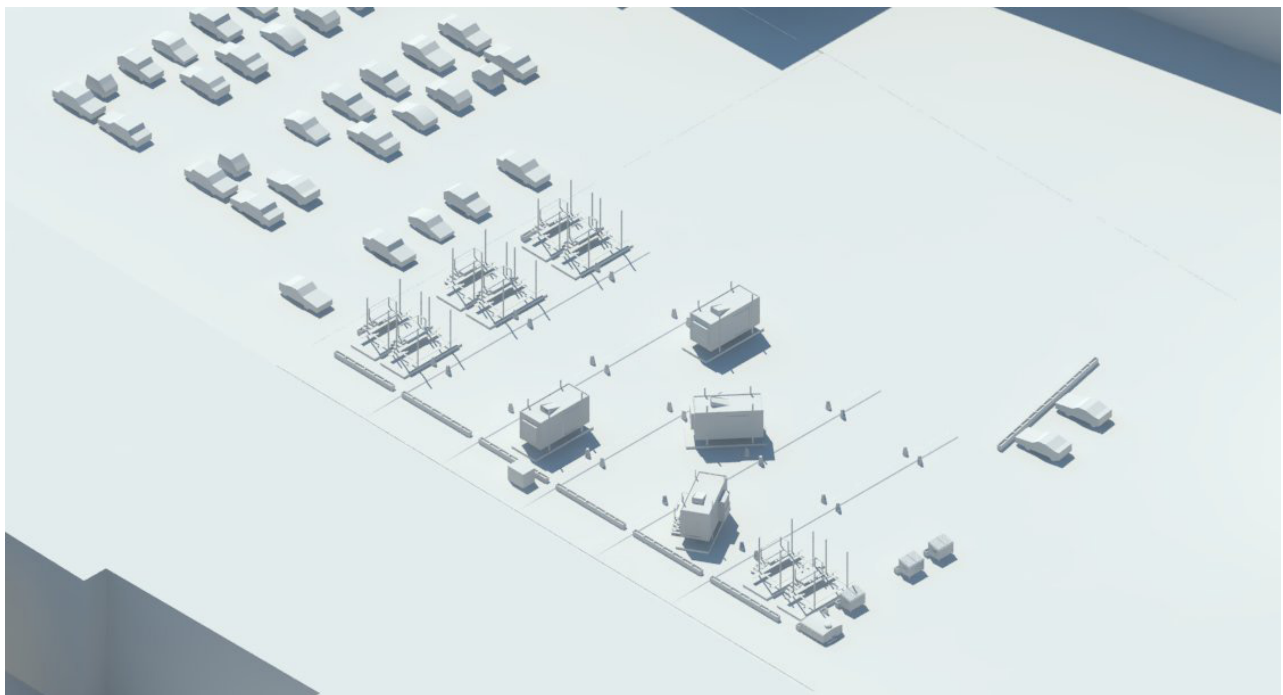
FIGURE 73 The First Renters (Bottom)
A few trailers are renting on the site. The extra foundations are placed in empty spaces.
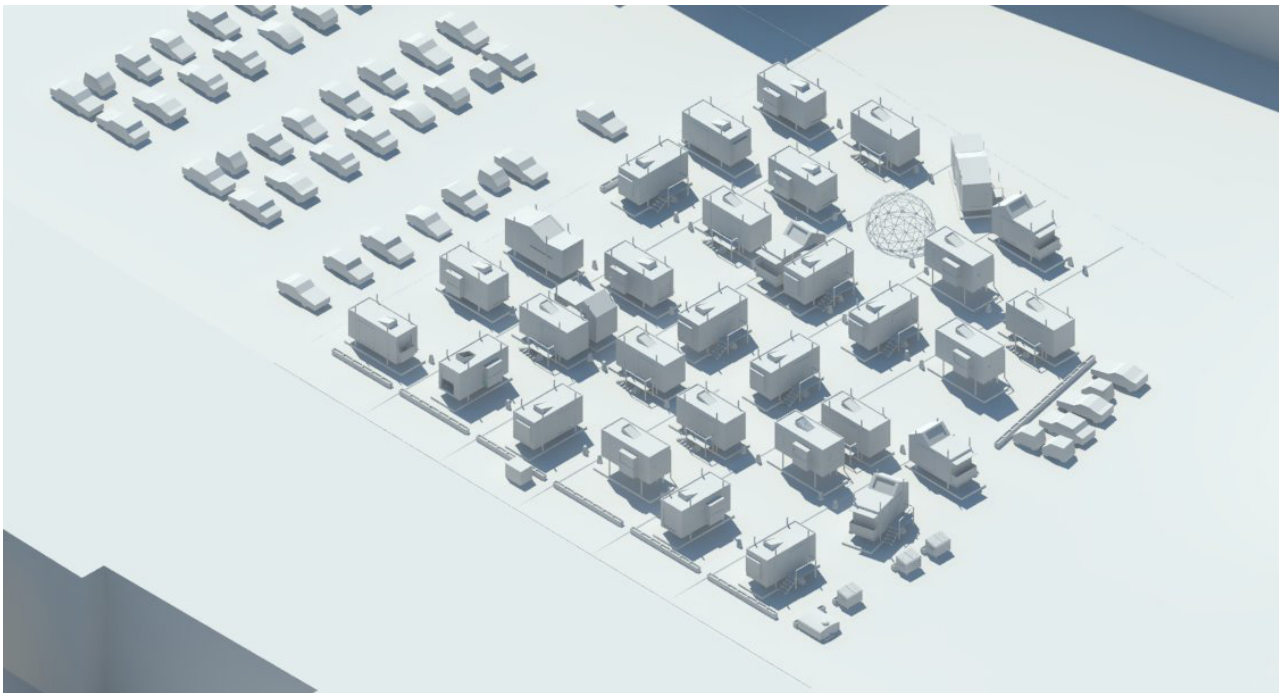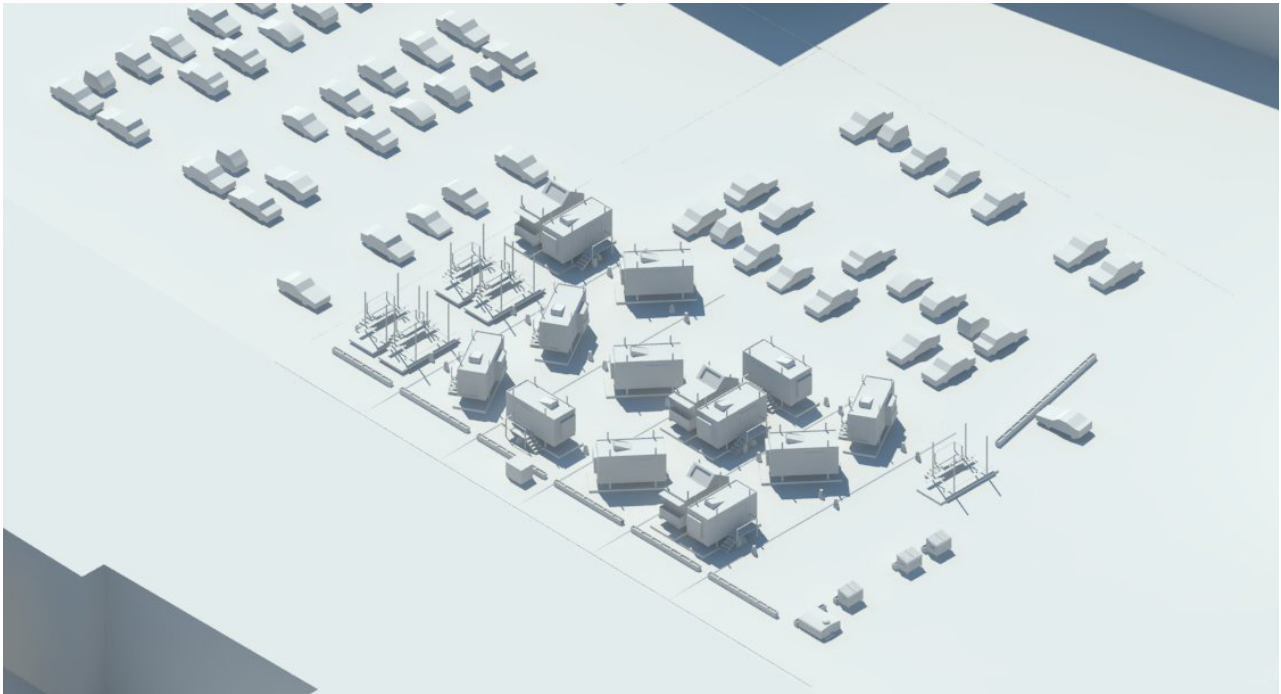
FIGURE 74 Half and Half (Top)
The other half of the trailer park site is used as overflow parking for the surrounding commercial area.

FIGURE 75 Full Capacity (Bottom)
As the trailer park reaches its full capacity it stretches to take over the rest of the site.
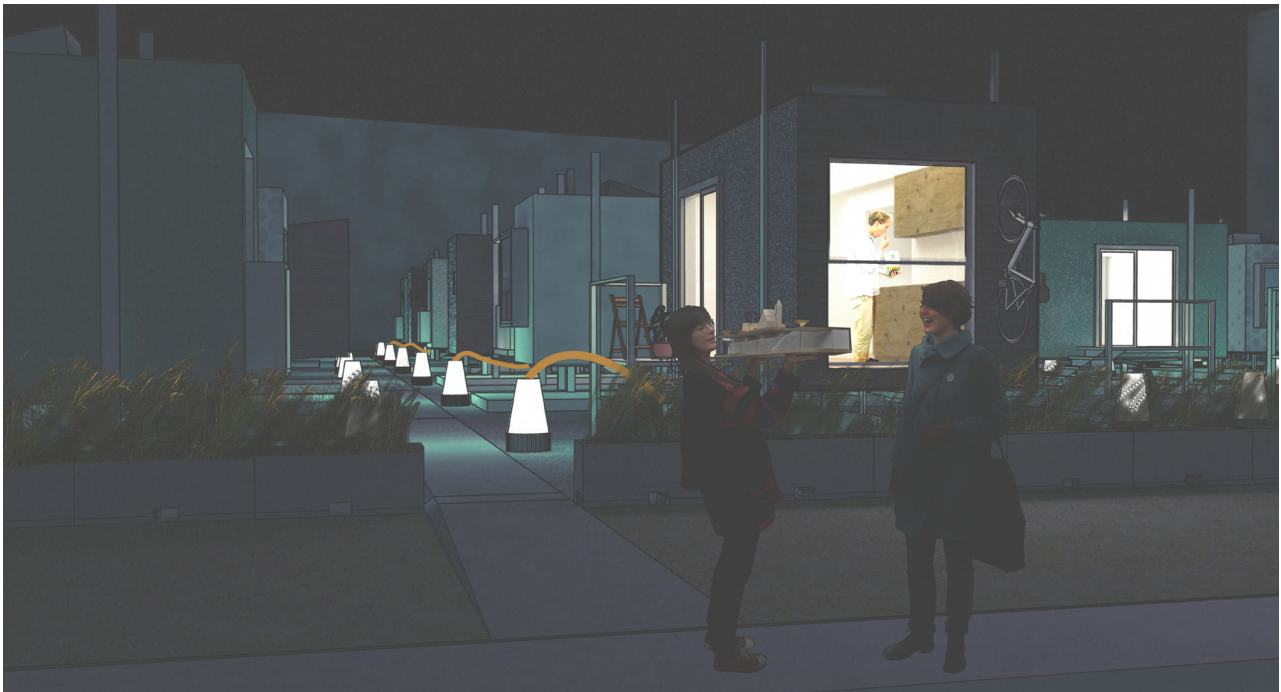
FIGURE 76 Cambridge Economy Park From the Street (Top)
This rendering shows the potential for interaction because of the organization of units in the Cambridge UTP. Because they are all closely placed, with a strong association to the ground plane neighbours will likely encounter each other as they travel to their units. Balconies and occupiable window sills encourage this social connection.

FIGURE 77 Trailer Park at Night (Bottom)
The utility hub pylons light up at night to create invitingly lit pathways.

FIGURE 78 Unit Delivery on Site
The act of moving into a trailer park would be highly visible. The noise and activity of mounting the house-craft onto a foundation and moving it into place would attract attention. Perhaps this visibility is beneficial in this context allowing trailer park dwellers to greet their new neighbours.

FIGURE 79 Instant Dorm-Room
Millennials could start investing in their own home from the time they start their education.

KITCHENER
START-UP PARK

The second site is located in Kitchener Waterloo in a medium density downtown location. The site activators are the future Google office, the Velocity Garage and the Velocity Foundry. The Velocity Garage provides free office space and mentorship to start-up software companies founded by current students or recent graduates of the University of Waterloo. The Velocity Foundry is similar to the Velocity Garage only it offers space and equipment to hardware start-up companies.

Kitchener is an innovation center for the tech industry. Graduates from the University of Waterloo congregate here to launch their start-up projects, because of the available support systems. Tech industry individuals are inherently nomadic due to the strong network ties between spatially distant hubs. This is especially true of the *brain drain* that draws recent graduates to the tech industry in California.[1]

Google could sponsor the site and offer to purchase units for their new hires. If an employee is transferred to a new office, the house-craft could be moved with them. Google already offers a comprehensive relocation package, but new employees still find the living in the area expensive.[2] A young software engineer has been living in a truck in the Mountain View Campus parking lot, because he, "was almost never home[.]"[3]

Start-up companies could use the site as a space to congregate with other tech individuals, but also as an extension of the Velocity Garage. Connecting their dwelling units to create a highly productive live/work space that can be re-organized and re-

assembled as needed.

The trailer park design utilizes a raised accessible floor to provide temporary utilities: water, Internet, electrical, and sewer. The foundation system also plugs into this grid allowing for the assemblage of multiple units.

The routes of access divide the site up into smaller cells that can be occupied by groups as they desire. These squares can form small neighbourhoods, creating a collective courtyard or backyard area that can be developed as they desire.

The transition between street level, and the raised floor is used as an opportunity to provide public space. Outdoor co-working benches provide electrical outlets, and sunshading, so that the outdoors can become an opportune space for networking and working.

SITE MOTILITIES

The selected site is just on the edge of downtown Kitchener. This provides it with excellent access with many amenities. This site has excellent access to restaurants, coffee shops, shopping, bars, a grocery store, as well as many transit stops. It has scored 91 on the Walk Score meter.

---

1. Alec Scott, "Lessons from Canada's Silicon Valley Diaspora," The Globe and Mail, February 23, 2013, accessed November 22, 2015, http://www.theglobeandmail.com/report-on-business/rob-magazine/lessons-from-canadas-silicon-valley-diaspora/article535544/?page=all.

2. Kathleen Elkins, "A 23-year-old Google Employee Lives in a Truck in the Company's Parking Lot and Saves 90% of His Income," Business Insider, October 20, 2015, accessed November 22, 2015, http://www.businessinsider.com/google-employee-lives-in-truck-in-parking-lot-2015-10.

3. Ibid.

FIGURE 80 Kitchener Motilities (Right)

1. FUTURE GOOGLE OFFICE

Google is an international tech company with offices throughout the world. Young workers hired from the University of Waterloo could potentially be transferred to any of Google's offices.

2. VELOCITY GARAGE, CURRENT GOOGLE OFFICE, VARIOUS OTHER TECH COMPANIES

The Velocity Garage provides free office space and mentorship to start-up software companies founded by current students or recent graduates of the University of Waterloo.

3. VELOCITY FOUNDRY

The Velocity Foundry is similar to the Velocity Garage, only it offers space and equipment to hardware start-up companies.

Scores for 410 King Street East

Walk Score: 91
Transit Score: 65

Walk Score | Transit Score | Bike Score

Score Details | What is Walk Score

The Walk Score for 410 King Street East is based on the following categories.

Dining & Drinking, Groceries, Shopping, Errands, Parks, Schools, Culture & Entertainment

Methodology

Close

LEGEND

ATTRACTOR
TRANSIT
WALKING PATH
UTP SITE
5 MIN WALKING

What's Nearby

Restaurants:
Today's Great Restaurant Com....08km

Coffee:
Balzac's Kitchener   .1km

Bars:
Firkin at the Tannery   .07km

Groceries:
Loft Market - Kitchener Depot   .2km

Parks:
Victoria Park   .6km

Schools:
Tannery School of Music   .07km

Shopping:
K W Bookstore   .2km

Entertainment:
Kings College   .3km

Errands:
Pharmasave The Tannery Phar....08km

Search Nearby:

R = 5min

Something missing? Add a place

KITCHENER START-UP PARK
UTP PAGE

The Kitchener Start-Up Park has higher rents than the Cambridge Economy Park, but provides better amenities. The park therefore has a better ranking. This park is specifically designed to allow tech start-up members to form productive neighbourhoods.

FIGURE 81 Kitchener UTP Page (Right)

UTP

where are you going?
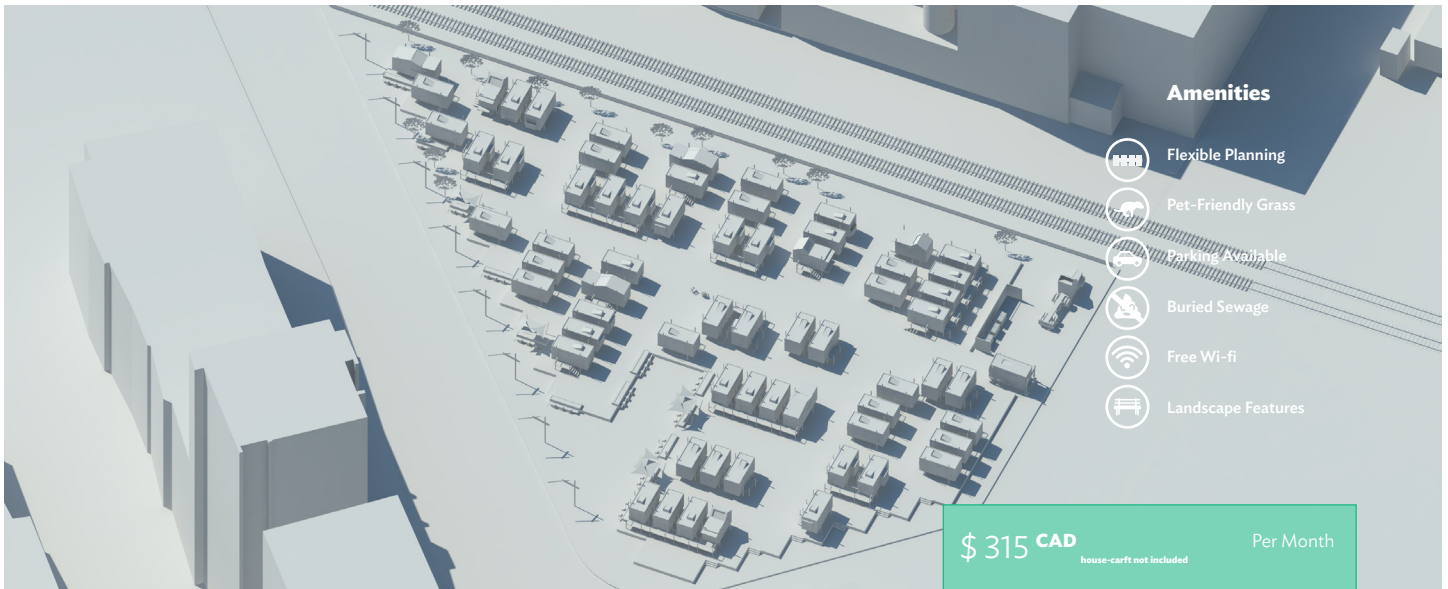
Amenities

- Flexible Planning
- Pet-Friendly Grass
- Parking Available
- Buried Sewage
- Free Wi-fi
- Landscape Features

$ 315 CAD house-carft not included   Per Month

Move Date	Pick Up Location	Pods
dd.mm.yyyy	pod's origin point?	1

**Enter dates for accurate prices and availability

Request to Book

Book a Viewing

Google
Property Manager

Start-Up Park
Kitchener, ON, Canada ★★★★☆ (35)

About this park

This park is the first of its kind for Google employees and tech start-ups. Located next to the major tech start-up incubators in Kitchener, this is the ideal place to start a business. The park offers a tight-knit community for networking with other developers. Our foundation design also allows you to connect your house-craft with your co-founders for an effective live-work scenario.

Owner: **Google Canada**
Expected Transition Period: **24 months**

| Prices	Site installation fee: **$100 or free with a 12 month lease** On site pod relocate: **$60** Double pod connection: **$60** Parking: **$60 /month**
Park Rules	-pets allowed - please clean up after them -smoke only in your own unit or designated areas -follow local sound regulations -"guests" staying longer than 1 week must be registered
Availability	**6 month** minimum stay View Calendar

35 Reviews ★★★★☆

Summary

Visit us on Instagram @kitchenerstartuppark
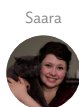
Saara

My start-up Vis-Arch moved to the Start-Up Park in October. Living in this campus like environment so close to the Velocity Foundry was a life-saver. The first year of our start-up involved working nearly every waking hour. Some days it was nice to work from home, but still be in close proximity to my co-founders.

The start-up park had an awesome collegial environment. There were impromptu soccer games on the pad in the summer, and outdoor movies.

In August we were acquired by Google. As part of the deal they have agreed to move our house-craft with us down to California. It was so awesome watching them load up our houses, and not having to pack a thing. After a few days in a hotel in Mountain View we moved back into our houses, now in California.

I can't tell you how weird it is to see mountains out my front window now.

August 2016, 16 months
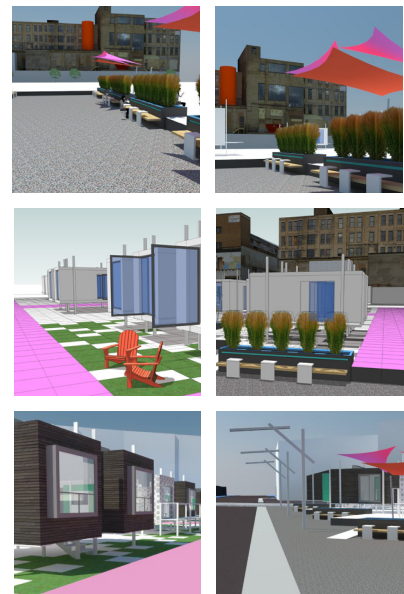
EXISTING SITE
The existing site has recently been cleared of the last standing building on the site. The surface is made up of broken asphalt and gravel.
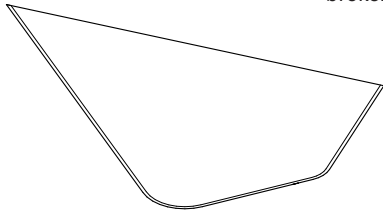
UTILITIES
Water, sewer, electrical and Internet are routed to the units inside of the access floor. The main lines follow the roads, marked with pink tiles, running through the site.
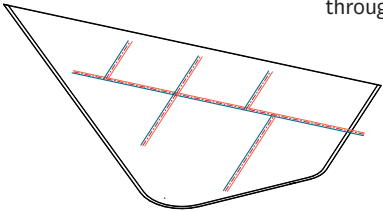
SITE OBJECTS
The site is made up of demountable infrastructure system. The tiles have been arranged in 5x5 tile groups to negotiate the irregularly shaped site.
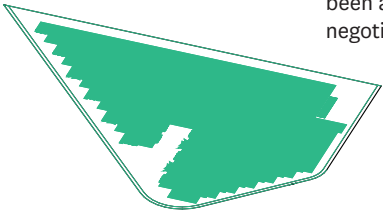
DWELLING PATTERN
The dwelling pattern is designed to allow start-ups to form micro neighbourhoods within smaller squares. The groups of dwellings can orient themselves orthogonally on the tiles - creating a flexible, but not completely free organization.
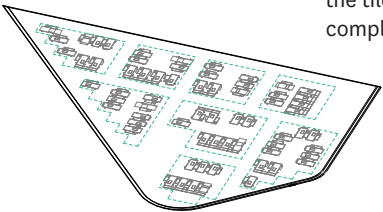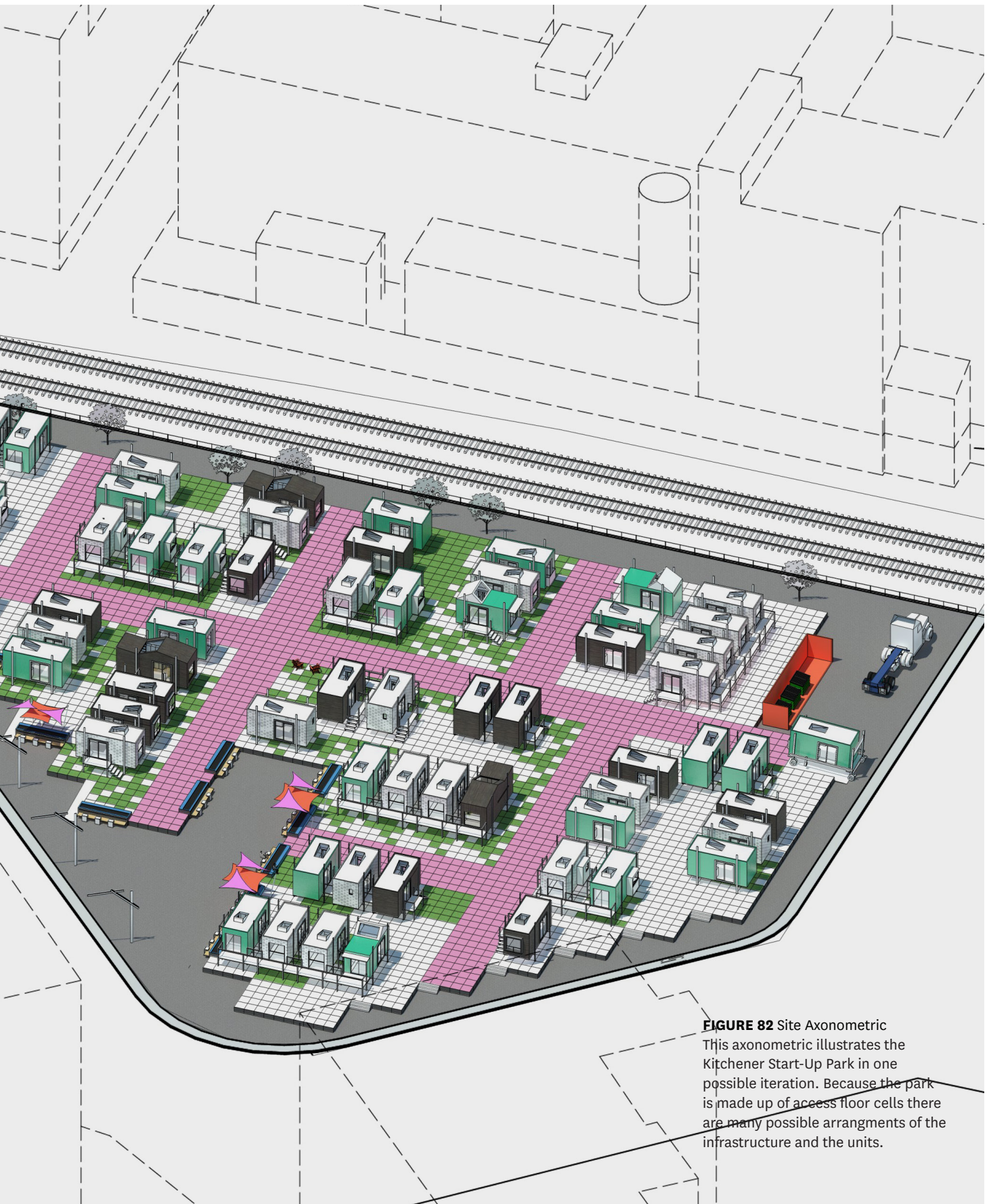
FIGURE 82 Site Axonometric
This axonometric illustrates the Kitchener Start-Up Park in one possible iteration. Because the park is made up of access floor cells there are many possible arrangments of the infrastructure and the units.
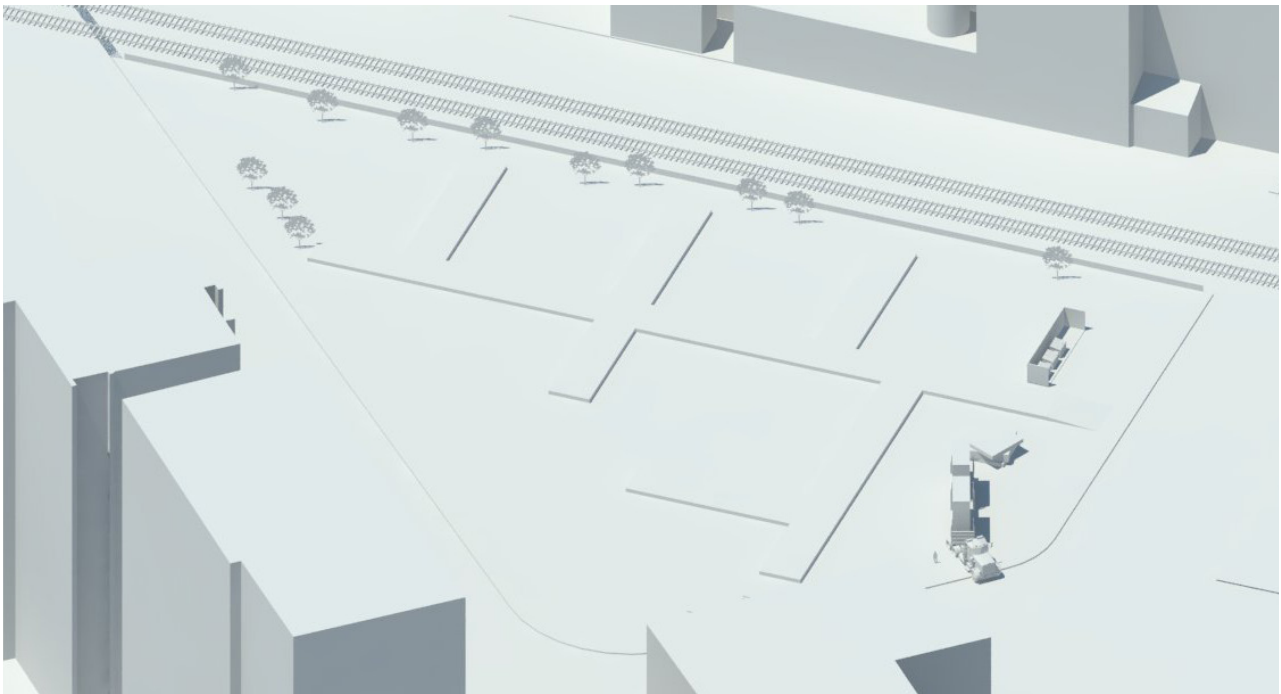
FIGURE 83 Utility Lines (Top)
The main utility routes are laid underneath the access floor.
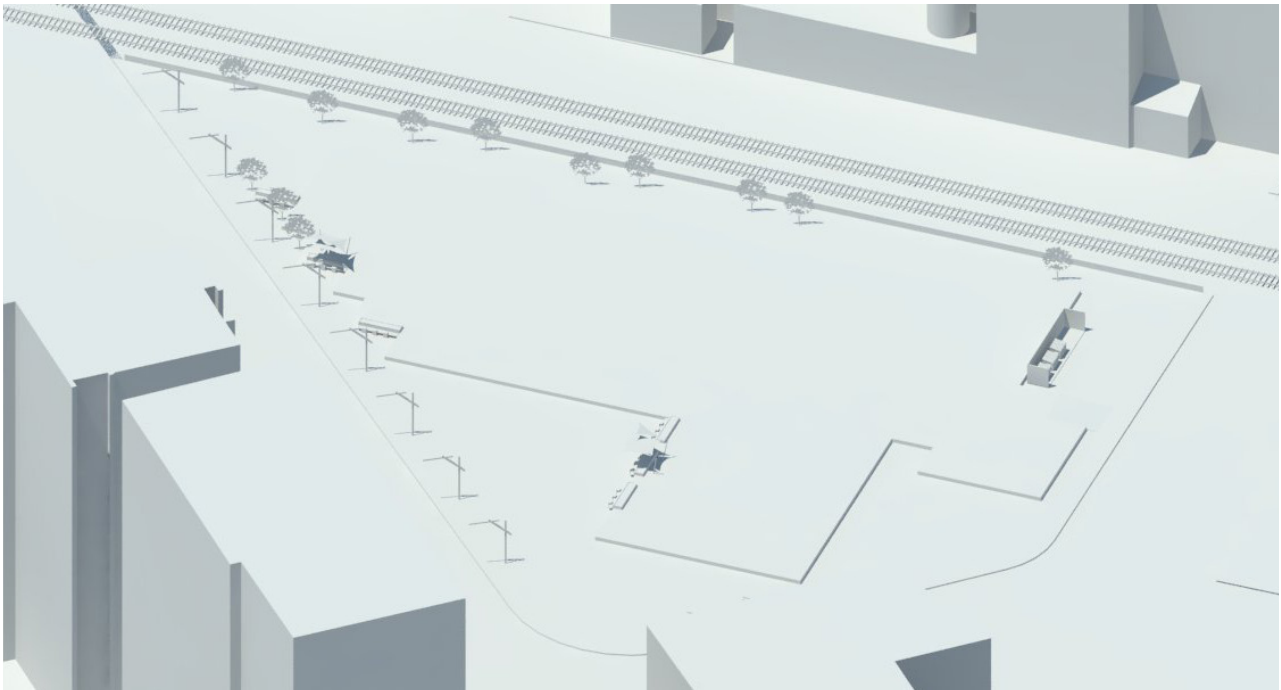
FIGURE 84 Demountable Access Floor (Bottom)
The demountable access floor is laid on the site in one of several possible configurations.
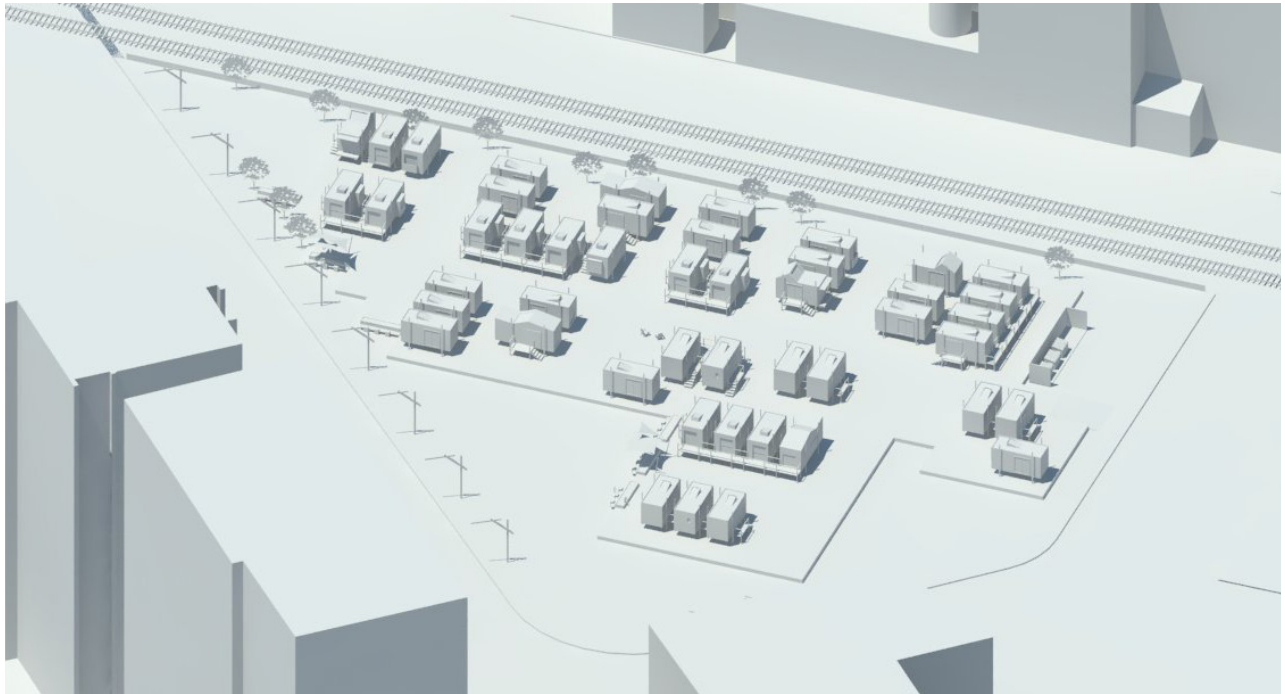
FIGURE 85 Park Occupied (Top)
One configuration.
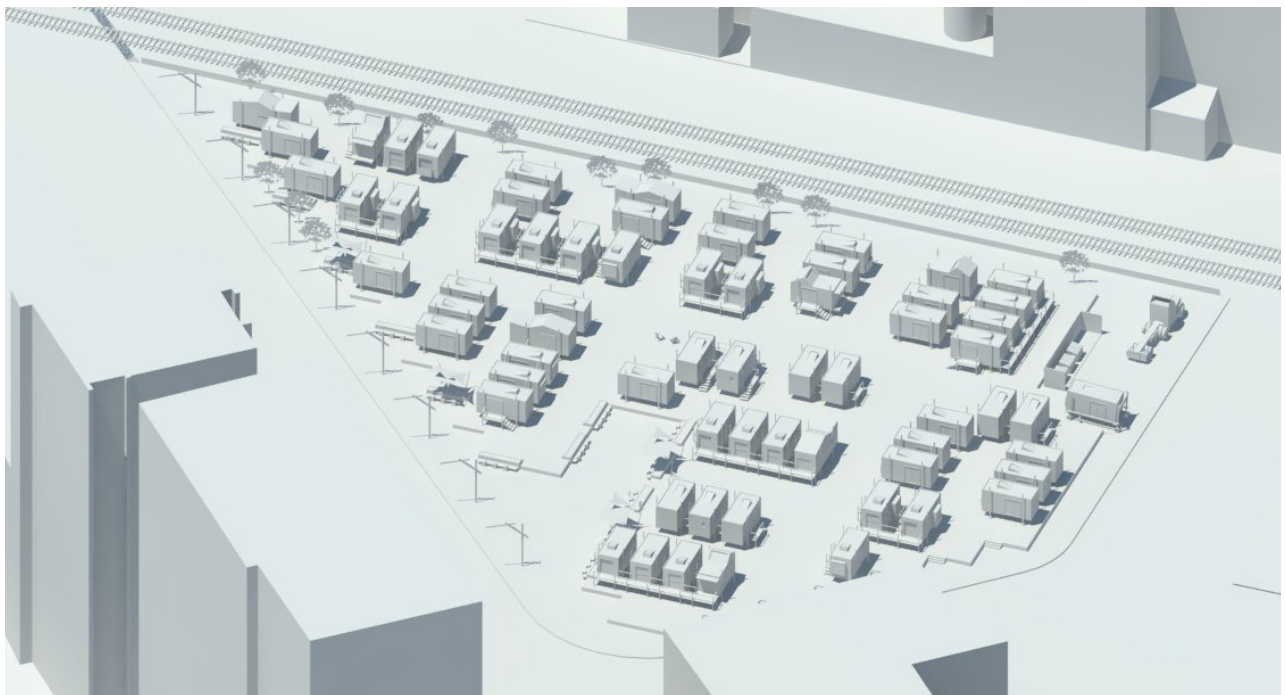
FIGURE 86 Park Occupied (Bottom)
Another configuration.

FIGURE 87 Street / Access Floor Border (Top)
The border created by the change in height of the access floor constitutes a productive edge. This border provides privacy for the trailer park residents, but also creates a public space next to the street edge. This micro-park can be occupied by the public as well as the residents.

FIGURE 88 Front Yard (Bottom)
Each neighbourhood of units at the Kitchener site can take possession of its square. Users can occupy this surface through outdoor furniture, potted plants, and their manipulation of the access-floor tiles to create desirable patterns.

FIGURE 89 Live / Work (Top)
Three units are connected by a walkway utilizing the Walkway Peer-Connection.

FIGURE 90 Unit to Unit (Bottom)
A view from one unit to the next utilizing the Walkway Peer-Connection. During the day there is high visibility between units for start-up members working together. At night curtains can be closed and the gap between units provides some privacy.

WINNIPEG
ENTREPRENEUR'S PARK

The final site's activator, the Exchange District, is a cultural hub in Winnipeg's downtown. Now filled with artists' studios, architecture firms, small-scale galleries, coffee shops, pubs, restaurants, and boutique shopping it has had a revitalizing effect on the downtown core. The site itself is in a transitory zone between the more dynamic cultural hub, and the generic office/retail-scape on Portage Avenue.

Due to the high density nature of the site's surroundings, and its proximities, the design acts more as a mixed use development than a trailer park. This design test aimed to explore the possibility of a flexible hybrid space that could continuously act as an urban space but fluctuate in its occupation as a trailer park. Those who choose to occupy such a dynamic site would likely be entrepreneurs who want to tap into the consumer traffic drawn to this unique neighbourhood. By pairing housing with market stalls/entrepreneur space young people could use this environment to incubate their businesses at a sustainable start-up scale. The use of this space would be similar to the pop-up shops of Dekalb Market in Brooklyn, NY (figure 10).

The market could help to activate the square through food vendors, and boutique shopping. The square would provide a space for office workers to eat lunch and another venue for downtown events.

SITE MOTILITIES

As a downtown location in a medium density city there are many amenities close to the site. It is close to restaurants, cafes, the downtown night-life, boutique shopping, and many transit corridors. It has scored the highest on Walk Score in both walkability (98) and transit (91).

FIGURE 91 Winnipeg Motilities (Right)
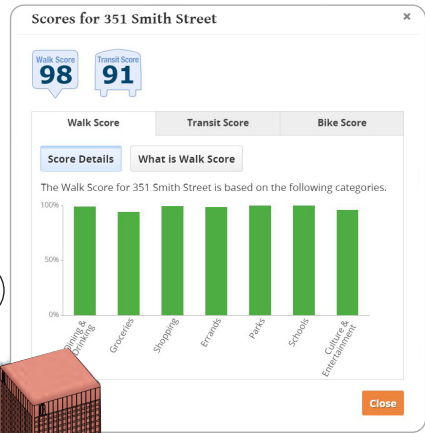
1. THE EXCHANGE DISTRICT

The exchange district is a cultural hub in Winnipeg's downtown. Now filled with artists' studios, architecture firms, small-scale galleries, coffee shops, pubs, restaurants, and boutique shopping it has had a revitalizing effect on the downtown core.

2. BURTON CUMMINGS THEATRE

A theatre that hosts many live-music performances by mid to large sized acts.

3. OLD MARKET SQUARE

Old Market Square is a small park with an open air stage. The Square serves as the epicenter of many outdoor festivals in the Exchange District throughout the summer.

Scores for 351 Smith Street

Walk Score **98**   Transit Score **91**

| Walk Score | Transit Score | Bike Score |

Score Details | What is Walk Score

The Walk Score for 351 Smith Street is based on the following categories.

Dining & Drinking · Groceries · Shopping · Errands · Parks · Schools · Culture & Entertainment

Close
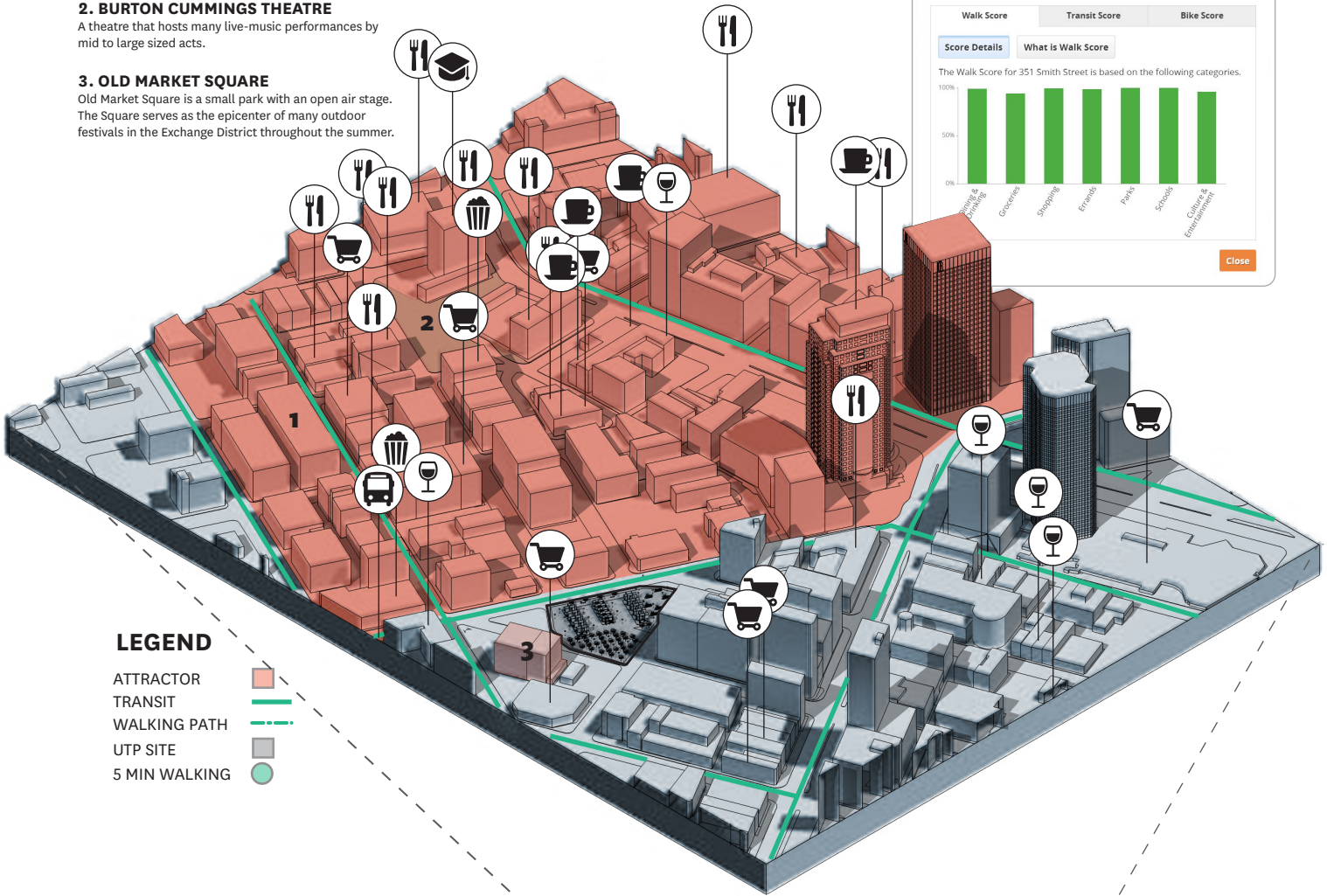
LEGEND

- ATTRACTOR
- TRANSIT
- WALKING PATH
- UTP SITE
- 5 MIN WALKING

What's Nearby

Restaurants:
Subway .1km

Coffee:
Joanna's Cafe .1km

Bars:
Yellow Dog Tavern .08km

Groceries:
Green Booth .4km

Parks:
Old Market Square .4km

Schools:
Robertson College .05km

Shopping:
Vintage Glory .1km

Entertainment:
Landmark Cinemas .1km

Errands:
CHN College - Higgins Pharmacy .08km

Search Nearby:

Street View...

R = 5 min

Map data ©2015 Google   Terms of Use   Report a map error
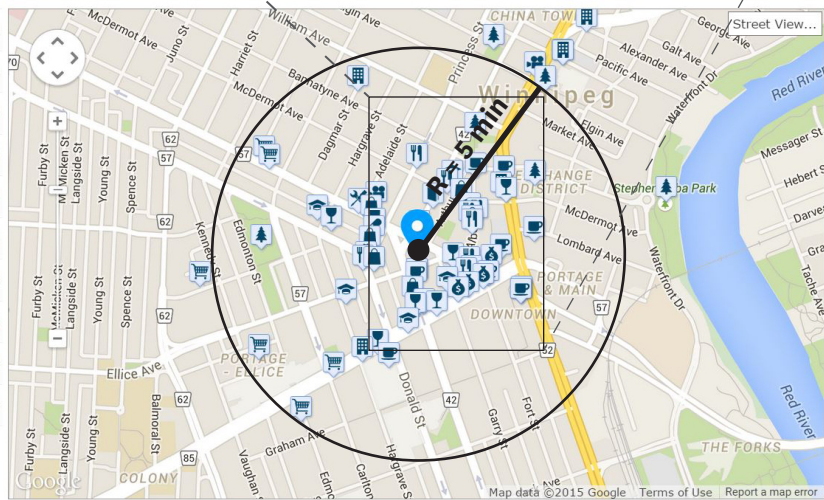
Something missing? Add a place

WINNIPEG ENTREPRENEUR UTP PAGE

The Entrepreneur park has the highest rent of all of the trailer parks, but offers office space with that rent. It also has the best site amenities, as well as a high motility location downtown. Because of this high investment, the Entepreneur park also has the longest expected transition time at 119 months (9.9 years). However entrepreneurs can only hold a 24 month lease on the site so that many different businesses can get a chance to launch from the site.

FIGURE 92 Winnipeg UTP Page (Right)

UTP | where are you going?

Sign Up   Log In   Help   List Your Property

Amenities

- Storefront Entrepreneur Pods
- Pet-Friendly Grass
- Burried Sewage
- Free Wi-fi
- Lots of Plants
- Landscape Features

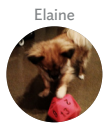**$ 1000 CAD** *house-carft not included*   Per Month

Move Date   Pick Up Location   Pods

dd.mm.yyyy   pod's origin point?   1

**Enter dates for accurate prices and availability

Request to Book

Book a Viewing

Elaine
Property Manager

Entrepreneur's Park
Winnipeg, MB, Canada ★★★★☆ (15)

About this park

In 2020 Urban Nomad Collective, with the collaboration of the City of Winnipeg transformed a downtown parking island into an urban square / trailer park / market. Urban Nomad Collective seeks to create projects that challenge the urban condition. As an occupant of this UTP you will be provided with an entrepreneurial pod to launch your small business from. The square serves as a market of micro-businesses. Our first successful business, Koffee Kats, has recently moved into a larger space in nearby Market Square. Book now, these highly sought after spaces won't last long.

Owner: **Urban Nomad Collective**
Expected Transition Period: **119 months**

Prices	Site installation fee: **$150 or free with a 12 month lease** On site pod relocate: **$100**
Park Rules	–small pets allowed – please clean up after them –smoke only in your own unit or designated areas –follow local sound regulations –maximum lease length is 24 months –you must carry out your proposed business plan for your entrepreneurial pod within 4 months –this park is also a public space, be aware that the public will be in close proximity to your personal property. You will also be made aware of a calendar of public events that occur within the square throughout the year.
Availability	**6 month** minimum stay View Calendar

15 Reviews ★★★★☆

Summary

User 556482

I always wanted to start my own small business, but was too afraid to try. When the Entrepreneur's Park opened in 2020 I decided to make the leap.

After 13 months I had to move out of the park. My business couldn't keep up to the overhead costs of my mortgage and rent. Turns out Winnipeg isn't a big enough market, and I couldn't compete online. Small business is hard, really think it through before you move to the Entrepreneur's Park. You have to be ready to hit the ground running.
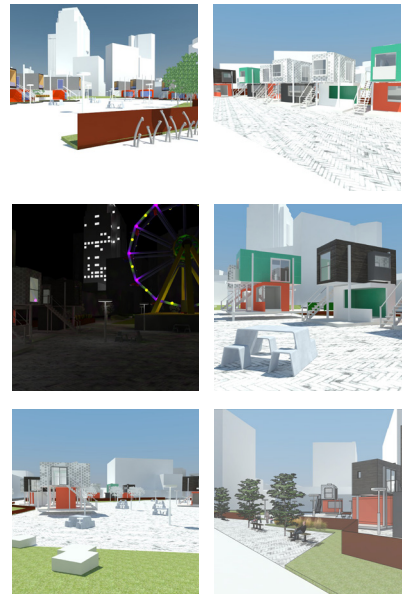
July 2021, 13 months

Ted

Hi, My name is Ted, and I'm the founder of Koffee Kats.

I'm sure you've heard of the multitude of cat cafes that have been opening up around the world. I was inspired by this trend, and wanted to do something of the sort in Winnipeg. Only I...

Read more

Visit us on Instagram @kitchenerstartuppark

EXISTING SITE
The existing site was a parking lot.
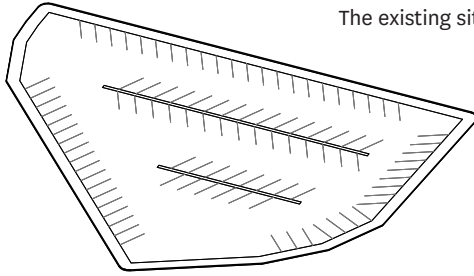
UTILITIES
The utilities will be provided to the dwellings via service walls, which serve the dual purpose as landscaping elements.
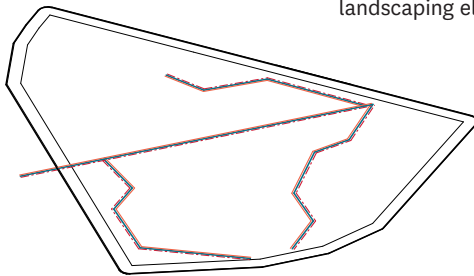
SITE OBJECTS
The site is made up of permanent landscaping elements as well as moveable furniture and lighting fixtures. The furniture and lighting fixtures can be removed or rearranged to allow the site to host various events as an urban square.
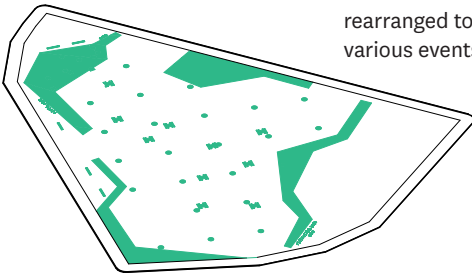
DWELLING PATTERN
The dwelling pattern on this site has a relationship to the utility walls. Because the foundations are on skids, the dwellings can be loosely arranged allowing for some flexibility in their orientation.
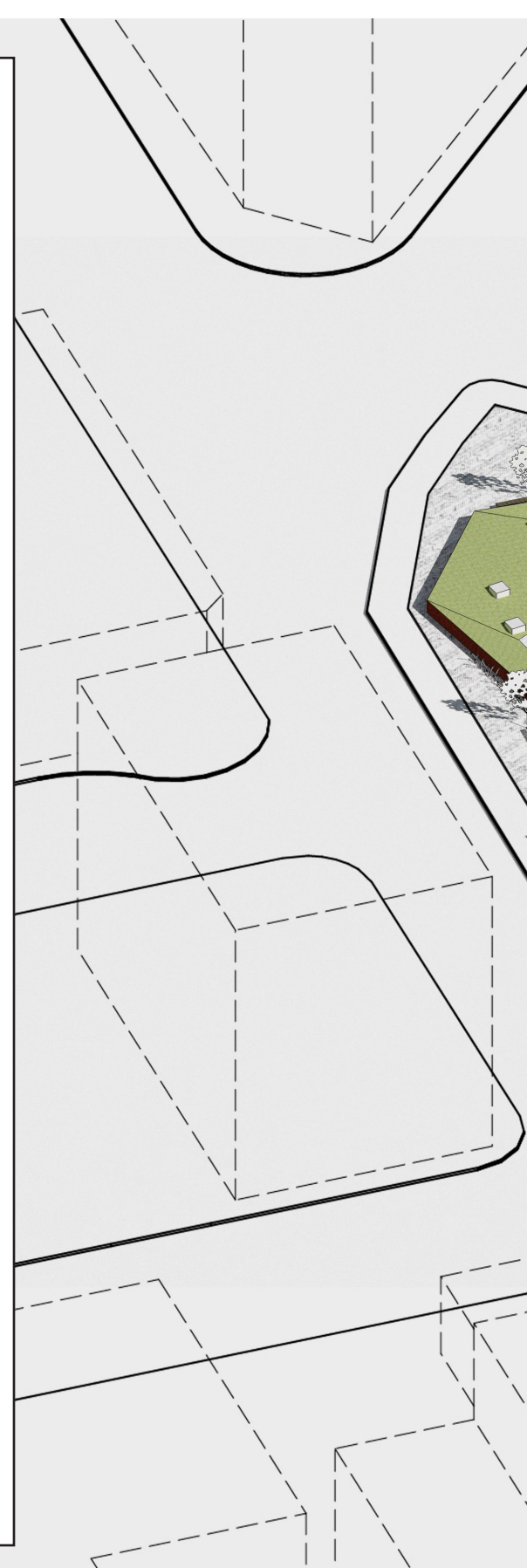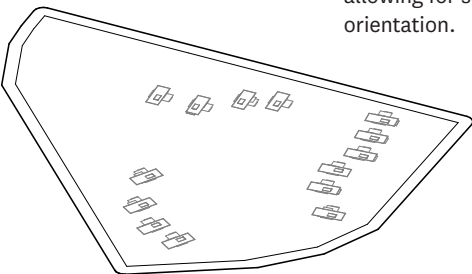
FIGURE 93 Site Axonometric
This axonometric illustrates the Winnipeg Entrepreneur Park with a full capacity of trailers. Density of the UTP would change over time based on the success of the experiment.
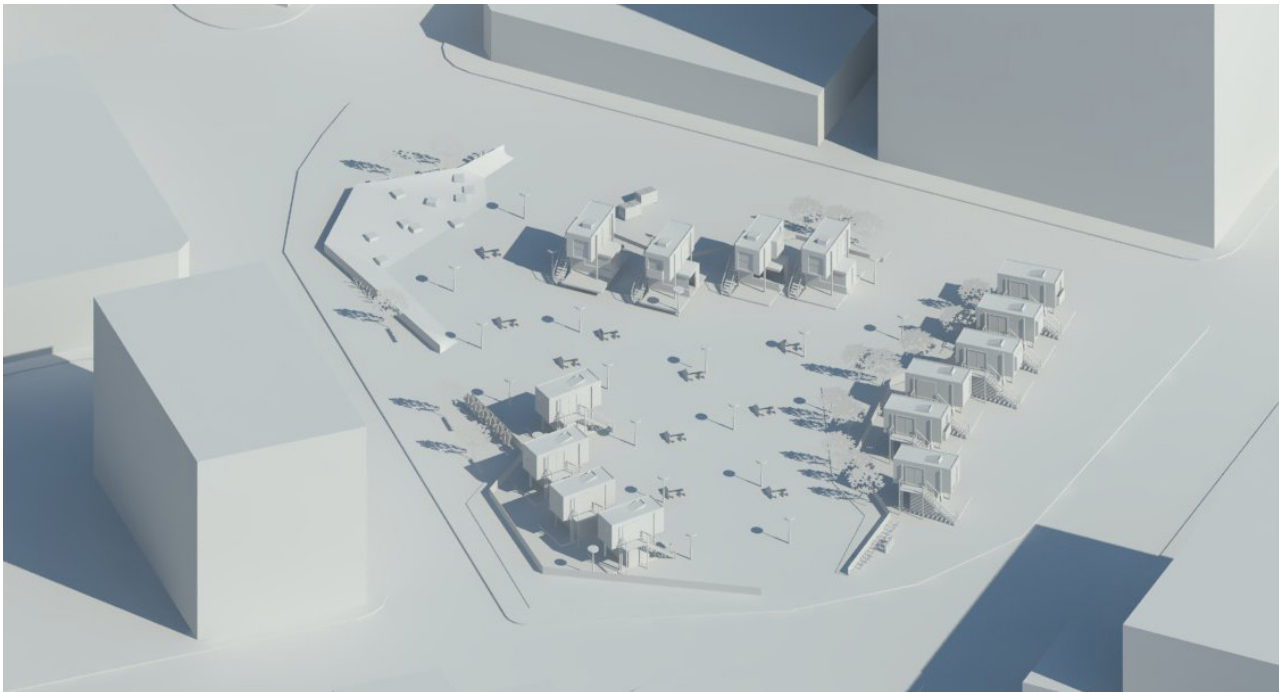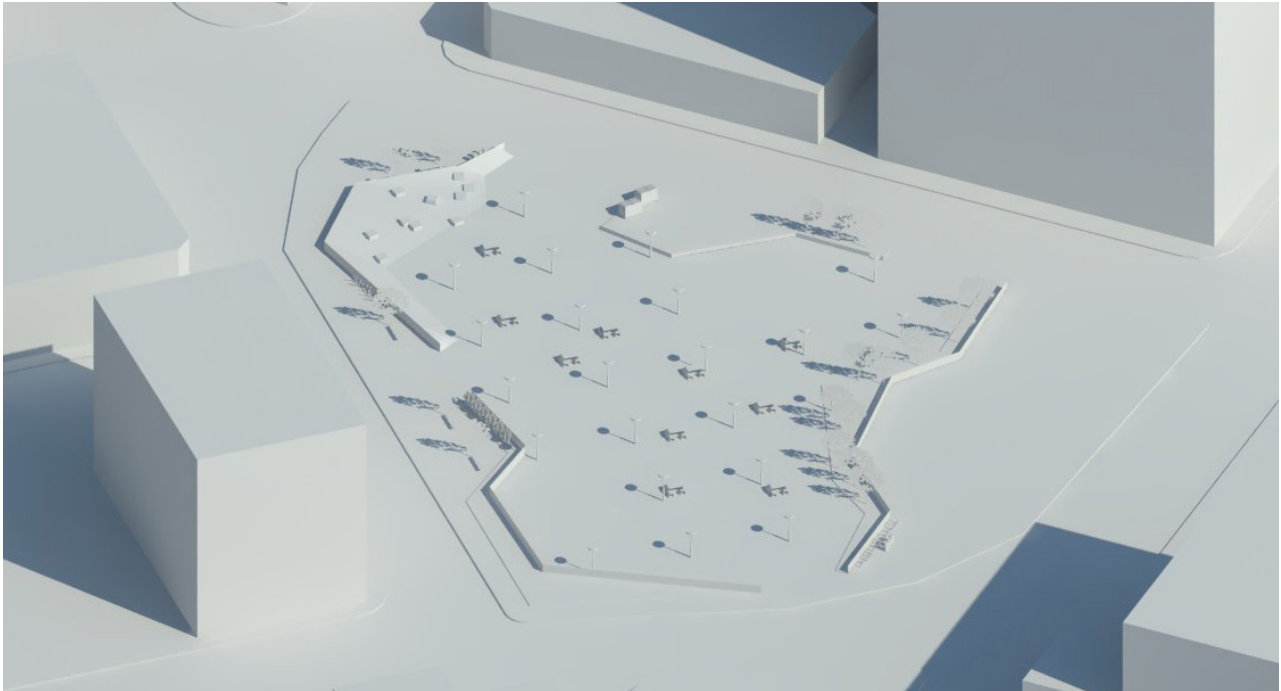
FIGURE 94 Urban Square (Top)
The Winnipeg Entrepreneur's Park without any trailer units, acting solely as an urban square. The site could return to this state if the park is sold back to the city.

FIGURE 95 The First Renters (Bottom)
This is the maximum capacity of the UTP. This is so that it remains an inviting public space.
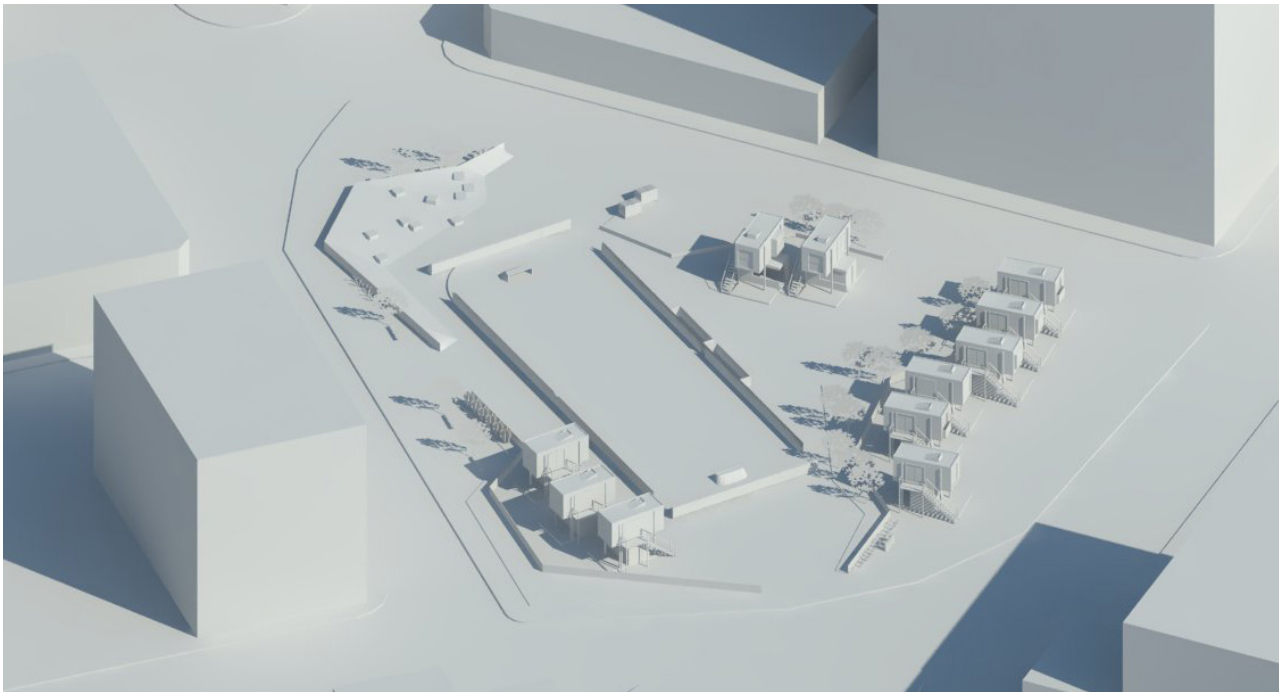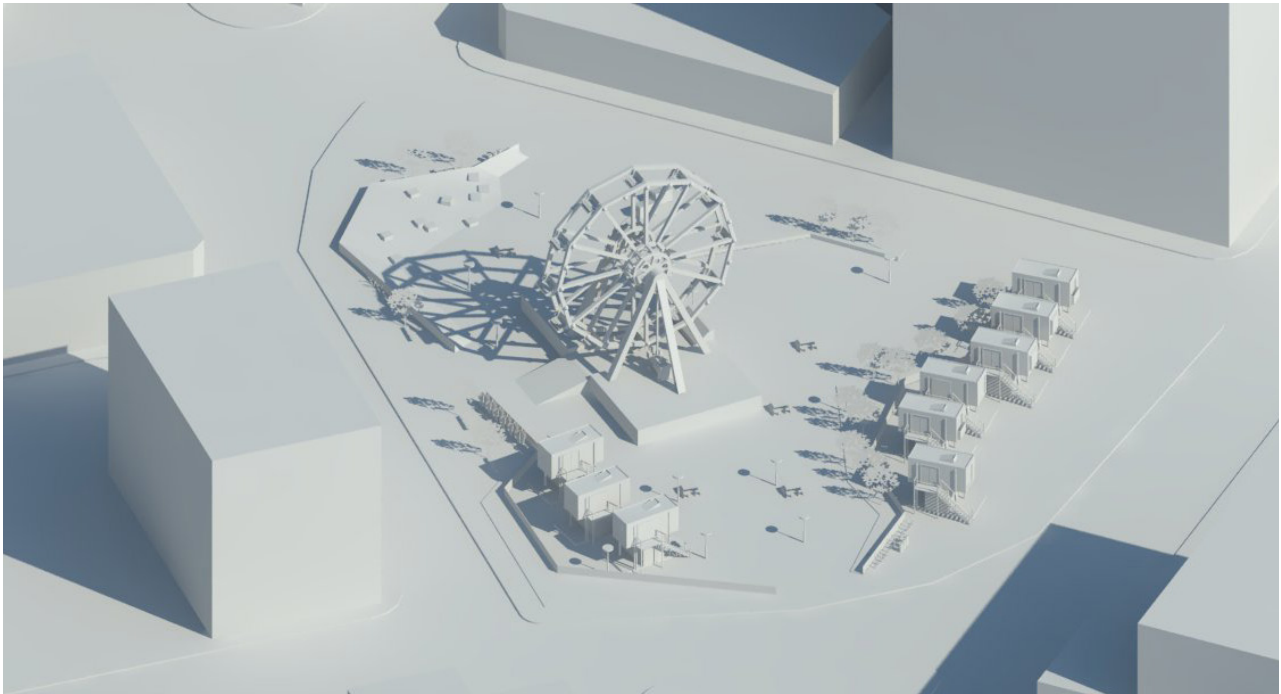
FIGURE 96 Summer Event (Top)
With the center of the urban square populated by removable objects such as picnic tables and plug in lighting, large installations can be brought into the square to host events.

FIGURE 97 Winter Event (Bottom)
The urban square could potentially host a winter program, such as a temporary skating rink. Instead of downtown workers using the square for lunch, they could use it for mid-day hockey games.

FIGURE 98 View from the Sidewalk (Top)
The undulating garden wall/utility wall of the square creates smaller niche parks along the sidewalk edge.

FIGURE 99 Amphitheater (Bottom)
A bermed hill at one end of the site forms a casual amphitheater for watching live performances or lazing on a summer day.

FIGURE 100 Food Vendor (Top)
An entrepreneur pod converted into a gourmet hot-dog stand serves lunch-time customers in the square.

FIGURE 101 Night Circus (Below)
An urban event takes over the Entrepreneur's Square. Light-standards and picnic tables are removed so that installations, such as the ferris wheel can be brought in. Some of the shops may provide speciality items catered to a specific event, or stay open later to take advantage of the exposure.

CONCLUSION

The pressures of ICTs have increased the migration of knowledge economy workers. Within this environment, the fetishization of micro mobile homes has stemmed from their association with freedom and economic efficiency. Drastic increases in housing costs have resulted in altered views on what is desirable in a dwelling, with many home owners looking for a way out of the traditional model. Downsizing is seen as way to decrease costs – extra square footage is an unnecessary luxury. And material consumerism is of less ideological importance. As a recent tiny-house convert puts it, "[d]o you really want to spend your time working at a job you hate to buy crap you can't afford?"[1] One's housing choice is seen as a way to procure freedom. By living in a tiny house one can supposedly pursue their career dreams, travel, and find their authentic self. However, there is a significant gap between the glowing-faced idealists who have disburdened their life of excess, and the reality of micro-mobile homes as a convincing model of home-ownership.

The appeal of manufactured mobile homes and their consequent lifestyle is not unfounded. Such a design scheme has fascinated architects and enthusiasts for over 100 years. And many believe that they could provide a necessary alternative to the static house market. As I complete this thesis, the possibility of a mobile future seems to be more and more plausible.

Kasita, a company based out of Austin Texas has proposed an apartment made out of mobile units. From the renderings, the shipping container-sized units could be moved from city to city on the back of a semi.[2] Without much description of how this is possible, the website promises the arrival of this housing type by 2016.[3] As I have stated earlier in my writing, I am not convinced of a mobile housing model which is overly infrastructurally dependent. Stacking actually limits flexibility by creating an additional barrier to mobility, and density can be achieved without this act of stacking through the tight packing of units in a single layer. But regardless, this project shows mobile homes have a market and an appeal; so why don't we see this model proliferating as an efficient and economical way of living throughout urban regions? I believe the barrier to the placement of mobile dwellings in cities is an issue of municipal regulation.

Cities have a contentious relationship with mobile homes. Almost from the time of their inception, at the end of the Second World War, their form has been stained with a negative stereotype and deemed undesirable in cities. Trailer parks were zoned into the least accessible, read low motility, areas of the city because of their second rate status. This undesirable location paired with their economy meant that they were largely adopted by low-income demographics. Mobility introduces several problems in a municipal environment. Because mobile

1. The American Dream Is Alive—and It's Really, Really Tiny, dir. Christopher Smith and Merete Muller, The Atlantic, June 03, 2014, accessed November 25, 2015, http://www.theatlantic.com/video/index/372029/the-american-dream-is-alive-and-its-really-tiny/.

2. "KASITA," KASITA, accessed November 25, 2015, http://kasita.com/.
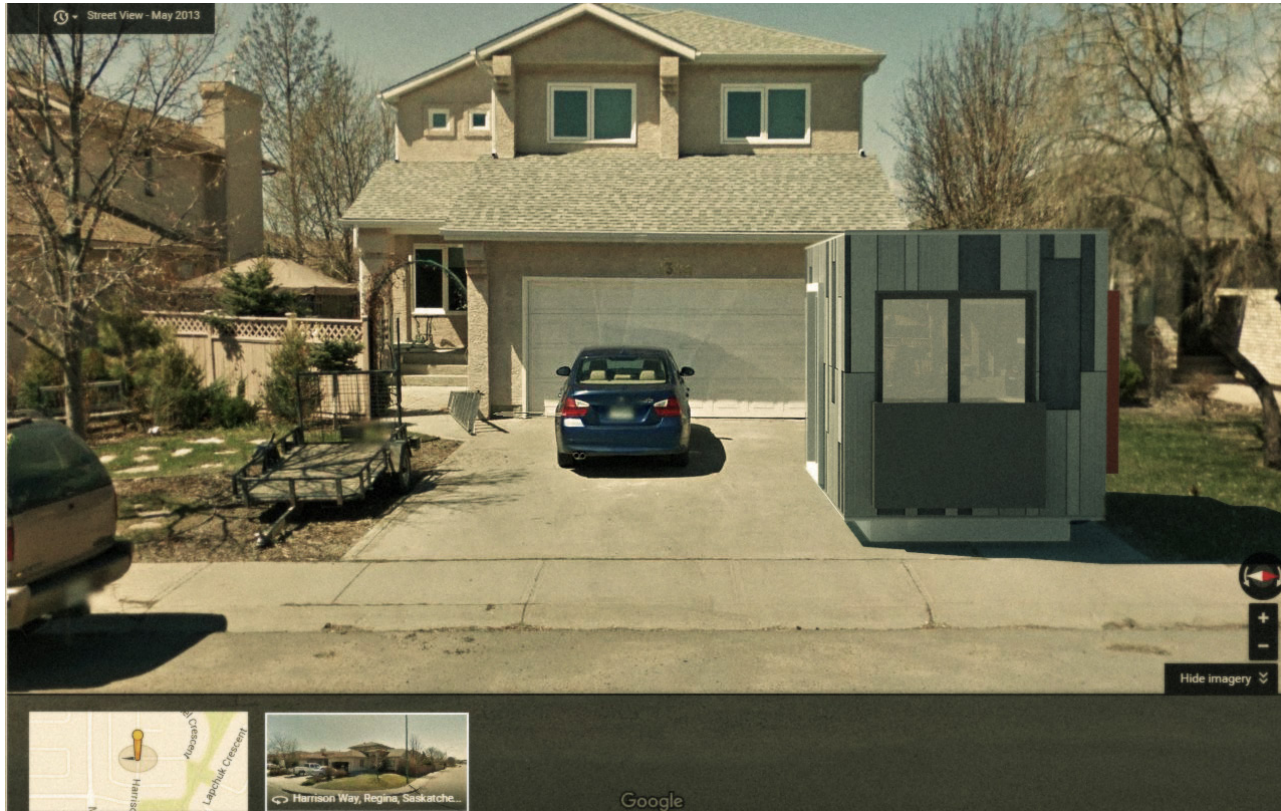3. Ibid.

FIGURE 102 Mobile Housing in the Suburbs
House-craft could also be used to expand the living
arrangements of suburban houses. A house-craft
on the driveway could provide a private space for a
young person returning home or an elderly parent.

houses can move they cannot adhere to all building ordinances at once. They must have a separate code designed specifically for their unique form and use as a hybrid living space. Secondly, because of their transportable nature, they are difficult to place within the zoning of the city.

Residential neighbourhoods are unwelcoming to mobile homes due to their aesthetic unfamiliarity, and their small square footage which makes it difficult for municipalities to achieve satisfactory property taxes. Finally, the placement of parks becomes difficult because the fear of blighting increases. Mobile home architecture conjures fears of disuse and decay, and unease over the appearance of an unprecedented typology. To calm fears but still allow mobile homes, such urban encampments seem to require some sort of overall management / ownership to provide regulation– but who will take this on?

Without some sort of rallying voice outlining the possibilities found in mobile living, I don't think this unusual type of neighbourhood will find its way into cities. Perhaps this voice of support can come from the multitudes who have been voyeuristically observing the Tiny House Movement from their laptop screens; dreaming but not acting. There is enormous power in collectives brought together with a shared idea. A network of interested individuals, made possible by this generation of ICTs, could make something like this possible. Or perhaps, it's through the eventual normalization of the idea by many different companies pushing their own version of mobile dwelling. I believe that the largest potential for the future of mobile living will be found in creating a universal standards for mobile urban living (unit design and trailer park designs), allowing for the greatest flexibility for dwelling within that system.

The design portion of this thesis attempted to answer this issue of integration – how can neighbourhoods of mobile dwellings exist harmoniously in our urban centers? One of the opportunities explored was the potential to occupy sites temporarily. This low-impact occupation of a site allows for continuous testing and recalibration. Design then becomes less about detailed, concrete programmatic functions, but continuous repurposing of space to create an urban landscape that functions in an acceptable manner. From these initial tests, UTP will begin to

find their niche in the city. Whether it's in the final form that they begin to resemble micro-suburban neighbourhoods with lawns, sidewalks, and parking; or if instead, they begin to push the boundaries of traditional planning and develop unconventionally. From this standpoint, I find the most simple trailer park design, the Cambridge Economy Park, the most compelling. It allows for continuous re-organization, doesn't take much initial investment, and can easily be relocated from site to site. The medium and high-investment sites were an attempt to investigate a different approach to the system. However, as the utility and amenity provision becomes more complex, the planning potentials are limited. Whether they are eventual evolutions of the system can only be speculation, but they were an attempt to investigate possibilities. The Kitchener Start-Up Park investigated a more advanced utility provision with a more intensive organizational structure for units. The Winnipeg Entrepreneur's Park investigated the sharing of urban space with residential program. But the latter two examples require a greater effort to instigate development when compared to the relatively simple Cambridge Economy Park.

House-craft would achieve the greatest flexibility if they were welcomed everywhere. If the micro-units were allowed to occupy suburban driveways, they could extend the possible dwelling configurations for families. Although this thesis focused specifically on the Millennial struggle with housing the methodologies of house-craft can easily extend to individuals in all stages of life. I began with Millennials because of my familiarity with their particular housing needs, and because of their optimism, curiosity, relationship to ICTs and obsession with freedom. However, turbulent conditions occur throughout people's lives: the loss of a job, the loss of a partner, an illness, old age, low income, immigration from another country or even the simple desire to unburden our lives and restart. I believe this housing typology would be useful to many demographics. But, I believe it is the Millennials who can create a ripple effect with such a project, opening the doors to all generations who could view the benefits they are experiencing. Millennials are now at the age where they are becoming independent in the modern world – it is within their ability to change the model for the next generation of housing.

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