THE CON-TEMPORARY HOUSE:

The Process Towards an Individual Home

By

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Technique is purely individual—it is a personal means of expression.

—Unknown

ABSTRACT

The unique characteristics of each family is present within their individual evolution over time. The house, which provides shelter, is a fundamental building block as this is the space in which the development of lifecycles occur. The spaces within the house can be utilized in unique ways according to its users, as its main function of shelter is adapted differently as there is a change in family types over time. The house has a great importance in shaping the spaces experienced by the individual family.

As the spaces within the home constantly change, the notion of time and flexibility within space plays an important role in design. If time can be divided into periods, then it can be said that time relates to the idea of process; this process is shown through the changes of periods preceding the next. Each period, defined by distinct features such as ideas about the family, social status, working life, demographics and economic change, displays a sense of transformation through

out the passing of time. Family life is affected by these features and plays a role in the design of the house; the changing family structure in contemporary life influences the need for adaptability within house design. The evolution of these features links the periods through the notion of the contemporary.

Is there a strategy for designing a contemporary house which can be suited to the individual family growing through the progression of time? What is/are the design elements that become key details for a flexible structure which is capable of modifying itself into a *home* for families as time passes? Adaptability becomes the main focus; the detail for adaptability is in the joints which then connects spaces to be customized to the individual family, redefining itself through time.

A look into the evolution of the house and design approaches based on modern trends will act as a starting point for determining a design strategy, as these trends allow for a sense of distinction within time. The details will initiate an adaptable

design strategy and will serve to display and demonstrate a sense of the contemporary; this will enable the design of a 'con-temporary' house that will be completely unique to an individual family transforming, yet is able to transform over the progression of time, to adapt to growing and new family needs. In this sense the house is both contemporary to the present needs and temporary in the sense that it is capable of adaptations.

To approach this specific design question a series of case studies were examined to establish that each family is unique and may require a different process of arranging spaces within their lifecycle. Later, this idea of unique lifecycles was thought of when determining a strategic plan for designing an adaptable home. This strategic plan utilizes the concept of adaptability within designing space and the process of assembly and disassembly of single components to create a whole volume allowing for the possibility of individualized spaces.

TABLE OF CONTENTS

Acknowledgements

Abstract

Introduction

Time and the Contemporary

Housing Precedent Studies

Designing for the Infinite Ways we Live
Designing for Trends
Designing for a Growing Family
Designing for What Comes Next
Designing for Individual Adaptability

Housing | House | Home

The Importance of the House
The Individual Family
Space in a House
A Brief History of Housing Types

Influential Concepts

Concept of Unity and Individualism
Concept of Process and Order
Concept of Cradle to Cradle
Concept of Linking Components
Concept of Off-Site Fabrication
Concept of Assembly and Disassembly

Concept of Infinite Formations
Concept of Individual Adaptability

Design Concept for the Con-temporary Home

Adaptability
Individual Adaptability
Designing with Details

Design Process

Methodology
Techniques
Strategy

Project

What is Different?
Site | Siteless
Spatial Forms
Components
Assembly | Disassembly
Adapting to the Individual Family
Adapting to the Site

Conclusion

Adapting to Time

Postscript

Appendices

Bibliography

Image Index

For our house is our corner of the world. As has often been said, it is our first universe, a real cosmos in every sense of the word.

—Gaston Bachelard (*Bachelard 1994: 4*)

INTRODUCTION

Housing, house and home; all terms might seem to suggest at first the same meaning, right? Not exactly. The terminology used can suggest a different type of dwelling, and possibly suggest the type of neighbourhood in which it is situated in and how that neighbourhood can progress over time. How is the terminology used able to describe the community type? When housing is mentioned an organization of a community with multiple units might be thought of where as a house could suggest a single unit for anyone and a home might suggest an individual private unit for a specific person or family. How are these spaces different and what are the influences in determining the characteristics within the spaces? Are current trends the more dominant influential design source or are conditions from the past more influential, and what forces in

action determine that? Regardless of what term is used, the intended purpose for each points to the same general function; this man-made fundamental building block provides an essential daily need for shelter.¹ As shelter is a basic human need, the terminology becomes significant when trying to determine the position it plays in the progression of time. When thinking about the traditional idea of a family the terminology best used to describe this shelter would be home; a home possesses a personal quality that is unique to the individual. The progression of time proposes that there is a also progression of housing, a house and a home.

Zooming from housing to house, we focus on the single home. Firstly, the house is designed for shelter; this basic enclosed box serves as protection from the elements. Secondly, the

¹Riley 1999: 9

house should be suited for all daily rituals and be utilized as a functional environment to live in. The organization of spaces within the house are based on the way in which we live. The private rituals are assigned specific spaces while the public rituals are designated to take place in another. As time passes, society changes, technologies advance, economy becomes a concern and environmental consequences of design become more clear. As a result, family structures evolve to respond to these changes, affecting the way in which people live creating an essential need for adaptability to identify a role in the design housing.

As the world is evolving, the house can be representative of the time, place and culture in which it was built from conditions responding to this essential need of adaptability. These conditions associate the house to a time to the degree that the house then becomes a time capsule for past modern trends. Avi Friedman, Architecture Professor at McGill University, de

scribes the conditions of adaptable housing as the “result of a fundamental paradox.”² He states that:

The conditions that have brought about a need for housing adaptability are, in fact, a result of a fundamental paradox. Homes are designed and built at a particular point in time, characterized by particular tendencies and technologies. As time progresses, the factors and decisions that shaped the original design become increasingly dated. A process of keeping up with change—either in the lives of the occupants or in the realm of technological innovation—inevitably begins upon occupancy.³

A constant change of modern trends prohibits the house from progressing gracefully within time. Although modern trends possess the ability to have great influence on design, the ‘modern house’ only becomes unique to its current time, and may limit the functionality of spaces for the growth of the family. The idea of a process of keep up with change beginning through occupancy, can influence a strategy to incorporate

² Friedman 2002: 4

³ Friedman 2002: 4

the need of the house to adapt with time. The notion of the contemporary can be the next step in defining a strategic plan to fit adaptability as the contemporary suggests something that is transformable over time.

Cultural conditions, demographics, family life, work, technology and social phenomena are all allowing for a change in the way architects design houses for the contemporary family. With everything constantly changing, can a house ever be defined as contemporary? Or has time created a notion of the contemporary modern in the sense that something can remain current past its present time? In other words, what is contemporary housing, the contemporary house or the contemporary home?

The aim of this thesis is to develop a strategic plan for designing the Contemporary House which is unique to the individual and can function through the progressions of time, all while

maintaining the idea of unity within the public realm. Applying adaptability to unity in the public realm would involve designing the house to not only be individual to a specific family, but have the ability to become specific to the next families who inhabit the house as time progresses. This consistency of adaptable houses in the public realm would set the premises for the ability of the individual family to make any house unique to them. This idea of the house being unique to the individual can be classified as the private custom house. The private custom house is considered a specific type of house for a specific type of person,⁴ or in other words, the private house is made unique to the individual family which can then be classified as their home. To narrow this thought, we should think about the concept of the house and determine how it relates to the idea of time, individuality, space, and how it evolves through design.

⁴ Riley 1999: 9

When looking at the basic idea of a house as a fundamental building block, the idea of this being unique to an individual can be made possible through customization. A house can be personalized to an individual family through the use of materials, colours, floor plans and size. Even multiple houses with the same floor plan can be made custom to an individual family through small changes in materials. With these personalized characteristics in a house, there are still key elements in the house design that are consistent amongst different family types. These consistent key elements are seen in the rituals of daily life. The rituals, such as eating, sleeping, bathing, or gathering, are organized into room types classified as the kitchen, dining room, bedroom, bathroom and living room respectively. Can these elements be incorporated into a strategy for designing the 'con-temporary' house which can then be classified as both unique to the individual and have a consistency within the public realm? If the use of common building materials, such as the '2"x4"' and plywood, as well as existing

building methods, can be used as an initial starting point for the construction of spaces, we can then look at the daily rituals which determine these spaces and see how they can be easily changed to meet the needs of each individual.

Taking a look into the influences for house design throughout the century, and the evolution of the house will act as a starting point for determining design elements which can define both the contemporary and the individual. This will reveal what trends have lasted over the years and what has changed. A question to think about is; what influences the design of the home? Trends in house design have evolved from influences such as cultural conditions, demographics, family life, work, technology and social phenomena. An investigation of the transformation of the house reveals the forces behind past design influences.

These influences— cultural conditions, demographics, family life, work, technology and social phenomena—in design are ongoing and will continue to affect the architectural elements

which define house design. As time changes, people start to outgrow their homes and move on to something that is more current which may better fit their needs. Alternatively, they might attempt renovations which can become quite costly and possibly take more time than available. The changing influences which are key to house design should be used as positive elements for developing a strategic plan for a design process which will enable families to stay in their home and have the ability to live within a design that easily changes with the time and their personal growth. Could it be possible to have the house constantly changing with time as opposed to the people? This type of a house would need to be easily adaptable to changing spaces with the possibility to grow on-site without major difficulties, or delays. The idea of prefabrication comes to mind when thinking about affordable and easy custom assembly. How can the idea of prefabrication be adapted to suit more than just one house? Could the idea of mass customiza-

tion come into play through the use of a universal set of parts, like the '2"x4"' and plywood? Could a custom assembly system be designed to allow the house to adapt with time?

After thinking about the specifics of the house and the process tied to design, the question then becomes ***can there be a home that can grow and change with a family's evolution personally, socially and economically, and that can adjust to any and all needs within all stages in the family's lifecycle?***

While many have approached this problem from a variety of perspectives this project specifically utilizes the concepts of adaptability, mass customization and the capacity of individual units to be altered based on homeowner specific needs due to their family lifecycle to create 'the contemporary home.'

Using the concepts of prefabrication, modular design and

multifunctional spaces 'The Con-temporary House' allows the family the freedom to evolve in their own space in their own unique way at the time necessary to meet their own needs.

This thesis will attempt to define a possible method of construction offering one possible response to this thesis question and introduce details that will allow the house design to respond to more than just a basic human need; the house built with universal parts will become a home though the process of its adaptable connections designed through the idea of mass customization. This design method will act as an alternative solution to transforming a house into a home which is completely unique and has the ability to easily adapt to an individual family as time passes. The spaces required by each individual family within the home becomes important when determining the arrangement of components for a house which would be individually adaptable to that family. The focus will

be set on the process of design and how that will translate into spaces; details will be the key driving forces which will aid in the execution of the home through the process of assembly and disassembly.

What does it mean to be contemporary?

—Giorgio Agamben (*Agamben* 2009: 39)

TIME AND THE CONTEMPORARY

CONTEMPORARY—*con-* 'TOGETHER WITH' AND *tempus, tempor-* 'TIME'

“What does it mean to be contemporary?”.⁵ Does the definition of the contemporary slightly differ depending on that of what it is describing? How can the notion of the contemporary be defined in its most simple form? From the mid 17th century, the word contemporary is derived from medieval Latin *contemporarius*. Here we can start to see the beginning of its meaning from *con-* ‘together with’ and *tempus, tempor-* ‘time’.⁶ From this we can see that the answer to the meaning of the contemporary can be found through the understanding of time.

⁵ Agamben 2009: 39

⁶ Definition of Contemporary in English <http://www.oxforddictionaries.com/definition/english/contemporary?q=contemporary>: Nov. 2013

In Western history, time is broken down into what could be defined as “slices”, which is what is known as epochs. Each epoch, distinct in its own features, corresponds to different worlds which present a certain unity.⁷ These worlds—Oriental, Greek, Roman and Germanic—exceed one another through time and are organized geographically from east to west.⁸ Each epoch is like a new stage of events, or a step that is taken in order to proceed through to an end. The steps, each defined by its own distinct features, are a process and therefore must progress from one to the next in an order which identifies them collectively as a unit. This continued progression regarded as a unit can be understood as time.

The understanding of time helps define the contemporary. One who is contemporary or something that is contemporary is one with the time and has the ability to change according to the conditions of the time. This ability to change defines the notion of the contemporary as adaptability or transformative

over time; the contemporary is ‘together with time.’ This suggests that the contemporary is not set to a particular period of time as it seems to adjust to every stage in time. If it does fit too well with a time, and is only relevant to that time, then it is not contemporary; maybe it is then classified as modern?⁹ This definition of modern also points to the understanding of time. The concept of modern suggests a break in the evolution of time where we are contrasting an archaic and steady past. As in the idea of an epoch being defined by distinct features, the idea of modern appoints two sets of completely different practices which must remain distinct to succeed.¹⁰ Something that is modern relates to the present time as opposed to the past; it is distinct from epoch in the progression of time. Once time proceeds through stages, something that was once modern is no longer contemporary.

Back to the initial depiction of the term contemporary—con- ‘together with’ and tempus, tempor- ‘time’—we can see that

⁷ Agacinski 2003:3

⁸ Agacinski 2003:4

⁹ Agamben 2009:41

¹⁰ Latour 1993: 10

the notion of something or someone who is contemporary is 'together with time'. Something that is contemporary does not connect itself to a specific time (referring to an epoch), however it does have the ability to adapt with time in general. It is not only relevant to a specific time however it can break up time and change to be in relation with other times, allowing for a connection through adaptability within the progression.¹¹ The contemporary contains embedded within itself a notion of adaptability. To be adaptable means to be modifiable, which is like contemporary time transformed through its own passing and occurrence of time.

¹¹ Agamben 2009: 53

I soon became susceptible to constructive patterns evolving in everything I saw. I learned to see this way and when I did, I did not care to draw casual incidentals of nature. I wanted to design.

—Frank Lloyd Wright (McCarter 1991:9)

PRECEDENTS

The precedents chosen for this thesis were based on the focus of designing for something specific in terms of the house and the family. The chosen houses represent the ideas of contemporary life and individualizing the home for specific family needs.

ONE
An exhibition at the Museum of Modern Art in New York called The Un-Private House displays a series of houses with unique characteristics in relation to the idea of privacy. These houses were designed with the focus on thinking about the infinite ways in which one lives and how the ideas behind public and private spaces can affect design.¹² This precedent was examined based on the fact that it was designed for a specific cli

¹² Riley 1999: 6

ent who wanted to live a contemporary life. The spaces in the house were designed with the intent to provide many different ways to live in the house.

TWO

The Arts & Architecture magazine initiated a house study program in 1945 called The Case-Study House Program. This study was influenced by the need for low-cost housing which could actually be built for specific clients. The architects who participated in the program were meant to design houses which would offer the public a possible response to the current issue involving housing shortages.¹³ This program was influenced by the need for low-cost housing which could be built relatively quick and could be custom to the individual.

¹³ Smith 2002

¹⁴ Gianni 2013: History of Modern Housing, Lecture 11

¹⁵ McGill University 2002: 1

THREE

Next, the notion of a general style is examined as opposed to a specific house. The Cape Cod Style House was developed for the growing family. It's simple construction and position on the lot allowed for future expansion when needed.¹⁴ This house type demonstrates the early need to changing spaces as the family grows.

FOUR

The last precedent offers a house that includes elements of efficiency through energy and space, as well as the flexibility in interior design. The Grow Home, a research project by Architectural Professor, Avi Friedman, at McGill University, is a model for sustainable living and soon became a reality for the growing population of Montreal.¹⁵ This housing type becomes key for providing affordable housing which offers choice to the homeowner in terms of flexibility in design.

DESIGNING FOR THE INFINITE WAYS WE LIVE

ONE

The Un-Private House exhibition at the Museum of Modern Art is an exploration of the residential architecture of homes from as early as 1934. The houses in the exhibition can be seen as the starting point of various architectural debates of the twenty-first century. These debates include the ideas of change within the domestic household, evolving lifestyles and how they affect housing. The exhibition displays a variety of houses which demonstrated the infinite possibilities of ways in which we live. The idea of “seclusion from the public realm”¹⁶ as the main role of the single family home is suggested by Terence Riley, the chief curator of architecture and design. This idea can shape the concept of the house in a way which completely changes the typical house design.¹⁷ Shigaru Ban, Architect, demonstrates this idea of the option

plete privacy in The Curtain Wall House. A house on a corner lot which allows for both complete privacy and open flow to the streets.¹⁸

FIGURE 1

¹⁶ Riley 1999: 6

¹⁷ Riley 1999: 6

¹⁸ Riley 1999: 16

CURTAIN WALL HOUSE, Tokyo 1995 – Shigaru Ban

The Curtain Wall House is located in a dense residential neighbourhood in Istabishi-ku, Tokyo, Japan. The three storey house is found on a corner lot and consists of an open floor plan enclosed by a curtain. The clients wished to live in a house built with contemporary materials, which created the openness and freedom associated with contemporary life.¹⁹ The openness and freedom of spaces requested by the client suggested that they wanted the ability for the functions within the house to have the capacity to change as they needed. This need for adaptability in the functioning of spaces was something that the family viewed to be very important and a driving force in the design.

¹⁹ Riley 1999: 72

FIGURE 2

The project is a transformation of a pre-existing Japanese-style residence. The house not only adapts to such a small footprint, it can be manipulated to change the degree of privacy and the quality of the interior spaces. The fabric curtain, which spans the second and third floor, replaces the usual lightweight partitions in a traditional Japanese house. This curtain can be opened or closed to alter views and control the effects of light and wind. In order to close the house in and make it private, one must draw the curtain around the multi-story space. When the curtain is open, all the workings of the home are revealed. This is an extreme dwelling with an apparent simplicity that confounds its real meaning. The openness of the shared spaces, including the bedrooms, contrasts with the enclosed functional spaces, the bathrooms, studio and stairs. These 'private' areas are all confined to more organic spaces at the rear of the house. The Curtain Wall House calls upon structures of the past; tents and huts, all enclosures that

are made of fibres or natural materials. This house displays a taste for the surreal through the disorienting idea of a "curtain wall" while maintaining its connections to local techniques.²⁰

This house is an example of how there is a desire for the spaces within a house to be designed in a way which allows for many

FIGURE 3

FIGURE 4

²⁰ Riley 1999: 72

possible uses. The changing quality of interior spaces creates a flexibility through the simplicity of a curtain wall. This house accomplished the easy manipulation of a space without actually changing the structure or form; the spaces are simply altered through the idea of privacy and letting the public in. This house has connections to past house structures, however it does not easily relate to common building techniques as this 'curtain wall' system is not very common and would not work in a multi unit housing complex or in certain climates. This technique for adaptable spaces does not address the consideration for the expansion of future rental income units or the expansion/reduction of space for changes in the family. The form of the house is based around the idea of the 'curtain wall' defining interior spaces which limits the adaptability of the house in other aspects such as future growth. This project was client driven, suggesting an overly personalized house which may not succeed in the functioning of other family life cycles.

FIGURE 5

DESIGNING FOR TRENDS

TWO

The Case Study House Program was initiated by the Arts and Architecture magazine in 1945 in Los Angeles. The motivating force behind the Case Study Houses was John Entenza, a champion of modernism and editor of the magazine. The program enlisted American architects to respond to a current trend and propose a house design. These architects, who were committed to experimental modes of residential design and construction, were to design low cost experimental modern prototypes of housing to be built for actual clients. When the program ended in 1966 there were 36 designs. However, not all designs had been built due to a lack of clients or space to build.²¹

The houses in the Case Study were not solutions for typical living problems; they were an attempt to individualize homes

for each client while keeping in mind the trend for low cost housing. The houses were meant to function so they could be completely used; these homes were intended to be an integral part of the living patterns to the occupants.²² The houses built used donated materials from industries and manufacturers, however shortages of materials or difficulties during construction, the design was often changed resulting in the architects' original vision changing as well. A well known example of a Case Study house is The Eames Houses, Case Study #8. The best known houses in the program are those made of steel and glass like that of the one by Charles and Ray Eames.²³

²¹ Smith 2002: 8

²² Smith 2002: 92

²³ Smith 2002: 8

FIGURE 6

EAMES HOUSE, Los Angeles - Charles and Ray Eames

The Eames house, completed in 1949, was not only designed by Charles and Ray Eames, they were also the clients. They had the opportunity to modify the design during the construction process to maximize the spatial area. The Eames house demonstrated the use of technologically based materials through its use of industrial, prefabricated components mainly of steel and glass arranged in a modular, rectilinear system. Colour and texture was incorporated into the structure by Charles wife, Ray Eames, an artist and designer. The final glass and steel design consisted of two sections; double height pavilions adjacent to one another were used to create a residence and a studio/workshop. The married couple shared this seamless coexistence of a work and leisure way of life.²⁴ The house acts as a backdrop for life interweaving with work.

²⁴ Smith 2002: 88

FIGURE 7

The activities inside were more of a general nature allowing for relaxation and recreation through work, music and reading. The land surrounding the house is intended to be used communally with the Entenza house, designed of the same nature. Each house is oriented so that it has complete privacy from one another.²⁵

The Eames House demonstrates a response to the trend for low cost housing that could be individualized. This house, inspired by a modern trend, can be seen to have a sense of the contemporary as the interweaving of spaces allows for different experiences. The modular form of steel and glass creates a seamless interaction between the interior and exterior, and daily rituals between spaces. The materials chosen allowed for this low-cost need through the building method of prefabricated components. The position of the house on the site gives privacy from surrounding houses along with the ability to expand. This house accomplishes the ability of adapting

to a change in spaces according to materials, clients and site. The donated materials and prefabricated components created affordability and adaption to individual needs. Although the house is able to adapt to the growth of a family through changing spaces and expansion, it does not possess the quality to customize the exterior skin as the structure of steel and glass doubles as the cladding system. To re-dress the exterior skin the interior spaces would be compromised. This steel and glass structure may also not be suitable for certain climates as the thermal quality is limited.

FIGURE 8

²⁵ Smith 2002: 92

DESIGNING FOR A GROWING FAMILY

THREE

The idea of adaptability comes in many forms in terms of the house. In today's time, such trends as open concept, lofts, open to below spaces with double height rooms beneath and clean lines allow for flexibility within the house. The new house designs which follow these guidelines does allow for flexible design however it represents a sense of permanence due to the fact that renovations would call for actual demolition of spaces, walls, floors and roof, as well as time needed to accomplish this.

FIGURE 9

To address the idea of the contemporary, the design should neither perfectly coincide with the time nor should it completely meet the demands of the current trend. The Cape Cod House was developed during WW2 for the married officers housing as well as the veterans after the war. One known example of this housing type was located in Levitt Town, Long Island where a potato field was transformed to fit 17, 000 houses in a three year period.²⁶

This one and a half storey structure consists of four and a half rooms positioned on a 25' x 30' slab and located on a 60' wide lot. The public and private spaces are divided into front and back. The living and dining spaces are combined with a separate kitchen at the front while the bathroom and two bedrooms are located at the back. Originally the house was designed with only four and a half rooms, however there was a

²⁶ Gianni 2013: History of Modern Housing, Lecture 11

FIGURE 10

FIGURE 11

plan in the design for future growth. Two more bedrooms and a bathroom could be renovated in the attic along with a lot that allowed for expansion backwards as family needs change. A garage could also be added over driveways with additional bedrooms over the garages. Also, family room could be added out the back and an enlarged master with a bath above. These houses were inexpensive and small with room to grow, which mean that they were prefect for young couples. When children came along and when the breadwinners became more established, the family could then afford to adapt and transform their house to accommodate the changes. Simple wood frame construction was used as a means for this adaptability; it was much easier to renovate as opposed to brick. This house was designed for the growing family with an initial intent of the ability for the family to actually take pride in home ownership.²⁷ The Cape Cod House demonstrates how the public and private spaces can be shifted over time. This changing of spaces

creates a different atmosphere and ultimately a change in the function of spaces. The private spaces initially the back of the house can be replaced with larger living space (public) while the bedrooms (private) make the transition into the attic on a completely different level. The small foot print and cheap construction method allows the opportunity for ownership amongst younger or lower class residents. This affordability through the use of basic building materials and method of construction becomes an adaptable element in the sense of designing for future expansion. The unfinished spaces create the opportunity for future growth when the financial means were available. Although this adaptability in growth is the case, this house displays a sense of permanence because the growth or expansion requires construction and demolition suggesting long term investment. In some cases the cost and stresses of a renovation might seem more difficult than relocating to a home which already suits the space required by the family.

²⁷ Gianni 2013: History of Modern Housing, Lecture 11

DESIGNING FOR WHAT COMES NEXT

FIGURE 12

FOUR

As a result of social value transformations during the 1960s, a shift toward a change in lifestyle began to affect the way in which people lived. Avi Friedman set to define an architectural interpretation of these changes in the form of a design strategy for a house. The Grow Home represents a pursuit to define a process for design which reflected current trends, history and strategies in construction to make a house affordable and fit all family types.²⁸

The typical 'breadwinner father,' a 'homemaker mother' and dependent children family type commonly known following the second world war shifted toward a non-traditional family. This shift was due to changes in the economy, technology advancing and family size reducing or being prolonged until later in life due of birth control.²⁹ Pursuing a good edu

²⁸ Friedman 2001: 4

²⁹ Friedman 2001: 3

cation also led to a change as this delayed marriage and the start of a family. The student loans after graduation meant less money for housing and women being required to work longer rather than starting families. The housing formulas would soon need to reflect these changes as the existing houses did not necessarily match the new needs of a family.³⁰

FIGURE 13

³⁰ Friedman 2001: 4

FIGURE 14

The Grow Home is a demonstration of how contemporary life can be incorporated into the design strategy of a house. The concept of the Grow Home was not new, however it was meant to use existing components in design and update them to produce new ideas.³¹ Friedman describes his ideas about the Grow Home:

I was once told by a former professor that the multi-faceted nature of an idea or concept was a mark of its richness. The Grow Home I believe, was such an idea. It provided the opportunity for further exploration that generated new ideas. The seed components of the design were not new; they had been investigated and built before. The narrow-front townhouse has been prominent in England and elsewhere from medieval times, and it has evolved since. The design of small homes for the efficient use of space and for ongoing modifications or expansions by the residents was also not unknown in both developed and developing countries. Many of these aspects were featured in homes of the postwar period. What we attempted to do was place these ideas in a contemporary context, updating them to the needs of today's society.³²

The design strategy for the Grow Home involved three layers which would be used to initiate the process of designing. Society, economy and the environment are major considerations in the concept of the Grow Home. Focusing on the shift in family lifestyle, the affects of affordability within families and the environmental consequences derived from housing were all driving forces in strategizing.³³

The foundation of the concept generated a perception of flexibility that needed to be placed on design. Along with the affordability of a house through cost-reduction strategies by reducing the size of the house, the Grow Home offered clients the option to personalize their home. This was made easy because of the use of prefabricated elements. The interior layouts and facades were interchangeable between different homes.³⁴ Narrow units provided the elimination of structure bearing partitions and gave way to flexible design in the placement of rooms. This enabled the accommodation of different

³¹ Friedman 2001: 169

³² Friedman 2001: 169

³³ Friedman 2001: 169

³⁴ Friedman 2001: 170

ditional and non-traditional, into the same development while allowing for easy adaption of spaces within the home based on their requirements without social separation. The balancing of options available for households was important in the achievement of functional ability between different families.³⁵ The ideas presented in the Grow Home inspired the Next Home; a house design strategy which would become the next phase. The planning of flexibility in a house through adaptable spaces and the addition of choices incorporated into the design became the groundwork for the Next Home. Adaptability and affordability were presented in the Next Home in different ways than the Grow Home. Since the Grow Home only offered small units to reduce purchase cost, the Next home gave the option of larger units. However the concept of affordability was brought into the Next Home through the idea that a household had the choice to only purchase one level. All three levels in the Grow Home were designated to one household,

³⁵ Friedman 2001: 6

FIGURE 15

FIGURE 16

where as the Next home offered affordability in another sense through this division of levels.³⁶ Choice was given though the arrangement of prefabricated interior components and facades, which also allowed the price to vary based on arrangements, as well as the choice of materials offered were considered based on environmental concerns. The Next Home offered a wider variety of adaptable elements which considered contemporary life and how this is incorporated in the house.³⁷

The Grow Home and the Next Home offer adaptability in the house design in terms of affordability, choice and flexible space arrangements. This was done through prefabricated elements, size, materials and the planning for future growth when constructing the house. They are able to incorporate the changes of the family and plan for the possibility of flexible needs. However, these homes present a restriction in terms of different volumes for the spaces to be arranged in. These houses

are all narrow in form with the only option to rearrange spaces within the volume and possibly extend back. Light entrance into the house is then restricted to the front and back, limiting the ability for some layouts. When designing these homes, consideration into the placement of windows and the size must be thought of for future division of spaces. This design strategy offers adaptability to a limiting degree; the household will still need to make a tradeoff for the amount of space given or the layout options based on the capacity for light.

³⁶ Friedman 2001: 170

³⁷ Friedman 2001: 171

FIGURE 17

FIGURE 18

DESIGNING FOR INDIVIDUAL ADAPTABILITY

As these precedents all suggest ideas of adaptability, the Con-temporary House aims to offer a slightly different take on this notion. Starting with the Curtain Wall House, we can see that adaptability here is presented within the interior spaces. The changing experience and functions of the space are very easily manipulated, however this is extremely temporary as it is only a curtain which has the ability to make these changes. The Eames House demonstrates adaptability early on in design through the construction of spaces. The spaces originally designed were required to adapt to the materials that were used, as they were focusing on low cost housing and were working with donated materials. The materials could be considered a determinant factor for the types of spaces created. Next, the Cape Cod House is adaptable in terms of affordability and the future growth within the space. The house was designed at a low cost because of the size, form and choice of materials, which then allowed for the growth of spaces as the family evolved. Lastly, the Grow Home, as well as the Next Home, introduced adaptability through choice, flexibility of space and affordability. Adaptability in this sense is still limited through the volume options and growth pattern being restricted to mainly the interior spaces. These precedents set a pathway into redefining adaptability in the 'con-temporary' lifecycle of individual families.

The Con-temporary House will aim to offer the notion of adaptability at a more individual level. As society continues to change, design concerns such as affordability, environment, social interactions, and family structure will need to adapt and adjust to these changes. The Con-temporary House will define a design strategy to incorporate these issues involving adaptability, while directing its main focus towards a completely custom home which can adapt at a multitude of different levels.

All architecture is coloured by the problem of the house.

—Jean Hélion (Riley 1999: 9)

HOUSING|HOUSE|HOME

THE IMPORTANCE OF THE HOUSE

Housing is one of the basic needs required by all humans. Each house provides an environment for a family to grow and evolve over time. This evolution of family structure shapes a house design and the spaces defined within. When taking a look at housing, and placing it into the greater scale of architecture, it is actually quite micro; it is physically small in relation to other types of buildings, which are commonly used to define cities. The house is a necessity for every person, in every city for the functioning of individual lifecycles amongst each family.

After the Depression changed the state of the population, reformers Edith Elmer Wood, Catherin Bauer, Helen Alfred and Mary Simkovitch, argued that it was the responsibility of the government to provide decent, affordable housing for

the poor.³⁸ This change in population became an interest to these reformers since it had allowed them to speak out and spread their concerns towards housing and what its purpose was in society. Looking more specifically into one of the individual's beliefs, Bauer, had hoped to promote widespread demand for not only economical housing but decent housing for all American workers. She stated that workers would have to organize politically if they wanted this government-sponsored housing to become a reality. Since housing is a necessity for everyone the opportunity for suitable, safe, and affordable housing should be given to them. Architecture and social experimentation were highly important interests to Bauer as she described housing as the bridge between architecture and planning. Feeling strongly about this idea of housing she pushed for government support to take control, in such a way that proper housing could be built.³⁹ Proper housing is a vital aspect for the development of society as it is importance in

human socialization, security or protection, and privacy; all of which are essential aspects of planning. These considerations help shape the process of growth in each family. The design of the house requires an in-depth look into social phenomena, as this influences the design of the house.

The design of a house focuses on criteria involving many aspects of family life. The choices made in the design of a house are based on the needs of inhabitants and how they might live, with consideration to the surrounding environment, cost, and its impact on social interaction. To understand the importance of the house in regards to an individual family, one must first understand the development of the definition of a family and the changes of individual lifecycles according to their response from changes in society. A house design is a response to the changes in society, which affect family structures.⁴⁰ Ultimately the strategies in a house design can assist in the planning of cities and future growth patterns.

³⁸ Wright 1983: 221

³⁹ Wright 1983: 225

⁴⁰ Friedman 2001: 3

THE INDIVIDUAL FAMILY

The perception of a family has evolved over time from what was known as the Nuclear or Traditional Family into a Non-traditional Family which is most common today. In earlier years, family life was separate from all other activities, resulting in a domestic way of life.⁴¹ This idea of a family has transformed; the typical family, known as the Nuclear Family, was comprised of a father(husband), mother(wife), and children. The Nuclear Family in the private house enforced a social order and a symbol of moral values; children were the glue that held the family together and played a role in the development of the private house. The idea of ownership was also of great importance. This inseparable bond between the family and ownership of the private house represented individual liberties.⁴²

⁴¹ Riley 1999: 9

⁴² Riley 1999: 18

Today the Nuclear Family is not necessarily as common. The Modern Family, or non-tradition family, consists of households where at times there is only one occupant or couples where children came later in life, if at all. The independence of women with a professional career and living on their own required different needs for living, such as less private space and less rooms. Some couples now have fewer children which means that they will spend less of their adult lives raising children.⁴³ Gaining an education to begin a career became important for both men and women, resulting in families forming later in life, if they even chose to do so at all. During the 1960's, there was an emergence of shifting moral values and lifestyles. The way in which people lived their life ultimately began to change; the domestic way of life was becoming less common. As people

began to change the layouts and functioning of rooms in their homes also began to change, as well as the way they began interacting with family and enjoyed their free time. These changes required the design of a house to consider alternate solutions to accommodate this change.⁴⁴

This change in family life suggests that the status of the typical family type is always changing. Population, cultural conditions, work, and social phenomena all account for evolving family types. This evolution of the family requires the notion of adaptability to be a necessity in design, as the house will always be important in the functioning of lives and defining cities.

⁴³ Riley 1999: 18

⁴⁴ Friedman 2001: 4

SPACE IN A HOUSE

To define the spaces within a house we must first acknowledge that there are different types of space. These different types of space occur both inside and outside. Starting with a macro point of view of the general public and private realms, we can start to break down the division of different types of spaces into their micro position, and their relation to one another. The conditions within these realms affect how we experience space.

PUBLIC AND PRIVATE REALMS

Both public and private realms have their own characteristics that define the types of experiences which take place there. These realms are used to describe space at a larger scale. Hanna Arendt describes the public realm in relation to politics and the private realm to the household, where these realms exist as completely separate since the rise of the city-state. As she refers to the public realm to that of the political realm the view of politics as a function of society reflects the types of space which occurs in the public realm.⁴⁵ All human life takes part in the functioning of society, and therefore the public realm is suggested to be a place of community assemblage to define the social realm. The private realm, as related to the family and the household, defines the individual aspects of society. Comprehending the difference between these realms can allow for the beginning of an understanding of the types of functions which take place in these spaces.

⁴⁵ Arendt 1998: 5

PUBLIC—*publics*, BLEND OF *poplicus*- 'OF THE PEOPLE', (FROM *populus* 'PEOPLE') AND *pubes*- 'ADULT'.

The term public is derived from publicus, a blend of poplicus 'of the people' (from populus 'people') and pubes 'adult'.⁴⁶ Through this definition of the public it is apparent that the focus for this term revolves around the idea of people. As in Arendt's association of the public realm to politics, it suggests the openness or exposure of a community, and that everything in the public sphere can be seen and heard by everyone.⁴⁷ This collaboration of individual people are combined to form a unit within society. Individual parts are joined as a whole in public spaces.

⁴⁶ Definition of Public in English www.oxforddictionaries.com Oct. 2012

⁴⁷ Arendt 1998: 50

PRIVATE—*privatus*- 'WITHDRAWN FROM PUBLIC LIFE', A USE OF THE PARTICLE OF *privare*- 'BEREAVE, DEPRIVE', FROM *privus*- 'SINGLE, INDIVIDUAL'.

If the term public suggest the idea of people as a community, then it holds true that as “distinct separate entities” the term private suggests something on a smaller scale than a community. The term private can be broken down into parts defining the ideas of seclusion and the individual. The oxford dictionary classifies the term private to be derived from *privatus* ‘withdrawn from public life’, a use of the past particle of *privare* ‘bereave, deprive’, and from *privus* ‘single, individual’.⁴⁸ As stated, this idea of the private is withdrawn from public life, or separate from a unit focusing on the single individual. Privacy can be defined as “ the quality or state of being apart from company or observation: seclusion.”⁴⁹ Arendt also refers to the primitive trait of privacy as being deprived of something. She describes this idea of man who is deprived of something is then not fully human, like the slave who is not permitted to enter into the public realm. This idea is no longer thought of because of the improvement of the public realm through modern individualism.⁵⁰

⁴⁸ Definition of Private in English www.oxforddictionaries.com Oct. 2012

⁴⁹ Riley 1999: 14

⁵⁰ Arendt 1998: 38

SPACES WITHIN THE HOUSE

These ideas of public and private can be seen in the spaces within the house. Gaston Bachelard states that “The house shelters day-dreaming, the house protects the dreamer, the house allows one to dream in peace.”⁵¹ Along with physical shelter, the house embodies the thoughts, memories and dreams of the people within. The binding principle in this integration within the house is day dreaming. Day dreams become important to the individual as they initiate questions regarding the spaces in which they occur. These questions focus on the size of space, or the smell and temperature, as well as any noises heard or objects defining the space. Here, in a day dream, space de-

fines everything.⁵² As space defines everything in a day dream, it can be noted that this space within the dream is defined by the individual. The individual is in control of the functioning of spaces within their home, and ultimately the day dreams are then an interpretation of their daily rituals in the space. Within the house there exists many spaces which can be interpreted and utilized in different ways. These spaces are important in defining moments of the individuals who inhabit them. There is a distinction between different spaces within a house and the rituals in those spaces. This distinction is between public and private spaces and how they are intertwined.⁵³ The pri-

⁵¹ Bachelard 1994: 6

⁵² Bachelard 1994: 9

⁵³ Riley 1999: 14

vate rooms in a house usually provide seclusion from the communal rooms. These private rooms include such spaces for the rituals of sleeping and bathing, whereas the public rooms provide spaces for eating, gathering and connecting spaces. The private spaces are most frequently used for the inhabitants of the house, where the public spaces are more commonly associated with the idea of allowing others in. Although there is this distinction between the opposite types of spaces, during the Middle Ages the public realm also had a presence in the house. During this time hotels were not common and therefore any family or guests, as well as servants, were provided

food and lodging. This public character in the house created rooms that were large enough to serve multiple functions such as sleeping, eating, entertaining, which was made possible through the arrangement of furniture.⁵⁴ This concept of intertwining spaces can be seen today though the idea of openness. The open concept allows for many rituals to take place in one area, linking the public and private spaces within the house.

⁵⁴ Riley 1999: 11

A BRIEF HISTORY OF HOUSING TYPES

The brief history of housing types reviewed here is looking specifically at 20th Century North America and the evolution of the single family house.

The common similarity in housing types during this period and in this culture and geographic context is that there is a distinction between the public and private spaces, however the location of these spaces within the home are arranged differently over time. The change of public and private spaces within the home responds to the current time with relation to the types of spaces utilized more frequently and according to the average size of family. Each stage in time demonstrates the development of family types through the design of the house. The design is meant to meet the basic typical needs of the average family during that time.

The evolution of housing types demonstrates the reconfiguring of spaces within the house based on personal and social changes. The public and private spaces were repositioned within the floor plan of a house as the needs of the inhabitants and the social and economic status changed the family lifestyle over time. This ever changing series of house types suggests a strong need for flexibility as family types and society are constantly changing. The house should act as a functional development of space which changes according to time.

THE BUNGALOW

TYPE
ONE

The first housing type, known as the Bungalow, dates back between the 1900's and 1930's. This one storey structure is narrow in form with the narrow side facing towards the street. The bungalow was developed as a street car suburb house which eliminated the need for wide lots to allow room for driveways or garages. This house had a pedestrian presences on the exterior which could be viewed from both public and private spaces on the interior as they were divided between the left and right side of the narrow house.⁵⁵

⁵⁵ Gianni 2013: History of Modern Housing , Lecture 12

TYPE TWO

THE DETACHED ROW HOUSE

The second housing type, the Detached Row House from the 1920's, was an expansion of the bungalow in the sense that the house was positioned with the narrow side towards the street. However this two storey, two bedroom structure allowed for the private spaces to shift up into the second level, leaving the main level open to public spaces. A slightly larger version of this house was the Foursquare House. It also consisted of two storeys, with the public spaces in the second level, however there were two extra bedrooms. Both types were also classified as a street car suburb house.⁵⁶

⁵⁶ Gianni 2013: History of Modern Housing , Lecture 12

TYPE THREE

THE CENTER STAIR COLONIAL

In the 1930's the automobile was becoming more common amongst families. This began to change the community of housing types from street car suburb houses to automobile suburb houses. This third housing type is known as the Center Stair Colonial. It is similar to the second type in the separation of public and private spaces with the three bedrooms located on the second level, however the introduction of the automobile in family life had changed the position of the house on the lot and in relation to other houses because of the need to accommodate the automobile with exterior space.⁵⁷

⁵⁷ Gianni 2013: History of Modern Housing , Lecture 12

TYPE FOUR

THE CAPE COD HOUSE

The accommodation of the automobile on the house property continued and can be seen in the fourth housing type known as the Cape Cod House from the 1940's and 1950's. This housing type was developed for the opportunity for ownership amongst the younger generations with the intention for future growth. It was small in size with only one and a half stories and built on a large lot with a driveway. The public spaces were located at the front of the house where the "homemaker" could bake in the kitchen and watch the street. The idea of domesticity was present in this housing type. This left the two private bedrooms to be located in the back of the house. When the family grew, extra bedrooms could be renovated to fit in the attic space, which demonstrated the growth of families be incorporated into the design.⁵⁸

⁵⁸ Gianni 2013: History of Modern Housing , Lecture 12

THE RANCH HOUSE

TYPE
FIVE

The fifth housing type, the Ranch House, is from the mid 1950's to early 1960's. This house is a one storey structure with three bedrooms. The public and private spaces have shifted again to a left and right position within the house and the broad side towards the street. The different spaces are all located on one level and have access to views of the public street.⁵⁹

⁵⁹ Gianni 2013: History of Modern Housing , Lecture 12

TYPE SIX

THE SPLIT LEVEL

The sixth housing type, the Split Level, dates to the 1960's. This house is like the Ranch House in the separation of public and private spaces to the left and right of the house with the broad side towards the street. The difference in this house is that it is one and a half stories with the levels divided left and right along with the spaces. The raised portion of the private spaces created room for a double garage to be introduced as part of the house. It was located under the three bedrooms, which gave easy access from the automobile to the house without interaction with the public.⁶⁰

⁶⁰ Gianni 2013: History of Modern Housing , Lecture 12

TYPE SEVEN

THE SPLIT ENTRY OR RAISED RANCH

The Split Entry or Raised Ranch House from the 1960's consisted of similar spaces to the Split Level. The difference in this house is that it had two stories which allowed for a partially above ground basement. Since the public and private spaces were both located on the main level completely above ground, there was enough space in the basement for a double garage and a family room. This extra space in the house was good for a for the growth of the family.⁶¹

⁶¹ Gianni 2013: History of Modern Housing , Lecture 12

THE COLONIAL REVIVAL

The eighth house, the Colonial Revival, is from the 1960's and 1970's. As the family continues to grow, the house adapts to this need for space. This two storey structure contains four bedrooms on the second level with the public spaces on the first level. The Colonial Revival also includes a family room as well as a garage which is attached to the side of the house leaving the interior strictly for the functions of family life.⁶²

TYPE
EIGHT

⁶² Gianni 2013: History of Modern Housing , Lecture 12

TYPE NINE

SNOUT HOUSE

The last of the housing types is called the Snout House. This type of house started to be seen in the 1980's and continues to be seen today. It is noted for the protruding garage occupying almost all of the front of the house. This was developed to incorporate the current needs of the family to have the automobile included in family life along with the need to reduce lot sizes for room for the growing population. The narrow side is towards the street and the public and private spaces are separated between levels as seen before, which allows the space of four bedrooms to fit with the growing families.⁶³

⁶³ Gianni 2013: History of Modern Housing , Lecture 12

The change in housing types was due to the ever changing world in which we live in. The dependence of the automobile created an increase lot size, and in some case the insertion of the automobile right into the house. The desire for ownership of the house at a young age called for cheaper houses, on large lots which could grow with the family. Later, the rise in population required lots to decrease again to gain room for more houses. These changes within society affected the interior of the house shifting between the arrangement of public and private spaces. This evolution of housing types demonstrates the demand for the constant shift in spaces.

We are always reasoning from the seen to the unseen.

—Ralph Waldo Emerson (McCarter 1991: 12)

INFLUENTIAL CONCEPTS

All architecture is inspired from something, whether it be a need, a desire, a person, an object, an idea, or even an existing space. The design begins with the invisible human thought and is made visible through a process of making. Process is something unique to each architect. The architects, houses, ideas and objects outlined next share a similar interest in the concept of developing a design through a thought process which implies growth, individualism and unity through integration.

CONCEPT OF UNITY AND INDIVIDUALISM

Architecture has the ability to determine one's daily life. It has great impacts on those who acknowledge every detail as well as those who barely take any interest other than the basic every day function of those spaces. Frank Lloyd Wright was one of those individuals whose daily life was determined by his interest in architecture.⁶⁴ Wright's family led a nomadic lifestyle; he came from a poor family. His father, William, was unable to keep a job and as a result the family was forced to move from place to place, living in small crowded houses. Despite Wright's father's struggle with unemployment, he was very well liked. Therefore, they regularly attended "donation

parties" held by community members which helped them to stay in one place longer.⁶⁵

Frank Lloyd Wright was not born with the name that we have all come to know so well. He was born Frank Lincoln Wright and later changed his name to Lloyd after his mother's family name, Lloyd Joneses. Not only was Wright's mother the influence behind the name change, she was also the first significant influence on his religious education, thoughts and beliefs. Anne, Wright's mother, was part of a Celtic clan of religious revolutionaries who had broken away from the Protestant church during the Methodist revival. They were freedom seek

⁶⁴ McCarter, Frampton 1991: 6

⁶⁵ McCarter 1997: 13

ers, refugees from Europe arriving in the New World.⁶⁶ His mother's family was very important to him as the traditional Celtic society was structured around close family relations. With the 1885 separation of Wright's parents, he found himself forming a closer relationship to his mother and the Lloyd Joneses. Summers were spent on his uncles' farm, where he experienced hard work and developed a love for nature.⁶⁷ His mother intended for him to become an architect, so she always placed high demands on him. Everything she did for Wright would have been to further push him into architecture and possibly into a love for certain aspects such as nature and the Unitarian belief system.⁶⁸ Anne took it upon herself to enforce a different method of schooling onto Wright. In 1876 she purchased a manual for Froebel Kindergarten training; it was a

type of training widely adopted in Europe between 1860-1920, by Friedrich Wilhelm August Froebel. This program of educational reform originated from his belief of the basic uniformity and unity of nature's laws. As Wright's mother had very strong beliefs in the Unitarian faith, she took seriously Froebel's claim that his teaching revealed "the original unity" behind all natural appearances.⁶⁹ The training consisted of twenty gifts, the first nine being toys, the remaining eleven were exercises. The toys and exercises provided tactile training with visual aspects of colour and shape. As a result of this training Wright was more interested in designing the world rather than representing it; this became the basic discipline of his own architecture.⁷⁰

⁶⁶ McCarter 1997: 10

⁶⁷ McCarter 1997: 13

⁶⁸ McCarter 1997: 14

⁶⁹ McCarter, Frampton 1991: 100-01

⁷⁰ McCarter 1997: 20

FIGURE 19

As noted earlier, the house, a fundamental building block, is quite important in terms of architectural development. Wright believed in the idea of the individual and thought that “everyman” should be given the opportunity to take pride in their individual freedom through homeownership. The ability for one to take homeownership was at a cost; Wright wanted to design a house which could be made a reality for “everyman.”⁷¹ One method for planning an affordable, individual house was to design and build prefabricated parts off site, which would then be taken to the site and constructed

⁷¹ Gianni 2013: History of Modern Housing , Lecture 11

quite quickly. This type of housing design had significant upfront costs, but had potentially large economic benefits.⁷²

Frank Lloyd Wright designed prefabricated houses known as the Usonian Houses, 1936-45. They were inexpensive wood and masonry houses built for “everyman”. They were made inexpensive through prefabricated components such as a panelized wall system. Affordability was also accomplished through limiting square footage, they were made from sheathed plywood walls (prefabricated panels) and a slab on grade foundation. They were known by Wright as the “do it yourself” Usonian house. No tile was used and there was little cabinetry for storage. The houses were made up of small private spaces in a modular system with a hearth as the figurative heart of house. Flow from inside to out and an open concept was important to maintain the idea that it was larger than it appeared. Wright wanted to pass along his ideas of functional definition and special articulation to the public through house design.⁷³

⁷² Gianni 2013: History of Modern Housing , Lecture 10

⁷³ Gianni 2013: History of Modern Housing , Lecture 11

FIGURE 20

HERBERT JACOBS HOUSE, Wisconsin 1936-1937- Frank Lloyd Wright

Herbert Jacobs House was one of Wright's earlier Usonian houses. It was constructed from a composite wall system of brick piers, wood posts, full-height glass doors and solid wood panels. The panels are made of a plywood core with board and batten siding on both sides. These prefabricated panels could be mass produced for a low cost.⁷⁴ A curtain wall system emphasized simplicity and harmony with nature. The house is comprised of a modular system; designed on a two foot by four foot module grid the house forms an "L" shaped plan. The plan is divided by the public living areas on one wing and the private bedrooms in the other with the entrance and service core at the angle. The interior walls consist of large windows with the facade and outer facing walls as solids with clerestory windows. Usonian houses were known

FIGURE 21

⁷⁴ McCarter, Frampton 1991: 274

for eliminating basements and were situated on a concrete slab with radiant heat. The major features of this house were typical of the Usonian style; the open floor plans, exposed structure and floor to ceiling windows allowed for a connection between interior spaces and nature.⁷⁵

The main focus for this concept is based on the individual in relation to the house. Individuality was determined through ownership, however this was not possible for “everyman” unless the house was affordable. Frank Lloyd Wright made this possible through the use of prefabrication. This modular building method also created unity with nature though its simplicity. It provided an open concept interior with windows connecting the exterior portraying a unity with nature.

The concept of unity and individualism presented in Wright's theories and projects influenced aspects of ideas within the Con-temporary House. His strong beliefs in the individual became a driving force in the notion of individual adaptability

for the Con-temporary House. This adaptability within the house for Wright was affordability made possible through prefabricated components. From this use of prefabricated components the Con-temporary House intends to not only make a house affordable through mass produced construction elements, it also intends to use these prefabricated parts for the adaptability of space. Through using individual components the manipulation of space will be enhanced through the many possible arrangements derived from the components.

FIGURE 22

⁷⁵ Bergdoll 2008: 72-4

CONCEPT OF PROCESS AND ORDER

FIGURE 23-28 CLOCKWISE

Frank Lloyd Wright's earliest development as an architect started with the Froebel Kindergarten training. The training his mother had used on him was later passed down to his own children. Children were meant to learn through organized play; a series of "gifts" or toys were used in a specific sequence, with each toy increasing in complexity through a process to match the growth of the child.⁷⁶

As Wright was raised in the Welsh branch of the Unitarian faith it only made sense for his mother to enforce the Froebel Kindergarten training methods on him. The ideal of unity and references to nature were two of the main subjects that the Froebel training enforced. Through this training the child was supposed to learn by doing through a process of order.⁷⁷ In 1876, Wright's mother purchased the manual and taught her

children herself. When he began training at the age of nine, Wright was already behind in this learning method; the gifts were originally intended for training to begin while they are still infants. Although he was behind for the intended age in this learning method, he did have one advantage over other infants; due to his late starting age, he was already able to understand the diagrams and guides for the teachers.⁷⁸

From this, Wright was able to learn through the intended order of lessons, however because of his individual path in according to the time in which he was meant to learn, his process of learning differed. This directed Wright into an individual process of learning in which he developed a unique perspective on the training results.

The Froebel gifts consisted of a series of toys and exercises

⁷⁶ McCarter, Frampton 1991: 10

⁷⁷ McCarter 1997: 18

⁷⁸ McCarter 1997: 19

be experienced though a process which would eventually develop the child's mind. The first gift was a set of 12 yarn balls of different colours. The second gift consisted of a sphere, cylinder, and cube which were suspended on string. Both gifts were intended to be view individually and were meant to familiarize the infant with the basic primary forms. The next four gifts were a series of wooden blocks in which the child follow an exercise to proceed to the step. Gift seven was a bit different; it was composed of flat patterns held in tablets to form patterns. This was a repetition of the type of exercises performed with the earlier gifts, however, it was more abstract and less tangible. Gifts eight, nine, and ten were about defining a framework through a series of slats and sticks.⁷⁹

The concept of process and order is important for the success

ful progression though a series of steps. This training method aids children in understanding this idea. The complexity though growth of a series of individual components creates a unit defining a whole. Understanding this idea is necessary to develop a strategy which uses this idea of individual parts to create a complex unit. The Contemporary house strives to achieve the concept of individual components creating a complex whole. The combined unites are considered complex because it will represent an individual idea, like that of Wright who took a different path in relation to time to learn through the lessons and therefore most likely finished with a different perspective. This concept enforces the importance in individual process.

⁷⁹ McCarter, Frampton 1991: 101

CONCEPT OF CRADLE TO CRADLE

William McDonough believes that green design can prevent environmental disaster and drive economic growth. The idea behind the “Cradle to Cradle” design approach is to consider a projects full life form. This can be done through thought about sustainable materials chosen in the beginning to a recycled afterlife of these materials. He proposes that it is just as important to think about what happens at the end of a products life cycle as much as it is important to think about its beginning. Designing is not just about the initial intent; one must think about the entire process and effects of the design once it has completed its intended use. A design should incorporate thoughts about how it can be recycled into something else. The question then becomes, what do you want to grow? What do you want to improve upon? Prosperity, health, secu

rity, community, peace, culture. The answer to that question should be the purpose for the intended design.⁸⁰

McDonough's idea about design is this; build like a tree. Building like a tree implies that a building's function is always growing and therefore the building should be recycled once its original purpose is no longer needed. A specific example he provides is the Cherry tree. The trees' waste falls to the ground and becomes nutrients for something else. He proposes to design like nature in the sense that nature does not waste. Many of the environmental challenges we face are, at root, design challenges. Good design should be beneficial, it should support a rich human experience. Designing like a tree allows for the opportunity to support this experience and to face many environmental challenges.⁸¹

Cradle to Cradle provides a set of principles for design: everything is a resource, use renewable energy and celebrate diversity. The idea that everything is a resource for something else

suggests that a building should be designed so that it can be disassembled and safely returned to the soil in some way. This describes his opinion of how a building should be built. Since living things thrive on the energy of current solar gain, human constraints can utilize other sources of renewable energy such as wind, geothermal and gravitational. By using these sources of renewable energy our required sources needed to function, such as heat, energy and water, become that much more reliable. The last principle focuses on diversity. 6Designs should respond to the unique challenges and opportunities proposed by site conditions, local materials, views, scale and intended function of the building. These principles described in Cradle to Cradle define the outline McDonough uses towards his design approaches.⁸²

⁸⁰ Cradle to Cradle Design www.ted.com: Apr. 2012

⁸¹ McDonough, Braungart 2002: 104

⁸² Cradle to Cradle Design www.ted.com: Apr. 2012

FIGURE 29

HOUSE LIKE A TREE William McDonough

The client for this house was the Wall Street Journal and the purpose of the house was to function like a tree using nature as the main influence. This sustainable home uses sunlight to generate energy, cleans water, sequesters carbon, provides natural habitat and produces oxygen and food through the use of nanotechnologies incorporated into the design. These qualities of the house provides positive environmental benefits. When the use of the house is over, the materials are designed to be easily disassembled and can then be recycled for another purpose.⁸³

Through focusing on the important issues of this concept we can see that the consideration of the entire lifecycle of a product will affect both the beginning and final outcome. This demonstrates that the parts used in design can change to be used for something different. As a building's functions are always changing, the building should also change and respond to its environment.

⁸³ House Like a Tree www.mcdonoughpartners.com: Apr. 2013

FIGURE 30

FIGURE 31

McDonough's concept of designing with the full lifecycle in mind plays a role in the ideas behind the Con-temporary House. The lifecycle of the Con-temporary House is thought of in the design of the individual components. The assembly of the house occurs through the use prefabricated components made from wood. Each individual part is assembled to create space. It is then meant to be disassembled to alter that space when the family structure changed and required the house to function in a different way. Once the component is disassembled it can then either be reused in another location, resold to balance cost, or recycled when it has come to the end of its useful life. This lifecycle of the components is part of the design strategy for the Con-temporary House in the adaptability of the functioning of individual parts.

CONCEPT OF LINKING COMPONENTS

FIGURE 32

The connecting details in building components are key for successful design. These details can be found in many places beside the structures which make up the world in which we live in. They make possible the connection of components through the simple idea of a link. This basic building method that can be found in large scale structures can also be found in children's toys.

Danish carpenter Ole Kirk Christiansen had developed a modular construction building block for children in 1932. This toy was so successful and enjoyed by all that it is still known today. The LEGO block designed by Christiansen was originally manufactured in wood, then expanded to plastic in 1947. This toy, originally named the "Automatic Building Brick", represented a micro version of a full -scale prefabricated building technology. It is constructed as a hollow box with a series of round

FIGURE 33

FIGURE 34

studs which lock the holes of the reciprocal dimension from another block. These studs which connect the blocks are centered on an 8mm grid. This collection of two-by-four bricks with a colour palette of red, blue, yellow, black and white can produce over eight trillion configurations which have inspired contemporary practitioners.⁸⁴

Another toy that demonstrates the idea of linking was developed by Frank Lloyd Wright's son, John Lloyd Wright in 1916. The Lincoln Logs (version 1) are an architectural toy which was also developed parallel to the idea of the prefabricated house in the 20th century. The name was derived from the association of the log cabin with Abraham Lincoln as well as the term "link in", which literally describes the method of connection. The logs are notched approximately three quarters of an inch in diameter at the ends and they vary length. These interlocking architectural units are analogous to the systematic ways of the American log cabins.⁸⁵

The concept of linking components enforces the idea that individual parts can connect to make a whole which defines a space. This series of similar geometric forms can evolve into a complex structure. Through the use of a simple element an infinite number of forms and spaces can be made. This concept of linking components inspired the method of assembly for the prefabricated components in the Contemporary House. The individual components are assembled through this method of linking which results in fewer binding elements, such as screws, and easy disassembly to change the function of the part. The idea of a "link" is important to create a variety of different forms through the process of assembly and disassembly.

⁸⁴ Bergdoll 2008: 67

⁸⁵ Bergdoll 2008: 55

CONCEPT OF OFF-SITE FABRICATION

Stephan Kieran and James Timberlake started an architectural practice with the main focus in prefabrication, which they liked to call “off-site fabrication”. Through off-site factory fabrication the built components for each project are able to come together in a way which creates completely different projects so each one is unique to its intended purpose. Kieran Timberlake Architects are strong believers in the process; without a clear vision and guidance to reach that, architecture cannot be made. The process should involve the client and consist of many layers of information. The specific needs of the client in relation to the site conditions are leading forces which articulate the characteristics of the project and the system used. These architects believe that the core act of the architect is to create an organization of an integrated system of ideas for the daily use of the client.⁸⁷

⁸⁷ Kieran, Timberlake 2008: 6

LOBLOLLY HOUSE, Kieran Timberlake Architects

FIGURE 35

The Loblolly House demonstrates an example of the many possibilities in which off-site fabricated and readymade components can create. It is assembled from a platform and built up in about a six week time period. The conception and detailing of this house is formed around four new elements of architecture . The first element is the scaffold; this aluminum Bosch system is used as the main structure. The second element is the cartridge; this is the panels which make up the walls, floor and ceiling. The third element, the block, is a series of modules, which form smaller rooms such as the bathroom, which are placed in as a unit. The last element is the equipment, which con

FIGURE 36

FIGURE 37

FIGURE 38

FIGURE 39

FIGURE 40

Steps 1-9

Steps 10-18

FIGURE 44,42

sists of simple tools as a wrench, to assemble the components.⁸⁸

This House is site specific due to its architectural qualities of transparency, expression of construction methods and materials, and its lightweight enclosures of volumes created from the off-site fabricated components. The Loblolly House reveals that architecture, conceived as a product, has the ability to be customized for an individual client and a specific site. This can be done without compromising the clarity of its union of design and fabrication.⁸⁹

Kieran Timberlake Architects successfully demonstrate that architecture, as a product, can be customised to an individual and specific site. The Loblolly House uses “off-site fabricated” components to create a unique project through a

⁸⁸ Kieran Timberlake www.kierantimberlake.com: Jan. 2013

⁸⁹ Kieran, Timberlake 2008: 6

FIGURE 43

process that is geared towards the intended individual. This concept of prefabricated components allowing for customization is present in the idea of the Con-temporary House. The prefabricated components are derived from existing building material sizes, such as a four foot by eight foot sheet of plywood. This creates a modular system allowing for many possibilities of arrangements, which also suggests that the house can be completely customizable to any client's needs and wants while responding to the site conditions.

CONCEPT OF ASSEMBLY AND DISASSEMBLY

Kieran Timberlake Architects hold the philosophy that a house can be both a general and specific act of architecture. General in a sense that the house is consistent in room types and arrangements both in the past and the present with a hierarchy from public to private spaces and specific that the actual use or function of the rooms is unique to the individual. The core of their approach is derived from the reinterpretation of the repetitive rituals within these spaces in the custom house. Factors which are considered by the firm are whether any of these rituals—bathing, sleeping, eating, relaxing, working, entertaining—can be combined and if so to what extent.

These factors are able to affect the arrangement and form of the house to customize and reflect the life of the inhabitants. Not only do the houses designed by Kieran Timberlake Architects reflect the lifestyle of the inhabitants, they also act as an extension of the site through inspiration from surrounding conditions; they strive to seek an understanding of the site by drawing features of the land into the space. The concept of assembly and disassembly play an important role in the arrangement of spaces within the house. This method is used to make possible a variety of different forms which allow the house to become adaptable to different functions.⁹⁰

⁹⁰ Kieran Timberlake www.kierantimberlake.com: Jan. 2013

CELLOPHANE HOUSE, New York 2008 - Kieran Timberlake Architects

FIGURE 44

The Cellophane House embodies the concept of using the method of assembly and disassembly to its advantage. This house is a five storey dwelling assembled with an aluminum frame and bolted together. This large aluminum frame provides the structure and the means to attach the customizable elements together through steel connectors. These factory made elements can be easily de-bracketed to change spaces. When the house is no longer needed it can be disassembled and moved to a different location. The reuse of the materials can create a different house with different spaces to be experienced.⁹¹

This house uses the process of off-site fabrication to be assembled as opposed to constructed, which means it can also be disassembled instead of demolished. This house can be completely adaptable to any site location through simple modification of the components. This mass customization of a house through the components can not only be adapted to a site, it

⁹¹ Bergdoll 2008: 224-26

FIGURE 45

COMPONENT	Frame	Skin	Glazing	Wall Panels	Window Frames	Floors

MATERIAL	Bosch Aluminum Framing Steel Connectors	PET Film	Aluminum Frame IGU	8mm Polypropylene Sheet	Aluminum Frame	Aluminum Grate 0.5 in Polyethylene Sheet
CODE	PETE	PETE	Glass Recycle	PP	AL	HDPE
WEIGHT	10,504 LBS aluminum 200 LBS steel	170 LBS	2,033 LBS	1373 LBS	260 LBS	9797 LBS aluminum 4587 LBS polyethylene
RECYCLABLE MASS	26%	0.4%	5%	3%	0.6%	35%

FIGURE 46

can also be adapted within the interior walls as all structural loads are carried through the external frame. The notion of connecting individual components by a separate frame is incorporated into the design of the Con-temporary House. The prefabricated components for the Con-temporary House are connected by a structural frame to allow for each component to act as an individual unit which can then be disassembled individually without interfering with the integrity of the entire structure. The process of assembly and disassembly becomes important here when designing a strategy for an adaptable house. To adapt is to modify, which can be easily done through the manipulation of spaces. Adaptability in a house provides many possibilities for the functions of spaces to change.

FIGURE 47

FIGURE 48

CONCEPT OF INFINITE FORMATIONS

FIGURE 49

The Modern Modular is a study conceived by the firm Resolution: 4 Architecture focusing on modern design and how it can be transformed. Technology has provided a method of factory assembly-derived construction techniques to transform the way in which houses are made. The Modern Modular strives to represent a model of prefabrication and modular construction which will meet the needs of 21st century homeowners.⁹²

Through a series of modular units, predefined typologies are formed. This minimizes the cost of production and maximizes the number of different combinations available for the consumer. The focus for this method is to create a variety of different living solutions which can meet the needs of any individual. This is done through a series of different modular living units which can be arranged according to different series types and specific needs. There are limitless options available through standard types of modular units which can be

easily expandable and transformed to grow with the family.⁹³

This modular construction through the use of factory assembly-derived construction techniques makes possible the mass customization of a house. The predefined units can be combined in customized formations which create an infinite variety of forms to be reconfigured and expanded as the family grows. The Contemporary House design strategy incorporates the idea of mass customization into a house through the prefabricated components. The aim for this project is that if individual prefabricated components are mass produced, a variety of different house formations can be a result of these parts. They would then be available to be used in any house to customize space. Since the components would be from a set of parts, they could be interchangeable between houses. The Contemporary House uses the concept of infinite formations through the adaptability of the parts to be arranged in any formation within a single house or fitted into another.

⁹² The Modern Modular www.re4a.com: Nov. 2013

⁹³ The Modern Modular www.re4a.com: Nov. 2013

FIGURE 50

CONCEPT OF INDIVIDUAL ADAPTABILITY

Inspiration was drawn from the examined concepts for the Con-temporary House design. All concepts revolve around the idea of adaptability in some way. The hope for the Con-temporary House is to display a sense of adaptability derived from the examined concepts to develop a well rounded idea which becomes truly adaptable in every aspect. This would propose that the concept for the Con-temporary House as individual adaptability would possess the quality to limit restrictions within the entire process of designing a house for the individual family.

In the work of Carlo Scarpa
Beauty
the first sense
Art
the first word
then wonder
then the inner realization of Form
then sense of wholeness of inseparable elements.
Design consults Nature
to give presence to the elements.
A work of art makes manifest
the wholeness of Form of the
symphony of the selected shapes
of the elements.
In the elements
the joint inspires ornament, its
celebration.
The detail is the adoration of
Nature.

—Louis Kahn (Frascari 1984: 29)

DESIGN CONCEPT FOR THE CON-TEMPORARY HOME

The concept for the Con-temporary House begins with the definition of the contemporary and evolves towards narrowing the focus. As clarified earlier, the contemporary suggests the notion of something that it “together with time.” This movement of something progressing with time expresses a focus towards adaptability. In terms of design, something that is contemporary should possess the quality to transform with time. In regards to the contemporary “something”, the focus is narrowed towards the individual home. This stressed notion of the individual defines the definition of adaptability in the Con-temporary House. The understanding of the individual is what determines the process of designing a home.

ADAPTABILITY

The notion of adaptability in design can be interpreted in different ways. Friedman states that “providing occupants with forms and means that facilitate a fit between their space needs and the constraints of their homes either before or after occupancy” is one interpretation of adaptability.⁹⁴ Since the future design of homes is difficult to predict, he suggests that homes will reflect all aspects of the life of those who inhabit them, along with the developments in technology.⁹⁵ The Contemporary House employs this notion that adaptability is a fundamental consideration in the design strategy of a house. It proposes to interpret that adaptability in a more personal context, allowing for a truly unique design strategy customized for the individual.

⁹⁴ Friedman 2002: 1

⁹⁵ Friedman 2002: 2

INDIVIDUAL ADAPTABILITY

The concept of the Con-temporary House states the contemporary as the notion of adaptability, transformative with time. This notion of adaptability is geared towards the community, the house, and the individual family, through a process of defining individual space in a house with the details. In other words, this Con-temporary House is responding to the ever changing world in which we live through a strategy for designing an individual adaptable house.

The individual adaptability of the house will be executed through a universal set of parts made from prefabricated components. These components can be arranged to create an infinite variety of spaces which can adapt to the individual family through time. The components will be intertwined with existing building methods and materials for both interior and exterior spaces to maintain a consistency over the passing of time between the Con-temporary House and the surrounding community.

Is the universal set of parts designed for the scale of the house or the scale of the community? Is the adaptability of the parts focusing on only the specific inhabitants or the entire community of people? The answer to these questions are actually quite flexible, meaning that there is no specific right answer. The house will be able to adapt to the scale needed throughout the passing of time by the transformation of the components. This scale of adaptability reflects the changes in society regarding the integration of different types of families into a same development. With the Contemporary House an individual or family will be able to form their own identity within a development through their individually designed house derived from the same process utilized in its immediate surroundings. The set of building components used for the assembly of the house and the notion of ability to transform will assist in the connection between homes through the design strategy. Strategizing a plan for design through the use

of affordable, mass produced, prefabricated components, will reflect adaptability to scales of both individual houses and the community.

Adaptability through the design of universal building elements will create many functional possibilities for the lives of different individuals which can adjust to the stages in time. To confront the concept of individual adaptability, simple geometric forms will be used as a basis to assist in defining an infinite variety of spaces. This idea relates to the children's toys mentioned earlier—Lego or Lincoln Logs— and how they are “played with” to create different spaces according to personal exploration. These individual components are connected together in a meaningful way which is unique to the individual and has the possibility to change through the manipulation of the components.

Important terms for this concept include geometry, modular, nature, personalized, individual, unity, process, and time

less. The geometric form which acted as an influence was the square. In terms of three dimensional forms, the cube represents the basic form of a house; it allows for a visualization of an enclosed space which can provide a simple shelter while suggesting flexibility through a modular form. The use of consistent building blocks creates a modular form which can be easily adapted to different situations. When defining a material suitable for the modular forms, nature was the inspiration. Using materials such as wood benefits the design through sustainability. Wood is a renewable resource, and is an ideal material because it is natural, available, local, durable, cheap and aesthetically pleasing. The modular building components will be able to define unique spaces according to each individual. The same set of blocks given to many different people to arrange will result in a variety of formations. As in the Frobel Kindergarten Training, using the concept of modular "building blocks" to design a home allows for a personalized effect

through developing and experimenting with formations to suit specific needs. When these individual components are combined, they will form a unit. This modular unit will define different spaces which have the ability to become part of a larger or smaller unit through assembly and disassembly. The process of assembly refers to the ideas within the Frobel Kindergarten training; it is manipulated to explore the thoughts and needs of an individual. This process starts with determining the key factors needed for design and moving towards the actual method of assembly. Through this adaptability of the building blocks, the Con-temporary House will suggest an individual adaptable quality by the ability to constantly change to the needs of the individual in relation to the site and the community.

DESIGNING WITH DETAILS

The aim for individual adaptability can become a reality through the assembly and disassembly of components. This suggests that the designed components will become an important detail in the process for designing the individual home. As the details in design play an important role in expressing the meanings behind man-produced objects,⁹⁶ the components in this scenario express the importance of consistency. To clarify, the details in the Con-temporary House demonstrate that through the use of a set of building components can transform a house to be unique to an individual. The set of building components are consistent with each part in terms of

scale, form, assembly and disassembly. They are all produced and link together by the same method. These details are a union of construction; the role of the detail in architecture is to give harmony through the joining of materials in a functional way.⁹⁷ The building components for the Con-temporary House are the details which are designed through the layering of wood. They identify the spaces through the unique arrangement according to the individual family. The meaningful way in which they are assembled reflects the desires of the client. The details are the basis for defining space.

⁹⁶ Frascari 1984: 23

⁹⁷ Frascari 1984: 23

The reality of the building does not consist in the four walls and the roof but in the space within to be lived in.

—Frank Lloyd Wright (McCarter 1991: 15)

DESIGN PROCESS

A system of principles | What is the plan | Method of Performance

The perception of the individual and something that represents the idea plays an important role in the design of the Con-temporary House. This idea defines the system in which everything is based around, providing a strategic plan for how to design the Con-temporary House. The process is directed towards an individual home for an individual family through individual adaptability. In other words, the process is defined for the individual; the steps the household takes through the development as a family to define their personal home. The design for the Con-temporary House outlines a set of principles to develop a strategy for the individual family to create a home.

METHODOLOGY

The Con-temporary House aims to develop a system for designing an individual home that can grow and change with a family's evolution personally, economically and socially. This strategy intends to allow the house to be able to adjust to any and all needs within all stages in a family's lifecycle through their own individual adaptability. This will enable the family to evolve in their own unique way within their own space at the time necessary to meet their needs. Once the lifecycle of the family has ended within their home, the house will then be able to adapt once again to the needs of a new household.

The principles which characterize the Con-temporary House are formulated around adaptability at three different degrees; personal, economical and societal. If the design strategy for Con-temporary House meets these goals at all three levels, then the result should be a home that becomes truly unique to the individual, while having a greater impact on the community through further adaptability over time.

PRINCIPLES

ONE PERSONAL

The main issue focuses on the idea of the Con-temporary House and asks; how can the house reflect the individual family? The individual family is constantly changing and is always different. Due to this, their individual needs affects the function and spaces of the house. This principle outlines the importance of incorporating aspects in design which will allow for personal choice creating the notion of adaptability for individual families. This choice is in types of space, the organization of that space and when that space changes. Adaptability through choice derived from the construction method will generate many options to suit a variety of families.

The Con-temporary House is individually adaptable through many ways made possible by the modular design of prefabricated components. First, the house design strategy to use individual components allows for simple three dimensional

growth: up, down, right, left, and the functioning of spaces changing, according to the site. The family can start small and expand later as the outward growth is not impeded by the structure, or the option to start with a large unit and downsize is available as there is no restriction on the reduction of space if required or wanted. The design of the components provides the means to accommodate a second source of income by adaptation of a rental unit through the manipulation of components. This also makes the house adaptable to alterations in family situations such as children moving back home. Ultimately the Con-temporary House can adapt to a traditional and non-traditional family, as well as disabilities. The principle based around personal choice provided adaptability which will generate many living solutions.

TWO

E C O N O M I C A L

How can the Con-temporary House represent an economical design strategy? A low-cost construction method of mass produced prefabricated parts will begin to define an economical strategy for design. Second, giving adaptability within form and the option for the housing type to grow from a single detached unit into a multiunit project will create more opportunities for affordability. As this is not a social housing project, this principle of economical standards does not aim to produce the cheapest method of construction or the lowest cost possible. Rather it strives to achieve some degree of affordability through the notion of adaptability.

The Con-temporary House will use small prefabricated components to ensure there are many possibilities for affordability to occur. Through the use of small components, easy manipulation of the arrangements will be made possibly, thus reducing

the cost for heavy equipment. Small individual components will also allow the opening for various possible solutions in terms of layout and spaces. This create a degree of affordability giving choice to new households to start with smaller plans and grow when the financial opportunities occur.

THREE

S O C I E T A L

The last principle focuses on adaptability at a larger scale. The Con-temporary House design strategy should demonstrate qualities which will enhance the community or further develop the neighborhood. As a result of the flexible scale, shape and use of the house, it becomes adaptable to the shape of the community. This principle focusing in the effects the house will have on society suggests the importance for giving the ability of the house to alter the surrounding environment through the possible housing types offered, such as development from singles to semis to row houses. The adaptability of the Con-temporary House exists at a larger scale as well as the individual adaptability of the individual house at a small scale.

DESIGN STRATEGY

The strategy is to use inspiration from existing building materials/techniques (ex. 4'x8' plywood, Cross Laminated Timber, linking-like lego blocks, etc.) to develop a set of components which can be assembled uniquely to the individual, and can adapt to necessary changes through the process of disassembly to meet the needs of a growing family.

The components will initially be used to develop a series of *Spatial Forms*. These forms will act as a starting structure or shell for the Con-temporary House. The evolution of the single family house acts as reference for these initial spatial forms, which can then be expanded using the same components and process of assembly. The Con-temporary House will start with a set footprint defining different spaces. It can then be manipulated to adapt according to the family needs and chosen site. The adaption continues through the passing of time.

TECHNIQUE

The technique for designing the Con-temporary Home is outlined through a series of steps intended for the individual family. These steps are considered part the process for determining the formation of spaces needed for the family. Each process will result in a different outcome according to the response the form takes based on the individual family, the site and time.

This process is specific to this system of design. The Con-temporary House design strategy provides the tools to design the home, which then the household use to evolve through the process to define their individual home. The tools to design are the prefabricated components. This modular set of components come in a variety of sizes for choice within space formations. The process the individual family takes utilizes these components to create their own space.

ONE

START WITH A SPATIAL FORM. The family will choose a *Spatial Form*. This form is the starting point for the process of designing an individual home. It will act as a shell to define the initial spaces needed in that stage of time for the family. Ex. A young couple might choose a Spatial Form with fewer components defining less spaces, where a family with many children might chose something more complex.

TWO

PERSONALIZE THE HOUSE. The family will alter the spaces within the form to fit their needs. The will then choose the skin, windows, doors, cabinets, and anything else within the house to make it personalized. The materials and fixtures chosen for the interior and exterior are considered a consistent element contemporary to the present time, which can then be re-dressed later to adjust itself to the demands of the time.

THREE

ADAPT TO THE INDIVIDUAL FAMILY. When the family needs a change of space, components can be linked and un-linked to be re-arranged in both interior spaces and new exterior spaces can be defined. If the family only wants a change in appearance, exterior materials can be removed and the house can be re-dressed.

FOUR

ADAPT TO A SITE. The house is made adaptable to allow for a response to the site conditions. If the site is more narrow than the initial *Spatial Form* chosen, then the form can be manipulated to reflect the same orientation of spaces within a different footprint which now fits with the site.

FIVE

ADAPT TO TIME. The assembly method for the single family house can be adapted to be developed into a semi-detached or a row-house through the linking of components and reconfiguring spaces.

PROCESS OF THE
EVOLUTION OF FORM

The method to design the Con-temporary House is to consider space and how different family types might use that space. Then, through the use of assembly and disassembly to define these spaces, infinite change can be possible. This will create a sense of mass customization. The set of designed building components will be used in conjunction with existing building materials and systems. The building components are meant to serve as the contemporary element of adaptability for the house. The existing building materials and systems are meant to serve as a sense of unity within the public realm through consistent elements in design.

*Architecture is an art because is it interested not only in the original need of shelter
but also in putting together spaces and materials in a meaningful manner.*

—Marco Frascari (Frascari 1984: 36)

PROJECT

This thesis keeps into account how the individual family can change with time, and how that change could affect the spaces within the house. The notion of the Contemporary House suggests that the individual house, as a unit of designed and existing components, can be mass customized and manipulated to produce a home which grows with the family over time according to their own life cycle. This project achieves the ability to personalize the house and make the spaces within unique to the family. The components used for assembly are adaptable in the sense of easy manipulation, as well as for the reuse in another part of the house, or in a completely different house. The components were designed with the thought of its life usage. They possess the idea of permanent adaptability in a way that they can be used in another location when they are no longer needed in the initial position. The Contemporary House demonstrates an example of a growing family and the process towards an Individual Home. The stages within the family's life will be shown through the possible spaces required in a house and how they can be manipulated and assembled to adapt to the changes over time. The spaces of the house will be assembled through a series of individual components which will grow with the family.

WHAT IS DIFFERENT?

The focus for the Con-temporary House design strategy is to create a home that can grow and change with a family's evolution. This growth is centered around the notion of individual adaptability through the principles defining personal choice, economical recourses, and community impacts. The housing precedents examined at an earlier stage confront issues however, the Con-temporary House deals with them through a different perspective. The Con-temporary house is a response to the approaches of adaptability within these studies. It will aim to suggest these approaches while improving upon the actual true individual aspect of adaptability. The first house examined, the Curtain Wall house, demonstrates the adaptability of the functions within spaces. This house is limited by the extreme temporality of spaces that the

curtain provides. The Con-temporary House suggests the idea of a temporary change in space, however there is a greater sense of long term temporality, or even the idea of a permanent adaptability, as the spaces which are changed transition through the stages in time of the individual family lifecycle. Next, the study of the Eames House represented adaptability through the cost for construction and materials. The donated materials used for the prefabricated parts made a low-cost house possible. The house was limited by the available materials as it altered the original design based on what was available. The house adapted to this change from materials, however this use of donated materials could possibly provide restrictions in further development. The Con-temporary House will strive to meet low-cost needs

through the mass production of prefabricated components derived from existing building techniques and materials to make them more readily adaptable to existing buildings.

The Cape Cod House represents adaptability in the initial space. Affordability was made possible through the small scale and form of the house with the intentions for future growth, however this required possible sacrifices from the new homeowners because of the limited space initially available. The Con-temporary House incorporates the idea for future growth, however the way in which this is portrayed differs. The house can grow in the sense of the additional assembly of parts.

These parts are easy to assemble and disassemble, allowing for either a small change in space to provide different functions or they can take on a larger growth. The adaptability and choice in the growth pattern can vary from family to family

Lastly the Grow Home and the Next Home are examples of how space can be arranged and then re-arranged within a form to meet the changing needs of a family or combined multiple families within a set volume. This volume is predefined with no option to change physical form in height. The response of the Con-temporary House is that there is no restriction for decreasing (or increasing) the volume height when or if it is no longer required. This provides a different sense of adaptability in a way that it gives the ability to adjust equity in the house, resulting in scaling homeownership costs based on utilities and taxation.

The Con-temporary House aims to demonstrate adaptability personally, economically and socially through the means of introducing all aspects of individual choice to provide a wide variety of options in every aspect.

SITE

To begin choosing a site, the program must be considered in terms of the required elements needed for the success of a functioning structure. As the general program for this project is a house, the location can be open to various locations in Ottawa, Canada's capital depending on the specific family type. With a population of 870,250, and a growth rate of 7.9% since 2001,⁹⁸ Ottawa is a great location to explore the ideas of adaptable housing which has the ability to grow with the population.

⁹⁸ Population www.ottawa.ca: Nov. 2013

SITELESS

⁹⁹ Blanciak 2008: ix

site can play on defining space for a family. This idea suggests that the Con-temporary House can fit anywhere within the city that is zoned for residential.

The idea of sitelessness however, does not give the true idea of the Con-temporary House by proving that the form has the ability to adjust to the site based on its conditions. First, the Con-temporary House will be shown as a standalone form, adapting to the basic transitions or the growth of a family. Second, the Con-temporary House will be shown placed in a site. The transition of the individual family's life cycle will be presented in the house, however it will undertake modifications to adjust to the site. Here the modifications of the house as a standalone form to a house positioned on a site will demonstrate the significance of the site and how it also becomes important in shaping the spaces for the functioning of the family life.

DESIGNED COMPONENTS

To start the process for designing the Contemporary House a set of building components must be established. These designed components are necessary for the adaptability of spaces within the house. Multiple options for a variety of sized components will allow for easy manipulation, and a wide variety or choice due to their individual size in relation to actual room sizes. For instance, one of the larger components can be considered an appropriate size footprint for a bathroom, however a series of smaller sized components can also form the space for a bathroom of similar size. This variety in the size of components adds to the flexibility of formations.

The components will be considered the prefabricated elements for this design strategy to shape the basic shell of the house. They are intended to define a set of universal building

elements which can be used in conjunction with existing building materials and building methods. Each component is a small individual part, joining to form spaces. Continuing in this manner will result in defining a whole volume divided by a series of spaces derived from individual parts. The component size and shapes will direct the formation of each individual space, which is then connected to form a complete volume of spaces. There will be a set of predefined sizes for each type of component to account for all the possible outcomes of the combinations. This predefined set is designed to eliminate the need to modify the components for each project. The components used in one house will be able to be reused in another house without physically changing the form of the component. The modular forms in many different sizes will allow for this to occur. They are individual elements which can formulate spaces within the larger unit. The spaces will be modified through the manipulation of the components, however the compo-

nents as an individual element will not need to be modified. The material chosen for these components is wood. As a sustainable resource, wood was chosen to respond to the idea of considering the lifecycle of a product. Wood is the only fully renewable structural building material because it requires much less carbon to be produced.¹⁰⁰ Later, once the wood is no longer needed for that use, it can be salvaged for the use within something else. In terms of the construction of the wood

FIGURE 51
CLT product-five layers of wood

¹⁰⁰ Canadian Sustainable Timber Innovations Solutions without Sacrifices www.cstinnovations.ca: Sept. 2013

based components, the methods behind cross laminated timber (CLT) will be used. The method of construction for CLT fits well with the concept adaptability. A CLT building is assembled through a series of panels which click together and connect through simplified self-tapping screws. Each panel consists of horizontal and vertical layers of wood glued together with the edges forming a tongue and groove pattern to link together. The installation of a CLT building requires a small crew and less than a day to assemble the entire shell of a house.¹⁰¹ The main components for this strategy will use this method. Since each component is small in size, the weight of the wood should not restrict the mobility of each component without machinery. The wall panel components are inspired by a typical building material, plywood as well as the construction method of CLT. The measurements of a full panel component in this system are four feet by eight feet, like that of a sheet of plywood, however the panels are five inches thick consisting of

layered horizontal and vertical pieces of wood. A full panel is comprised of smaller parts; these parts link together to make one full wall panel. These smaller parts are meant to allow for many possibilities in the arrangement of openings, while proving the manipulation of these parts to be controlled without machinery. The panels are assembled by using horizontal and vertical pieces of spruce-pine-fir layered and glued together, and are aligned in a way which allows the parts to link together through the “tongue and groove” form. A full panel is linked together by a frame of the same material.

Layers within a part of the panel

¹⁰¹ Canadian Sustainable Timber Innovations Solutions without Sacrifices www.cstinnovations.ca: Sept. 2013

INDIVIDUAL
PART OF
PANEL

FULL PANEL
-HORIZONTAL PARTS

Full Panel 4'x8'

Split Panel 2'x8'

Double Panel 8'x8'

Half Panel 4'x4'

Quarter Panel 2'x4'

FULL PANEL
-VERTICAL PARTS

Frames are designed to hold the panels together. They act as the completing element for a panel which can then begin to form the walls of a house. There are different sized frames to achieve more possibilities of combinations of forms. The frames can be use to create part of a wall with the panel components, or they can be used on their own for the possibility of a larger window of door. The frames connect together through the use of an existing building construction method for a structure system.

Quarter Frame 3'x5'

Half Frame 5'x5'

Split Frame 3'x 9'

Full Frame 5'x9'

Double Frame 9'x9'

Once the panels are linked and held within the frames, they are still incomplete. The edges from the openings (if any) are still left in the “tongue and groove” form. Caps are used as an end piece within the frames to link to the wall panels to complete the edge. This allows for a smooth edge, as opposed to the “tongue and groove” edge created at the ends of each individual panel, for easy installation of windows and doors.

The floor and ceiling panels are of the same scale as the wall panels, they use the same dimensions for consistency. They are also held together by frames which are then connected by the same structure system as the wall panels and frames. These panels are assembled with wood joists, plywood, insulation and, in some, the necessary openings and space for plumbing and electrical as needed.

Various sizes to fit within all the combinations of opening created by the panels and frames.

Full Panel 5'x9'

Split Panel 3'x9'

Double Panel 9'x9'

Half Panel 5'x5'

Quarter Panel 3'x9'

Since the wall panels do not allow for plumbing and electrical to be concealed, service blocks are an added component designed to conceal these elements. Most are contained within the floor panels. These are a series of floor panels with defined openings for the plumbing and electrical to be contained and connect between other floor panels. When the plumbing and electrical needs to be carried from different floors, additional wall panels are linked between the frames to create a block of space where the connection can occur.

The designed components define the notion of the contemporary through the modular adaptations created by the manipulation of form. The arrangement of the individual components creating a whole acts as the primary feature of the Con-temporary House.

Possible wall panel variations of the linked components...

...the possibilities are endless.

EXISTING COMPONENTS

The existing components within this strategy are intended to finish the shell of the house which is derived from the formation of the designed components. Included in this type of component is the structure. Through the use of an existing set of parts for structure, the designed components of the Con-temporary House can be easily joined and fit within the frame of the structure. The exterior of the house can then be finished with insulation and any preferred material for the skin. There is the same flexibility for choice when it comes to the windows, doors, and interior finishes. These existing elements are used within this strategy to allow for the house to remain current past its present time through the new development of finishing materials.

The choice for structure which will be incorporated in the strategy is an already developed system. The Bosch Aluminium framing system will allow for the assembly and disassembly of the components while using something that has already proven its success through projects such as the

Loblolly House. This system includes a variety of connections in different sizes which will transition easily with the modular form of the designed components. Although the prefabricated panels using CLT techniques are structural and can be managed alone, this aluminum framing is included in the system to create a greater sense of adaptability in terms of the life usage of materials and the assembly connections. The aluminum structural framing will join together the prefabricated wood components, while acting as a buffer between the components and the exterior/interior materials (cladding, insulation, flooring, etc). All materials will connect to the aluminum framing, minimizing any damage that the addition of materials would do to the prefabricated wood components.

The cladding or skin of the house is not specific to the building components. There are an infinite variety of options available, as this part of the house is derived from existing materials and is not something that is developed in relation to the components. There are no specific cladding materials for this system; this plays into the notion of adaptability to the degree of specific household preferences as well as the new developments

FIGURE 52
Bosch Aluminum Framing parts

in materials. As the system is used over time, any new materials trending will be able to adapt to this system. This idea of no predefined materials allows the house the ability to re-dress itself but does not necessarily require it to do so. This means that the cladding is not specific to the building components and does not affect the interior spaces. The cladding can change over time just as the family does. It can be re-dressed according to current trends to adapt the exterior materiality to fit within the community. The cladding can change as the form and spaces change, or it can remain a constant feature of the house according to the unique preferences of the individual family.

The elements for structure and materials within this strategy that are not specifically designed for the Contemporary House. Instead, they are existing parts which work in conjunction with the designed components. Through using already existing pieces, the family has the ability to choose what appeals to them without being restricted to a specific design. The existing materials act as a secondary feature of the Contemporary House.

SPATIAL FORMS

The process to begin defining spaces in the Contemporary House starts with an initial base footprint called a Spatial Form. This form is developed through the exploration of the changing spaces within the evolution of the single family house. The presence of public and private spaces are consistent in all houses and therefore a look into how and why they change position in a house can be important when determining possible arrangements. To establish a Spatial Form the designed components are set in a series of different formations based on spaces, the functions of those spaces and how much room they may require. The designed components are then arranged accordingly to reflect the change in spaces between different families. A series of different Spatial Forms can be developed, which then transform to fit within the site and ad

just to the initial needs of the family. Each form will grow in a unique way, personalized to the family.

One example of a Spatial Form could be described as a response to The Bungalow from the early 1900's. This housing type inspired the arrangement of components to be suited towards a narrow lot. This means that the narrow side of the entire form is positioned towards the street and all the spaces enclosed in the form are tied into one level in height. The public and private spaces would be set to the left and right side and the house would be directed towards locations closer to the core of a city due to its narrow formation. The individual family would use the prefabricated components to form spaces within this suggested volume. However, they would not be restricted to this layout of the Bungalow; it solely acts as a

simple reference for the types and layout options of spaces that may suit that family.

Another description of a Spatial Form could be found similar to the Cape Cod House. This formation of components set the public space in the front and the private towards the back. The beginning small size of this form creates a sense of affordability which gives opportunity for a single occupant to become established and have the house grow with them.

These Spatial Forms serve the purpose of initiating a starting point for determining spaces. The forms are then required to be manipulated to fit the individual, the site and the time. Eventually they are transformed into a Contemporary Home, ever changing as time passes.

ASSEMBLY

The assembly of the components begins with the micro and works its way through to the macro. The individual panel starts with a set of horizontal and vertical pieces of wood, layered and glued together. They are positioned offset from one another to allow for the linkage to occur. Once a panel is complete it can then be linked together with a variety of different panels to fit in the arrangement of a frame. This frame is also linked together through the “tongue and groove” formation. First the bottom piece is set into place and then the sides link in. Once the interior of the frame is filled with the panel pieces then top part of the frame fits directly into place. The caps work in this same manor; the bottom cap slides in to finish the edge, moving to the side pieces and then the top cap as the last link creating a complete panel held together with a frame. Each individual wall component can be altered to create an opening or solid wall without destruction of the surrounding area—each component is viewed as an individual

part and is altered individually. The individual functioning of each component benefits the entire structure in the long run as it provides only the manipulation parts which will actually affect the space needing to be changed.

The floor/ceiling panels are constructed through the layering of beams, insulation and concealed with plywood on both sides. The panels are then wrapped with a frame along the edges to secure the materials and reflect consistency in the size of the wall panels. The floor panels use a typical 4'x8' piece of plywood, much like the dimensions of a full wall panel. Since the full wall panel is held together by a frame, the floor panels must reflect the same technique to account for a consistent modular form. Once constructed, the floor panels connect to the structure through the frame.

To assemble a house all the components must be mass produced and selected according to the form needed. The structure is assembled first and then the building components can be assembled within the set structure and rearranged as

needed. They are attached through simple connectors (nuts, bolts, screws) between the frames and the aluminum structure. The designed components can be added to a form simply by assembling additions to the structural frame and inserting the linked components between the spaces.

When the shell of the house is complete the finishes can start to be added. The windows and doors can be inserted into the frame openings created by the manipulation of the wall panel parts. Then the insulation will need to be attached to the exterior side of the shell, as well as the chosen skin and roof covering. The interior spaces require the floors (wood, carpet, tile) to be placed over the floor panels and the fixtures (cabinets, counters, vanities) can then be installed with respect to the placement on the specific floor panel consisting of a service block. These features of the house are not necessarily assembled, however they are all contained within the spaces of the components which allows for the removal of specific parts as needed.

DISASSEMBLY

The Con-temporary House is disassembled from the outside and works its way towards the interior, and lastly the shell. For complete disassembly, the skin, insulation, windows, doors and roof materials must be removed first. The interior materials and fixtures would be removed next. Once these elements are completely gone, the shell of designed components and aluminum framing is all that is left. Each component can be unfastened and pulled out starting with the ceiling panels, then the walls and lastly the floor. The components can remain in this form for the possibility to be used in another

project. Once the components have outlived their usage, they can be disassembled further for the purpose of recycling.

The components are designed to be adaptable through the idea of permanence. They should be reused as long as possible until the point of necessary complete disassembly. At this point they can be recycled and repurposed. The components initially start as adaptable permanent parts to manipulate space, however at the complete end of its lifecycle in the assembly of the house, they can be adaptable through recycling.

ADAPTING TO THE INDIVIDUAL FAMILY

The assembly of a Con-temporary House will be demonstrated through the adaption of spaces according to the possible growth of the family starting with the single individual. For this purpose the Spatial Form reflecting the spaces of the Cape Cod House will be chosen as the initial base footprint. This housing type allowed for a young family to begin with a small, affordable home, then later the opportunity for growth was made possible. The shown manipulation of spaces will be an example of how this specific model can be transformed, however there would be many other outcomes when placed in different circumstances. This Con-temporary House transitions through the stages of a growing family.

THE CON-TEMPORARY HOUSE:

The Process Towards an Individual Home

STAGES OF THE GROWING FAMILY:

STAGE 1: *SINGLE INDIVIDUAL*

STAGE 2: *YOUNG COUPLE*

STAGE 3: *COUPLE WITH YOUNG CHILDREN*

STAGE 4: *COUPLE WITH GROWING CHILDREN*

STAGE 5: *COUPLE AFTER CHILDREN LEAVE THE HOUSE*

STAGE 6: *RETIRED*

SINGLE INDIVIDUAL

1 bedroom

1 bathroom

kitchen/eating area- possible island with bar and bar stools

living room

small storage

access connections (hallways, stairs)

laundry/utilities

1

FRONT

SINGLE INDIVIDUAL

The first stage in this particular lifecycle demonstrates a single individual making the transition into homeownership. This transition may involve the need for affordability as a single income can be quite challenging for mortgage payments. The Con-temporary House design strategy can make this possible through the option for small units, unfinished spaces and understanding the benefits for growth that this system employs.

This individual can customize space according to the needs for one person based on the prefabricated component sizes and shapes. Space can be visualized and arranged in an easy manner because the component size options are predefined. The homeowner would buy into this house system knowing that there may be a size and organization limit to a small degree based on the modular component template. This would be a trade-off to reduce the overall cost of materials, construction and labour. Raising the ground floor above grade to let light in would also give the opportunity for adaptability in the future. The original unfinished could be transformed at a later time if the family required income or had no other use for the space.

BACK

BACK

FRONT

SINGLE INDIVIDUAL

- 1 bedroom
- 1 bathroom
- kitchen/eating area- possible island with bar and bar stools
- living room
- small storage
- access connections (hallways, stairs)
- laundry/utilities

Organization of rooms within the
Spacial Form:

*The arrangement of rooms are
determined though the manipu-
lation and linking of the compo-
nents (wall/floor panels).*

LEVEL 1

BASEMENT

ORIGINAL
FOOTPRINT

SINGLE INDIVIDUAL

QUARTER PANEL - FLOOR/CEILING

FULL PANEL - FLOOR/CEILING

HALF PANEL - FLOOR/CEILING

FRONT

FULL PANEL - WALL

SERVICE BLOCK FOR PLUMBING
TO BE CARRIED UP AND DOWN

DOUBLE PANEL - WALL

FULL PANEL - FLOOR/CEILING

SPLIT PANEL - WALL

WALL | FLOOR/CEILING PANELS

Full Panel 4'x8' (5'x9' with frame)

Split Panel 2'x8' (3'x 9' with frame)

Double Panel 8'x8' (9'x9' with frame)

Half Panel 4'x4' (5'x5' with frame)

Quarter Panel 2'x4' (3'x5' with frame)

SINGLE INDIVIDUAL

*Connecting the components with aluminum framing.
Finishing the exterior with existing materials.*

SINGLE INDIVIDUAL

BATHROOM PLUMBING (carried through floor panel) IN BASEMENT TO CONNECT WITH LAUNDRY/MECHANICAL

LAUNDRY/
MECHANICAL

UNFINISHED BASEMENT

ALL ELECTRICAL OUTLETS ARE LOCATED IN SERVICE BLOCKS ATTACHED TO THE WALL PANELS, AND THE WIRES ARE CARRIED THROUGH FLOOR PANELS

BATHROOM PLUMBING IN SERVICE BLOCK AND CARRIED DOWN THROUGH FLOOR PANEL

BED

BATH

DN

LIVING

KITCHEN/DINING

LEVEL 1

KITCHEN PLUMBING CARRIED DOWN THROUGH THE FLOOR PANELS JOINING THE WALL, AND CONNECTING TO THE LAUNDRY/MECHANICAL AREA

SINGLE INDIVIDUAL

Interior Rooms:

The panels remain exposed and can be left natural or stained/painted. The floors are laid in the formation of the panels for future flexibility for change.

YOUNG COUPLE

2

1-2 bedroom - possible 1 bedroom and 1 office/den

1-2 bathrooms

kitchen/eating area combined

living room

small storage

access connections (hallways, stairs)

laundry/utilities

FRONT

YOUNG COUPLE

The next stage in this lifecycle suggests the growth from one person to a couple. This may require the expansion of spaces. As the income of the household increases these changes can be made possible.

The addition of a bedroom could be placed towards the back, and the original bedroom would now have the opportunity to make use of another function or remain as a spare room. The unfinished basement can also begin defining usable space. Here, an extra bathroom can be introduced. While it is a benefit to stack services for simplicity, this system does not require this to happen. Plumbing can be transferred through the service blocks and redirected to any location. The service block components can easily replace the original components, which can then be transferred to a different location for further use.

The *Spacial Form* expands back to allow for an extra room, providing more space. This also results in a slight change in the way the original space was used.

BACK

YOUNG COUPLE

1-2 bedroom - possible 1 bedroom and 1 office/den

1-2 bathrooms

kitchen/eating area combined

living room

small storage

access connections (hallways, stairs)

laundry/utilities

GROWTH
OF
ORIGINAL
FOOTPRINT

YOUNG COUPLE

FRONT

NEW ROOF
EXTENSION

NEW
EXTENSION
(BEDROOM)

BACK

NEW BACK DOOR

YOUNG COUPLE

AN ADDITION FOR AN EXTRA
BEDROOM WILL LEAVE THE ORIGINAL
BEDROOM OPEN FOR AN OFFICE SPACE

PARTIALLY FINISHED BASEMENT

LEVEL 1

YOUNG COUPLE

ALTERNATE FLOOR PLAN TO FIT TWO
BEDROOMS INSTEAD OF THE OPTION
FOR A ONE BEDROOM PLUS DEN

LEVEL 1

YOUNG COUPLE

COUPLE WITH YOUNG CHILDREN

3

2-3 bedrooms - small children can share rooms
2 bathrooms
office/den
kitchen/eating area
dining room
living room
play room
large storage
access connections (hallways, stairs)
laundry/utilities

The next stage in growth will expand the *Spacial Form* up to add a second level. This creates the opportunity to separate public and private space.

COUPLE WITH YOUNG CHILDREN

The third stage demonstrates growth at a larger scale. At this point the family is growing in numbers; the couple are planning on having children soon and now require more space and possibly a shift in the functioning of spaces.

The complete expansion of a second level is added to accommodate additional bedrooms. The prefabricated components proved relatively quite planning and assembly of the second level. The family could temporarily shift living into the basement or while this occurs. This would also be one of the trade-offs for this system. The possibility for easy vertical expansion at a lower cost than regular construction is achievable, however the household will still be put out for a period of time.

The ground floor adapts to the shifting bedrooms, now providing an opportunity for a different use of space. The office transitions into the living room while a new larger dining space can be placed where the living room once was. The basement continues to be finished with new spaces.

As this expansion for space would come at a cost, the family could transform the basement into a rental unit to provide an extra means in income to support this cost of expansion. This could be done by extending a kitchen below the existing one and proving an entrance into the basement through the redirection of the existing basement stairs. The basement rental unit would be accessed from the side of the house.

GROWTH OF
ORIGINAL
FOOTPRINT

Expand into second level

COUPLE WITH YOUNG CHILDREN

- 2-3 bedrooms - small children can share rooms
- 2 bathrooms
- office/den
- kitchen/eating area
- dining room
- living room
- play room
- large storage
- access connections (hallways, stairs)
- laundry/utilities

LEVEL 1

LEVEL 2

BASEMENT

COUPLE WITH YOUNG CHILDREN

ROOF IS LIFTED
INTO THE SAME
POSITION

EXPANSION UP
INTO SECOND
LEVEL

PART OF LEVEL
ONE DOES NOT
EXPAND UP

LEVEL ONE
KEEPS THE
SAME FOOT
PRINT

COUPLE WITH YOUNG CHILDREN

LEVEL 1

LEVEL 2

COUPLE WITH YOUNG CHILDREN

FINISHED BASEMENT

COUPLE WITH YOUNG CHILDREN

COUPLE WITH YOUNG CHILDREN

INTERIOR VIEW OF MAIN LEVEL WITH STAIRS LEADING TO THE SECOND LEVEL.

COUPLE WITH YOUNG CHILDREN

NEW
BEDROOM

TWO NEW
BATHROOMS

NEW
BEDROOM

BACK

COUPLE WITH GROWING CHILDREN

3-4 bedrooms

3 bathrooms

office/den

kitchen

dining room

living room

family room

large storage

access connections (hallways, stairs)

laundry/utilities

The spaces continue to shift in the fourth stage of this lifecycle. Small additions are made to redefine the way in which the interior rooms function. The children are growing and may require additional living space and more bedrooms.

The extension back on the first level has now expanded up to create another bedroom. This one small addition has created the opportunity for the functions on the main level to grow. Extra living space is now located where the main level office was and the office shifts to the second level in an open nook area. This same space could also be close off for an addition bedroom if an open space is not preferred.

4

GROWTH OF
ORIGINAL
FOOTPRINT

Expand into second level

COUPLE WITH GROWING CHILDREN

- 3-4 bedrooms
- 3 bathrooms
- office/den
- kitchen
- dining room
- living room
- family room
- large storage
- access connections (hallways, stairs)
- laundry/utilities

LEVEL 1

LEVEL 2

BASEMENT

COUPLE WITH GROWING CHILDREN

DOUBLE HEIGHT
SPACE CONVERTED
TO AN OPEN NOOK
ON THE SECOND
LEVEL FOR AN
OFFICE AREA

BACK EXTENSION
NOW GROWS
INTO THE
SECOND LEVEL

FRONT

FRONT

COUPLE WITH GROWING CHILDREN

LEVEL 1

LEVEL 2

COUPLE WITH GROWING CHILDREN

FINISHED BASEMENT

Spaces here are consistent with the previous; the physical space does not change after this stage, however the way in which they are used can change.

COUPLE AFTER CHILDREN LEAVE THE HOUSE

3-4 bedrooms

3 bathrooms

office/den

kitchen

dining room

living room

family room

small storage

access connections (hallways, stairs)

laundry/utilities

Once the children are grown and begin to leave the house, the house may require another slight change to reorganize functions. The possibility to remove part of the second level becomes an option. This option can be somewhat debatable whether it would be cost efficient or not. However, this system does offer the flexibility to make the choice; the equity rests in the ability to change the house, not necessarily in the current state of the house. Altering the layout does not automatically lower the equity, rather it temporarily adjusts the equity of the house and possibly lowering the taxes. This alteration of space (at a cost in the short term) could on the other hand reduce the cost in the long term through lower taxes, utility bills, and will require less maintenance. If the space is removed, the components could also be re-sold or stored for later use.

5

GROWTH OF
ORIGINAL
FOOTPRINT

Similar to the spaces in
Stage 3

COUPLE AFTER CHILDREN LEAVE THE HOUSE

- 3-4 bedrooms
- 3 bathrooms
- office/den
- kitchen
- dining room
- living room
- family room
- small storage
- access connections (hallways, stairs)
- laundry/utilities

LEVEL 1

LEVEL 2

BASEMENT

COUPLE AFTER CHILDREN LEAVE THE HOUSE

DOUBLE HEIGHT
SPACE CONVERTED
BACK
(Office nook
removed for double
height space)

SECOND LEVEL
BACK EXTENSION
DISASSEMBLED

The disassembled components for this stage could be resold or stored for possible future re-expansion. They could also be kept for the future re-sale of the house, giving new homeowners the tools they will need to expand in their own way.

COUPLE AFTER CHILDREN LEAVE THE HOUSE

COUPLE AFTER CHILDREN LEAVE THE HOUSE

FINISHED BASEMENT
Spaces do not change at this stage.

RETIRED

1-2 bedrooms

1-2 bathrooms

office/den

kitchen/dining room

living room

small storage

access connections (hallways, stairs)

laundry/utilities

6

GROWTH OF
ORIGINAL
FOOTPRINT

Similar to the spaces in
Stage 2

RETIRED

The last stage in this lifecycle can take on multiple different scenarios depending on different family circumstances. Once the children in the family have grown, moved out and lived their own life, the original couple is now left in the position to completely transform their house as there are a few options which would provide different pros and cons depending on the family's current situation. One option would be to continue with the disassembly of spaces, while considering the trade-offs and possible benefits. Another option would be to convert the single family house into a two family house through a transformation of the second level into a rental unit. Taking a look at the different options will demonstrate different ways in which this strategy can become adaptable to individual situations and circumstances.

OPTION ONE: The disassembly of the second level would provide a retired couple, who may have restricted mobility, the option to live on one level without the wasted space on the second level. This disassembly would come at a cost initially, however the components could be resold or left in storage for future resale and development as suggested in an earlier stage. On one hand the equity in the house may decrease if this level is removed, while on the other, the equity could be seen within the value of the ability to adapt. The possibility for month bills could reduce, which might benefit the retired couple as more retirees are on a fixed income and would benefit from lower monthly bills. This disassembly would allow the retired couple to live on their own, in the home in which they have spent a large period of time in.

RETIRED OPTION ONE: DISASSEMBLE

- 1-2 bedrooms
- 1-2 bathrooms
- office/den
- kitchen/dining room
- living room
- small storage
- access connections (hallways, stairs)
- laundry/utilities

LEVEL 1

BASEMENT

RETIRED - OPTION ONE: DISASSEMBLE

BEDROOM IS BACK ON THE MAIN FLOOR
WITH AN ENLARGED BATHROOM FOR EASY
MOBILITY AS RETIRED COUPLE AGES

FINISHED BASEMENT
Spaces do not change at this stage.

LEVEL 1

RETIRED OPTION ONE: DISASSEMBLE

INTERIOR VIEW OF MAIN LEVEL LOOKING FROM THE LIVING ROOM TOWARDS THE BACK CORNER

RETIRED - OPTION TWO: ADAPT TO A MULTIUNIT HOUSE

OPTION TWO: The second option may sound more appealing to some as the transition of spaces comes more easily than the complete disassembly of an entire level. The retired couple could inhabit the main level while converting the second level into a rental unit. This transition would require a lower cost while bringing income to the household, however the added responsibility of becoming a landlord may not sound appealing to all. This option would not be suited for everyone.

FINAL ALTERNATIVE An alternative solution at this point if neither would work would be to pass the house on to a family member or sell and relocate. The Con-temporary House provided many alternative solutions to different life cycles.

ADAPTING TO A SITE

One Level
Single Detached

Multiple Level
Single Detached

Semi-Detached

The Con-temporary House adapting to the individual family over time represents a possible scenario for the transformation of the house. Now, the house will be placed on a site to prove that it can be modified to fit within its conditions over time. The Con-temporary House will move through the same growth of the family, however the form and spaces may change based on the conditions of the site. The individual family should not only adapt the spaces to meet their needs, they should adapt the spaces to meet the needs of the site and have the site influence the spaces and forms.

The site chosen for this purpose is located at 125 Flora St. Ottawa, ON. This Centretown location consists of a variety of

mixed use buildings, both residential and commercial, as well as some green space, main roads and access to the highway. The site right now is occupied by a parking lot, however for the purpose of demonstrating the adaptability, this will be used as a site.

At this site the Con-temporary House will start as an individual family unit and demonstrate the possibility for growth within the community though the transition from a single detached to a semi-detached. The house will adapt to the individual family, the site and the influences from the surrounding area.

SITE DIMENSIONS

Frontage - 66 ft.

Depth - 99 ft.

Property Area - 6534 ft²

Double size property

125 Flora St. Ottawa, ON. - - -

SITE OBSERVATIONS

125 Flora St. Ottawa, ON.

The houses on this street are mostly two level single detached houses, however many other types of residential dwellings are being constructed. Some types of other housing in this area would include low rise apartments, three unit houses, semi-detached, townhouses, duplex and linked detached.

The exterior of the houses are mostly clad in brick, with some siding. The roofs are pitched with the ends facing the front and the entrances all maintain the same consistency with a porch.

Each detached house has a small one lane driveway with extra parking on the street.

ZONING

125 Flora St. Ottawa, ON. ZONING

The focus at the starting stage for The Con-temporary House will be on the single detached house zoning information. Later the house will adapt to a change in type, expanding to a semi detached house.

I Sub-Zone	II Prohibited Uses	III Principal Dwelling Types	IV Minimum Lot Width (m)	V Minimum Lot Area (m ²)	VI Maximum Building Height (m)	VII Minimum Front Yard Setback (m)	VIII Minimum Corner Side Yard Setback (m)	IX Minimum Rear Yard Setback (m)	X Minimum Interior Side Yard Setback (m)	XI End- notes (see Table 162B)
S	None	Planned unit development	na	1,400	as per dwelling type	3	3	varies1	varies1	1, 17
S	None	Apartment dwelling, low rise, Stacked	15	450	14.5, or if in a heritage overlay 11	3	3	varies3	varies3	3, 17
S	None	Three Unit	12	360	11	3	3	varies4	1.2	4, 17
S	None	Detached, Duplex, Linked- detached	9	270	11	3	3	varies4	varies8	4, 8, 17
S	None	Townhouse, Semi- detached	5.6	165	11	3	3	varies4	1.2	4, 17

"Zoning." Ottawa.ca. City of Ottawa, n.d. Web. Dec. 2013.

INITIAL ADAPTION TO THE SITE

The beginning stage for the adaption to the site only require a few changes to receive a sense of consistency. The basic functions of the house remain the same and the space in which this occurs does not change. The site is large enough to keep the initial Spatial Form with room for further expansion. Small details such as the arrangement of windows is slightly reorganized with respect to the surrounding houses to provide enough privacy. The house will adapt to the site in a more meaningful way later in time as the house type develops in the space provided.

Some sites may permit for the construction of a one level single detached house, however this may not be the case for 125 Flora. A one level house might not pass city requirements for an infill project in this location. If this is the case then the house could either jump right to a double level single detached or the second level could be built as a rental unit. This scenario would provide the family with the extra income that would probably be needed to even afford living in this location. The actual cost of the components and assembly would not change from the original stand alone form demonstration, however the site generates an extra cost, especially since this location, near the downtown core, can be quite expensive.

SINGLE INDIVIDUAL - PLACEMENT IN THE SITE

1 bedroom

1 bathroom

kitchen/eating area- possible island with bar and bar stools

living room

small storage

access connections (hallways, stairs)

laundry/utilities

To show the progression of the house from a single unit, transforming with the family, and then transforming with the community, the initial placement in the site will be of a one level single detached house.

SINGLE INDIVIDUAL - MANIPULATION OF COMPONENTS

THE SITE HAS INFLUENCED A CHANGE IN ORIENTATION
OF THE ROOF'S PITCH, AS WELL AS AN ADDED PORCH

THE ROOF COMPONENTS REARRANGE POSITION

ORIGINAL ORIENTATION OF
ROOF COMPONENTS

FRONT

SITE INFLUENCES ORIENTATION OF
ROOF COMPONENTS

SINGLE INDIVIDUAL - INTERIOR FUNCTIONS

UNFINISHED BASEMENT

THE SITE HAS NOT CHANGED THE FLOOR PLAN, HOWEVER THE BEDROOM WINDOWS HAVE CHANGED FOR MORE PRIVACY DUE TO THE CLOSE PROXIMITY TO NEIGHBOURS.

LEVEL 1

SINGLE INDIVIDUAL - INITIAL ADAPTION TO THE SITE

The steeply pitched roof and materials help to define a consistency on the street. The possibility to continue vertical growth that this system employs may provided acceptance in regards to any restrictions towards infill projects. Just having the adaptability within the design system could turn out to be somewhat appealing for future development, thus allowing for the initial assembly of the single level house to occur.

A CHANGE IN FORM

The house changes form through the addition of the second level. The growth of the family could require more space or depending on circumstances, the family may be in search of gaining equity through an income unit. This design strategy gives way to a variety of options according to the individual adaptability required by the family.

COUPLE WITH YOUNG CHILDREN - A CHANGE IN FORM

2-3 bedrooms - small children can share rooms

2 bathrooms

office/den

kitchen/eating area

dining room

living room

play room

large storage

access connections (hallways, stairs)

laundry/utilities

The *Spatial Form* grows with the family in the site as it would as a stand alone form. The house, as a detached , will transition over time to become a home to more than one family through defining a linking wall in the next stage.

HOUSING TYPE GROWTH- ADAPTING TO THE SITE

The expansion of the single detached house to a semi-detached house can be made possible first, through determining a linking wall and then second, starting the removal of the exterior materials, including the windows. Once the openings from the windows are made, they can be fitted by extra panel parts though inking into place. An additional wall can be assembled and linked directly to the wall of the detached house for complete separation between units. The Floor panels and framing for the new unit start to form. Everything is built from the ground up, level by level. This unit

will be more narrow than the original Spatial Form to adapt to the site conditions. The starting point for this unit will consist of a main level with a kitchen, dining room, living room and powder room, and the second level will start with two bedrooms and a full bathroom. This additional unit could still grow back as well as up into the second level. Once this addition is assembled, the Contemporary House has begun the process of transforming the streets housing types, from single detached houses to multiple linked dwellings. This house was manipulated within the site for the growth of a new family.

HOUSING TYPE GROWTH- ADAPTING TO THE SITE

REMOVE THE EXTERIOR SKIN
SO THE LINKING WALL IS
BACK TO THE BARE SHELL.

ASSEMBLE THE
BASE FOOTPRINT AND THE
STRUCTURE UP TO LINK IN
THE FRAMES AND PANELS

LINK IN PANELS WHERE
THE OPENING OF THE
WINDOWS WERE TO CRE-
ATE A SOLID WALL

START TO ASSEMBLE THE
WALLS AND BUILD UP
LEVEL BY LEVEL

HOUSING TYPE GROWTH- ADAPTING TO THE SITE

EXPANSION INTO THE
SECOND LEVEL

THE ROOF IS ADDED NEXT,
THE FINAL STEP IN
COMPLETING THE SHELL

THE LAST STEP TO COMPLETE THE UNIT IS TO
ADD THE EXTERIOR MATERIALS (ROOF
SHINGLES, CLADDING, ETC) AS WELL AS THE
INTERIOR MATERIALS AND FIXTURES

A CHANGE IN HOUSING TYPE | A CHANGE ON THE STREET

A CHANGE IN HOUSING TYPE | AN ASSEMBLY OF MULTIPLE UNITS

The house at the beginning of this lifecycle started as a single detached house. Due to changes in family lifecycles and community needs, the house was able to transform through the adaptability of components to an assembly of multiple units. This growth in a house can generate the growth in the community.

CONCLUSIONS. ADAPTING TO TIME

How does this *Con-temporary* House design strategy adapt to time?

Thinking about the changing world, growing population and influences for design, this house strategy can also grow within the community. Can the same qualities of a home—privacy, individualism, growth—be incorporated into housing? The flexibility of this strategy allows for the growth of an individual house to evolve into a multiple housing unit through the linking of prefabricated components and the adaptability to change the linking wall to allow for appropriate connections. It can grow from a single, to a semi, or to a series of row houses, permitting there is space surrounding the original house. This can be made possible through the proposed design strategy focusing on individual adaptability through the process of assembly and disassembly of individual components and the infinite arrangements made possible through modular design.

The Con-temporary House is made adaptable at a small and large scale. In terms of a house, as the small scale, it is adaptable to many different family types and their needs as time passes. The spaces within the house can be easily arranged for different functions and can give opportunities for outward expansion when the family grows. The adaptability of the house at a large scale focuses on the community. The house can be adaptable to different community types, such as a community of single detached houses, semi-detached houses or even row house, as well as adaptability towards a mixed community of different types of families. The different variations of the housing types which can be created change the type of community.

Relating back to the original thesis question; ***Can there be a home that can grow and change with a family's evolution personally, economically, and socially and that can adjust to any and all needs within all stages in the family's lifecycle?***

The Con-temporary House sets to design a strategy for such a home that does grow and change with the family at all levels of adaptability through individuality, affordability and its position within the community. As demonstrated, the prefabricated components generate the spaces to be manipulated by the individual family. In any situation there are multiple different scenarios that can occur. The advantage to this system of small individual components is that it does provide many ways for the house design to become adaptable to any situation. The Con-temporary House design strategy is a means to provide the individual family the opportunity to grow within their own home with the freedom to evolve in their own unique space and time.

POSTSCRIPT

The concept for the Con-temporary House is clear in the general understanding of adaptability. This understanding accomplishes the ground work for defining different degrees of adaptability to which the strategy aims to achieve. If this degree of adaptability can be achieved through the assembly and disassembly of the prefabricated components, then the notion of the Con-temporary House will be successful. However, a more in-depth knowledge of the technical aspects of the components may be required to test this theory of how adaptable they will become. Continued research would involve a look into many more prefabrication manufacturers to see what actually does and does not work within the use of prefabricated parts in house design. This would clarify the theory behind the actual success of the components and determine if there may need to be alterations in the design of them for the concept to thrive.

APPENDICES

A Case Study was conducted to determine preferences within the house design amongst different family types. The purpose of this questionnaire was to determine if there are any key elements in the house design which are consistent amongst different family types. This questionnaire was only intended to serve the purpose of curiosity and was not intended to demonstrate actual statistics.

Below is a an insert from the Case Study conducted. This statement was placed at the begining of each Case Study to inform the participant the purpose and intended use of the information.

The Contemporary House:
The Process Towards an Individual Home

CASE STUDY QUESTIONNAIRE:

Determining what families look for in a home.

Please answer any/all questionthat you are comfortable with based on what you and your family require in a home. These answers should be based on whether you are looking to buy a home, renovate,build from new or what you would want in the future for you and your family.

The purpose of this questionnaire is to determine if there are any key elements in the house design which are consistent amongst different family types, and possibly which elements are unique to a specific family type. These common elements will be considered and incorporated into a strategy for designing the contemporary house which can then be classified as both unique to the individual and have a consistency within the public realm.

Please state whether you would like to remain anonymous as the information will be used for the purposes of a thesis for the degree of Master of Architecture. It will be submitted to the Faculty of Graduate Studies and Research at Carleton University.

APPENDICES

Case Study #1

FAMILY | HOUSEHOLD TYPES

Family Type (How would you describe your family?): *bachelorette*

Number of people in the household: *1*

TYPE OF ROOMS NEEDED

Number of bedrooms required and any specific needs: *2, ample closet space in each room, overhead lighting, large windows*

Number of bathrooms required and any specific needs: *1 plus master ensuite*

Family room and living room? Or just one? Specific size needed? *Only need one, no specific size...average*

How do you use your kitchen? Frequently? Every meal? Rarely ever? *Almost every meal*

Formal dining room or eat in kitchen? Or both? How often do you use them? *Both, eat in-often, formal-sometimes*

Is an office/den/library required? *yes*

Games room/recreational room? *no*

Is a garage needed? If yes, attached or detached? *Not a necessity*

Any extra storage needed? Either storage rooms or only closets? *Plenty of closets*

Do you need a basement or attic? *no*

Are there any other unique rooms needed? *no*

Are outdoor spaces important? To what extent? *Yes, would want a back outdoor space with deck and garden, trees, for entertaining purposes/individual enjoyment*

PUBLIC | PRIVATE SPACES AND LAYOUT

Public - kitchen, dining, living, etc.

Private - bedrooms, office, bathrooms. etc.

How many storeys? Or is a bungalow better suited? Or Split level? *bungalow*

How would you like public and private spaces separated? Left and right? Up and down? Front and back? Or some kind of integration between all types of spaces? *Front and back*

Open concept or closed off separation of spaces? *Open-ish concept but with a clear distinction of rooms,*
Are outdoor spaces considered an extension of the interior or completely separate spaces? *Extension*

MATERIALS | FORM | FUNCTION

Do you prefer any specific materials for the exterior? *no*

Is the style of roofline important? Do you have a preference? *no*

Are you interested in any specific exterior features? (ex. porch, deck, balcony...) *deck, porch,*

What type of interior floor? Hard wood? Carpet? Tile? Something different? One type throughout or a combination of different materials depending on room? *Hardwood in most of the house, tile in bathroom (maybe kitchen)*

Exposed structure? *no*

Natural materials exposed or concealed structure with drywall? (ex. brick/wood wall) *concealed*

Are you interested in green/sustainable products? If yes, what specifically? *No opinion*

Long lasting materials or something that is easy to change later, or both? *Long lasting*

How do you see light in your home? Large picture windows to let light in and set view outward? Clerestory windows to allow for more privacy but still let in light where needed? *Floor to ceiling windows throughout to create an open feel between interior and exterior? Large picture windows throughout most of house...perhaps floor to ceiling on back leading to yard*

Any other interior/exterior preferences? *French doors leading to back, internal fireplace, ample lighting both natural and artificial,*

How does furniture affect your spaces? Built in furniture? Or pieces which can be rearranged easily? *Needs to be changeable, easily rearranged. Not cluttered or shoved into too small a space.*

LIFESTYLE

How do you spend your days? *working*

How do you spend your nights? *Relaxing, reading, watching tv, spending time with friends etc.*

How do you spend your weekends? *Relaxing, reading, watching tv, spending time with friends, going out*

Do you entertain frequently? Or tend to visit others? *both*

Describe your lifestyle and habits in your home: *relaxed, comfortable*

Any other comments as to what you look for in a home? Do you think that your home will need to adapt to your lifestyle as time passes? (ex. growing family) *yes, it would need to be able to adapt*

Thank you for your participation!

APPENDICES

Case Study #2

FAMILY | HOUSEHOLD TYPES

Family Type (How would you describe your family?): *Mom/Dad with children (1)*

Number of people in the household: *3*

TYPE OF ROOMS NEEDED

Number of bedrooms required and any specific needs: *2 bedrooms. Parents. Children. If +2 children, 3rd bedroom needed.*

Number of bathrooms required and any specific needs: *1 bathroom.*

Family room and living room? Or just one? Specific size needed? *Family room only needed. Large, bright, square, access to kitchen sight.*

How do you use your kitchen? Frequently? Every meal? Rarely ever? *frequently. Every meal.*

Formal dining room or eat in kitchen? Or both? How often do you use them? *Both. 3 meals a day.*

Is an office/den/library required? *Yes. Both parents self employed, office needed.*

Games room/recreational room? OR yard. *One or the other.*

Is a garage needed? If yes, attached or detached? *Yes. For work space / not for car necessarily.*

Any extra storage needed? Either storage rooms or only closets? *Recycling / Garage area*

Do you need a basement or attic? *no.*

Are there any other unique rooms needed? *Mudroom for entry and exit 'stuff'.*

Are outdoor spaces important? To what extent? *Huge importance. Esp, for children to play.*

PUBLIC | PRIVATE SPACES AND LAYOUT

Public - kitchen, dining, living, etc.

Private - bedrooms, office, bathrooms. etc.

How many storeys? Or is a bungalow better suited? Or Split level? *Bungalow!*

How would you like public and private spaces separated? Left and right? Up and down? Front and back? Or some kind of integration between all types of spaces? *left and right.*

Open concept or closed off separation of spaces? *open concept for public, closed off for private.*

Are outdoor spaces considered an extension of the interior or completely separate spaces? *continuation from interior.*

MATERIALS | FORM | FUNCTION

Do you prefer any specific materials for the exterior? *Natural. Raw.*

Is the style of roofline important? Do you have a preference? *High ceiling inside. If bungalow, steep roof line.*

Are you interested in any specific exterior features? (ex. porch, deck, balcony...) *welcoming porch.*

What type of interior floor? Hard wood? Carpet? Tile? Something different? One type throughout or a combination of different materials depending on room? *Natural Raw. Timber.*

Exposed structure? *Yes.*

Natural materials exposed or concealed structure with drywall? (ex. brick/wood wall) *exposed.*

Are you interested in green/sustainable products? If yes, what specifically? *Insulation - no foam. Foundation systems and roof sheathings.*

Long lasting materials or something that is easy to change later, or both? *Long lasting natural - like stone.*

How do you see light in your home? Large picture windows to let light in and set view outward? Clerestory windows to allow for more privacy but still let in light where needed? Floor to ceiling windows throughout to create an open feel between interior and exterior? *Picture windows.*

Any other interior/exterior preferences? *A shaded space AND a sunny space.*

How does furniture affect your spaces? Built in furniture? Or pieces which can be rearranged easily? *Both. Love built ins!*

LIFESTYLE

How do you spend your days? *Out and about running errands.*

How do you spend your nights? *Making meals, watching TV, bathing baby for bed and working on lap top in family room.*

How do you spend your weekends? *At the cottage.*

Do you entertain frequently? *Or tend to visit others? Welcome guests often.*

Describe your lifestyle and habits in your home: *Kitchen based. Always in that room.*

Any other comments as to what you look for in a home? Do you think that your home will need to adapt to your lifestyle as time passes? (ex. growing family) *Rooms that can change purposes. (children's bedroom becomes office etc)*

Thank you for your participation!

APPENDICES

Case Study #3

FAMILY | HOUSEHOLD TYPES

Family Type (How would you describe your family?): *Just me right now*

Number of people in the household: *1*

TYPE OF ROOMS NEEDED

Number of bedrooms required and any specific needs: *1 bedroom and den.*

Number of bathrooms required and any specific needs: *1 large with a big bathtub and 2 sinks.*

Family room and living room? Or just one? Specific size needed? *Family room only with a fireplace.*

How do you use your kitchen? Frequently? Every meal? Rarely ever? *Depends on the week. Often in the evening.*

Formal dining room or eat in kitchen? Or both? How often do you use them? *Both. Depending on occasion. Sometimes on the couch.*

Is an office/den/library required? *Would be nice yes.*

Games room/recreational room? *Not required right now.*

Is a garage needed? If yes, attached or detached? *Yes and attached.*

Any extra storage needed? Either storage rooms or only closets? *Storage is always good.*

Do you need a basement or attic? *No.*

Are there any other unique rooms needed? *No.*

Are outdoor spaces important? To what extent? *Very important.*

PUBLIC | PRIVATE SPACES AND LAYOUT

Public - kitchen, dining, living, etc.

Private - bedrooms, office, bathrooms. etc.

How many storeys? Or is a bungalow better suited? Or Split level? *At the moment something small.*

How would you like public and private spaces separated? Left and right? Up and down? Front and back? Or some kind of integration between all types of spaces? *Private on top and public on bottom with an interesting logical integration of both.*

Open concept or closed off separation of spaces? *Open in public and more closed in private.*

Are outdoor spaces considered an extension of the interior or completely separate spaces? *Extensions are more poetic.*

MATERIALS | FORM | FUNCTION

Do you prefer any specific materials for the exterior? *Natural material.*

Is the style of roofline important? Do you have a preference? *Not at the moment.*

Are you interested in any specific exterior features? (ex. porch, deck, balcony...): *All of them.*

What type of interior floor? Hard wood? Carpet? Tile? Something different? One type throughout or a combination of different materials depending on room? *Combination. Hard wood in some areas and tiles in other.*

Exposed structure? *Yes in some areas.*

Natural materials exposed or concealed structure with drywall? (ex. brick/wood wall): *Exposed.*

Are you interested in green/sustainable products? If yes, what specifically? *Terms are often misused.*

Long lasting materials or something that is easy to change later, or both? *Long lasting.*

How do you see light in your home? Large picture windows to let light in and set view outward? Clerestory windows to allow for more privacy but still let in light where needed? Floor to ceiling windows throughout to create an open feel between interior and exterior? *Large picture windows to let light in and set view outward*

Any other interior/exterior preferences? *Large yard, landscaping and privacy fence.*

How does furniture affect your spaces? Built in furniture? Or pieces which can be rearranged easily? *I would build in some furniture and also add temporary.*

LIFESTYLE

How do you spend your days? *Work*

How do you spend your nights? *Relaxing with friends or at home.*

How do you spend your weekends? *Usually out doing things.*

Do you entertain frequently? Or tend to visit others? *At the moment visit others. But if had my own home would entertain.*

Describe your lifestyle and habits in your home: *tv, baths, cooking, sleeping.*

Any other comments as to what you look for in a home? Do you think that your home will need to adapt to your lifestyle as time passes? (ex. growing family) *When I get a home it would absolutely need to adapt to my lifestyle and the potential size of the family.*

Thank you for your participation!

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IMAGE INDEX

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Figure 2: Riley, Terence. The Un-private House. New York: Museum of Modern Art, 1999. Print. P. 72.

Figure 3: Riley, Terence. The Un-private House. New York: Museum of Modern Art, 1999. Print. P.74

Figure 4: Riley, Terence. The Un-private House. New York: Museum of Modern Art, 1999. Print. P. 73

Figure 5: Riley, Terence. The Un-private House. New York: Museum of Modern Art, 1999. Print. P.75

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Figure 14: Friedman, Avi. *The Grow Home*. Montréal: McGill-Queen's UP, 2001. Print. P.45.

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Figure 16: Friedman, Avi. *The Grow Home*. Montréal: McGill-Queen's UP, 2001. Print. P.42.

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Figure 18: Friedman, Avi. *The Grow Home*. Montréal: McGill-Queen's UP, 2001. Print. P.49.

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Figure 25: Froebel Kindergarten Gifts Early Childhood Education History of Toys. Friedrich Froebel Kindergarten Curriculum Educational Method. Froebel USA, 21 Mar. 2012. Web. 25 Feb. 2013.

Figure 26: Froebel Kindergarten Gifts Early Childhood Education History of Toys. Friedrich Froebel Kindergarten Curriculum Educational Method. Froebel USA, 21 Mar. 2012. Web. 25 Feb. 2013.

Figure 27: Froebel Kindergarten Gifts Early Childhood Education History of Toys. Friedrich Froebel Kindergarten Curriculum Educational Method. Froebel USA, 21 Mar. 2012. Web. 25 Feb. 2013.

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